

**STOCK REPORTING SYSTEM FOR
SALMONLY CAFÉ**

**WAN NUR ALWANI BINTI BEREN RAFIZAL
AM2408016769**

UNIVERSITI POLY-TECH MALAYSIA

**STOCK REPORTING SYSTEM FOR SALMONLY CAFÉ
CATEGORY A**

WAN NUR ALWANI BINTI BEREN RAFIZAL

**THIS FINAL YEAR PROJECT REPORT IS PREPARED TO FULFILL THE
REQUIREMENT OF
DIPLOMA IN COMPUTER SCIENCE**

**FACULTY OF COMPUTING & MULTIMEDIA
UNIVERSITI POLY-TECH MALAYSIA**

APRIL 2026

Declaration of Originality

This project is all my own work and has not been copied in part or in whole from any other source except where duly acknowledged. As such, all use of previously published work (from books, journals, magazines, internet, etc.) has been acknowledged within the main report to an item in the References or Bibliography lists.

I also agree that an electronic copy of this project may be stored and used for the purposes of plagiarism prevention and detection.

Copyright Acknowledgement

I acknowledge that the copyright of this project and report belongs to Universiti Poly-Tech Malaysia.

Author's Signature:



Date: 7/4/2026



Coordinator / Office Stamp

Abstract

Stock Reporting System for Salmonly Café aims to make inventory management easier for staff and owner of Salmonly Café. This project is about fixing how Salmonly Café handles its stock. Right now, they do everything by hand, which takes a lot of time and often leads to mistakes. This manual way means they don't always have the right stock numbers, reports are slow, and it's hard for the boss to make quick decisions. So, we're building a new web-based system to manage all the stock info and create reports automatically.

Our system will focus on a few key things which makes it easy to record when stock comes in and goes out, letting the café owner see what's in stock right away, and automatically generating reports that help with planning. We're using Node.js for the backend, MySQL for the database, and HTML, CSS, JavaScript for the look and feel. This setup will help us create a system that's easy to use and can grow with the café. Staff can update stock levels simply, and the owner can check stock anytime, see reports, and understand what's being used.

We believe this new system will make daily operations smoother, cut down on stock problems, and help Salmonly Café manage its resources better, which means a more successful business overall.

Table of Contents

CHAPTER 1	14
INTRODUCTION	14
1.1 Introduction	14
1.2 Problem Statements	16
1.2.1 Manual Stock Recording	16
1.2.2 Lack of Real-Time Stock Information	16
1.2.3 Difficulty in Generating Stock Reports	16
1.3 Project Objectives	17
1.3.1 To develop a centralized Stock Reporting System that replaces manual stock recording process	17
1.3.2 To allow café owner monitor current stock level in real-time	17
1.3.3 To generate automated stock reports for management decision-making	17
1.4 Scope and Target User	18
1.4.1 Project Scope	18
1.4.2 Product Scope	18
1.4.3 Target User.....	19
1.5 Project Requirement	19
1.5.1 Hardware Requirement.....	19
1.5.2 Software Requirement	20
1.6 Conclusion	20
CHAPTER 2	21
LITERATURE REVIEW	21
2.1 Introduction	21
2.2 Investigation	22
2.3 Previous Case Study	25
2.3.1 Case Study 1: Odoo	25
2.3.2 Case Study 2: ECount	27
2.3.3 Case Study 3: Mekari Jurnal	32
2.4 Comparison	36
2.5 Discussion	37
2.6 Conclusion	38
CHAPTER 3	39
METHODOLOGY	39
3.1 Introduction	39
3.2 Agile Methodology	40
3.3 Phases in Agile Methodology	41
3.3.1 Phase 1: Plan	41
3.3.2 Phase 2: Design	41
3.3.3 Phase 3: Develop	42
3.3.4 Phase 4: Test	42
3.3.5 Phase 5: Deploy	42
3.3.6 Phase 6: Review.....	43

3.4 Data Gathering and Requirement	43
3.4.1 User Requirement Analysis.....	43
3.5 Interface Design	50
3.5.1 Wireframe.....	50
3.5.2 Actual Interface.....	59
3.6 System and Application Modelling	91
3.6.1 Flowchart.....	91
3.6.2 Use Case Diagram.....	94
3.6.3 Entity Relational Diagram.....	96
3.6.4 Data Dictionary.....	97
3.7 Conclusion	101
CHAPTER 4	102
FINDINGS AND RESULTS	102
4.1 Introduction	102
4.2 System Evaluation	103
4.2.1 Unit Testing.....	104
4.2.2 Integration Testing.....	111
4.2.3 System Testing.....	116
4.2.4 User Acceptance Testing.....	118
4.3 Discussion	124
4.4 Conclusion	125
CHAPTER 5	126
CONCLUSION	126
5.1 Introduction	126
5.2 Project Achievement	126
5.2.1 First Objective.....	127
5.2.2 Second Objective.....	128
5.2.3 Third Objective.....	129
5.3 Project Constraint and Limitation	131
5.4 Recommendation and Future Work	132
5.5 Conclusion	133
Appendix A – Questionnaire	134
Appendix B – User Manual	141
References	142
Originality Result	145

List of Figures

Figure 2.1: Odoo Website	22
Figure 2.2: Odoo Inventory Dashboard	22
Figure 2.3: Product List	23
Figure 2.4: Inventory Overview	23
Figure 2.5: Item Receipt	23
Figure 2.6: ECount Website	24
Figure 2.7: ECount Dashboard	25
Figure 2.8: ECount Dashboard 1	25
Figure 2.9: Purchase List	26
Figure 2.10: Sales List	27
Figure 2.11: Sales List in Excel	27
Figure 2.12: Payroll Employee	28
Figure 2.13: Mekari Jurnal	29
Figure 2.14: Jurnal Dashboard	30
Figure 2.15: Jurnal Dashboard 1	30
Figure 2.16: Jurnal Dashboard 2	30
Figure 2.17: Product	31
Figure 2.18: Purchases	32
Figure 3.1: Figure Agile Methodology (Kumar, A, 2025)	37
Figure 3.2: User questionnaire 1	41
Figure 3.3: User questionnaire 2	41
Figure 3.4: User questionnaire 3	42
Figure 3.5: User questionnaire 4	42
Figure 3.6: User questionnaire 5	43
Figure 3.7: User questionnaire 6	43
Figure 3.8: User questionnaire 7	44
Figure 3.9: User questionnaire 8	44
Figure 3.10: User questionnaire 9	45
Figure 3.11: User questionnaire 10	45
Figure 3.12: User questionnaire 11	46
Figure 3.13: User questionnaire 12	46
Figure 3.14: Login Page	47
Figure 3.15: Register Page	47
Figure 3.16: About Us Page	48
Figure 3.17: User Manual Page	48
Figure 3.18: Admin Dashboard Page	49

Figure 3.19: Admin Dashboard Page 1	49
Figure 3.20: Admin Inventory Page	50
Figure 3.21: Admin Inventory Page 1	50
Figure 3.22: Admin Reports Page	50
Figure 3.23: Admin View Staff Page	51
Figure 3.24: Admin Schedule Page	51
Figure 3.25: Admin Settings Page	52
Figure 3.26: Admin Profile Page	52
Figure 3.27: Admin Profile Page 1	52
Figure 3.28: Staff Dashboard Page	53
Figure 3.29: Staff View Stock Page	53
Figure 3.30: Staff Reports Page	54
Figure 3.31: Staff Reports Page 1	54
Figure 3.32: Staff Settings Page	55
Figure 3.33: Staff Profile Page	55
Figure 3.34: Staff Profile Page 1	55
Figure 3.35: Login Page	56
Figure 3.36: Login Page with Validation	56
Figure 3.37: Login Page with Validation 1	56
Figure 3.38: Register Page	57
Figure 3.39: Register Page 1	57
Figure 3.40: Register Page with Validation	58
Figure 3.41: Register Page with Validation 1	58
Figure 3.42: Register Page with Validation 2	58
Figure 3.43: Register Page Successful	58
Figure 3.44: About Us Page	59
Figure 3.45: About Us Page 1	59
Figure 3.46: About Us Page 2	59
Figure 3.47: About Us Page 3	60
Figure 3.48: About Us Page 4	60
Figure 3.49: About Us Page 5	60
Figure 3.50: About Us Page 6	61
Figure 3.51: User Manual Page	62
Figure 3.52: User Manual Page 1	62
Figure 3.53: User Manual Page 2	62
Figure 3.54: User Manual Page 3	63
Figure 3.55: User Manual Page 4	63
Figure 3.56: User Manual Page 5	64
Figure 3.57: User Manual Page 6	64

Figure 3.58: User Manual Page 7	64
Figure 3.59: Admin Dashboard Page	65
Figure 3.60: Admin Dashboard Page 1	65
Figure 3.61: Admin Inventory Page	66
Figure 3.62: Admin Inventory Page 1	66
Figure 3.63: Add New Item Modal	67
Figure 3.64: Add New Item Modal 1	67
Figure 3.65: Add New Item Modal with Dropdown	67
Figure 3.66: Add New Item Modal with Dropdown 1	67
Figure 3.67: Add Stock Modal	68
Figure 3.68: Add Stock Modal with Dropdown	68
Figure 3.69: Remove Stock Modal	68
Figure 3.70: Remove Stock Modal with Dropdown	68
Figure 3.71: Edit Item Modal	69
Figure 3.72: Edit Item Modal 1	69
Figure 3.73: Delete Item	69
Figure 3.74: Admin Reports Page	70
Figure 3.75: Admin Reports Page 1	70
Figure 3.76: Daily Stock Reports PDF	71
Figure 3.77: Overall Stock Report PDF	71
Figure 3.78: Stock Report CSV	71
Figure 3.79: Admin View Staff Page	72
Figure 3.80: Admin View Staff Page 1	72
Figure 3.81: Edit Staff Modal	73
Figure 3.82: Delete Staff	73
Figure 3.83: Admin Schedule Page	74
Figure 3.84: Admin Schedule Page 1	74
Figure 3.85: Add Shift Modal	75
Figure 3.86: Admin Settings Page	76
Figure 3.87: Admin Settings Page 1	76
Figure 3.88: Settings Notification Tab	77
Figure 3.89: Settings Notification Tab 1	77
Figure 3.90: Edit Settings Notification Tab	77
Figure 3.91: Settings Appearance Tab	78
Figure 3.92: Settings Appearance Dark Mode	78
Figure 3.93: Settings System Tab	79
Figure 3.94: Reset All Settings	79
Figure 3.95: Admin Profile Page	80
Figure 3.96: Admin Profile Page 2	80

Figure 3.97: Staff Dashboard Page	81
Figure 3.98: Staff Dashboard Page 1	81
Figure 3.99: Staff View Shift Modal	82
Figure 3.100: Staff View Stock Page	83
Figure 3.101: Staff View Page 1	83
Figure 3.102: Update Daily Stock Modal	84
Figure 3.103: Staff Reports Page	85
Figure 3.104: Staff Reports Page 1	85
Figure 3.105: Staff Reports Page 2	85
Figure 3.106: Staff Settings Page	86
Figure 3.107: Staff Settings Page 1	86
Figure 3.108: Staff Profile Page	87
Figure 3.109: Staff Profile Page 1	87
Figure 3.110: Admin Flowchart	89
Figure 3.111: Staff Flowchart	90
Figure 3.112: Use Case Diagram	92
Figure 3.113: Entity Relational Diagram	93
Figure 4.1: User questionnaire 1	115
Figure 4.2: User questionnaire 2	115
Figure 4.3: User questionnaire 3	116
Figure 4.4: User questionnaire 4	116
Figure 4.5: User questionnaire 5	117
Figure 4.6: User questionnaire 6	117
Figure 4.7: User questionnaire 7	118
Figure 4.8: User questionnaire 8	118
Figure 4.9: User questionnaire 9	119
Figure 4.10: User questionnaire 10	119
Figure 4.11: User questionnaire 11	120
Figure 4.12: User questionnaire 12	120
Figure 5.1: Record Stock-In	127
Figure 5.2: Record Stock-Out	127
Figure 5.3: Admin Live Status Activity	128
Figure 5.4 Staff Live Status Activity	128
Figure 5.5: Daily Stock Reports	129
Figure 5.6: Overall Stock Reports	129
Figure 5.7: Daily Stock Report PDF	130

Figure 5.8: Overall Stock Report PDF	130
Figure 5.9: Stock Report CSV	130

List of Tables

Table 1.1: Hardware Requirements	19
Table 1.2: Software Requirements	20
Table 2.1: Comparison of Existing Project	36
Table 3.1: users data dictionary	97
Table 3.2: categories data dictionary	98
Table 3.3: stock_transactions data dictionary	98
Table 3.4: shifts data dictionary	99
Table 3.5: user_settings data dictionary	99
Table 3.6: products data dictionary	100
Table 4.1: Admin Unit Testing	104
Table 4.2: Staff Unit Testing	108
Table 4.3: Integration testing	111
Table 4.4: System Testing	117

Acknowledgements

First and foremost, I extend my deepest gratitude to Allah (SWT) for His guidance, blessings, and the strength throughout the journey of this Final Year Project. Without His permission and assistance, the "Stock Reporting System for Salmonly Café" project would not have been completed successfully.

I would also like to express my sincere appreciation to my supervisor, Madam Nor Hafiza Binti Samad, for her invaluable advice, feedback, and unwavering support during the process of building this Stock Reporting System. Her patience, expertise, and encouragement were the major factors in keeping me on track and helped me meet all the project goals. I am truly lucky to have had her as my mentor.

My gratitude also goes to Madam Noraliza Binti Azizan, my examiner and coordinator, whose critical observations and suggestions has improved the quality and content of this project. Her consistent support and assistance throughout the course of this work were important in ensuring its smooth progress and successful completion.

Particular mention also goes to my family members, especially my mother. Their prayers, encouragement, and financial support were my biggest motivation. Not only that, their advice helped shape this project, and their ideas were really important for its success.

Lastly, I would like to extend my heartfelt appreciation to everyone who assisted me in making this project successful, especially my precious friends. Their feedback, trust, and cooperation have been priceless, and I'm grateful to each individual who supported me every step of the way.

CHAPTER 1

INTRODUCTION

1.1 Introduction

In the food and beverage (F&B) industry, effective inventory and stock management had become one of the key factors that determined the success of a business. Cafes and restaurant that had a good stock management plays an important role in ensuring smooth daily operations. Not only that, it also reduced waste of cost and ensuring customer satisfaction. On the other side, café with a poor stock management lead to various issues that messed up business performance. For instance, issues such as shortages of ingredients, overstocking, and financial losses often happen in most business. Studies have proven that having a poor inventory control is the critical factor that cause numerous damages to a company (*Seidor, 2022*).

Salmonly Café is among other cafes that had problems with their inventory control because they rely on manual systems for recording all stock-in/stock-out activities. With this When an employee records stock-in and stock-out items, he has to update inventory records every day manually. The process is not only very time-consuming but can also be inconsistent if many customers come in at once or staff members need to catch up before the café closes down.

Salmonly Café also struggles to create timely and accurate inventory reports. Because staff records inventory manually, it is hard for staff and management to track inventory in real-time and to produce accurate inventory reports. Due to this, management finds it very difficult to access accurate information to make decisions about purchases, menu development and costing. Studies show that latency of data has multiple impacts on the ability to make decisions based on data-driven planning. Studies have shown that data latency has several effects on decision-centric planning which can delay decision-making and make it difficult for managers from responding quickly to changes in dynamic supply chain environment (*albert, 2024*).

A digital stock management and reporting system can improve the efficiency and accuracy of inventory management in the Food and Beverage (F&B) industry. The industry has acknowledged it as the most efficient solution. The automation of processes, such as stock recording and reporting, allows businesses

to have instant access to their inventory levels, minimize human error, and improve their decision-making. In addition, the digital system provides easy access to and quick retrieval of information. Studies have proven that automated data capture has high possibility to get fewer errors rather than manual data entry (Ioana Neamt, 2024).

Therefore, the Stock Reporting System for Salmonly Café was proposed in order to solve these problems by having a centralised web-based system where the staff could record stock transactions and where management could check current stock level and report whenever they needed to. When this system was put into operation, it improved how well Salmonly Café staff were able to perform their daily tasks accordingly, decreased the number of mistakes made by human, and allowed management to make better decisions.

Overall, the development of the Stock Reporting System has improved daily operations at Salmonly Café and reduced stock problems and helped in resource management to ensure successful business. This project is part of the trend of more small businesses developing information systems, because once developed, information systems in small businesses can be used to support the business' ability to grow and sustain itself by improving sustainability, accountability and long-term growth in the food & beverage (F&B) industry.

1.2 Problem Statements

1.2.1 Manual Stock Recording

Salmonly Café managed their inventory and stock recording using manual method which is handwritten records. This method gave a higher chance for Salmonly's staffs to do common mistakes such as incorrect entries, missing records, and data duplication. Studies have found that the most common inventory errors in a manual manufacturing environment impacted the financial health of the business (Wynn, 2021).

1.2.2 Lack of Real-Time Stock Information

Since Salmonly Café used a handwritten method, there is no instant updates to the management. Therefore, the owner of Salmonly Café cannot instantly identify current stock levels, which gave result in stock shortages or excess inventory. Studies indicate that the absence of real-time inventory information can lead to inaccurate and not up-to-date data which will gives big impact on delay transaction of stock-in and stock-out activities (Khan, 2024).

1.2.3 Difficulty in Generating Stock Reports

Salmonly staff are required to update the stock report every day before closing time. With the handwritten stock reports, it required additional time and effort. This process was inefficient and may produce inaccurate reports that will be affecting management decisions related to purchasing and inventory control. If tracking inventory takes hours every day, that time and money would be better used for hiring, marketing, or other business improvements (Sortly, 2022).

1.3 Project Objectives

1.3.1 To develop a centralized Stock Reporting System that replaces manual stock recording process

This objective aimed to remove the reliance on handwritten records by introducing a structured stock reporting system. This enabled staff to avoid doing human-error mistakes when handling stock-in and stock-out activities. With a good inventory stock management, it ensured the data are recorded in consistent and accurate manner thus helped Salmonly Café business grow their profitability.

1.3.2 To allow café owner monitor current stock level in real-time

This objective addressed the lack of real-time stock information by allowing management and staff to instantly view current stock quantities and the ingredients that are urgent to buy. Real-time monitoring helped prevent unexpected stock shortages, reduces overstocking, and ensured that daily operations can run smoothly without interruptions caused by insufficient ingredients or supplies.

1.3.3 To generate automated stock reports for management decision-making

The system provided automated reports summary of the latest stock update to replace the manual report preparation. The report included all the important data for management to monitor such as stock summaries, usage reports and remaining inventory reports. These reports will support management in making informed decisions related to purchasing, menu planning, budgeting, and cost control.

1.4 Scope and Target User

1.4.1 Project Scope

The project scope includes the development and design of a web-based Stock Reporting System for Salmonly Café in particular, to provide support for the management of inventory within the café. The primary focus of the project was identifying and developing the requirements for users of the system. The final product would enable staff to enter in stock in/out information and allow the owners to track inventory and create reports on inventory. This scope outlined the project objectives will be met by using the development process put in place.

The development work included requirement analysis, system design, implementation, testing and deployment phases. The system was developed on Visual Studio Code as the frontend platform, XAMPP as the backend platform, while version control was managed through GitHub. Some important deliverables of the project are the functional stock reporting system, system documentation, and a final project report. The scope of the project is limited to the inventory & stock reporting functions only and does not include any advanced features such as POS integration and supplier management.

1.4.2 Product Scope

The product scope of this project is the development of a web-based Stock Reporting System specifically designed to support inventory management activities at Salmonly Café. It involved only two user types which are the staff, who will be doing the reporting stock activity and the owner of Salmonly Café (admin) who responsible of handling purchasing and inventory control.

There are many key features and functionalities included in the staff module, such as registering stock-in occurrences with new inventory and stock-out occurrences with daily use and sales of products. Staff can access a simple, user-friendly interface to change the quantity of stock, while maintaining accurate and consistent inventory records. This will help to decrease the number of mistakes that can occur by hand and ensure that the stock is kept current.

On the other hand, the Salmonly Cafe owner is able to use the same system to check on live inventory status, view automatically-created inventory reports, analyze how inventory is being used, and more. The inventory reports gave valuable information about what had been taken out of stock, what was still available, and what needed more inventory, so that the owner of Salmonly Cafe could take buying, menu, and inventory control decisions.

1.4.3 Target User

1.4.3.1 Salmonly Café Staff

The staff are the primary users in this Stock Reporting System project who responsible for handling daily stock operations at Salmonly Café. They will use the system to record stock-in activities when new ingredients or supplies are received and stock-out activities when items are used during daily operations. By using the system, staff can update inventory records more efficiently compared to manual methods.

The system is designed with a simple and clear interface to ensure that staff with minimal technical knowledge can use it without difficulty. This helps reduce errors in data entry and ensures that stock information is updated accurately and consistently.

1.4.3.2 Salmonly Café Admin (Owner)

The owner is the main decision-maker regarding purchasing activities and inventory control. They will use the system to monitor overall stock levels and review generated stock reports.

The system provides summarized reports that help the owner identify fast-moving items, potential wastage, and stock shortages. This supports better planning and improves the overall efficiency and profitability of the cafe.

1.5 Project Requirement

1.5.1 Hardware Requirement

HP Laptop 15-fc (16-inch)

Table 1.1: Hardware Requirements

Hardware	Specification
Operating System	Windows 11
Processor	AMD Ryzen 5 7430U with Radeon Graphics (2.30 GHz)
RAM	16 GB unified memory
Storage	477 GB
Display	15.6-inch Full HD (1920x1080) IPS
System type	64-bit operating system, x64-based processor

1.5.2 Software Requirement

Table 1.2: Software Requirements

Software	Description
Visual Studio Code	Used for coding and managing the application.
GitHub	Used for version control to manage source code, track changes, and support collaborative development.
MySQL	Function as the database management system for storing inventory data and user information.
XAMPP	Used as a local web server environment to run the Stock Reporting System during development and testing.

1.6 Conclusion

In conclusion, everything that are related to Salmonly Café has been discussed such as the problem statements, and the project objectives. The current manual stock recording method has caused many problems with producing an inefficient work environment that increases staff workload and risks creating inaccurate records which affect how management makes inventory decisions and purchases. All of these problems demonstrate the necessity of developing a more standardized and logistic method of controlling and managing stocks.

Therefore, the centralized Stock Reporting System proposed becomes the solution for these issues through replacement of paper-based stock reports with a digital system. Salmonly Cafe will benefit from the implementation of this system as it gives a more reliable record of stocks and reduces time taken to complete tasks. This system will also help make better decisions and will streamline business operation.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter will look at what other researchers have studied in the area of inventory and stock management in general, as well as for business models similar to cafes. The purpose of this review of the literature was to identify common problems and solutions that have been used to improve stock control methods and their accuracy. For small businesses like Salmonly Café, it is critical to be able to control their inventory so that they maximize their profitability and daily operations.

The issues that arise from traditional, manual approaches to inventory management will be examined. This would include recording your inventory in ledgers and the use of spreadsheets. This is where most errors occur with inventory along with inconsistent values and the time it takes to update them. This creates a delayed feedback loop to management on the state of the business and results in poor decision-making by ownership. When a business do not have an accurate, real-time picture of your inventory, they can run out of ingredients or overorder ingredients which both cost money and result in unhappy customers. Studies have actually shown that not controlling inventory properly is a big reason why businesses struggle (Seidor, 2022).

Additionally, a topic that will be discussed on automated and digitized inventory systems have benefited businesses, from research that clearly indicates the use of automated systems results in improved efficiencies, lowers error rates, and provides managers with accurate and timely information so they can make better decisions about what to purchase, what to put on their menus, and how best to control their costs. Digitizing processes has exponentially improved the way organizations can collect and organize information to retrieve it when they need it. For example, automated data capture has a high chance of fewer errors compared to manual data entry (Ioana Neamt, 2024).

Therefore, this literature review will create a foundation for understanding why our Stock Reporting System at Salmonly Café is necessary, as well as how it will improve the challenges facing the business by integrating the findings from research studies and practical business experiences.

2.2 Investigation

This section provides an in-depth look at the essential elements of stock management in the food and beverage (F&B) industry and considers the kind of operational environment in which small and medium-sized enterprises (SMEs) like Salmonly Café operate. This research aims to identify the common issues that lead to problems due to the traditional way of managing stock, as well as describe the urgent need for digitisation. The study focuses on three main areas: manual stock recording; the critical need for access to real-time data on stock holdings; and the complexities of generating reliable and usable stock reports. Through careful analysis of these three main points, we will provide the basis for creating a Stock Reporting System that meets current needs while also allowing future growth.

2.2.1 Manual Stock Recording Challenges

A comprehensive study by Inventory Solutions Group (2020) revealed that businesses employing manual inventory systems typically experience an average of 10-15% discrepancy between recorded and actual stock levels. The majority of the discrepancies are due to human errors such as entering incorrect data, writing down the wrong numbers, entering duplicate records, etc., or unintentionally performing incorrect mathematical calculations such as adding up the total or calculating numbers. Human errors generally lead to incorrect numbers, including both the monetary value of the inventory and the cost that was spent to generate that inventory, which ultimately distorts a business' overall financial position.

The manual recording of stock takes up a lot of time. Cafe staff usually do customer service and make food, but they may also record lots of Stock Changes throughout the Course of their Shift. because workers are busy with these two activities, it reduces their ability to perform the fundamental operations of the company well. There is greater potential for errors or incomplete records, particularly at peak times of the day or at the end of the day. Therefore, there will be a higher risk of error in the system, along with low levels of scalability and unreliable strategic planning. Transitioning from the old manual methods to a digital system will give the business an immediate technology upgrade, while also being a necessity for ensuring accuracy, saving money and guaranteeing that the food & beverage companies will survive for many years to come.

2.2.2 Lack of Real-Time Stock Information

The dynamic environment that is the Food & Beverage (F&B) industry is susceptible to a critical operational vulnerability without access to real-time stock information. The manual nature of stock systems inherently provides only a periodic "snapshot" of stock level status; i.e., the end of a shift or at the end of a day. Due to the lag in the data that management will operate with, they will find themselves unable to react appropriately to changes in demand or other external situations such as disruptions in their supply chain.

There are multiple negative effects that result from this position of lag. For example, if there is an unexpected spike in demand for a particular menu item, the core ingredient of that item will be depleted very quickly. When that ingredient is depleted, stockouts will occur. Stockouts result in a loss of sales, dissatisfied customers, and therefore, potentially lost long-term customer loyalty. On the other hand, if you are not aware of your slow-moving or nearly expired inventory, you may be carrying excess inventory which may lead to waste because you may not be able to use the perishable products prior to their expiration date, hence costing you money.

A report by Supply Chain Insights (2022) highlighted that businesses with poor real-time inventory visibility can incur up to 25% higher carrying costs due to overstocking and experience a 15% increase in lost sales due to stockouts. This demonstrates that access to real time data on your inventory has a direct impact on profitability. Salmonly Cafe suffers from the resulting lack of real-time information, as it often makes important decisions on ingredient procurement, menu modification, and waste management in an ad hoc way. It is vital for Salmonly Cafe to be able to instantly monitor the quantity of current inventory, identify fast selling goods and flag items approaching expiration. The ability to view inventory on a real-time basis gives cafe owners the tools necessary to improve their inventory management, maintain sufficient supply of ingredients, therefore better operate the business and offer a better customer experience.

2.2.3 Difficulty in Generating Stock Reports

Manual stock management faces challenges in producing reports. Gathering accurate, complete stock reports from different manual records can be difficult, time-consuming, and introduce more mistakes. Collecting, analyzing and combining inventory data that are stored in various places for example handwritten, Excel Sheets and verbal records, can be broken down into time-consuming administrative tasks. Performing manual calculations and extraction of data as well as cross-checking, increases inefficiencies and risks of making errors in reporting. The reporting burden in manual stock management therefore creates challenges for Salmonly Café Managers in accessing clear, accurate and timely information in all aspects of stock movement, ingredients usage rates, suppliers' performance, and total inventory value.

The bottleneck in reporting creates a big problem for managers because it makes it very difficult for them to make good decisions. Without timely, reliable reports, purchasing, menu optimisation, budgeting and cost control will all be largely speculative guesswork rather than based on actual data. For example, knowing which ingredients are creating the most waste or which supplier is the best value is often a guess, and not supported by actual analysis. The Business Analytics Review 2023 study shows those companies that are currently moving from manual reporting procedures (manual reporting) to automated reporting systems experienced a 30-40% improvement in their ability to make faster, more accurate decisions. The creation of a system that provides automated stock summary, detailed inventory usage and remaining stock reports, will provide Salmonly Cafe's management with the tools required to make analyze based decisions through proactive management and ultimately reduce operational costs while increasing sales and overall performance.

2.3 Previous Case Study

2.3.1 Case Study 1: Odoo

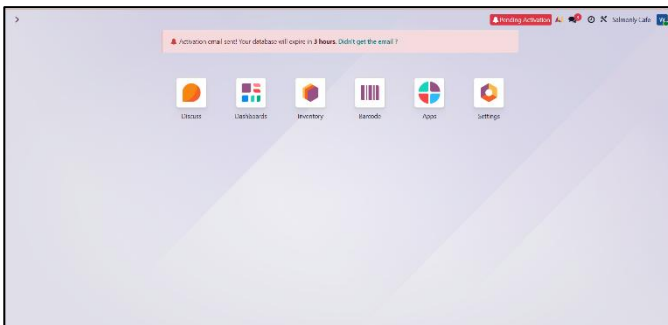


Figure 2.1: Odoo Website

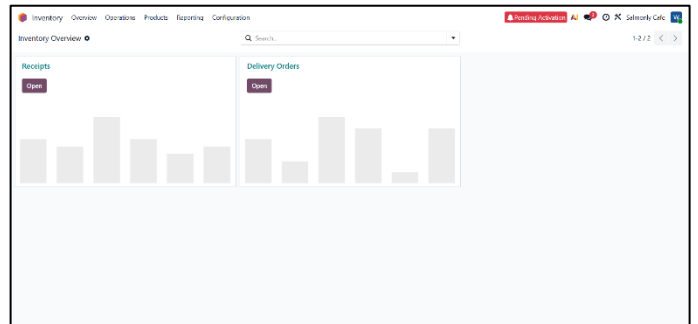


Figure 2.2: Odoo Inventory Dashboard

Odoo is an open source business management system - a unified suite of applications for running an entire business. Its modular design allows businesses to choose which functionalities are needed now, and then add additional functionalities as the business grows. The strength of Odoo is that all applications communicate with each other (i.e. Sales, Inventory, Purchasing, and Accounting).

Odoo has an Inventory module that can help Salmonly streamline its inventory processes by providing efficient ways of tracking inventory and provides some insight into how a well integrated inventory system can simplify business processes and assist managers in making better decisions. The first thing you'll see when you begin with Odoo is a straightforward, easy-to-use dashboard that is purposefully arranged to help you navigate easily within the Odoo system. In most cases, the dashboard contains icons that are relatively large to symbolize the various modules, including Inventory, Dashboard, and Setting. The users are therefore able to access the relevant functions much faster. In the case of the Inventory Module, the main screen is mainly a summary of the current stock, incoming and outgoing movements, and any alert on the available low stock.

In Figure 2.2, this interface provides a quick overview of the inventory status. We can see key metrics such as the total number of products in stock, waiting receipts, and delivery orders. This is incredibly helpful for a café manager to get a quick "pulse" on their inventory without having to dig into deep reports.

Product	On Hand	Free to Use	Incoming	Outgoing	History	Replenishment
Aluminium Foil	100.00	100.00	0.00	0.00	History	Replenishment
Mental Sauce	14.00	14.00	0.00	0.00	History	Replenishment
Sushi Rice	2.00	2.00	0.00	0.00	History	Replenishment
	116.00	116.00	0.00	0.00		

Figure 2.3: Product List

When user clicks "Products," they will be presented with a comprehensive list of all available products. For every product, there will be a display of pertinent product information which would include the Product Name, Quantity on Hand, as well as the Quantity of Product In-Stock (Incoming). The Product Listing will facility users to search for a specific Product by entering a keyword into a Freestyle Search Field or through Use of Filtering. Therefore, the interface has made it easier for the employees of Salmonly Cafe to streamline the process of managing their inventory items.

Product	Demand	Quantity
Mental Sauce	14.00	14.00

Figure 2.4: Inventory Overview

Goods Receipt Note WH/IN/00001

Shipping Date: 2021-07-26
 Supplier: Salmonly Cafe
 Warehouse Address: Salmonly Cafe

Product	Quantity	Unit
Mental Sauce	14.00	kg

Figure 2.5: Item Receipt

Odoo tracks every single movement of inventory through its system. Ingredients coming in from suppliers are recorded as 'Receipts' while ingredients being used for preparing beverages or dishes, or products being sold are tracked as either "Delivery Orders" or "Internal Transfers". every single transaction is logged, recording the transaction date, quantity involved and parties involved so that there is a detailed audit trail of all transactions being processed through the system. This is where the basis for creating accurate reports of your stock will come from.

2.3.2 Case Study 2: ECount

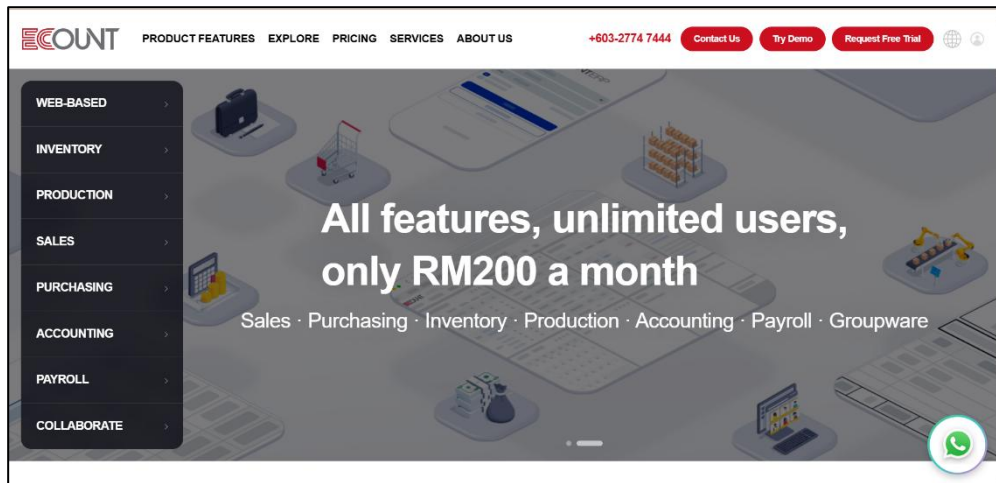


Figure 2.6: ECount Website

ECount is an ERP (enterprise resource planning) program that is accessible online, and it offers a comprehensive suite of tools to help small to medium sized businesses with the management of their critical business functions. ERP programs centralize operations such as the management of inventory, accounting, human resources, and payroll, so it's advantageous for businesses to streamline operations and utilize these functions to become more efficient. ERP programs generate reports based off of the data that is collected from all sources of information, and once the reports are produced, they assist in managerial decision making. Ecount offers important tools for businesses. You can manage inventory, handle production, keep track of accounting, oversee sales and purchases

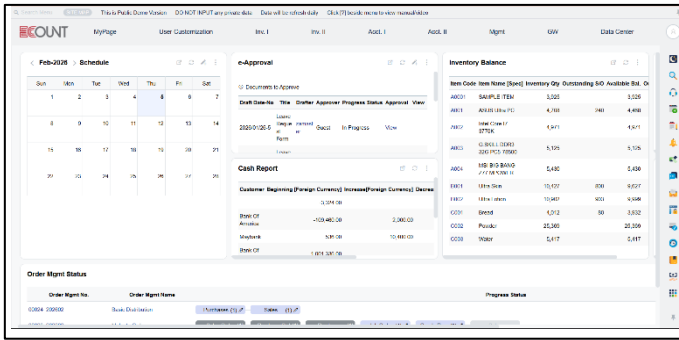


Figure 2.7: ECount Dashboard

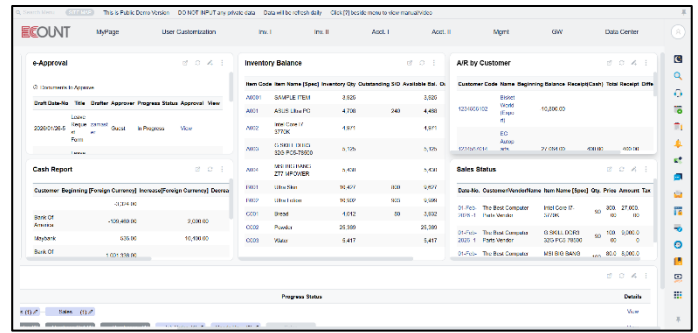


Figure 2.8: ECount Dashboard 1

In ECount, the main navigation page will often be a menu found at the top of the page, which can be used by a user to drill down into a given application area, e.g., Inventory Control, Sales, Purchasing. Dashboards can have links to selected reports, such as a good number of cafe attendants' most used reports. You can also have key indicators of your business' performance (KPIs), such as current inventory value and recent sales. The general layout will allow for easy navigation by those that may be newer to an ERP system, which is very important for cafe staff.

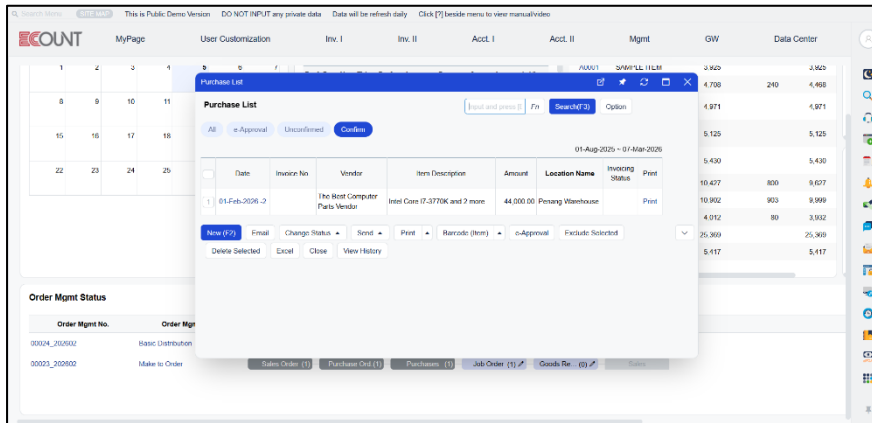


Figure 2.9: Purchase List

ECount's Purchase List and Purchase Order feature allows user to meticulously record all purchase order items purchased through our suppliers. This feature also allows them to input the quantity of each item that has been ordered from your supplier(s), the amount agreed upon for each item purchased from our suppliers, and the expected date of delivery along with the supplier's information. When the goods are received at your facility, the purchase order can be converted into a Goods Receipt, and our on-hand inventory will be automatically updated based on the information that was inputted on the purchase order. The automated purchase order management system in ECount provides Salmonly Cafe with a detailed historical record of its purchases and a standardized method of documenting all inventory purchases. The detailed purchase history will aid Salmonly Cafe with Financial Auditing and Financial Reconciliation.

Date	Invoice No.	Customer	Item	Amount	Invoice Status	Print
24-Feb-2025-1	00122	EC Construction Parts Customer	Construction Stone and 1 more	8,100.00	✓	Print
23-Feb-2025-1	00121	EC Drug Dealer	A Bag of Marijuana (100g) and 1 more	19,920.00	✓	Print
22-Feb-2025-1	00120	EC LED Lights Customer	LED Light 100W	24,500.00	✓	Print
21-Feb-2025-1	00119	EC AutoParts Customer	ASSY-2005/12/10 Auto Motor and 1 more	6,720.00	✓	Print
20-Feb-2025-1	00118	EC Cellphone Customer	Samsung Galaxy Note 20	35,000.00	✓	Print
19-Feb-2025-1	00117	EC Medi Equipment Customer	HZ-7070 Massage Chair and 1 more	26,000.00	✓	Print
18-Feb-2025-1	00116	EC Food Customer	Bread	630.00	✓	Print
17-Feb-2025-1	00115	EC Cosmetic Customer	Ultra Skin and 1 more	45,000.00	✓	Print
16-Feb-2025-1	00114	EC Computer Customer	ASUS Ultra PC	119,000.00	✓	Print
24-Jan-2025-2		EC Construction Parts Customer	Construction Stone and 1 more	8,100.00	✓	Print

Figure 2.10: Sales List

Company Name	Date	Invoice No.	Customer	Item	Amount	Billing Status
EC Count ERP System Sdn. Bhd / 01-Aug-2025 - 07-Mar-2026	24-Feb-2025-1	00122	EC Construction Parts Customer	Construction Stone and 1 more	8,100.00	V
	23-Feb-2025-1	00121	EC Drug Dealer	A Bag of Marijuana (100g) and 1 more	19,920.00	V
	22-Feb-2025-1	00120	EC LED Lights Customer	LED Light 100W	24,500.00	V
	21-Feb-2025-1	00119	EC AutoParts Customer	ASSY-2005/12/10 Auto Motor and 1 more	6,720.00	V
	20-Feb-2025-1	00118	EC Cellphone Customer	Samsung Galaxy Note 20	35,000.00	V
	19-Feb-2025-1	00117	EC Medi Equipment Customer	HZ-7070 Massage Chair and 1 more	26,000.00	V
	18-Feb-2025-1	00116	EC Food Customer	Bread	630.00	V
	17-Feb-2025-1	00115	EC Cosmetic Customer	Ultra Skin and 1 more	45,000.00	V
	16-Feb-2025-1	00114	EC Computer Customer	ASUS Ultra PC	119,000.00	V
	01-Feb-2025-1		The Best Computer Parts Vendor	Intel Core I7-3770K and 2 more	44,000.00	V
	24-Jan-2025-2		EC Construction Parts Customer	Construction Stone and 1 more	8,100.00	V
	23-Jan-2025-2		EC Drug Dealer	A Bag of Marijuana (100g) and 1 more	19,920.00	V
	22-Jan-2025-2		EC LED Lights Customer	LED Light 100W	24,500.00	V
	21-Jan-2025-2		EC AutoParts Customer	ASSY-2005/12/10 Auto Motor and 1 more	6,720.00	V
	20-Jan-2025-2		EC Cellphone Customer	Samsung Galaxy Note 20	35,000.00	V
	19-Jan-2025-2		EC Medi Equipment Customer	HZ-7070 Massage Chair and 1 more	26,000.00	V
	18-Jan-2025-2		EC Food Customer	Bread	630.00	V
	17-Jan-2025-2		EC Cosmetic Customer	Ultra Skin and 1 more	45,000.00	V
	16-Jan-2025-2		EC Computer Customer	ASUS Ultra PC	119,000.00	V
	02-Jan-2025-1		The Best Computer Parts Vendor	Intel Core I7-3770K and 2 more	44,000.00	V
	01-Jan-2025-1		The Best Computer Parts Vendor	Intel Core I7-3770K and 2 more	44,000.00	V
	01-Dec-2025-1		The Best Computer Parts Vendor	Intel Core I7-3770K and 2 more	44,000.00	V
	25-Nov-2025-2		EC Construction Parts Customer	Construction Stone and 1 more	8,100.00	V
	24-Nov-2025-1		EC Drug Dealer	A Bag of Marijuana (100g) and 1 more	19,920.00	V
	24-Nov-2025-4		EC Construction Parts Customer	Construction Stone and 1 more	8,100.00	V
	24-Nov-2025-3		EC Drug Dealer	A Bag of Marijuana (100g) and 1 more	19,920.00	V
	23-Nov-2025-5		EC LED Lights Customer	LED Light 100W	24,500.00	V
	23-Nov-2025-4		EC Drug Dealer	A Bag of Marijuana (100g) and 1 more	19,920.00	V

Figure 2.11: Sales List in Excel

In addition to the procurement process, ECount supports sales transaction(s) through the use of a "sales list" or "sales order" module, which is used to track inventory leaving the business due to the sale of goods. In the case of a café, this will often be integrated with a point of sale system, or user's can enter sales transactions manually. Each sale records what item was sold, the amount sold, the price sold for, and who the customer is. The most significant aspect of the sales records is that they will automatically deduct the inventory count for the item sold immediately upon entry into the system. In addition to this function, users will have the ability to export sales list to excel files for future reference. The sales list functionality is vital to understand the level of merchandise demand, to keep track of income, and to keep an eye on the out-of-stock transactions to obtain correct inventory reports.

Attribution	Year/Month	Payroll Book Name	Period	Dept. Name	Employee Code	Employee Name	Total Earnings	Total Deductions	Net Amount	Print
1	Feb-2028-1	Feb-2028 Wajest	01-Feb-2028 -28-Feb-2028	AAA	Alex	19,500.00	1,750.00	17,750.00	Print	
2	Feb-2028-1	Feb-2028 Payroll	01-Feb-2028 -28-Feb-2028	BBB	Ben	5,000.00	200.00	4,700.00	Print	
3	Feb-2028-1	Feb-2028 Wajest	01-Feb-2028 -28-Feb-2028	CCC	Charlie	1,400.00		1,400.00	Print	
4	Feb-2028-1	Feb-2028 Payroll	01-Feb-2028 -28-Feb-2028	DDD	Diana	1,500.00		1,500.00	Print	
5	Feb-2028-1	Feb-2028 Payroll	01-Feb-2028 -28-Feb-2028	CCC	Den	12,000.00	900.00	11,100.00	Print	

Figure 2.12: Payroll Employee

ECount also often provides a Payroll module, which represents one of the most important modules for managing the workforce and the operational costs of an organization. Though Payroll Management is not directly linked to inventory reporting, proper payroll management can help an organization remain healthy, and can also have some indirect impact on how resources are allocated. The Payroll module generally handles the following types of information: employee information, salary calculations (including deductions for taxes and benefits, or additional wage payments such as overtime work), and the employee payslips.

For Salmonly Cafe, by combining both payroll and inventory system, all financial transactions (i.e., cost of ingredients, cost of labour, etc.) will be processed in the same system. Thus, a complete view of the overall operating costs will be available for better budget and financial plan preparation; thus, helping to maintain the continuing and growing profitability of the cafe.

2.3.3 Case Study 3: Mekari Jurnal

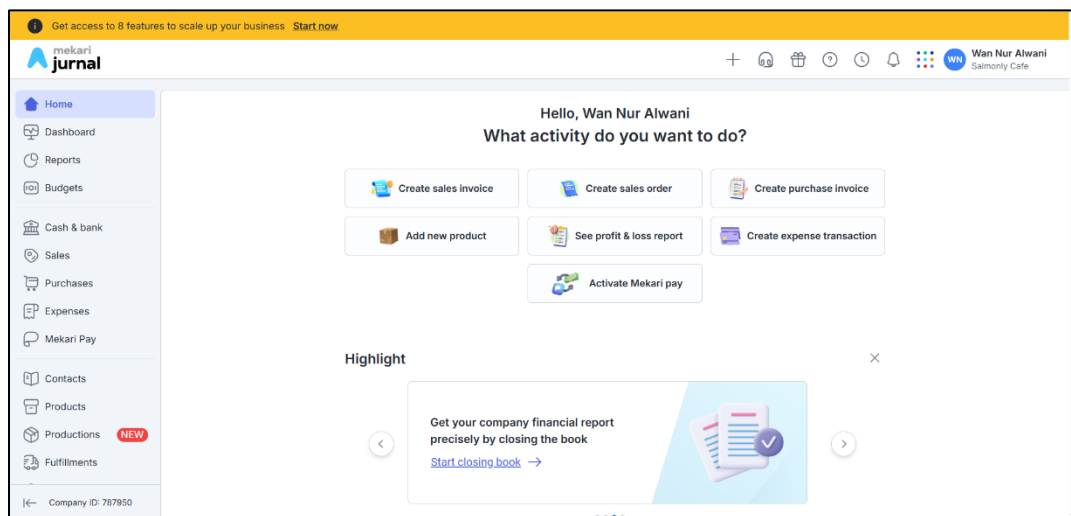


Figure 2.13: Mekari Jurnal

Mekari Jurnal represents a cloud-based application for both accounting and business management purposes used primarily within Indonesia by small to mid-sized business enterprises. Mekari Jurnal's major feature is designed with an accounting focus, but also integrates features for the businesses to manage their inventory, purchase orders (PO), and sales orders (SO). The combination of these features into one solution allows businesses to utilize a single platform to digitize their entire business model. Salmonly Café; can utilize Mekari Jurnal, as an example where an integrated system provides the means for them to streamline all of their records; specifically, the records that relate to their financial transactions/stock reports, which are typically done on a manual; and that have many users working without access to real-time data or producing accurate and timely reports.

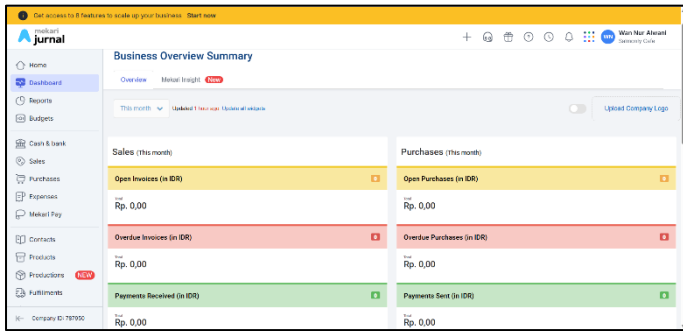


Figure 2.14: Jurnal Dashboard

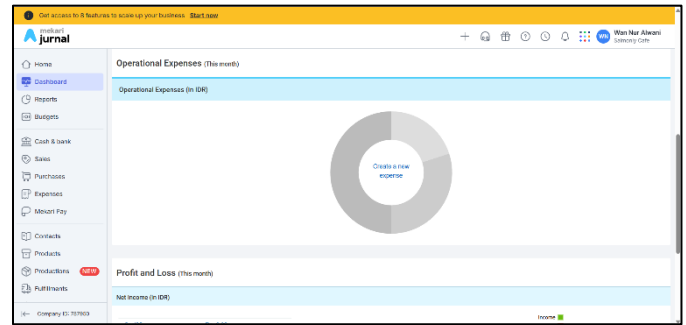


Figure 2.15: Jurnal Dashboard 1

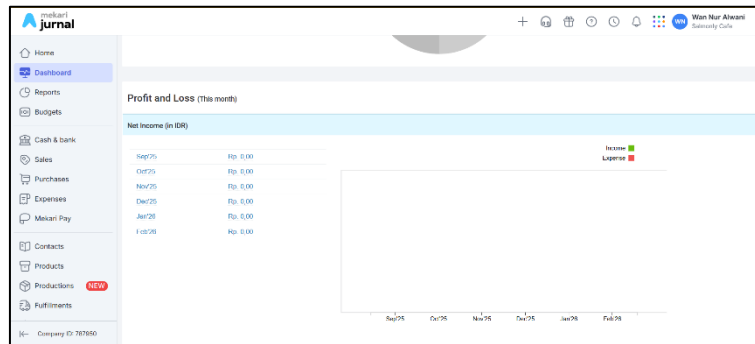


Figure 2.16: Jurnal Dashboard 2

The users have a dashboard upon log in, which provides a concise summary of the most important business metrics. The information on the Dashboard often consist of Financial Summaries, Sales Performance Overview, and for Salmonly Cafe, the most important data representation of the overall Inventory Status. Additionally, the dashboard will also display items that are running low in stock, sales trends that have occurred recently, and purchase orders that have yet to be completed. By viewing all of this data in one centralized location, owners or managers of the café can immediately see the state of their business operations along with the Inventory status without looking through multiple reports (run on sentence) thus providing a vital real-time snapshot of the inventory and operational status of the Café at any given moment.

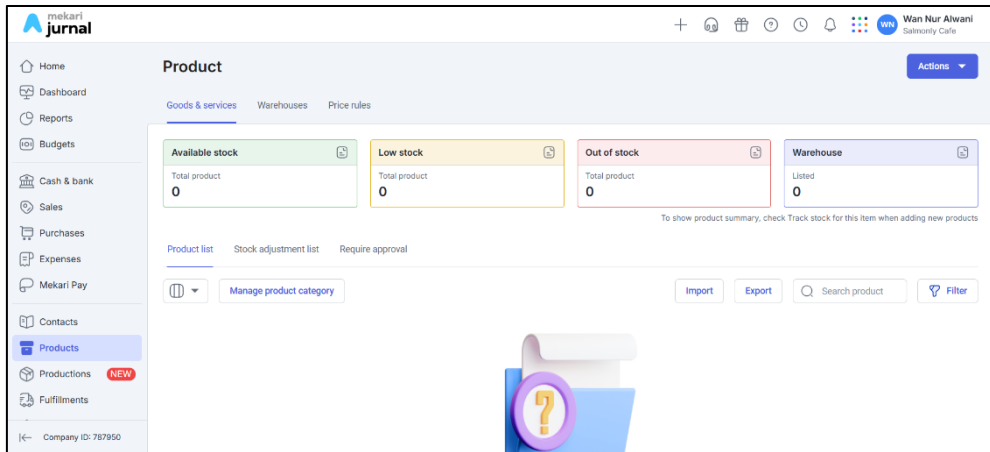


Figure 2.17: Product

The system can track exactly what has been sold out of inventory by capturing sales information either from POS integration, from a direct transaction at the POS or both. The system helps units determine which products are popular, which ingredients are being used and how much of each ingredient is being used, and will also allow units to perform proper inventory counts.

The system allows users to define minimum stock requirements for every item. Mekari Jurnal has the ability to automatically send a warning signal to the user once an item has reached its minimum inventory levels in the inventory system. This prevents Salmonly Café from running out of any essential ingredients by maintaining the optimum inventory levels at all times using a pre-defined.

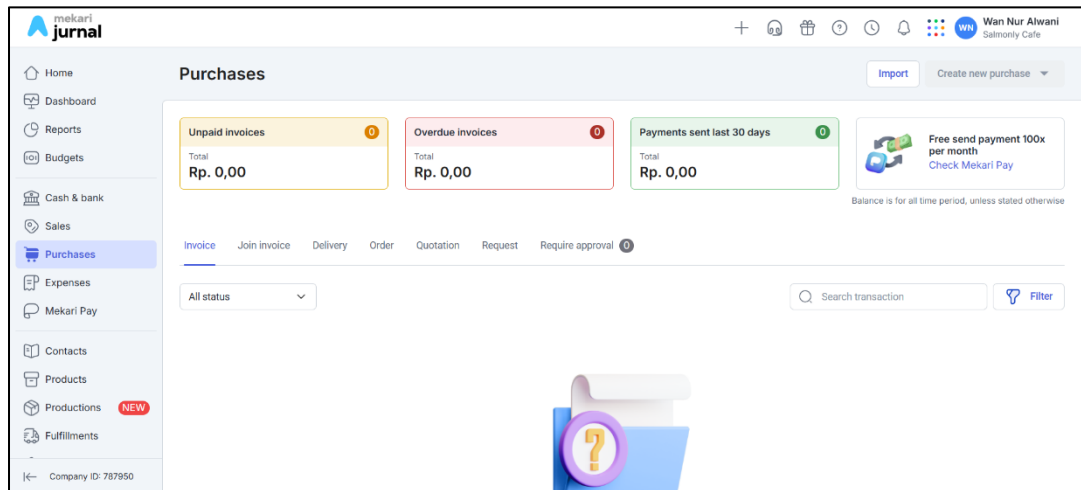


Figure 2.18: Purchases

As a business owner when using the Mekari Jurnal you will always have access to the most recent stock level information for your business as items are being sold or purchased. By accessing your current stock information you will immediately know what you have left in stock, which helps in preventing you from having too little or too many ingredients/ingredients left behind, which will in essence will help you to avoid an unexpected shortage or excess stock. The automation of the transactions of purchase receipts (stock-in) and sales or other adjustment transactions (stock-out) ensures that there is almost little or no chance for incorrect records and inconsistent information as would have been in doing so by hand.

2.4 Comparison

This evaluation centers on three business management solutions: Odoo, ECount, and Mekari Jurnal. Odoo has a modular structure that makes it perfect for businesses with an integrated sales and inventory system. ECount is a full-featured, cloud-based ERP that serves SMEs who have a need for a central inventory control system along with payroll and accounting. Mekari Jurnal, as a cloud-based accounting solution, is used to automate the process of receiving and delivering products for organizations moving from a manual process to real-time digital tracking. Each of these solutions is applicable to companies of different levels of operational complexity and management requirements.

Table 2.1: Comparison of Existing Project

Feature	Odoo	ECount	Mekari Jurnal
System Type	Modular Open-Source	Cloud-based ERP	Cloud-based Accounting
Inventory Tracking	Detailed receipts and Delivery Orders	Automated deduction via sales orders	Automated stock-in and stock-out via receipts and sales
Real-time Updates	Yes, via dashboard overview	Yes, real-time stock levels	Yes, eliminates data latency
Reporting	Quick pulse metrics and deep reports	Detailed reports for decision making	Summarized financial and inventory reports
Notifications	Low-stock alerts	Focused on menu structure navigation	Automated alerts for stock thresholds

2.5 Discussion

In developing this project, three systems, which are Odoo, ECount, and Mekari Jurnal were analyzed for their functionalities and features. All three applications provide distinctive functionality, which served to guide the design and development of the Stock Reporting System for Salmonly Café. Based on review of the interface and stock tracking techniques used in each of these three applications, our goal will be to create an improved and streamlined experience for the cafe management team.

The way Odoo does inventory tracking is organized and modular. That system of receipts and delivery orders was one reason we chose to use a systematic method of recording stock-in and stock-out. As shown in the figure 2.4 (Odoo), the clear breakdown of stock movement influenced this project to also try to provide clear record keeping of all ingredients used in the café so that there would be a decrease in the occurrence of missing records due to manual method.

ECount provides the ability to offer real time inventory levels with automated sales orders and was used a standard for developing the real time monitoring goal for the project. ECount helped users make fast choices based on actual data, which drove the need to develop a real time dashboard for Salmonly Café's use. This allows the owner to quickly identify when inventory has reached a low point, similar to how ECount does for SMEs (small and medium-sized businesses) that have complex inventories.

Mekari Jurnal had an easy-to-use interface which was seen particularly in its products and reports, which were two of the things which influenced how this project's UI was created. Because stock summaries or financial reports could be easily accessed in Mekari Jurnal, they were also a benchmark for the usability of the system that is being proposed so that cafe staff can also easily use the System without having to spend much time learning about technology.

In conclusion, the three applications discussed helped provide valuable direction on the type of design that should be used in developing the Salmonly Café system, most noticeably by demonstrating the benefit of having automated and user-friendly systems. Although there are many effective systems available today, many of them are too complicated for a small cafe. Therefore, we will use some of the best features of the three systems we studied (i.e., Odoo's organizational capabilities, ECount's real-time responses, and the very basic design used by Mekari Jurnal) as a base upon which we can create a computerized system specific to Salmonly Café and that is functional and user-friendly as well.

2.6 Conclusion

Therefore, in summary, the chapter has discussed the basic principles regarding inventory management and has also assessed three options for current inventory systems - Odoo, ECount and Mekari Jurnal. From a review of the literature, it is clear that several very powerful inventory management solutions exist in the marketplace; however, most are typically designed to be used on large scale operations and are therefore too complex for use in a small business setting. Through comparison and discussion, the results have provided a clear standard for the minimum feature set required from the Salmonly Café Stock Reporting System, inclusive of automated reporting and real-time tracking capabilities. By addressing the shortcomings of the current manual processes and leveraging the strengths of other available software programs, the new system will be developed to be more focused, easier-to-use, and more efficient in helping Salmonly Café meet its daily operating requirements.

CHAPTER 3

METHODOLOGY

3.1 Introduction

A well-defined methodology is highly essential for the successful development of any software project. Without a proper methodology, the development process can become disorganized, leading to delays, miscommunication, and unsatisfied user requirements. Recent research, such as a 2024 study published in the *Journal of Systems and Software*, titled 'Perceived impact of agile principles: Insights from a survey-based study on agile software development project success' (2024), found that regular delivery, technical excellence, team member proactivity, and customer collaboration have the highest impact on Agile project success (Palopak & Huang, 2024).

The Agile approach was selected for the Stock Reporting System development project for Salmonly Café. In software development, the Agile approach emphasizes flexible, collaborative and incremental development. Using Agile, developers divide projects into several smaller segments which are referred to as iterations or sprints. The final product of each iteration as well as working models are generated. Therefore, the project is suitable for this methodology since the requirements for this cafe's system can change as the staff or the owner sees it being used. Agile allows for continuous feedback and changes to be made based on this feedback to develop a final product that meets the needs of Salmonly Café.

Developers need to follow clear instructions to ensure that their work is uniform, while other individuals involved in this project need to comprehend what the developer expects and the current status of the project. An essential aspect of finding an approach for developing an application is determining which type or combination of methods will provide both flexibility and structure during the entire development process. Using an Agile methodology affords the opportunities to complete this project with the highest efficiency and lowest amount of inventory mistakes, while also permitting future expansion of this reporting tool.

This chapter will provide an overview of the agile methodology in greater depth as well as outlining why it was selected, the phases involved and an overview of how the requirements were collected as well as system design and modelling techniques used during the development process.

3.2 Agile Methodology



Figure 3.1: Figure Agile Methodology (Kumar, A, 2025)

The development of the Stock Reporting System for Salmonly Café required a methodology that is both structured and flexible. After considering several options, the Agile methodology was chosen as the most suitable approach for this project.

Agile focuses on breaking the development process into smaller, dynamic phases called sprints. Each sprint allows for regular reviews and continuous improvements based on feedback. This approach is ideal for a project like this because the needs of the café staff and owner may change as they start using the system. Research by Al-Saqqa, Sawalha, and Abdel-Nabi (2020) describes Agile as a lightweight framework that overcomes the rigidity of traditional methods, offering flexibility to adapt at any stage of development (Al-Saqqa et al., 2020). Unlike the Waterfall model, which requires all requirements to be fixed from the beginning, Agile welcomes changes even late in the process.

A study by Drus and Alsalamy (2020) also found that Agile methodology helps improve software quality and ensures customer satisfaction through continuous delivery and feedback (Drus & Alsalamy, 2020). The study emphasized that Agile's iterative nature allows developers to deliver working software faster and respond quickly to user feedback.

Traditional methodologies, which focus on heavy documentation and fixed plans, would not be suitable for this project. User requirements at Salmonly Café could change as staff discover new needs or face unexpected challenges during daily operations. Agile, by contrast, values collaboration and results over strict processes.

Another benefit of Agile is the open communication it encourages between the development team and the end users. For this project, regular discussions with the café owner and staff helped ensure that the system truly meets their needs. Each sprint produced a working version of the system, allowing users to test and provide feedback for the next sprint.

The primary goal of the Stock Reporting System is to provide a user-friendly and efficient solution for inventory management at Salmonly Café. Agile supports this goal through its customer-focused principles. By breaking the project into smaller parts, Agile helped ensure that the final product is practical, easy to use, and solves the real problems faced by the café.

3.3 Phases in Agile Methodology

The Agile Development Process includes six general phases which are Plan, Design, Develop, Test, Deploy, and Review. These phases are performed in a continuous series of small, iterative cycles (sprints), allowing for ongoing enhancements and changes to the project. The phases of the Agile Process all provide communication, feedback, and flexibility to create Software that meets the Customers Requirements; therefore, Agile is a good method of creating Quality Software.

3.3.1 Phase 1: Plan

The planning phase focused on understanding the current stock management problems at Salmonly Café. The discussions with the owner of Salmonly Café led to the identification of three major challenges, such as: manual systems being used to record inventory using log books, no real-time inventory data available and challenges faced while generating inventory reports. To obtain more specific requirements for the implementation of the new automated inventory management system, the staff and owner of Salmonly Café were given a survey to complete. The survey results show that all staff and owner believe that manual inventory recording is inaccurate. 85% of the staff also report that they frequently forget to update inventory during busy hours, which leads to inaccurate inventory records. The functional requirements of the system were formulated from the research. All of these requirements have been documented to guide the system's development to match the business requirements of Salmonly Café.

3.3.2 Phase 2: Design

The architecture of the system and user interface have both been designed to maximize the usability and efficiency of the system. A major goal was to produce a very clean, simple interface so that a member of the cafe staff could use it with little or no training. The design phase included wireframes for all user interfaces (login, staff dashboard, admin dashboard, inventory management, reports, and settings). The most important aspect of the design is the ease in which users can navigate through the system, therefore all buttons for "stock-in", "stock-out", and "issue report" etc., are clearly marked. This is the stage during which the database was developed. The database will be designed as a relational type (MySQL) and will contain records for: users, products, categories, stock transactions, shifts, and user settings. Foreign keys are used to uphold integrity, i.e., connected tables, among the tables. This design will allow all of the data to be very well ordered as well as accessible, at all time, in a very straightforward manner.

3.3.3 Phase 3: Develop

The development phase involved writing the actual code for the Stock Reporting System. The front-end was built using HTML, CSS, and JavaScript, while the back-end was developed using PHP. All system data were saved into a MySQL database. The system now has features like staff can now log in with email addresses and passwords have been encrypted for an extra security. There is a new staff dashboard that shows all staff can see their stock card activities as well as recent actions performed on the inventory. The administrator dashboard is equipped with updated inventory statistics and critical item alerts. The administrator can add, edit and delete products through inventory management. Staff members can record stock-in and stock-out transactions by utilizing modal forms. There is a daily stock take feature so that users can update all inventory levels at the end of every day. There are two reports; a daily stock report and a stock movement report, both of which can be viewed with a date filter. An admin can manage shift schedules whereas a staff can view their own shift schedule. The 'profile & settings' page of the system allows users to upload profile pictures, change their password, select theme colours, and activate the dark mode feature.

3.3.4 Phase 4: Test

During the testing phase, the Stock Reporting System underwent testing to verify its functionality, usability, and accuracy. Testing was done on each function individually to test whether they included features like, stock-in, stock-out, report-generation, user-registration, and log-in. Integration testing was done to confirm that the different modules in the system could operate in harmony, such as, when a stock-out transaction was entered, the current stock value associated with that product was reduced as it should be, and the transaction was safely saved in the database.

User acceptance testing was also conducted where the café staff and owner tested the system in a real environment, providing feedback on ease of use, interface design, and overall functionality. Any bugs or issues found during testing were fixed immediately before moving to the deployment phase.

3.3.5 Phase 5: Deploy

The Stock Reporting System underwent a trial phase before its actual launch by being hosted locally with XAMPP enabled server. During the testing, the users accessed the application through a browser using the browser and local IP address. After successfully testing the application, it was launched at Salmonly Café on the same local server that was used for testing purposes. The owner of the café received a manual detailing how to use the system; staff received training on how to enter and exit stock transactions and conduct daily stock counts.

A soft opening of the service was conducted where the café owner and some of the employees could use the system for a week prior to the launching of the system for general use. This assisted in identifying some of the last minute challenges and in having a good switchover from recording stocks manually to the recording stocks digitally.

3.3.6 Phase 6: Review

Following the launch of the system, it moved into the review and maintenance phase. User feedback was gathered to identify issues or areas where the product could be improved. In response to user feedback, the dashboard layout was modified, and user deletion functions were changed, along with numerous other small changes made throughout the application. The review phase demonstrated that the system had reduced the amount of time that staff spent creating stock records and had increased the accuracy of inventory data. The owner of the cafe experienced real-time visibility of their stock so they were no longer running out of ingredients while it was busy. Additional features will be added only after they have been requested by users. The system will continue to remain flexible to allow for changes such as adding new categories, products and features as the cafe grows.

3.4 Data Gathering and Requirement

The main aim of obtaining data and user requirements for the Stock Reporting System was to fully understand the difficulties that staff and the café owner face at Salmonly Café. Through a questionnaire distributed via Google Forms, we identified key stock management issues that staff experience when recording stock manually using handwritten logbooks. We also examined issues raised by the café owner about the difficulty of getting real-time stock information and generating accurate reports, which often leads to inefficiencies and errors.

The orientation towards clarifying these difficulties framed the development of a user-friendly, efficient, and real-time solution that answered all user needs. The information obtained in this process informed the core functionalities of the system, which aims to ease stock recording for staff, create efficiencies in inventory management for the owner, and provide real-time updates for improved accessibility and accuracy.

3.4.1 User Requirement Analysis

To develop the Stock Reporting System for Salmonly Café, the user needs for the Stock Reporting System were obtained from a survey conducted through Google Forms. Both staffs and administrators who completed this survey faced challenges with inventory and stock management at Salmonly Cafe. All the responses received proved that the system offers benefit towards management of Salmonly Cafe with regards to stock transaction recording and improved decision making.

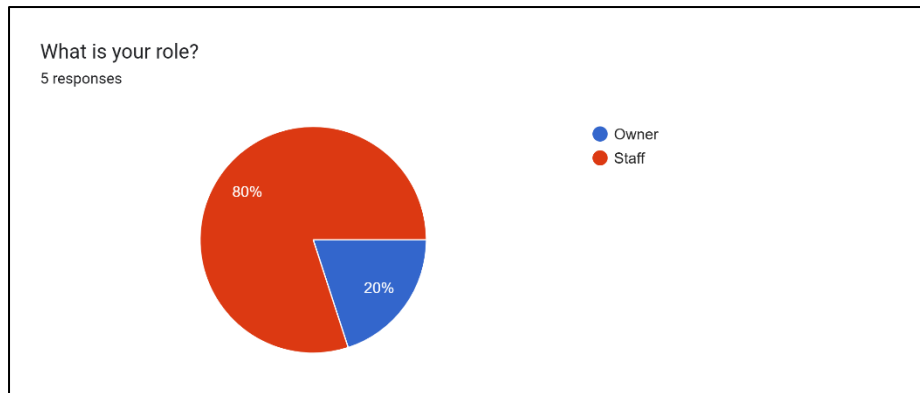


Figure 3.2: User questionnaire 1

Based on the Figure 3.2, which surveys of 5 users at Salmonly Café on their role, 80% are coming from the staffs and 20% are from owner which are the admin. This shows that the staff's perspective dominates, but the admin's input is still important.

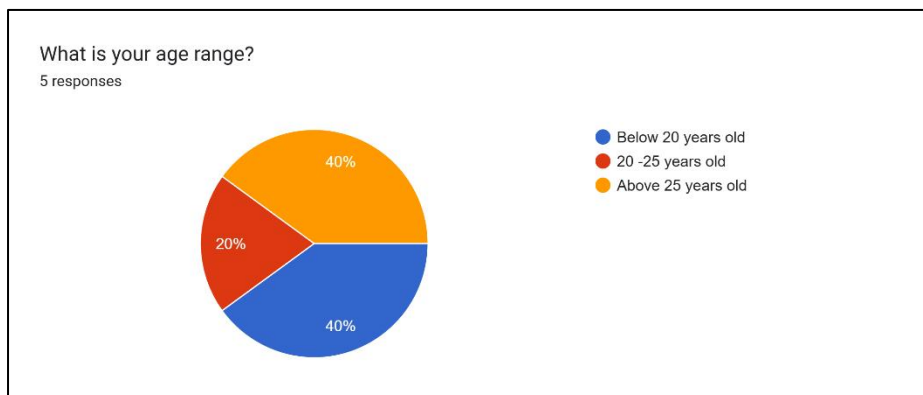


Figure 3.3: User questionnaire 2

Based on Figure 3.3, the data collected are the age group of the respondents. It shows that 40% are being classified in group below 20 years old, 20% are in their 20-25 years old, and another 40% are above 25 years old. The presence of an age-diverse population will also bring different views and opinions that can help improve the services of the cafe.

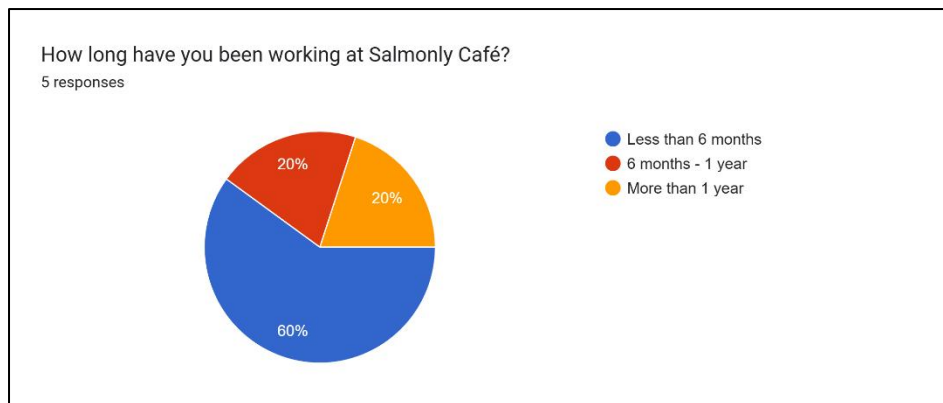


Figure 3.4: User questionnaire 3

Based on Figure 3.4, which surveys 5 users at Salmonly Café on the question “How long have you been working at Salmonly Café?”, the distribution of working tenure is as follows: 60% have been working for less than 6 months, 20% for 6 months-1 year, and 20% for more than 1 year. This result highlighted that most of them are new staffs and might having a problem recording stocks manually.

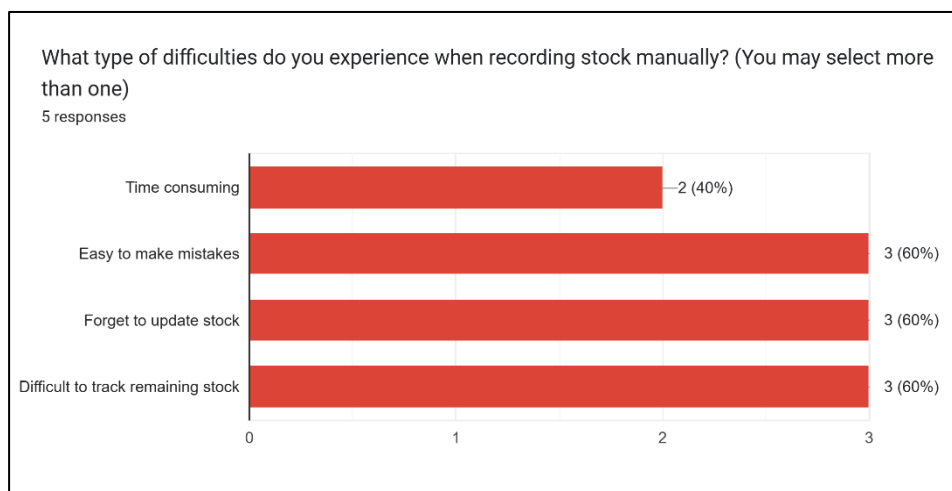


Figure 3.5: User questionnaire 4

Based on Figure 3.5, users are asked what type of difficulties do they experience when recording stock manually, and the result shows that 60% of the users easy to make mistakes with manual stock recording. 60% shows that they forget to update stock, another 60% difficult to track remaining stock, and the left 40% for the option “time consuming”. This result highlighted that the users having problems with recording stock manually and emphasize the need for a more efficient system.

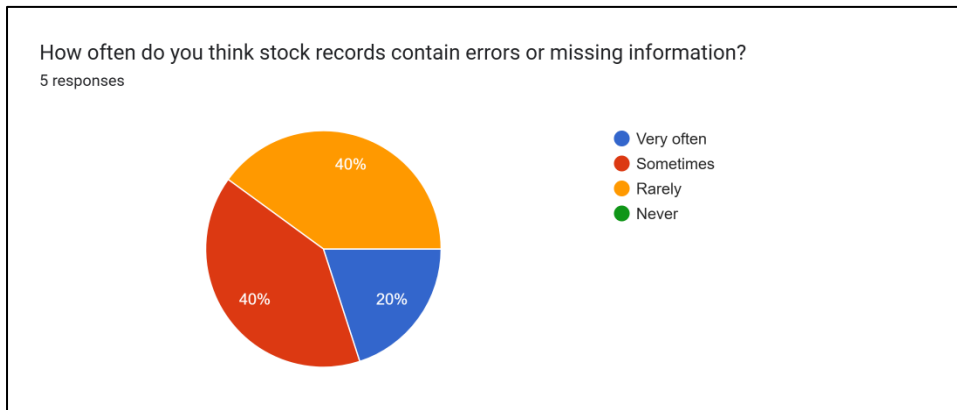


Figure 3.6: User questionnaire 5

Figure 3.6 shows the result for the question “How often do you think stock records contain errors or missing information?”. 40% of the users answer with sometimes, 40% with rarely, 20% with very often and no users indicate that stock records never contain errors or missing information. This proved that users are facing the problems of manual stock record that leads to human error and inaccurate information.

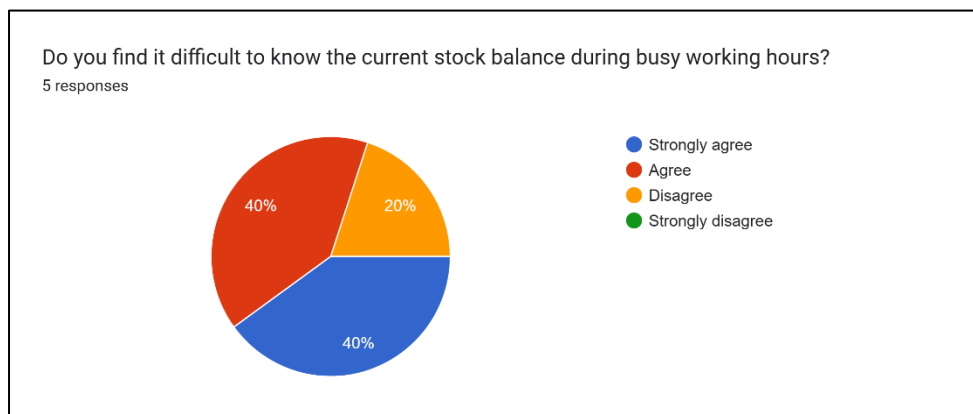


Figure 3.7: User questionnaire 6

Based on Figure 3.7, which surveys staff and admin of Salmonly Café on the question “Do you find it difficult to know the current stock balance during busy working hours?”, the result shows that 40% answered with “Strongly agree”, 40% with “Agree”, another 20% disagree and none of them answered with “Strongly disagree”. This result reveals that users often struggle to monitor stock levels efficiently under time pressure.

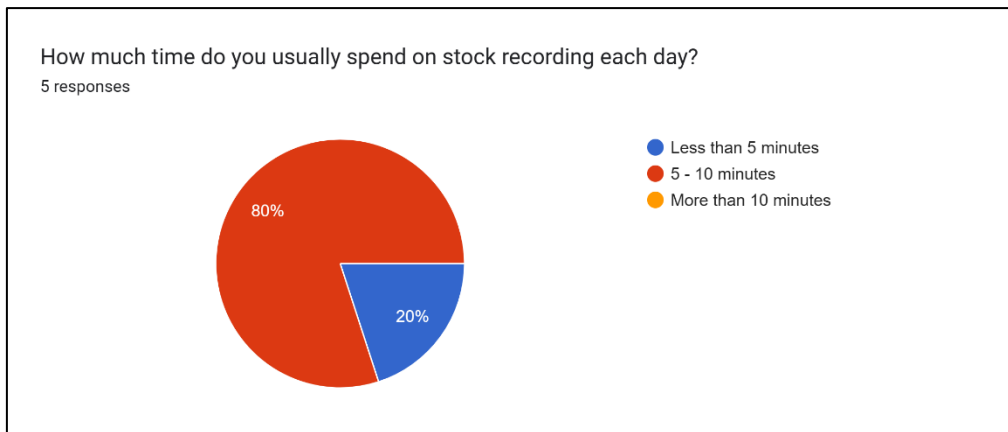


Figure 3.8: User questionnaire 7

Based on Figure 3.7, which surveys staff and admin of Salmonly Café on the question “How much time do you usually spend on stock recording each day?”, the result shows that 80% chose 5-10 minutes and another 20% chose less than 5 minutes. It should be noted that while the amount of time spent on stock recording is very minimal, stock reporting is a routine process and must be done in a consistent and accurate manner. The implementation of a computerized system would enable the automation of the process, reduce the amount of manual labour involved in completing the process, and increase the overall productivity of the stock recording process.

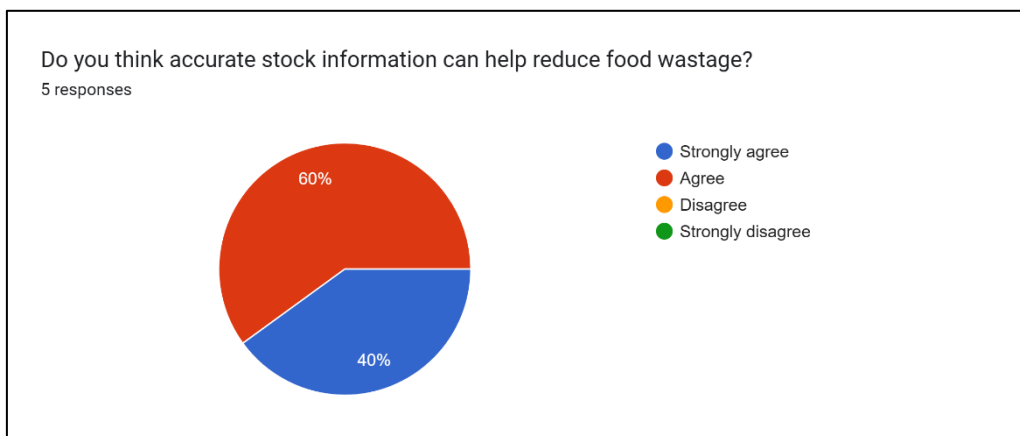


Figure 3.9: User questionnaire 8

Based on Figure 3.7, which surveys staff and admin of Salmonly Café on the question “Do you think accurate stock information can help reduce food wastage?”, the result shows that 60% chose agree, 40% chose strongly agree, while none chose disagree and strongly disagree. According to the responses, the staff and admin of Salmonly Café are all positively inclined to the value of precise inventory data. This shows that effective inventory control leads to the reduction of food wastage while increasing operational efficiency and reducing the unnecessary costs of the Café.

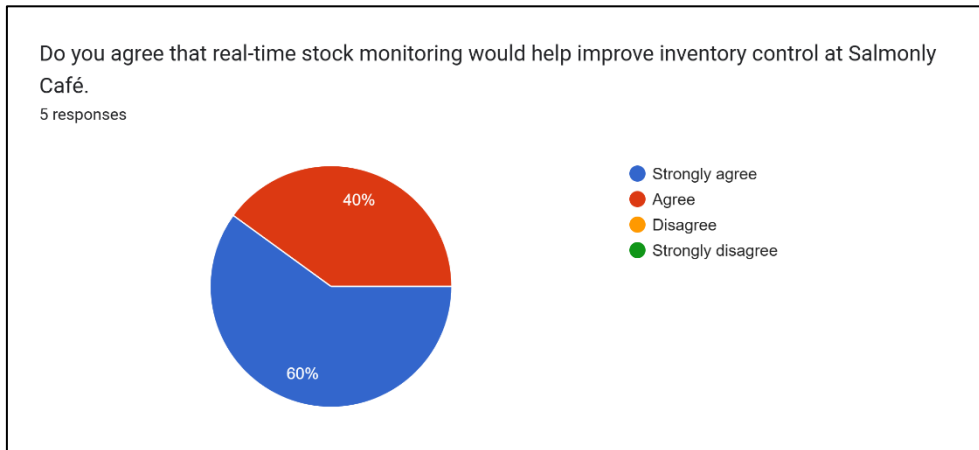


Figure 3.10: User questionnaire 9

Based on Figure 3.7, which surveys staff and admin of Salmonly Café on the question “Do you agree that real-time stock monitoring would help improve inventory control at Salmonly Café?”, the result shows that 60% selected “Strongly agree”, 40% selected “Agree”, and none chose “Disagree” or “Strongly disagree”. This shows that all respondents believe real-time stock monitoring can help improve inventory control and make stock management more efficient.

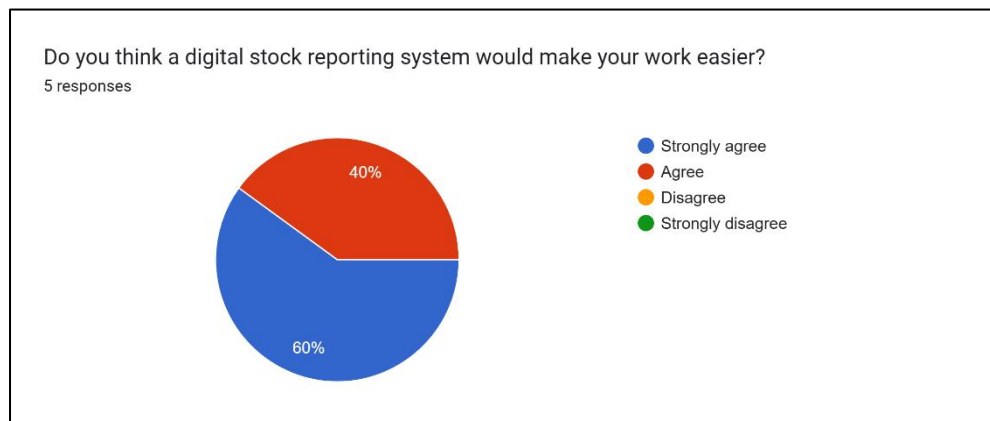


Figure 3.11: User questionnaire 10

Based on Figure 3.7, which surveys staff and admin of Salmonly Café on the question “Do you think a digital stock reporting system would make your work easier?”, the result shows that 60% of the users answered with “Strongly agree”, 40% with “Agree”, and none answered “Disagree” or “Strongly disagree”. This clearly shows a strong positive response, indicating that users believe a digital stock reporting system would simplify their tasks and improve overall work efficiency.

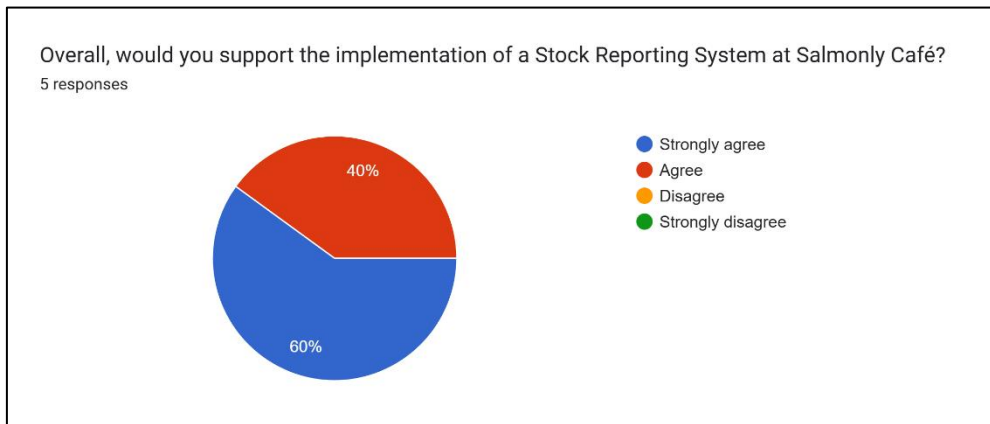


Figure 3.12: User questionnaire 11

Based on Figure 3.7, which surveys staff and admin of Salmonly Café on the question “Overall, would you support the implementation of a Stock Reporting System at Salmonly Café?”, the result shows that 60% of the usres answered with “Strongly agree”, 40% with “Agree”, and none answered “Disagree” or “Strongly disagree”. This reflects a strong level of support among respondents, indicating their confidence that the implementation of a Stock Reporting System would be beneficial in improving overall operations and efficiency.

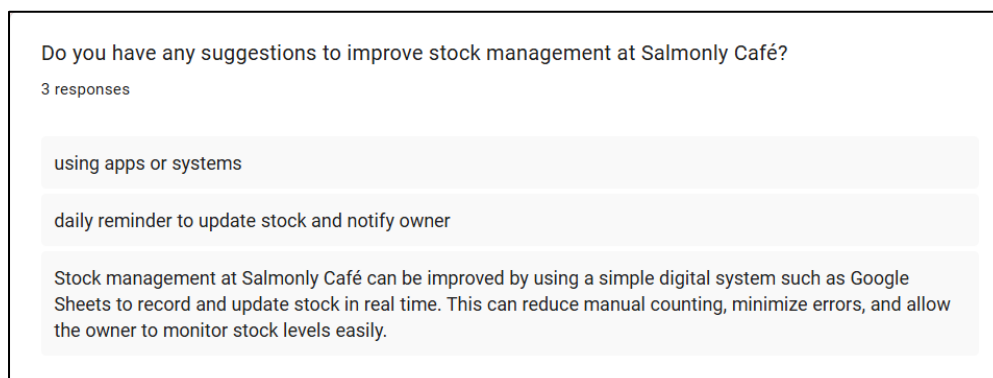


Figure 3.13: User questionnaire 12

From Figure 3.12, which summarizes the 3 respondents to the question "Do you have any suggestions to improve stock management at Salmonly Café?", several suggestions were identified. Respondents emphasized the importance of adopting digital solutions, such as using applications or systems to streamline stock management processes. In addition, suggestions such as setting daily reminders to update stock and notify the owner were highlighted to ensure consistency and accountability. One respondent also proposed the use of a simple digital platform like Google Sheets to enable real-time stock recording and monitoring. Overall, these responses reflect a strong need for a more systematic, efficient, and technology-driven approach to stock management, which can reduce manual errors, enhance accuracy, and improve operational efficiency within the café.

3.5 Interface Design

3.5.1 Wireframe

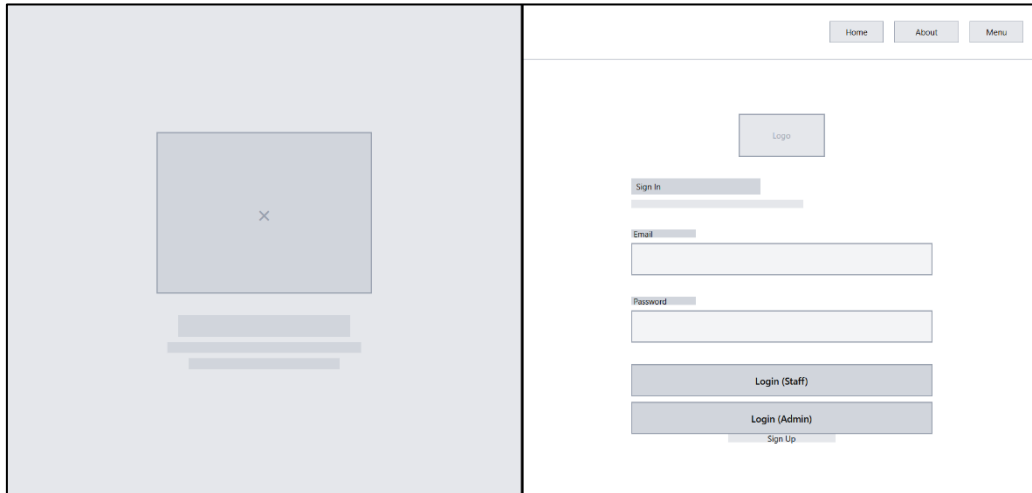


Figure 3.14: Login Page

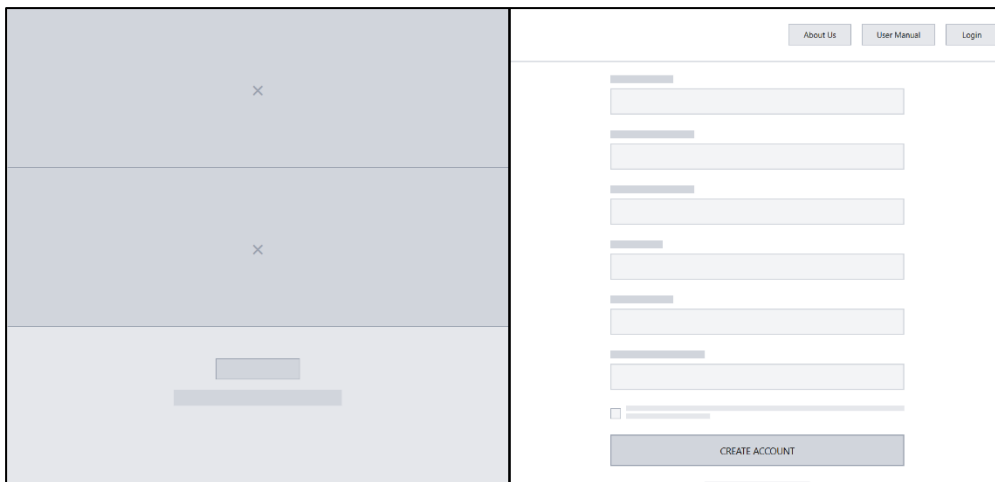


Figure 3.15: Register Page

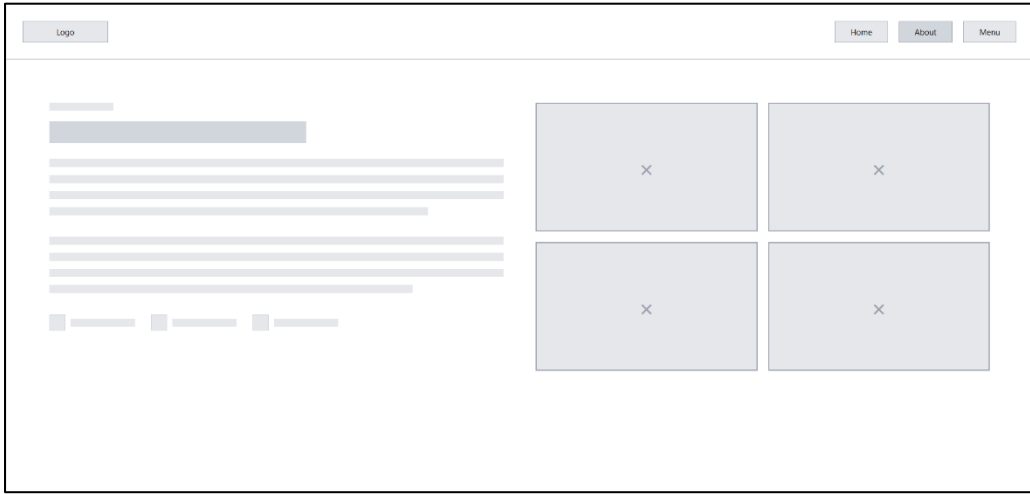


Figure 3.16: About Us Page

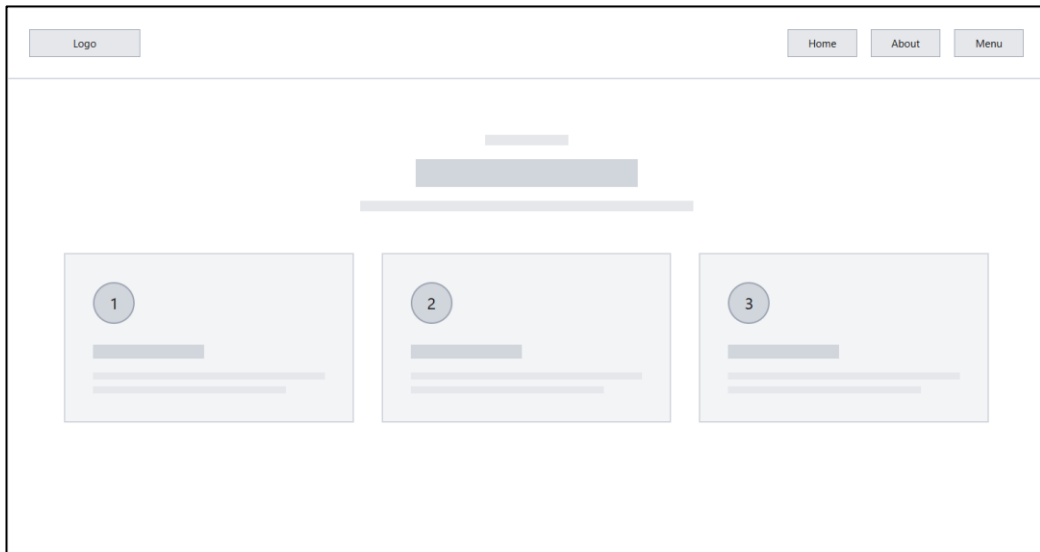


Figure 3.17: User Manual Page

Wireframe for admin:

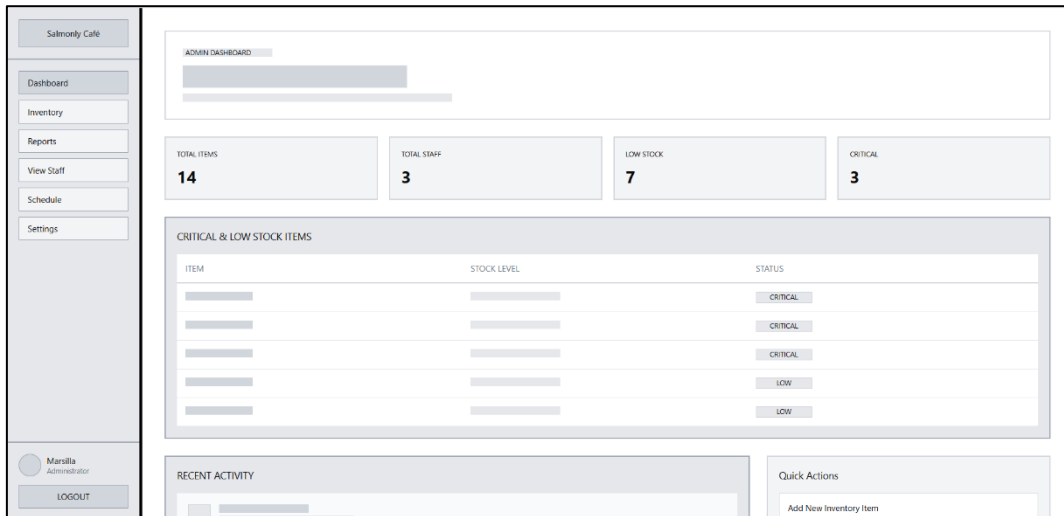


Figure 3.18: Admin Dashboard Page

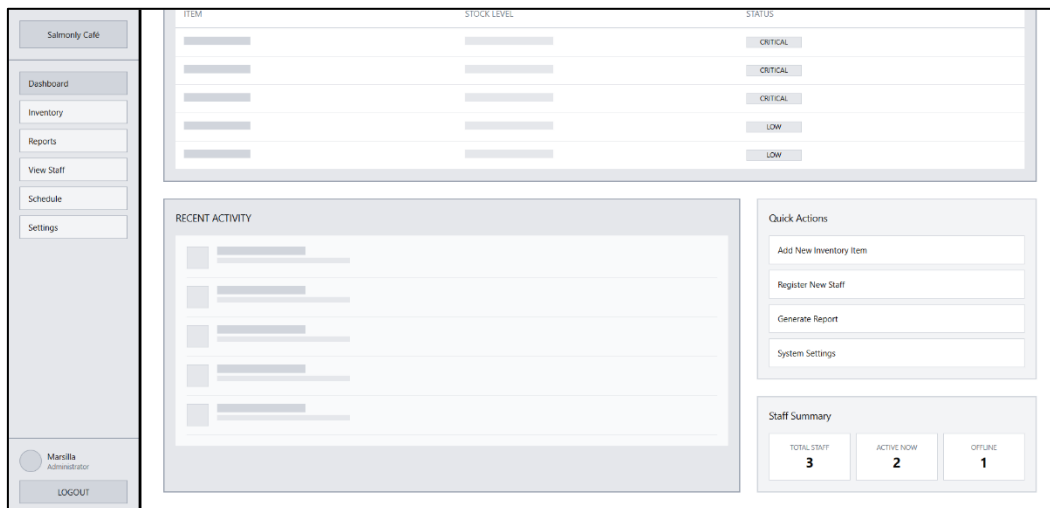


Figure 3.19: Admin Dashboard Page 1

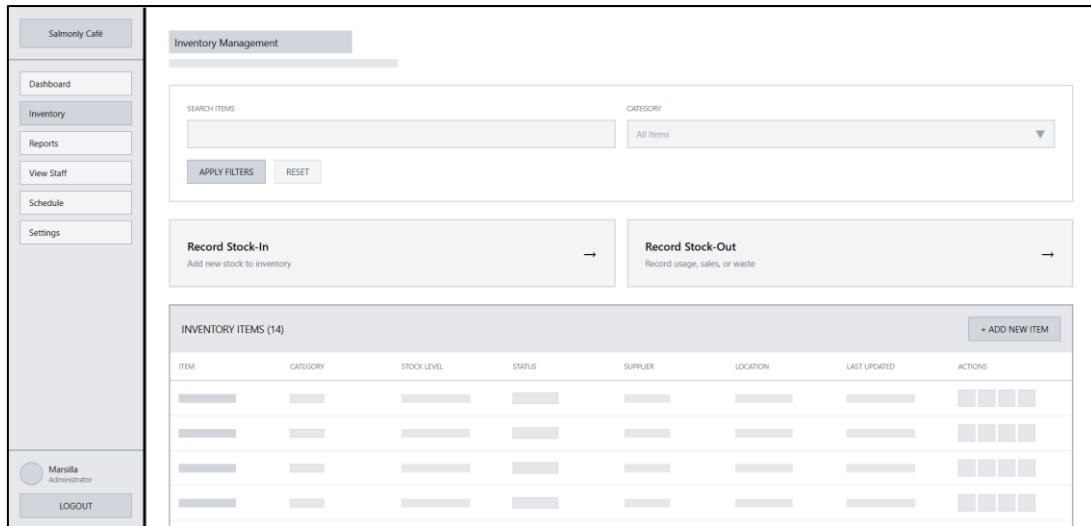


Figure 3.20: Admin Inventory Page

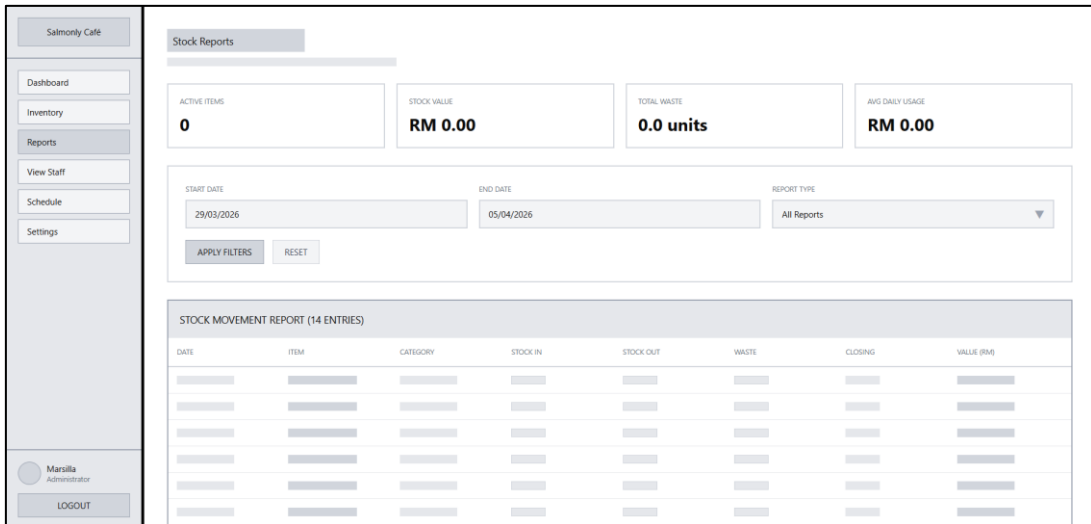


Figure 3.21: Admin Inventory Page 1

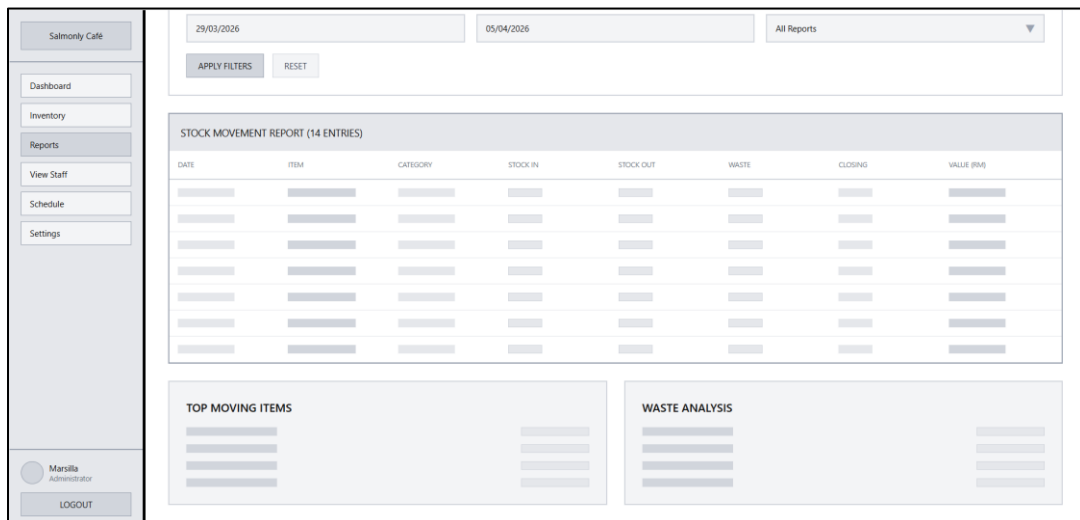


Figure 3.22: Admin Reports Page

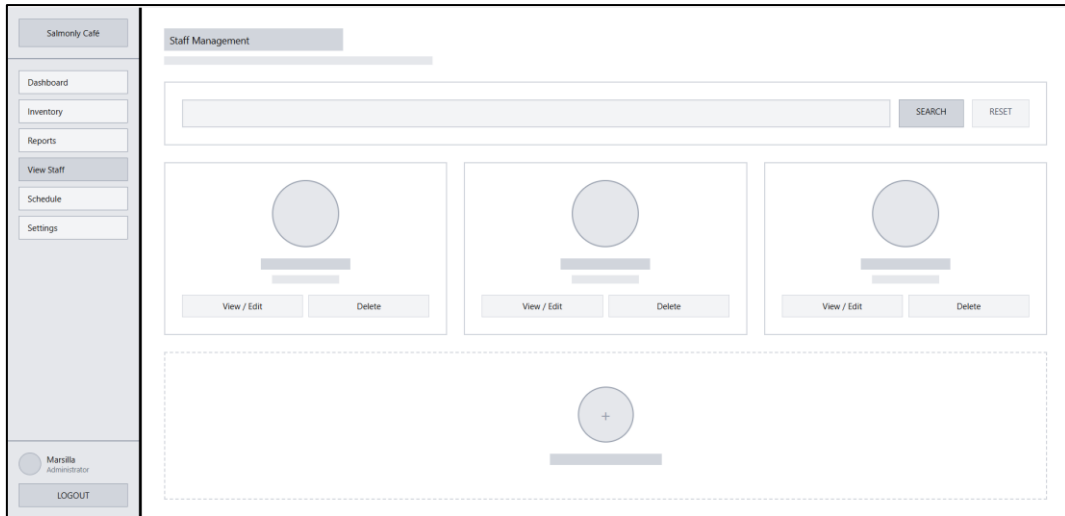


Figure 3.23: Admin View Staff Page

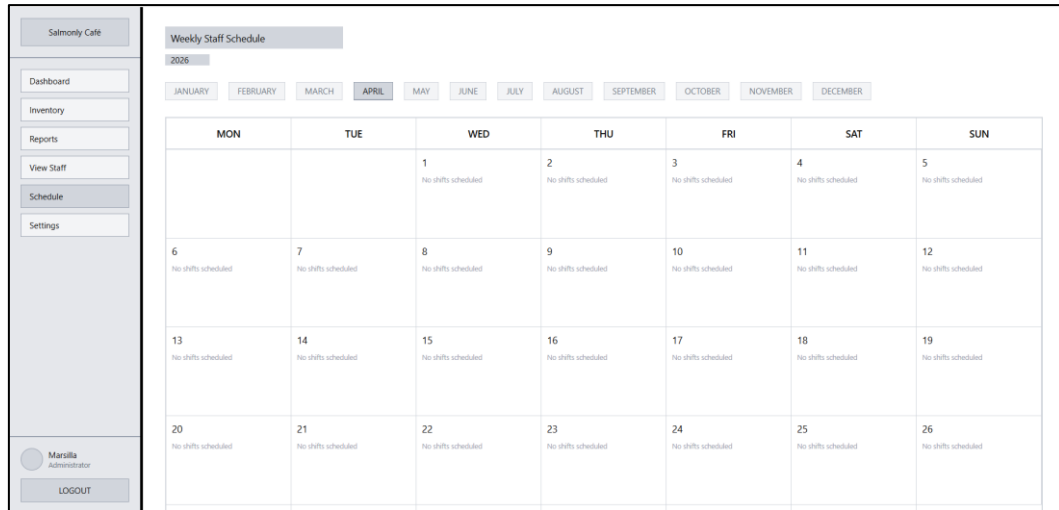


Figure 3.24: Admin Schedule Page

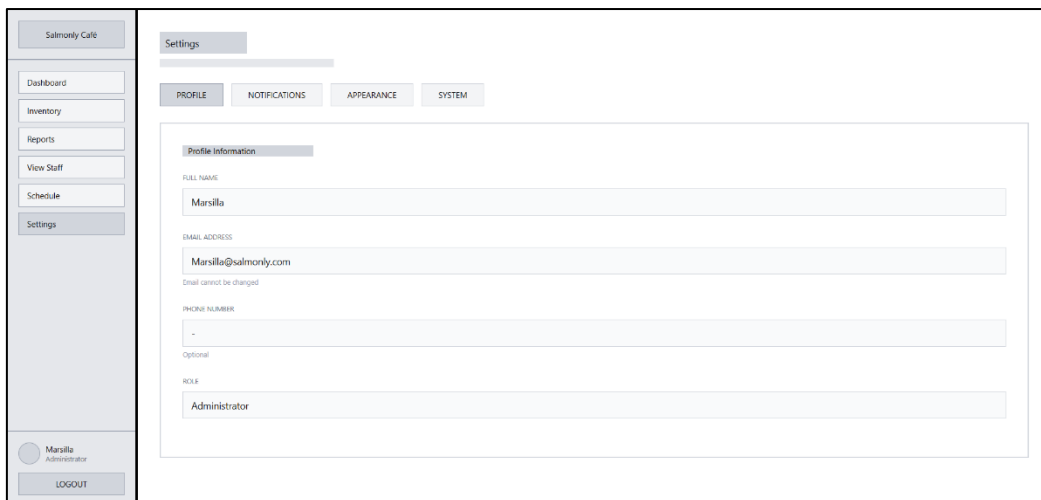


Figure 3.25: Admin Settings Page

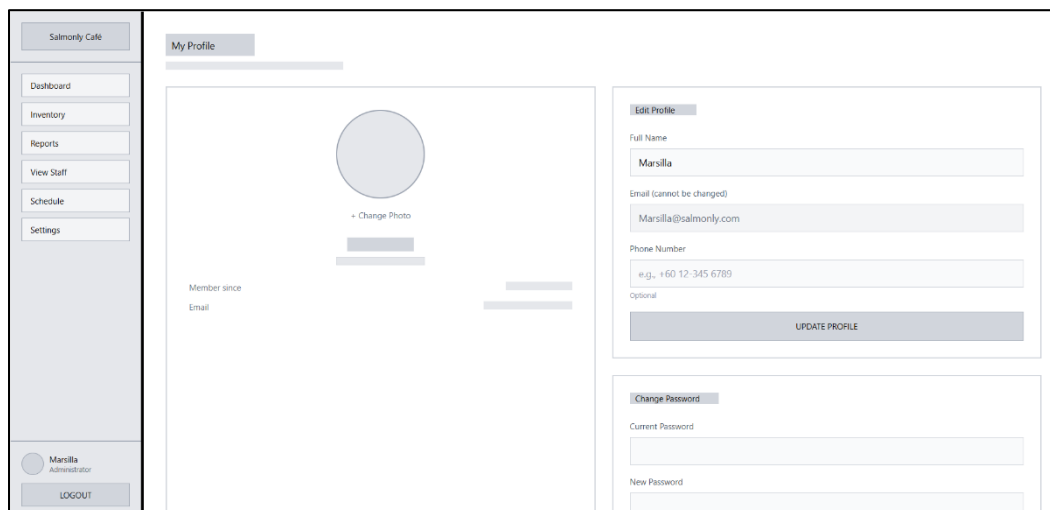


Figure 3.26: Admin Profile Page

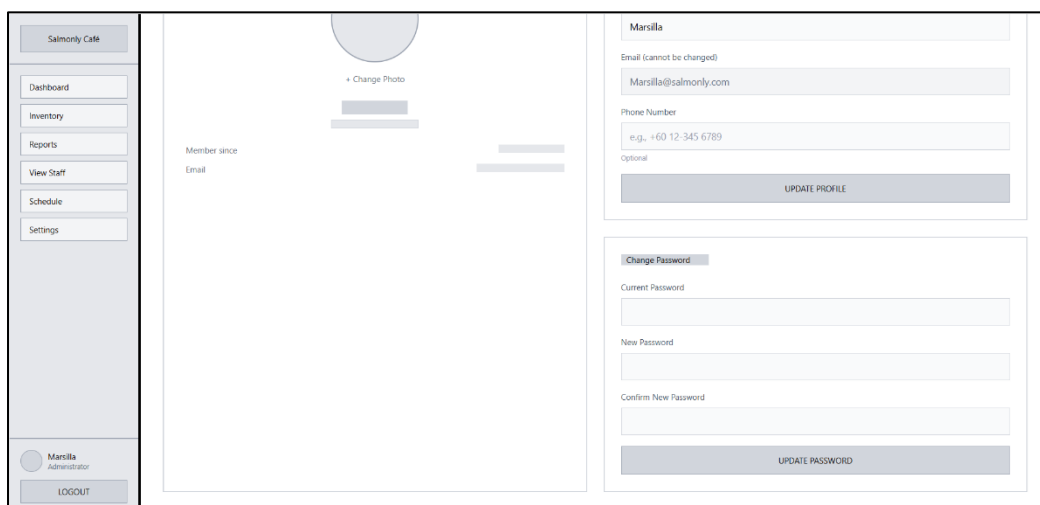


Figure 3.27: Admin Profile Page 1

Wireframe for staff:

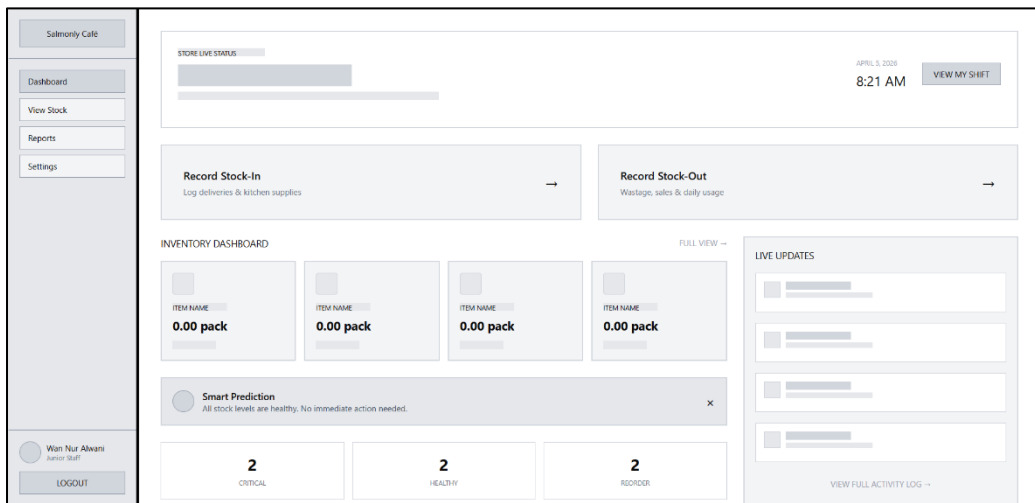


Figure 3.28: Staff Dashboard Page

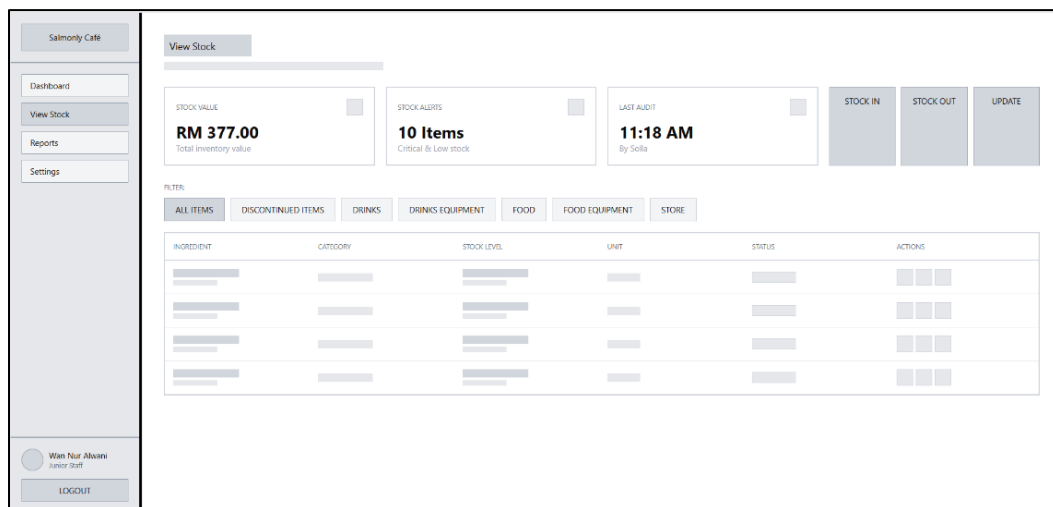


Figure 3.29: Staff View Stock Page

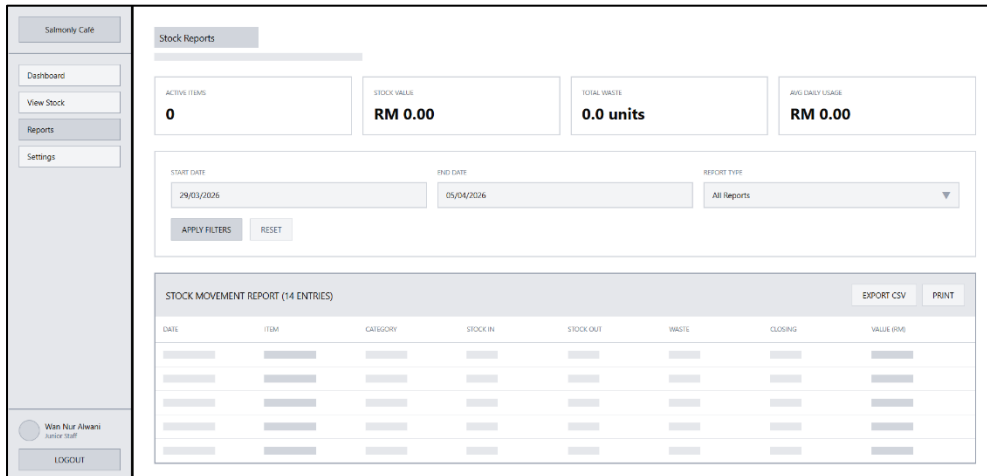


Figure 3.30: Staff Reports Page

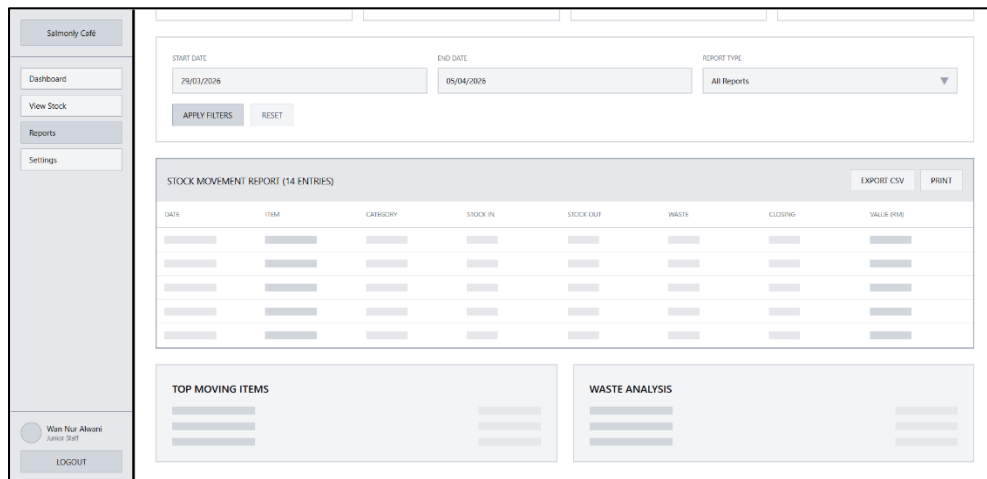


Figure 3.31: Staff Reports Page 1

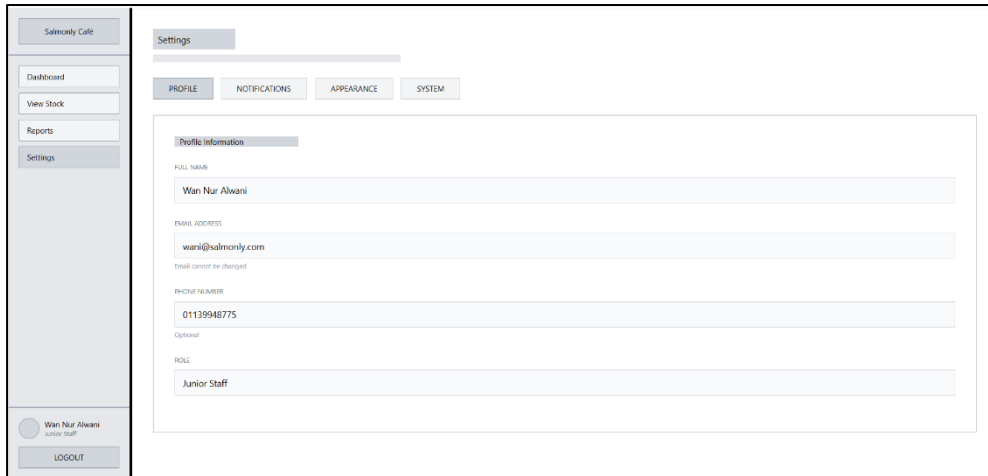


Figure 3.32: Staff Settings Page

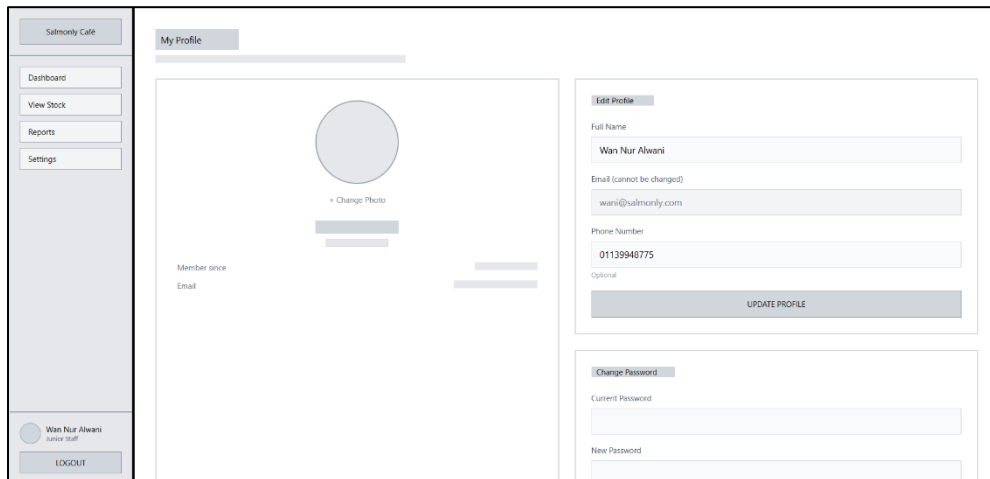


Figure 3.33: Staff Profile Page

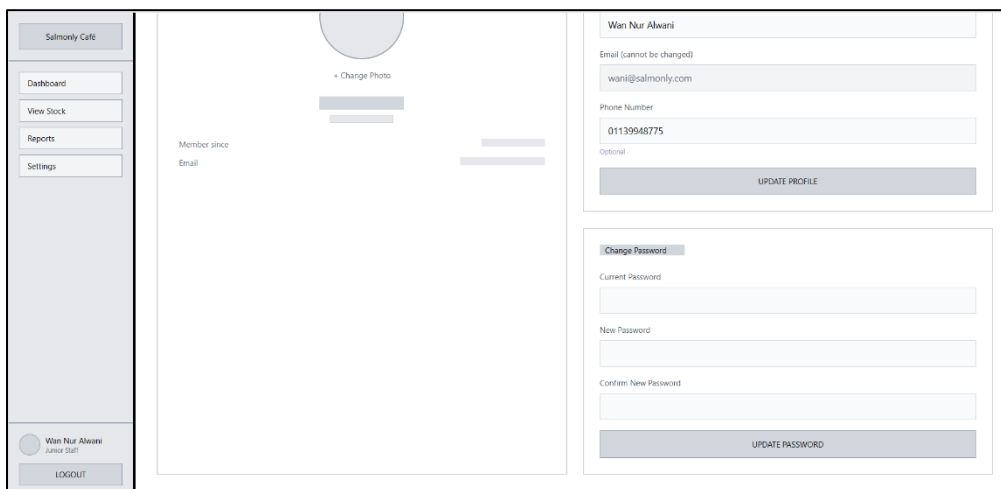


Figure 3.34: Staff Profile Page 1

3.5.2 Actual Interface

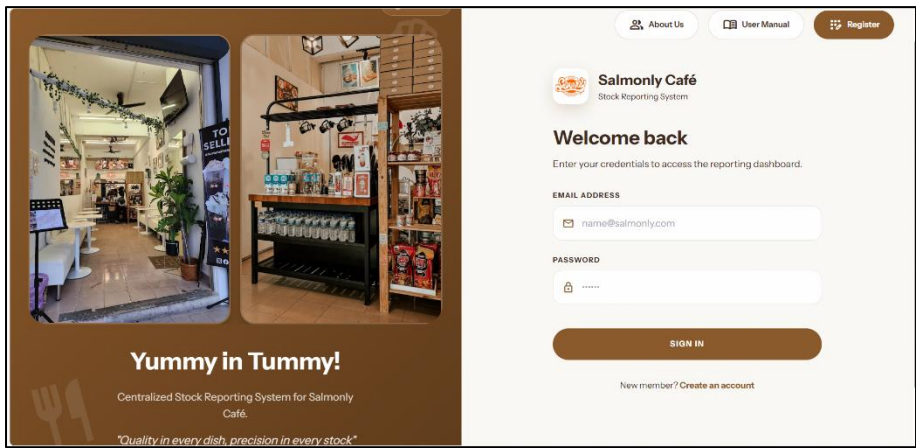


Figure 3.35: Login Page

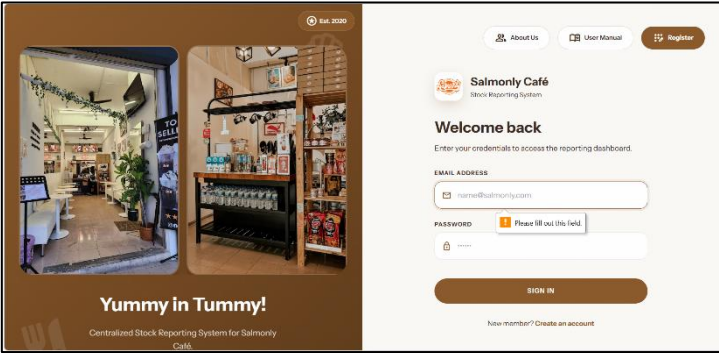


Figure 3.36: Login Page with Validation

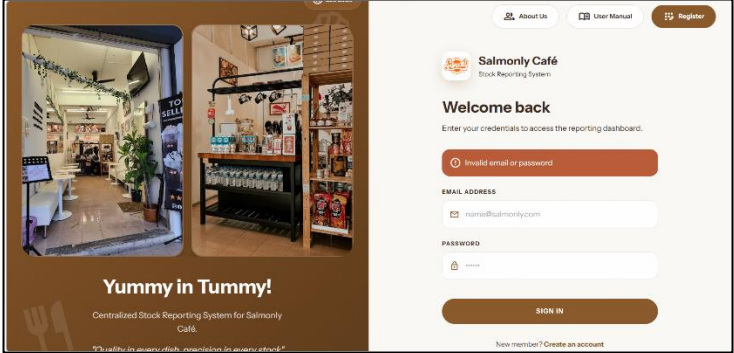


Figure 3.37: Login Page with Validation 1

Figure 3.35 shows the login page of Stock Reporting System for Salmonly Café. Figure 3.36 displays the initial login interface with fields for email address and password. Figure introduces a validation message prompting users to fill out the fields that are left blank. Figure 3.37 further enhances the validation process by checking the email format specifically, displaying an error message when an invalid email address is entered, and checking if the password entered is correct. This ensures a more secure and user-friendly authentication experience for all users.

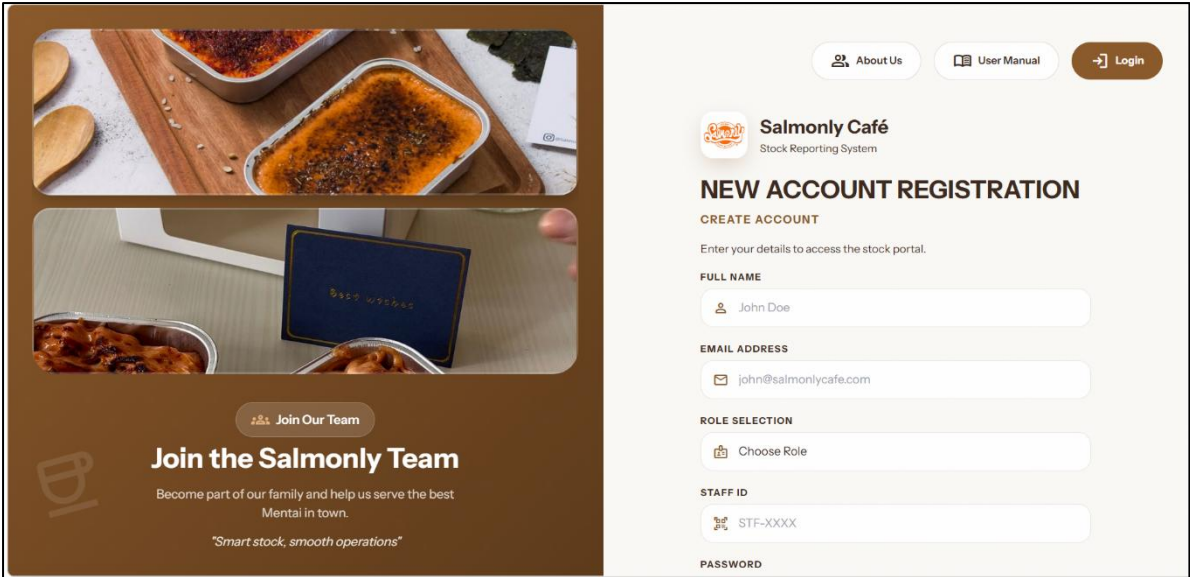


Figure 3.38: Register Page

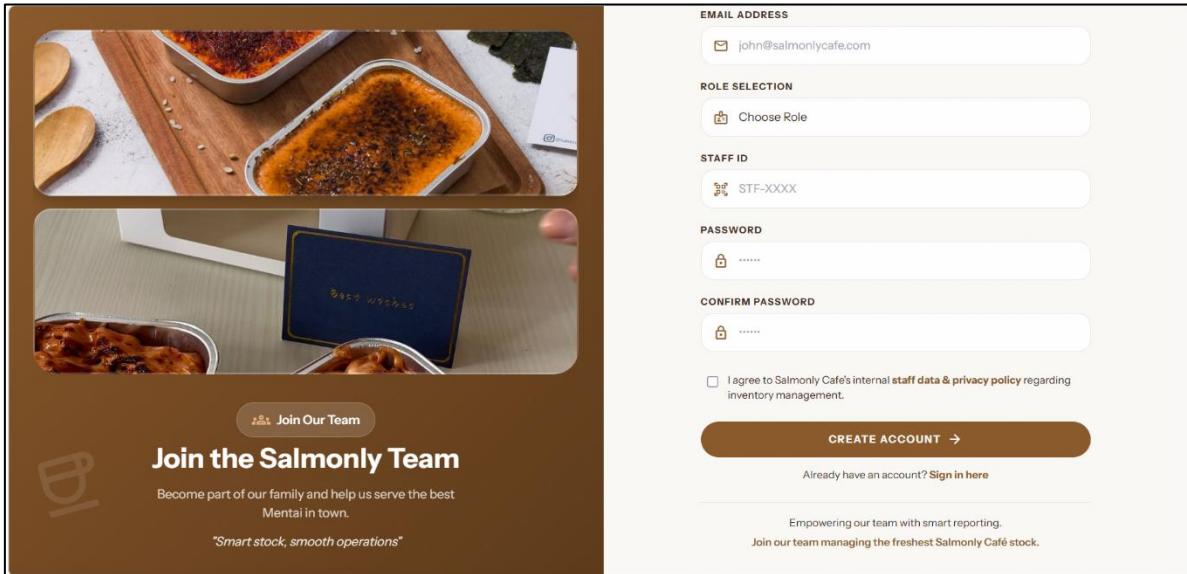


Figure 3.39: Register Page 1

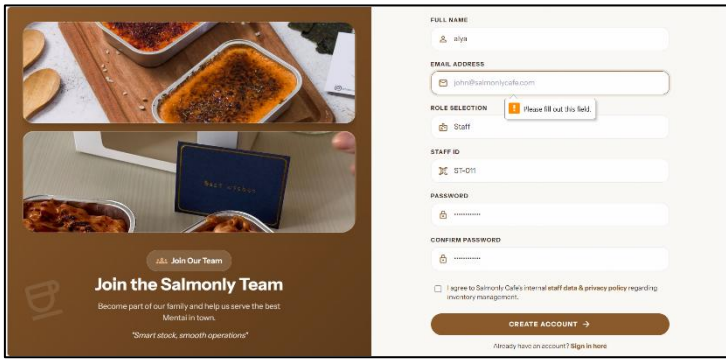


Figure 3.40: Register Page with Validation

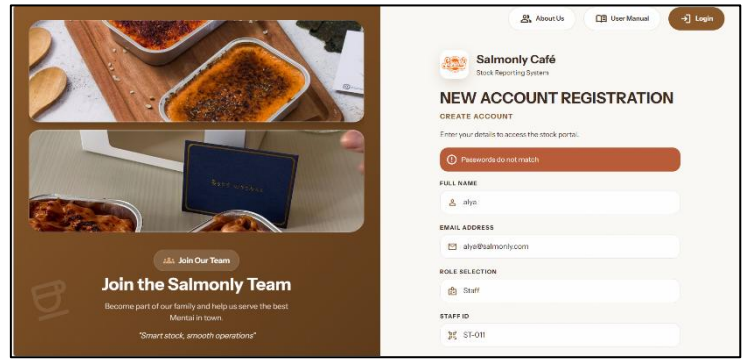


Figure 3.41: Register Page with Validation 1

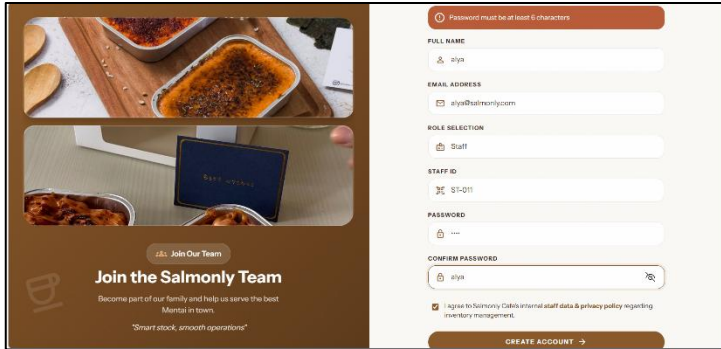


Figure 3.42: Register Page with Validation 2

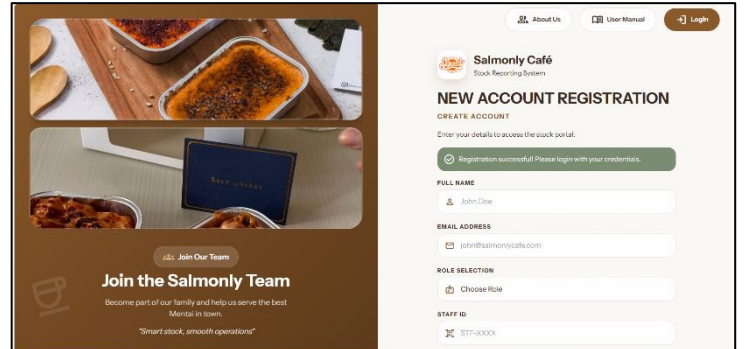


Figure 3.43: Register Page Successful

Figure 3.38 and 3.39 show the initial interface of registration page of Stock Reporting System for Salmonly Café with all the fields that need to be entered by staff or admin. Figure 3.40 introduced the validation if the fields are left empty with the pop-up text “Please fill out this field.” Figure 3.41 shows the validation for text in field “Password” are not match with the field “Confirm Password”. Figure 3.42 enhances the validation of password format which should be at least 6 characters. Figure 3.43 shows that the system displays a success message upon successful registration. With all these validations, this ensures a secure and successful account registration process for both staff and admin of Salmonly Café.

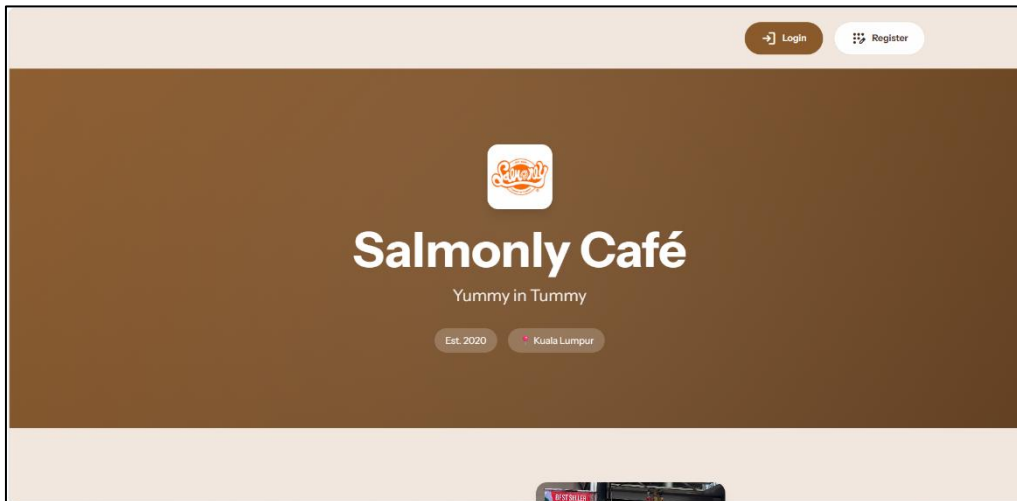


Figure 3.44: About Us Page

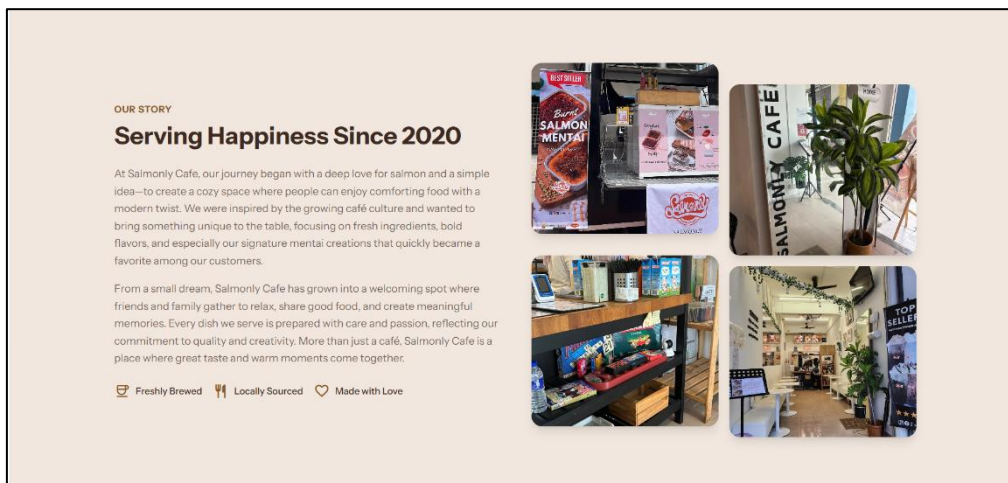


Figure 3.45: About Us Page 1

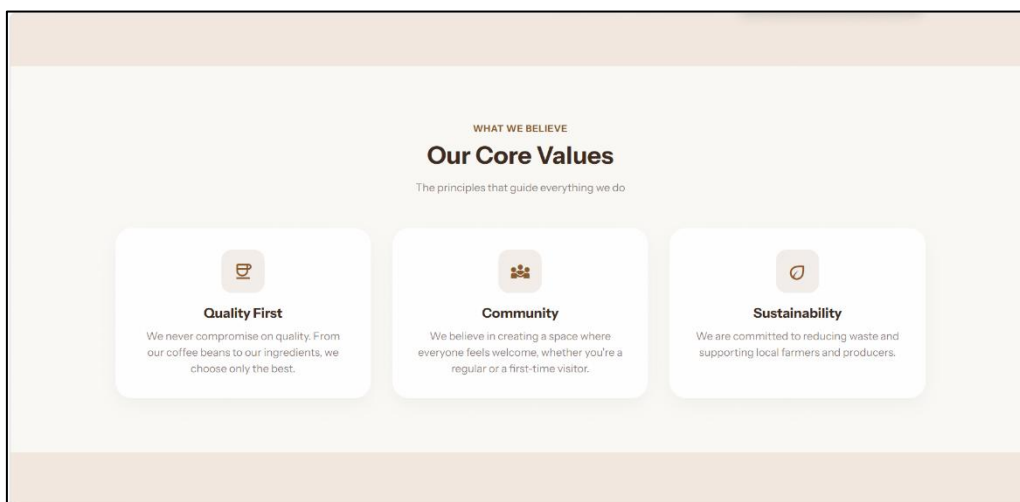


Figure 3.46: About Us Page 2

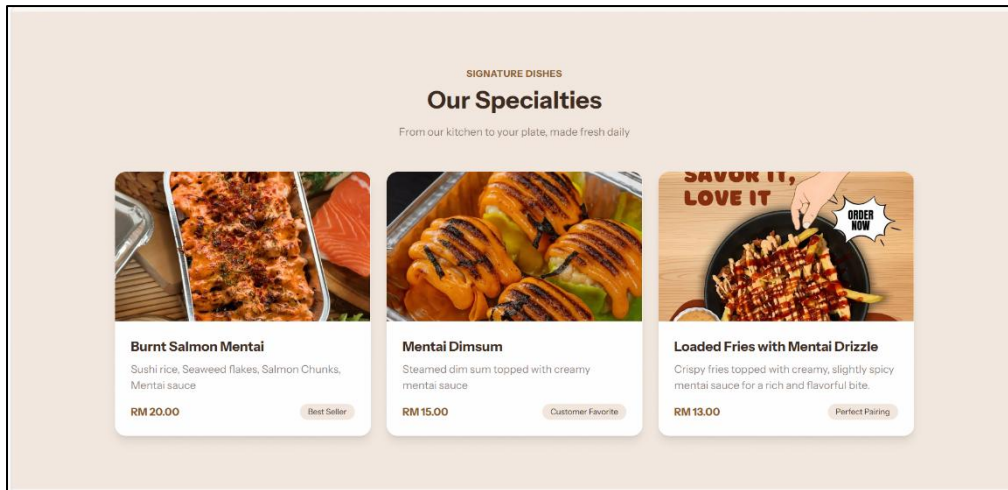


Figure 3.47: About Us Page 3

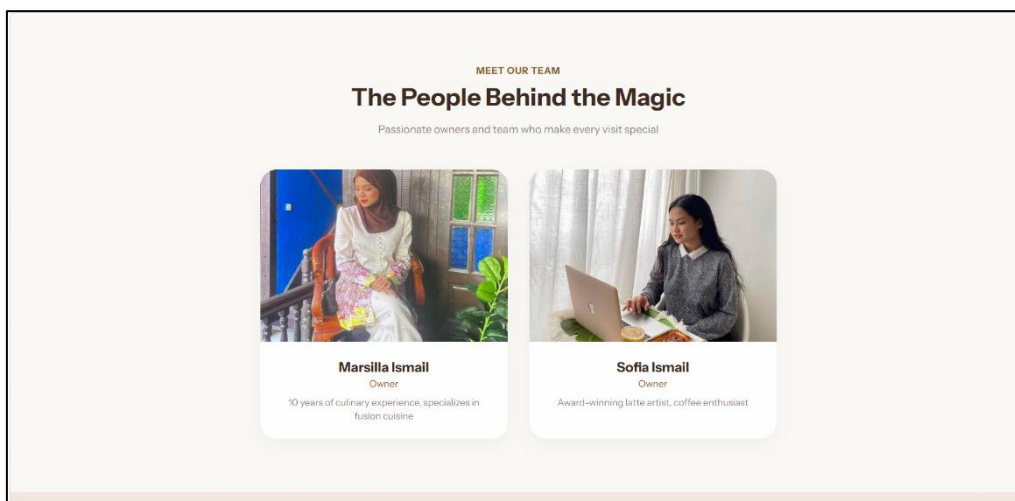


Figure 3.48: About Us Page 4

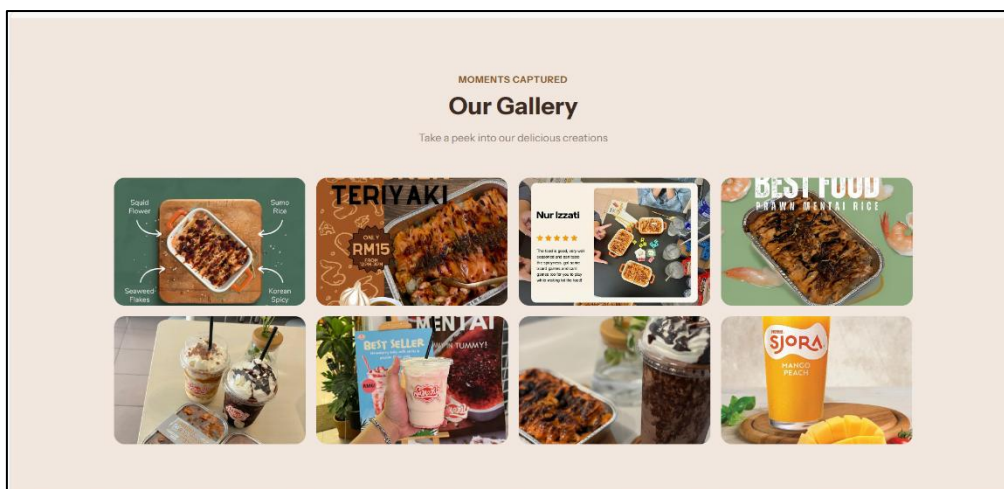


Figure 3.49: About Us Page 5

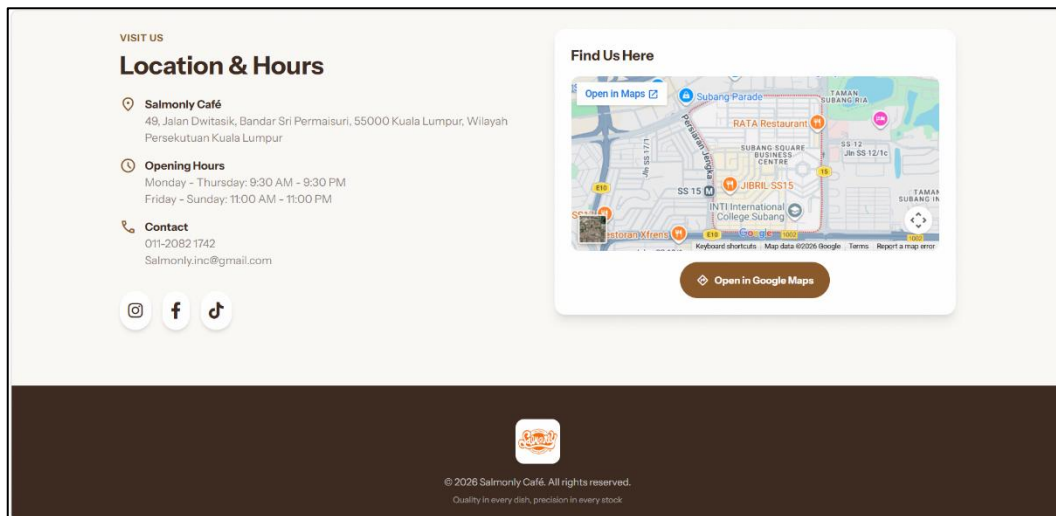


Figure 3.50: About Us Page 6

Figure 3.44 until Figure 3.50 show the About Us page for this system. In this page, users can read the information about Salmonly Café, its story, overall concepts, and its services. Figure 3.49 presents the related picture about Salmonly Café where users can learn more about the café. Figure 3.50 provided the location, working hours, contact information, and social media icon where users can click and will lead to its social media. With this About Us page being provided, it helps user gain better understanding and become more familiar with the business and what it aims to deliver.

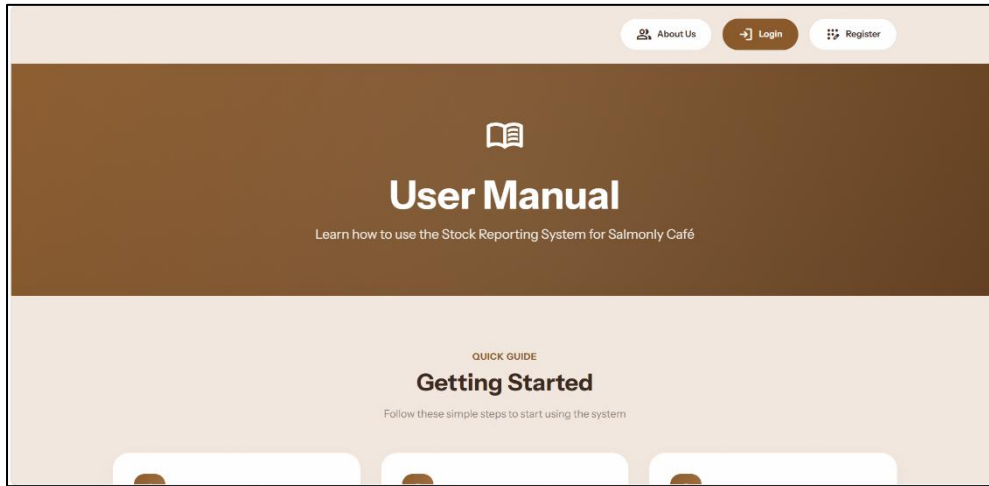


Figure 3.51: User Manual Page

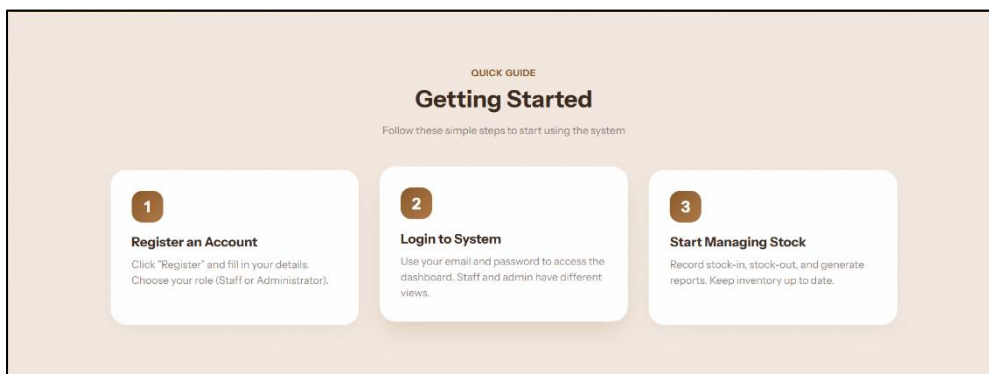


Figure 3.52: User Manual Page 1

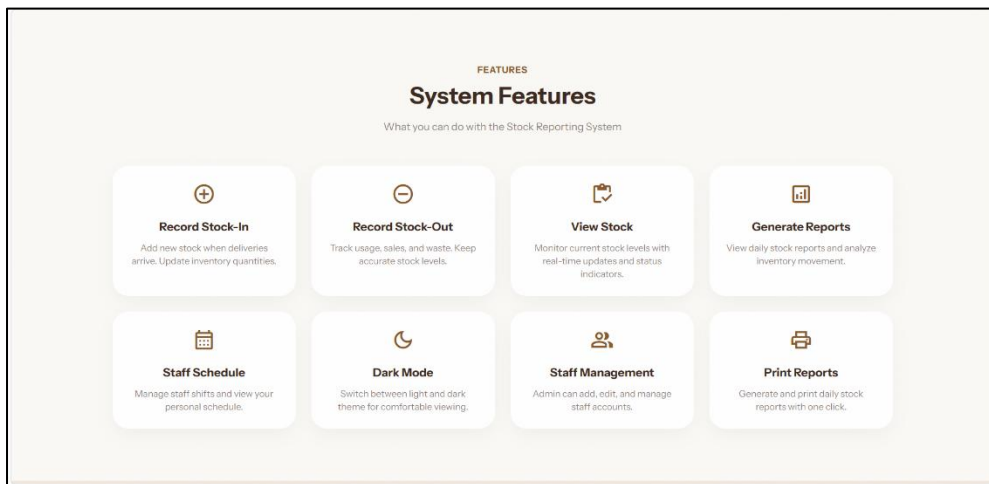


Figure 3.53: User Manual Page 2

Figure 3.51, 3.52, and 3.53 are designed to guide users in navigating and using the system effectively. It provides step-by-step instructions and further descriptions of each feature that are available in the system.

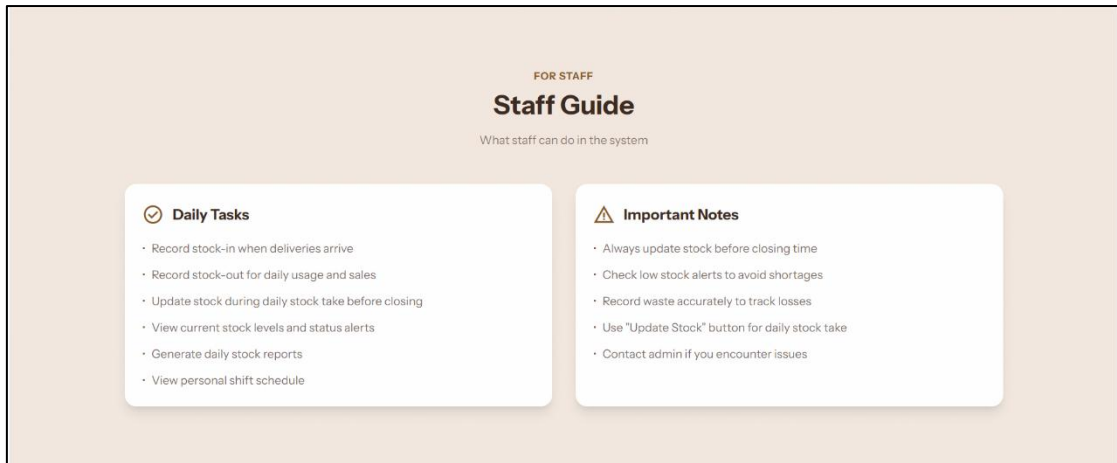


Figure 3.54: User Manual Page 3

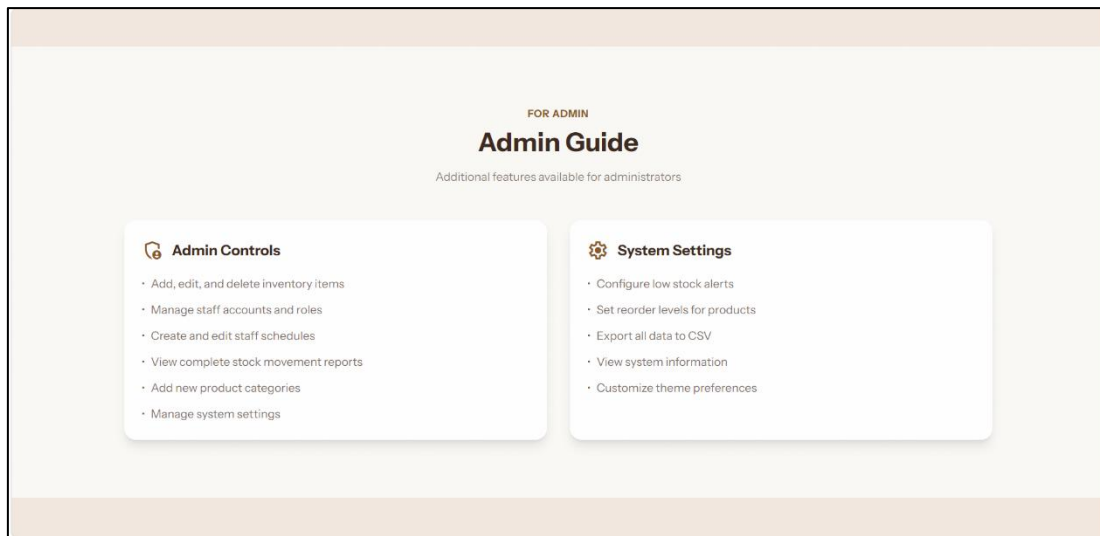


Figure 3.55: User Manual Page 4

Figure 3.54 and 3.55 represent the basic guide for both staff and admin. These play an important role which allowing user to understand the workflow and complete their tasks smoothly.

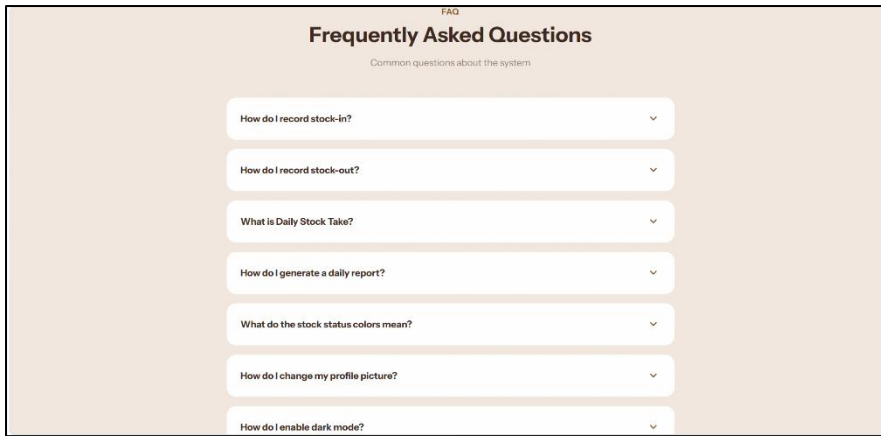


Figure 3.56: User Manual Page 5

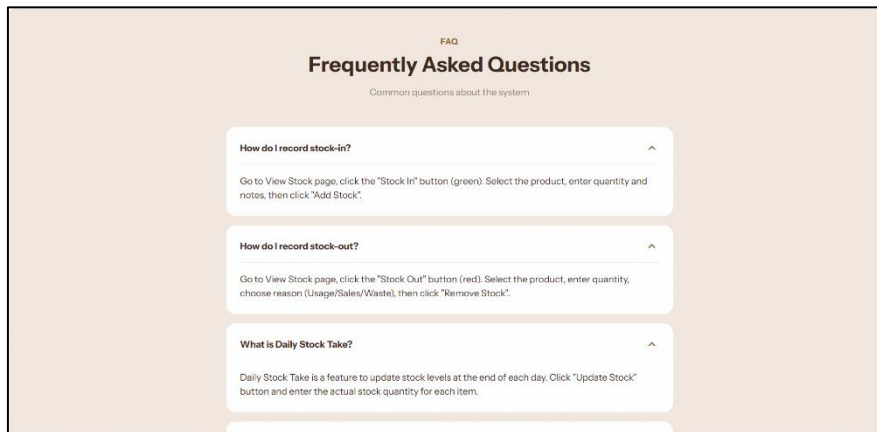


Figure 3.57: User Manual Page 6

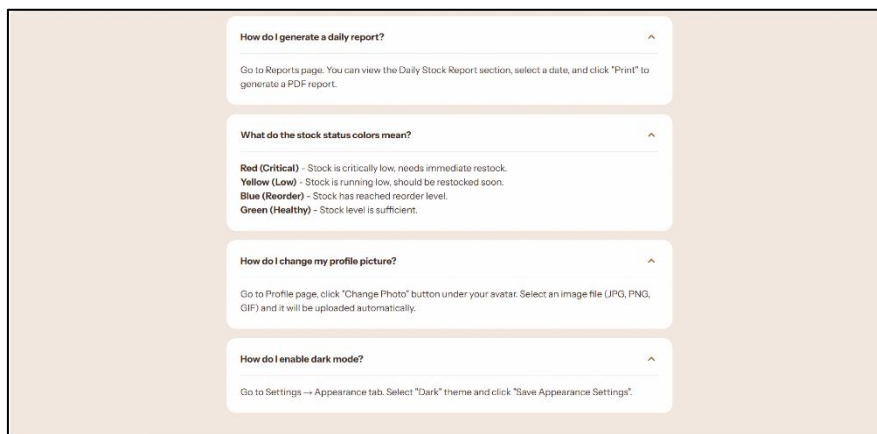


Figure 3.58: User Manual Page 7

Figure 3.56, 3.57, and 3.58 are the Frequently Asked Questions (FAQ) page, where users can access the commonly asked questions related to the system and their corresponding answer. This is important because users may search for the information that might not be in the user guide.

Interface for admin:

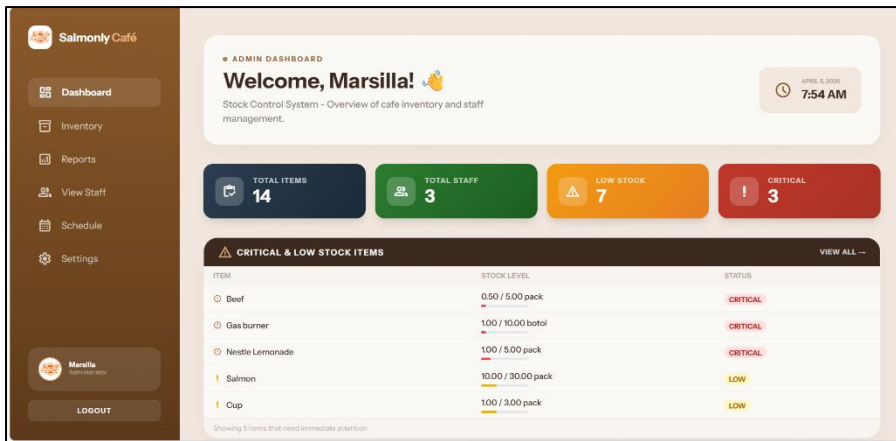


Figure 3.59: Admin Dashboard Page

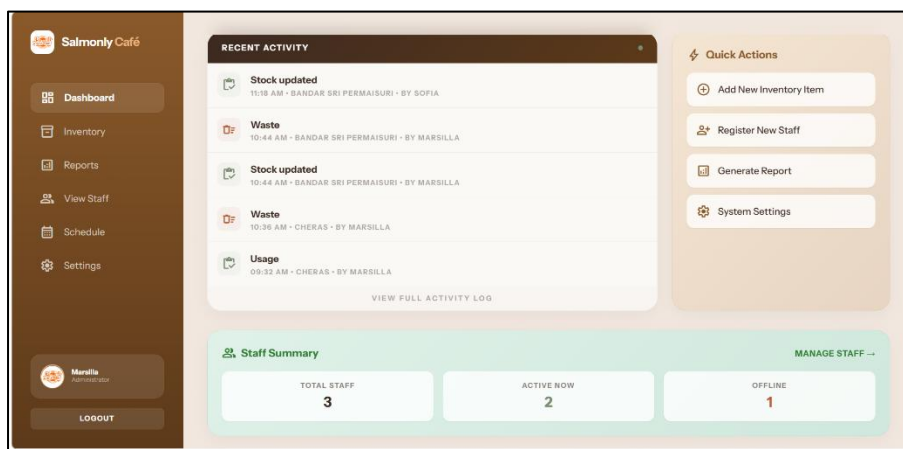


Figure 3.60: Admin Dashboard 1 Page

Figure 3.59 and 3.60 show the admin dashboard of Stock Reporting System. In Figure 3.59, the top section displays four summary cards that represent the Total Item, Total Staff, Low Stock, and Critical. There is a table below the summary cards which represents the 'Critical & Low Stock Items' namely Beef, Gas burner, and Nestle Lemonade as having a CRITICAL status, and Salmon and Cup with LOW status. Each item is shown with the current stocked quantity against the maximum stocking quantity. The admin can view all the items in this section by clicking on the "View All" hyperlink. In addition, this section provides information to the owner on the ingredients that need to be reordered asap.

Figure 3.60 displays multiple entries in the "Recent Activity" section shows the latest stock transactions including the time, location, and staff who performed each transaction. It displays the total number of staff, active staff, and inactive staff. On the right-hand side you will see a number of "quick action" buttons to allow you to quickly perform a function such as adding new inventory items, registering new staff, generate reports, and accessing the settings menu. All of these interfaces combined allow the admin to keep track of daily activity, monitor low stock items, and effectively manage staff through a single dashboard.

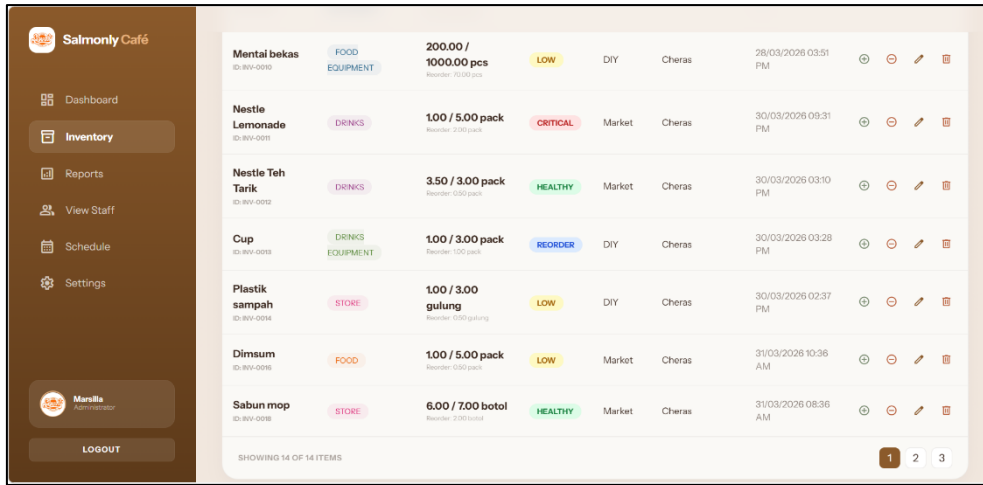


Figure 3.61: Admin Inventory Page

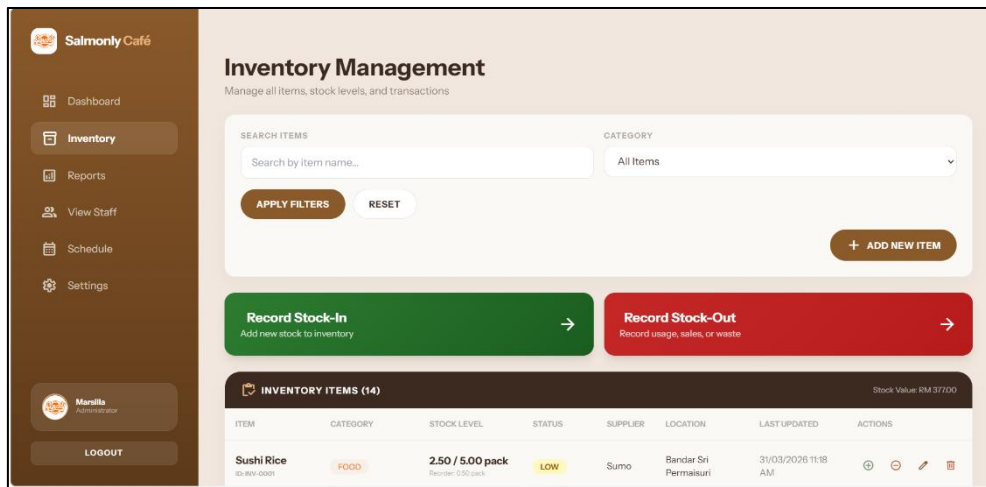


Figure 3.62: Admin Inventory Page 1

Figure 3.61 and 3.62 show the inventory management page where admin can view and manage all the stock items. There are several key features located at the top of this page, including a Search Bar to locate specific items, Categories to filter by Product Type, Apply and Reset filters, and the addition of products via the Add New Item button. The table contains a list of all items with the information of item's name, category, stock level, status, supplier, location, last date updated, and action buttons for stock-in, stock-out, edit, or delete. Two large buttons at the top of the page that allow the admin to record either a stock-in or a stock-out transaction instantly.

In Figure 3.62, a card view of the same inventory list is presented. The card features several headers that shows product name, category, stock level, max stock level, unit, status such as low, critical, healthy, and reorder, supplier, location, and last updated. For example, the "Mental bekas" item has 200.00 of 1000.00 pcs shown with a LOW status, while the "Nestle Lemonade" item has 1.00 of 5.00 pack with a CRITICAL status. The card layout allows an admin to easily see all of the products and quickly see which items require attention. The two views work together to provide a complete inventory management system, where the admin can view the stock levels, see all product details, and take action on any of the units.

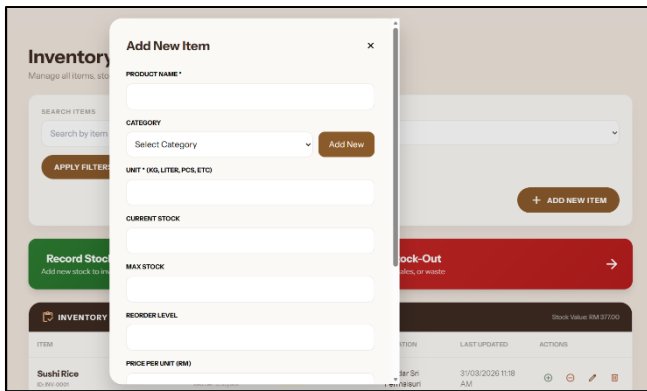


Figure 3.63: Add New Item Modal

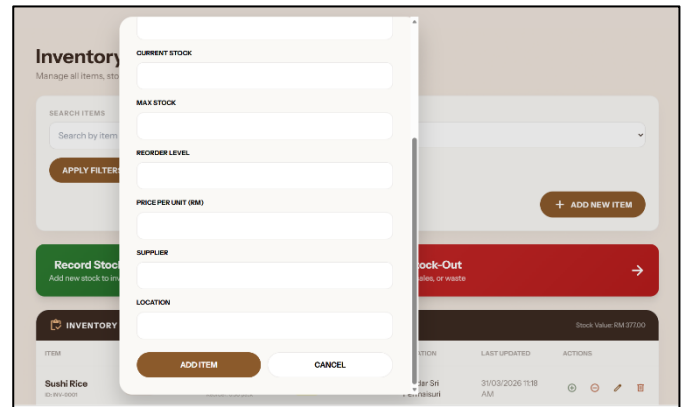


Figure 3.64: Add New Item Modal 1

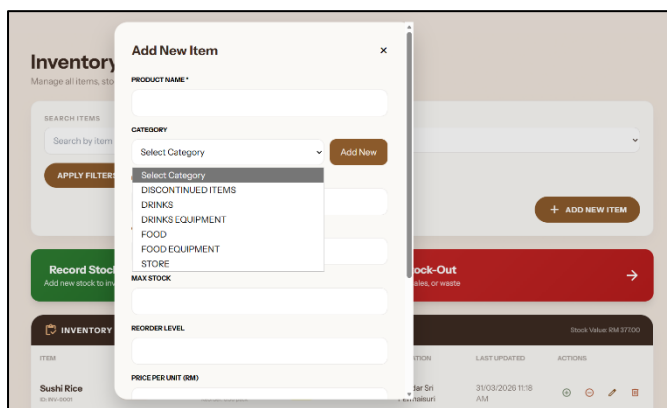


Figure 3.65: Add New Item Modal with Dropdown

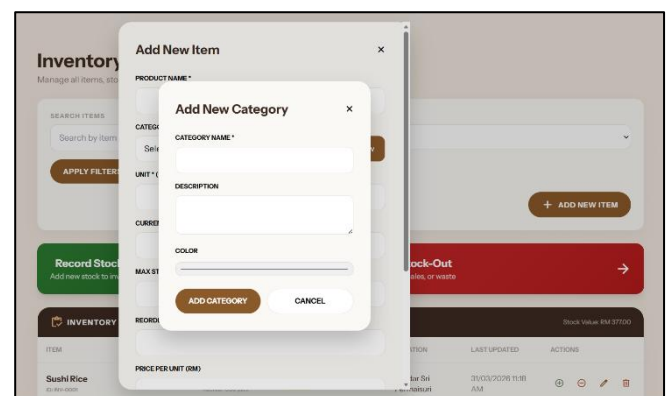


Figure 3.66: Add New Item Modal with Dropdown 1

Figure 3.63 until 3.66 show the modal or form to add a new item to the inventory. Figure 3.63 and 3.64 show that admin needs to fill in product details such as product name, category, unit, current stock, max stock, reorder level, and price per unit. Admin can also create a new category of products using the form, simply by clicking the add new button at the right side of the category dropdown. This will make it easy for an admin to create new categories immediately, without exiting the form page.

Figure 3.65 shows the dropdown of category that are available in the system including Discontinued Items, Drinks, Drink Equipment, Food, Food Equipment. Admin may select the desire category for the new product that they want to add.

Figure 3.66 shows the modal or form to add new category on the spot. Admin needs to fill in the the category name, description, and a colour that will represents the category. The forms also assist the admin in creating new products and categories which aids the admin in adding more to the inventory for Salmonly Café.

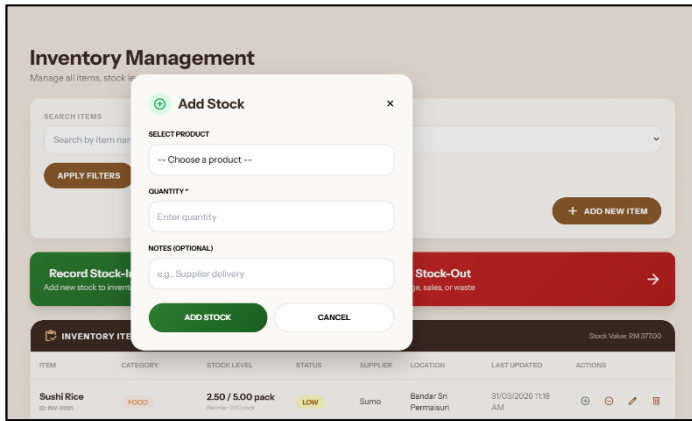


Figure 3.67: Add Stock Modal

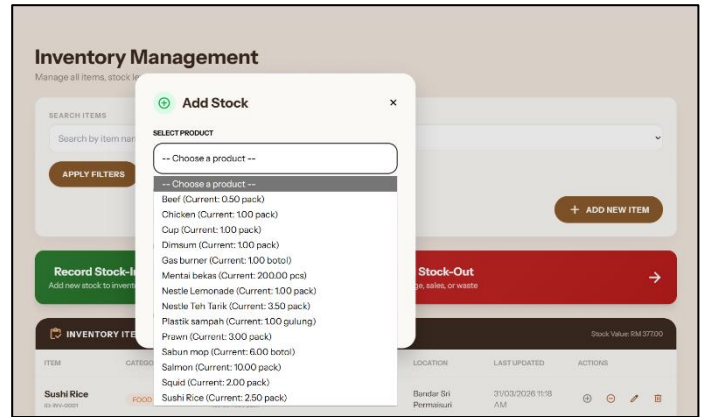


Figure 3.68: Add Stock Modal with Dropdown

Figure 3.67 and 3.68 show add stock modal that will pop-up when admin click the “Add Stock” button. They need to choose the product from the drop down menu, input the number of stock received and optionally indicate the supplier delivers as a note corresponding to the quantity received. Clicking on the “Add Stock” button will updates the current stock of the product and records the transaction in the system.

In Figure 3.68, the dropdown helps users see the current stock of each product before deciding to add or remove stock. This simplify the process of updating the inventory levels instead of having to rely on the manual logbook method that would have required the staff to write everything down by hand and calculate by hand.

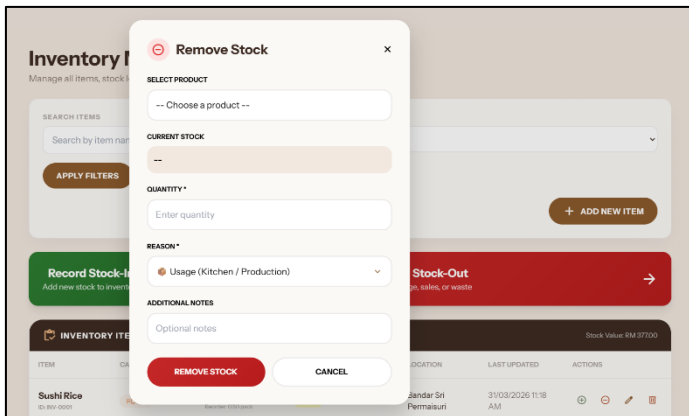


Figure 3.69: Remove Stock Modal

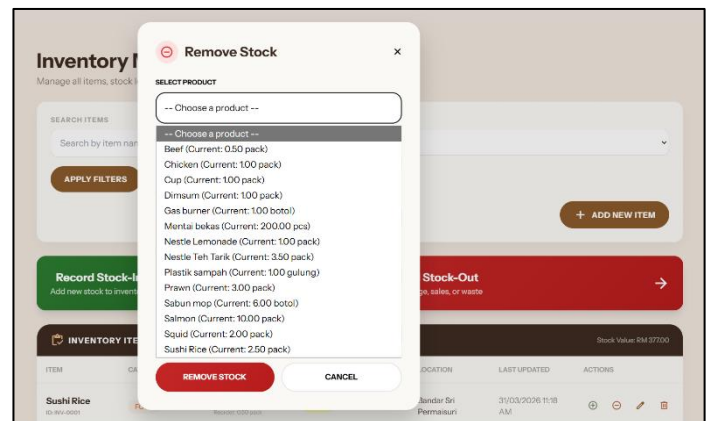


Figure 3.70: Remove Stock Modal with Dropdown

Figure 3.68 is the 'Remove Stock' form to enter in stock out transactions. The user needs to select a product, enters the quantity, and chooses a reason such as Usage or Waste. By doing this, the system will automatically decrease the stock available.

Hence, Figure 3.69 is the product drop down list that has the current stock available beside each item such as "Beef (Current: 0.50 pack)" and "Salmon (Current: 10.00 pack)". This becomes a great way for the user to check the stock before removing any quantity.

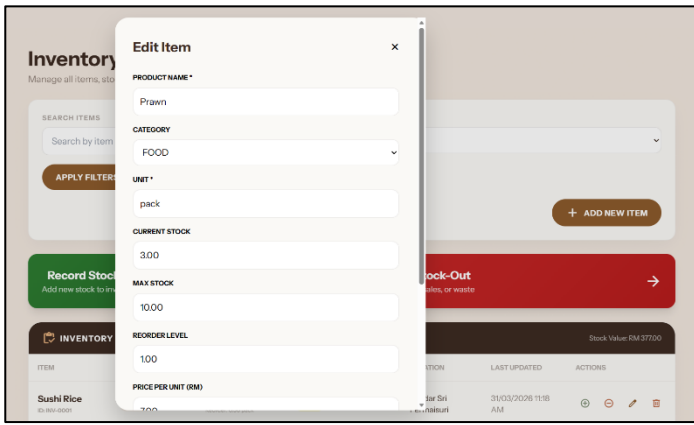


Figure 3.71: Edit Item Modal

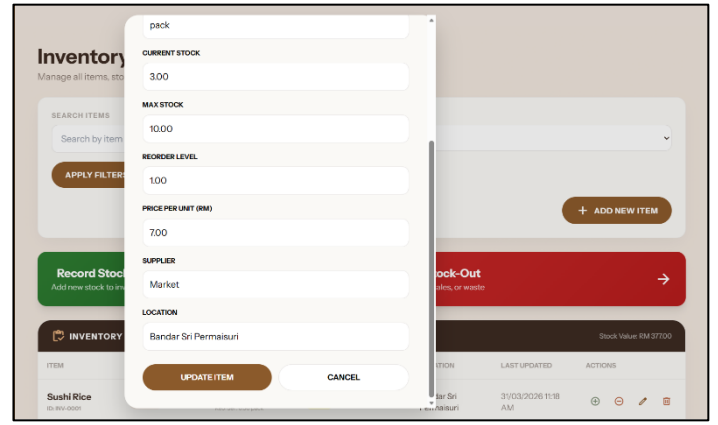


Figure 3.72: Edit Item Modal 1

Figure 3.70 below represents the form an admin uses to modify an existing product. In this example, admin is editing item “Prawn” that belongs to the "FOOD" category. The form allows the administrator to change the unit and stock information on an item of products (max stock, current stock, reorder levels), and the price per unit. Figure 3.71 displays the same edit form as before, except now it has two additional fields, one for supplier and one for location. The admin will click on "Update Item" to save any changes that they put into the system or they can click on "Cancel" to discard all changes and not save anything at that time. This function basically provides the wholeness of the opportunity an admin can edit or update product information when needed.

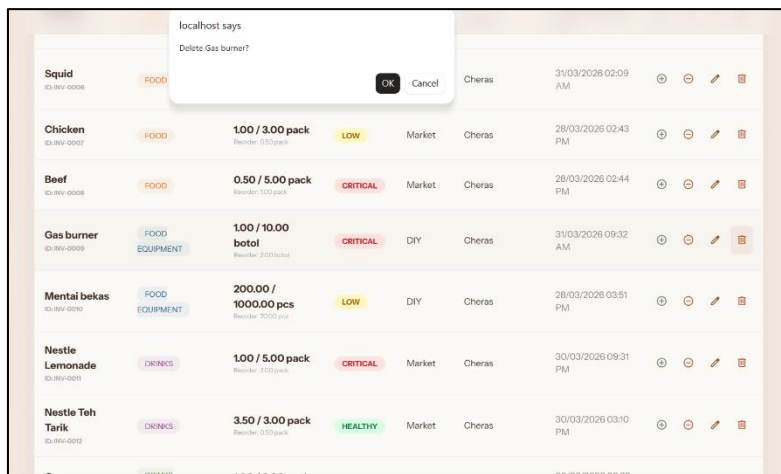


Figure 3.73: Delete Item

Figure 3.73 shows a confirmation message box that can be used by the admin to delete an item. The admin receives a question from the system stating, "Delete Gas Burner?" with the choices of "OK" or "Cancel". The message is designed to prevent admins from accidentally deleting items in the inventory. To remove a product permanently, the admin must confirm the deletion of the product.

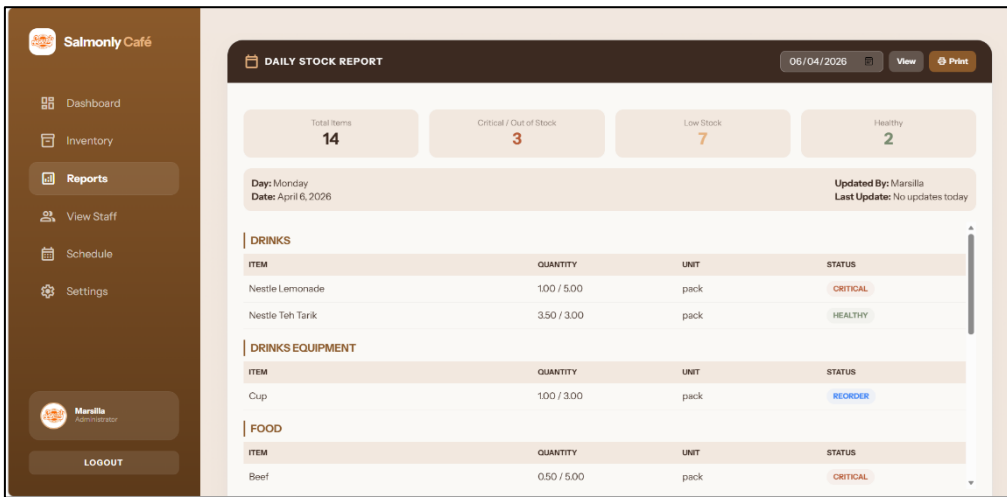


Figure 3.74: Admin Reports Page

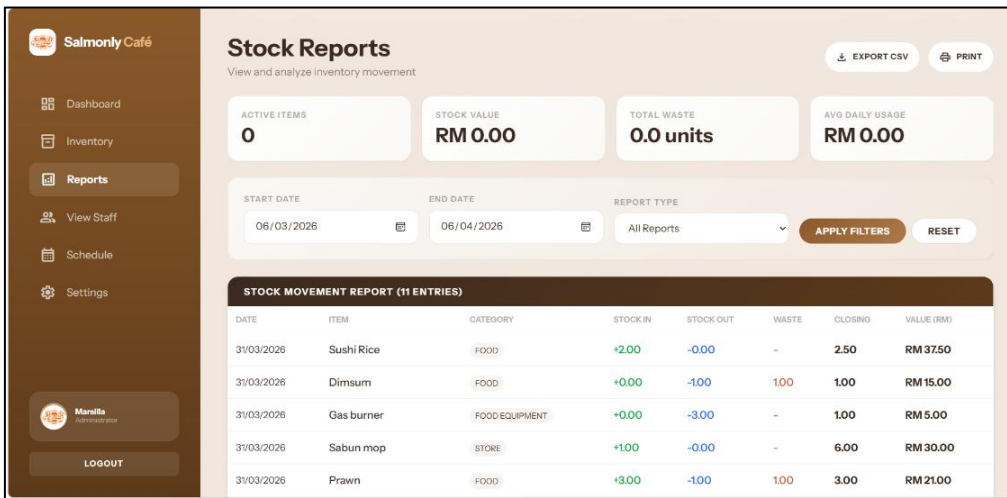


Figure 3.75: Admin Reports Page 1

Figure 3.74 and 3.75 represent the Reports Page for admin. Figure 3.74 shows the daily stock report page that includes summary numbers for the inventory. Other summary information displayed in the report includes the date and day that the report was updated and the user who updated it. The products are grouped according to their type of product (Drinks, Drinks Equipment, etc.) Each product includes its current quantity, the maximum amount of stock that it can be full, the unit of measure used for the product, and its current stock status such as LOW, CRITICAL, HEALTHY, and REORDER. This report provides the Owner with a quick representation of inventory levels throughout the entire inventory.

Figure 3.75 shows the stock movement report. The system allows users (owners) to filter the report by the beginning and ending date, and also by type of report, in the system's filter section. The table presents the transaction history of the products including: stock in, stock out, waste, closing stock, and total value in RM. An example of this would be: if the sushi rice has +2.00 in-stock, and a closing in-stock of 2.50, and a total value of RM 37.50. The owner is able to use this report to track the movement of their inventory to make better purchasing and cost control decisions.

SALMONLY CAFÉ
Daily Stock Report
End of Day Inventory Summary

Day: Monday
Date: April 6, 2026

Updated By: Marsilla
Last Update: No updates today

Total Items: 14
Critical: 3

Item	Quantity	Unit	Status
Nestle Lemonade	1.00 / 5.00	pack	CRITICAL
Nestle Teh Tarik	3.50 / 3.00	pack	HEALTHY

Item	Quantity	Unit	Status
Cup	1.00 / 3.00	pack	REORDER

Item	Quantity	Unit	Status
Beef	0.50 / 5.00	pack	CRITICAL
Chicken	1.00 / 3.00	pack	LOW
Dimsum	1.00 / 5.00	pack	LOW
Prawn	3.00 / 10.00	pack	LOW
Salmon	10.00 / 30.00	pack	REORDER
Squid	2.00 / 10.00	pack	LOW
Sushi Rice	2.50 / 5.00	pack	LOW

Item	Quantity	Unit	Status
Gas burner	1.00 / 10.00	botol	CRITICAL
Mental bekas	200.00 / 1000.00	pcs	LOW

Figure 3.76: Daily Stock Report PDF

Stock Reports
View and analyze inventory movement

EXPORT CSV PRINT

ACTIVE ITEMS: 0
STOCK VALUE: RM 0.00

TOTAL WASTE: 0.0 units
AVG DAILY USAGE: RM 0.00

START DATE: 30/03/2026
END DATE: 06/04/2026
REPORT TYPE: All Reports

APPLY FILTERS RESET

DATE	ITEM	CATEGORY	STOCK IN	STOCK OUT	WASTE	CLOSING	VALUE (RM)
31/03/2026	Sushi Rice	FOOD	+2.00	-0.00	-	2.50	RM 37.50
31/03/2026	Dimsum	FOOD	+0.00	-1.00	1.00	1.00	RM 15.00
31/03/2026	Gas burner	FOOD EQUIPMENT	+0.00	-3.00	-	1.00	RM 5.00
31/03/2026	Sabun mop	STORE	+1.00	-0.00	-	6.00	RM 30.00

Figure 3.77: Overall Stock Report PDF

	A	B	C	D	E	F	G	H	I
1	Date	Item	Category	Stock In	Stock Out	Waste	Closing Stc	Value (RM)	
2	#####	Sushi Rice	FOOD	2	0	0	2.5	37.5	
3	#####	Dimsum	FOOD	0	1	1	1	15	
4	#####	Gas burner	FOOD EQL	0	3	0	1	5	
5	#####	Sabun mop	STORE	1	0	0	6	30	
6	#####	Prawn	FOOD	3	1	1	3	21	
7	#####	Squid	FOOD	1	1	0	2	20	
8	#####	Cup	DRINKS EC	0.5	0	0	1	3	
9	#####	Nestle Teh	DRINKS	3	0	0	3.5	17.5	
10	#####	Nestle Len	DRINKS	1.5	4.5	1	1	5	
11	#####	Salmon	FOOD	2	0	0	10	100	
12	#####	Plastik san	STORE	0	0.5	0	1	3	
13									
14									

Figure 3.78: Stock Report CSV

Figure 3.76 shows the daily stock report. The image is the printed layout of the Daily Stock Report. This version is clean and ready for printing, or it can be used to save as a PDF. It includes the café name printed at the top of the report along with the report title, date, person who updated, total number of items, and number of critical items. The products appear in grouping categories such as, Drinks, Drinks Equipment, Food, Food Equipment. This printed format allows the owner to keep physical records or share the report with others.

Figure 3.77 shows the Stock Movement Report. Users can select start date, end date, and report type before clicking "Apply Filters". The table below displays transaction history including stock in, stock out, waste, closing stock, and value for each product.

Figure 3.78 shows the Data on Stock Movement Report. This will appear once users click print in CSV format and it will automatically insert data in excel. With this, admin can download the excel file for future purposes.

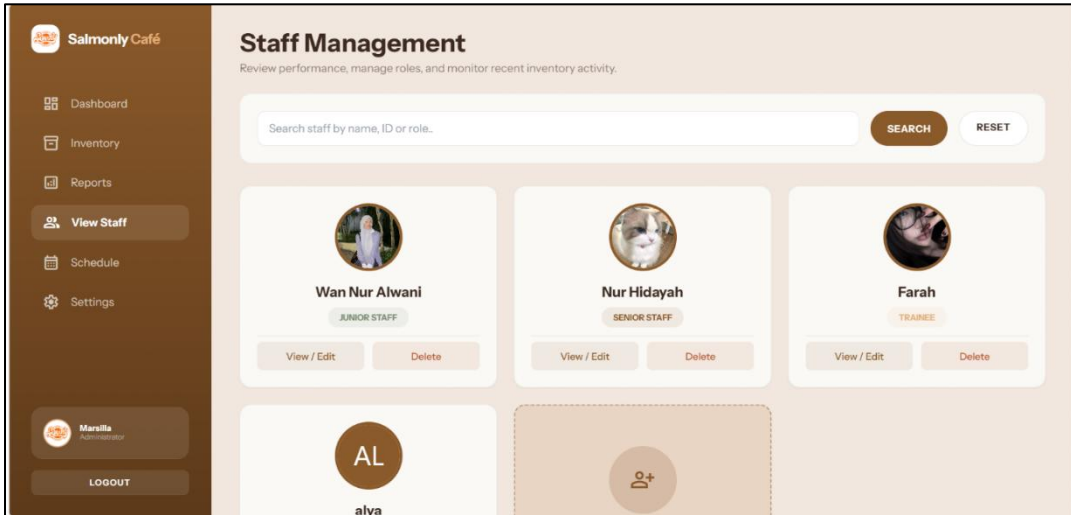


Figure 3.79: Admin View Staff Page

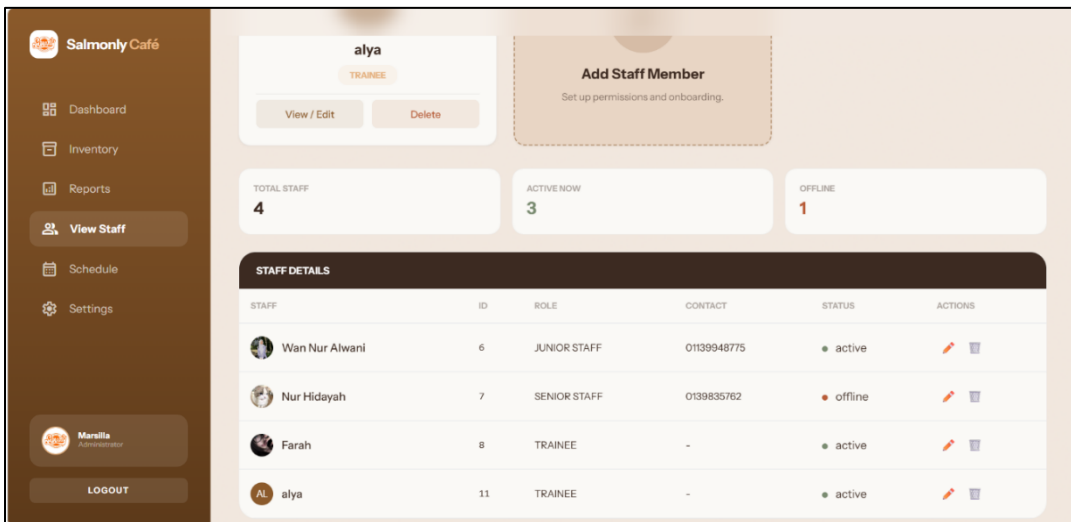


Figure 3.80: Admin View Staff Page 1

Figure 3.79 shows the View Staff Page for admin. Staff names are listed in a card view with their role listed on the cards such as Junior Staff, Senior Staff and Trainee Staff. There is also a delete button on each card for admin to remove that staff member from your system.

Figure 3.80 shows the staff details information that are presented in a table format. The table has six columns which shows the name of the staff, ID, role, phone number, status (Active/Offline) and two action buttons. There is summary at the top of the table, there are 4 total staff, 3 active and 1 offline. The representation of the table is helpful for the admin to see all of the staff information.

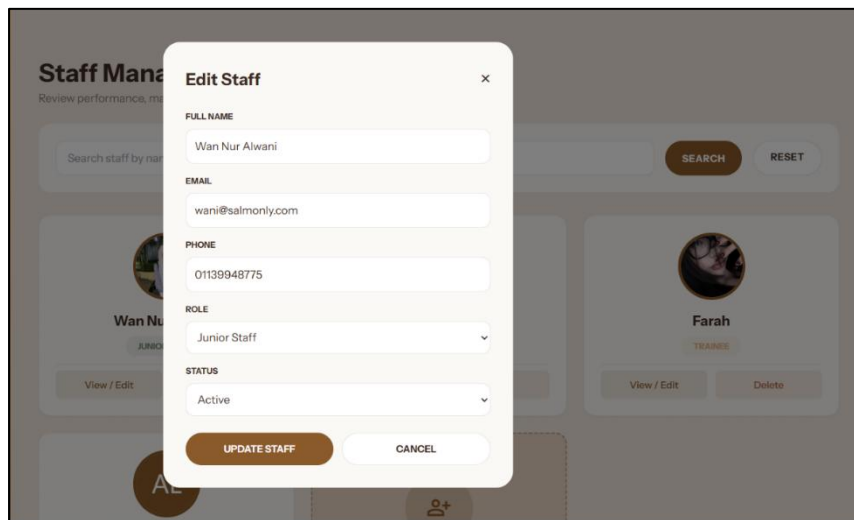


Figure 3.81: Edit Staff Modal

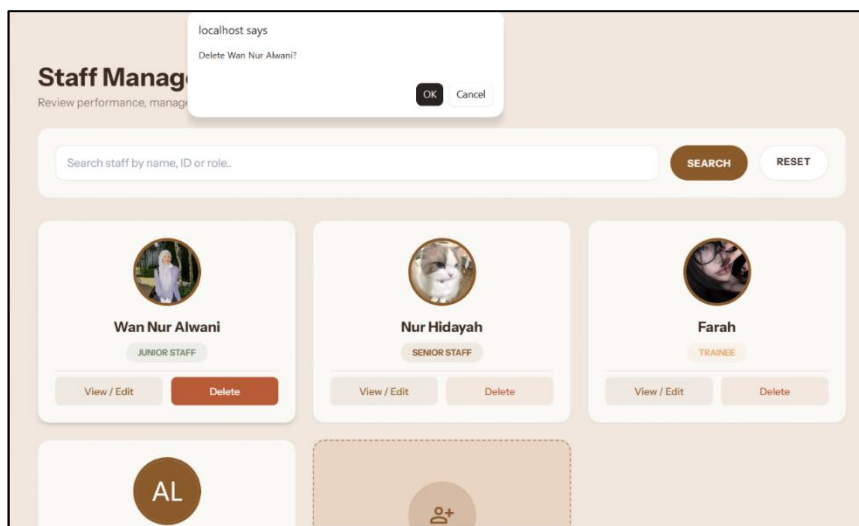


Figure 3.82: Delete Staff

Figure 3.81 is the staff form for editing purposes. The admin is able to change the full names, email addresses, phone numbers, role, and status of the staff. When the Admin has finished entering the details, clicking the "update staff" button will submit all the changes to the database.

On the other hand, Figure 3.82 shows a dialog box confirming that the user should be deleted. Once the Admin attempts to delete a staff, a confirmation dialog box appears with the question "Delete Wan Nur Alwani?" and yes and no options. This helps avoid unnecessary staff account deletions.

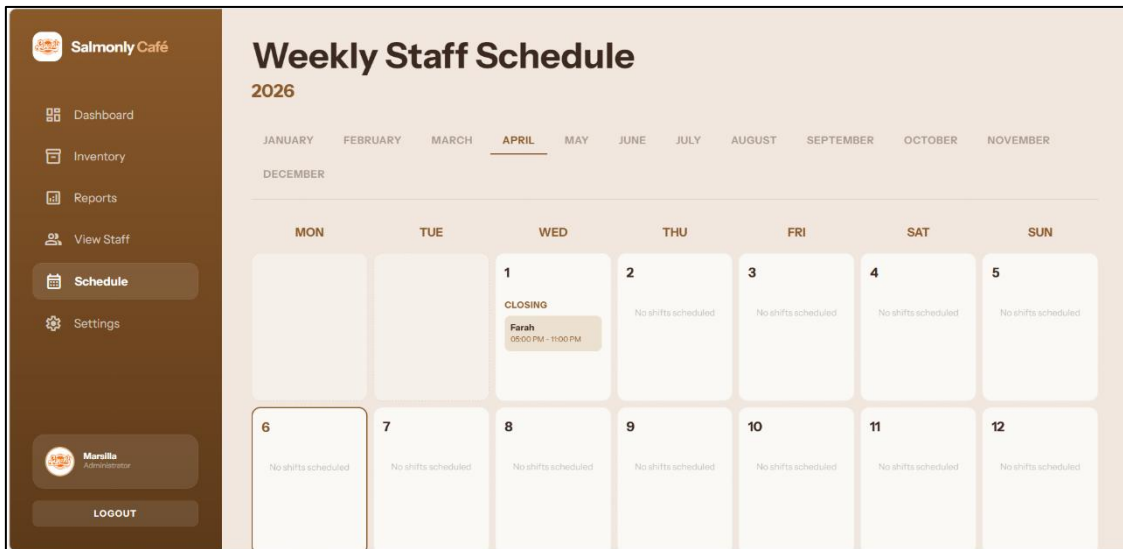


Figure 3.83: Admin Schedule Page

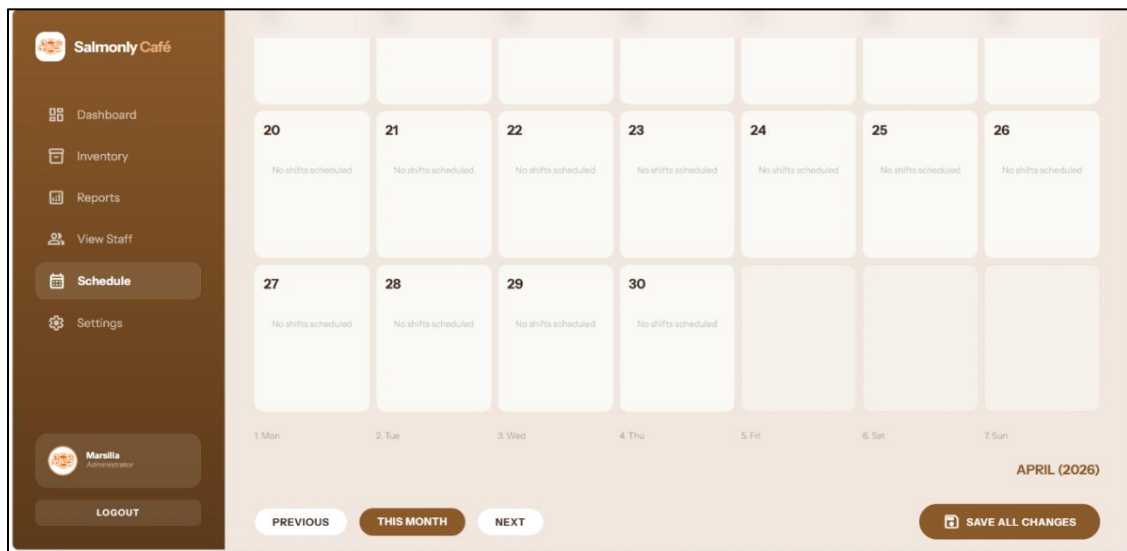


Figure 3.84: Admin Schedule Page 1

Figure 3.83 and 3.84 illustrates the staff scheduling page for the period of April 2026. Here, the admin will be able to see shifts for any given day in that month and will have the ability to administer those shifts as well. An individual day, April 1st, will show Farah as the closing shift from 5 p.m. through 10 p.m. Days which have no shifts scheduled will show the message "No shifts scheduled". An admin can click on any given day to add and/or edit shift details.

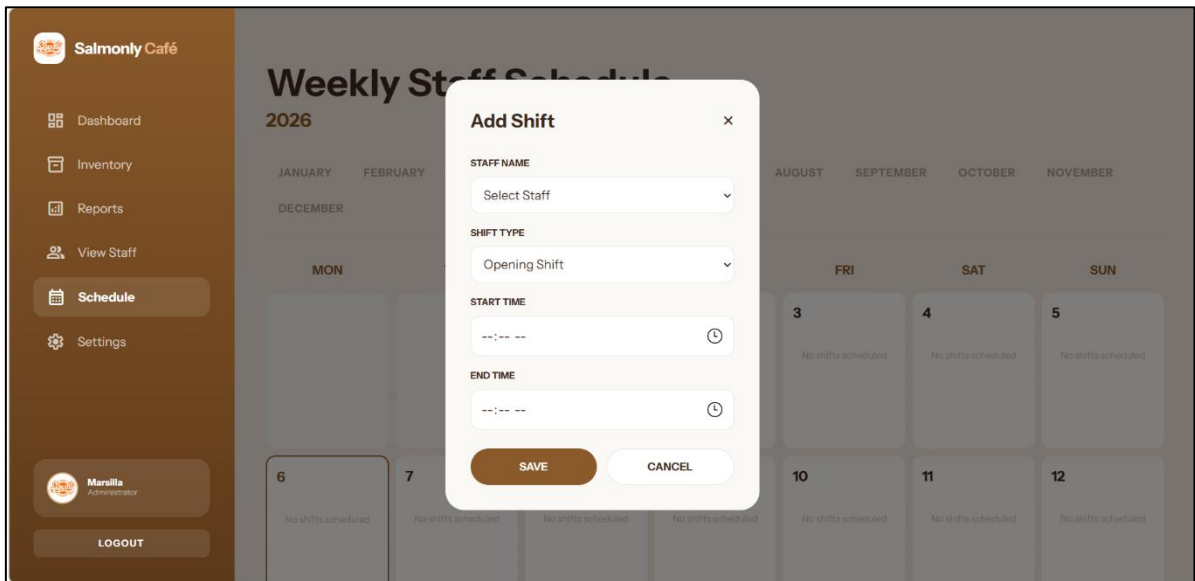


Figure 3.85: Add Shift Modal

Figure 3.85 shows the form to add a new staff shift. Admin needs to select the staff name, choose shift type (Opening or Closing), and set the start time and end time. Once all details are filled, clicking "Save" will add the shift to the schedule. This allows admin to assign shifts to staff members for any date on the calendar.

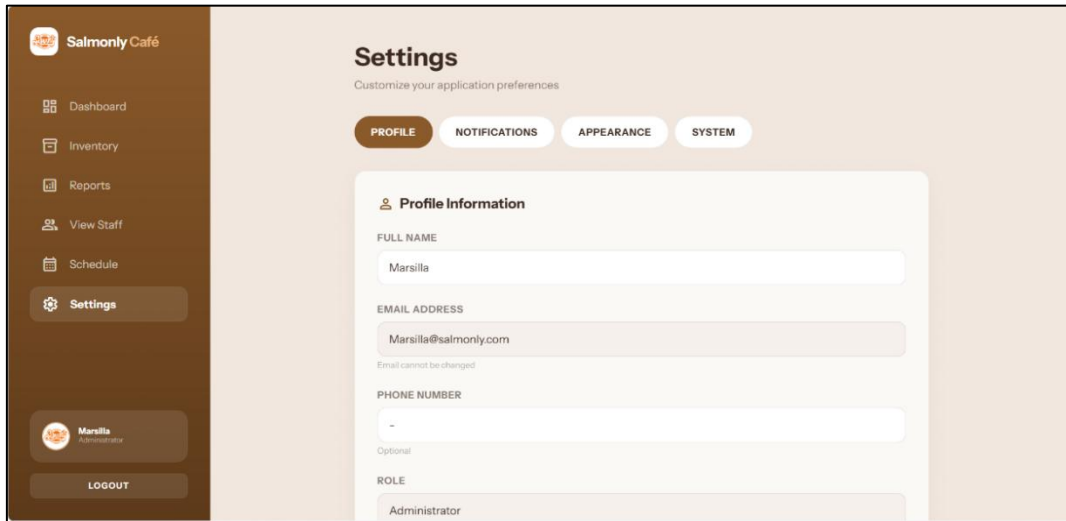


Figure 3.86: Admin Settings Page

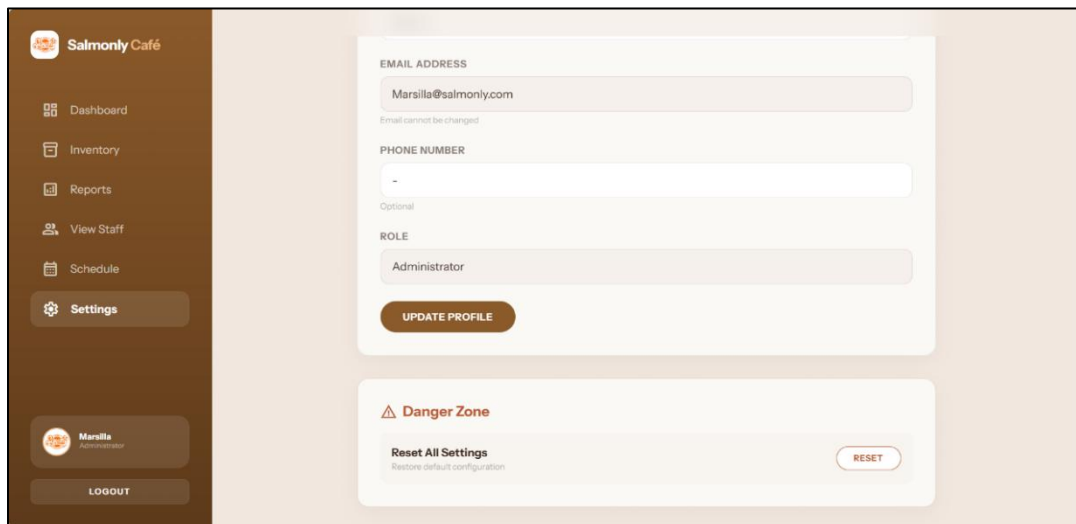


Figure 3.87: Admin Settings Page 1

Figure 3.86 and 3.87 are of the Settings page in the system. It consists of four tabs at the top, Profile, Notification, Appearance and System. The currently-selected tab is Profile and displays the administrator's complete user profile. The admin cannot modify their email address, as that field is disabled. The admin may choose to change their full name or their phone number, and after making those changes, the admin should select the Update Profile button to save their changes. There also a "DANGER ZONE" section on the bottom of the page. This will be the place where an administrator can reset all the values to default by clicking on the "RESET" button.

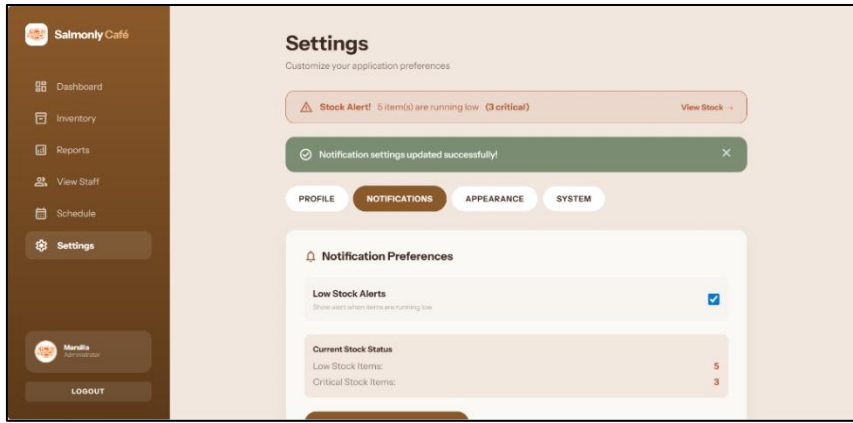


Figure 3.88: Settings Notification Tab

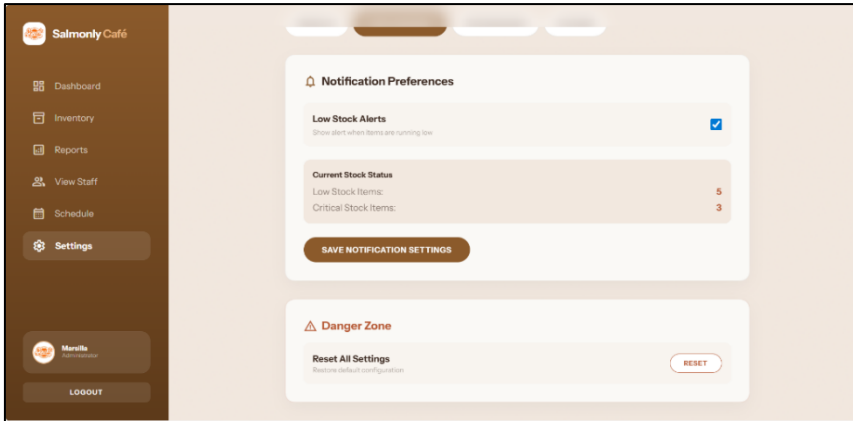


Figure 3.89: Settings Notification Tab 1

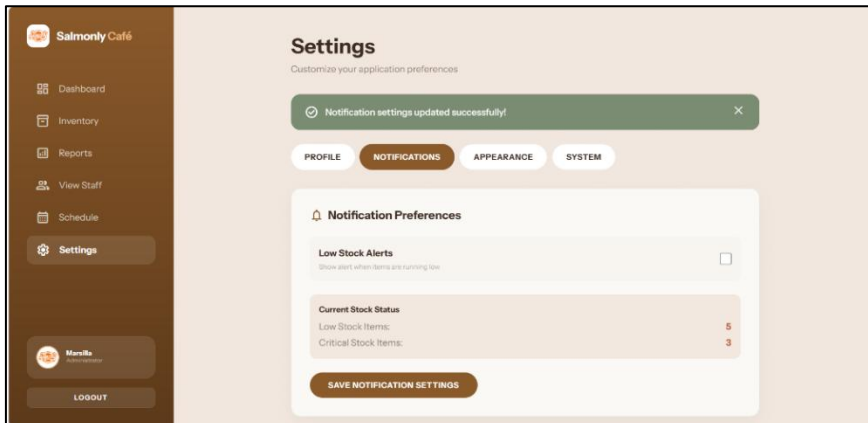


Figure 3.90: Edit Settings Notification Tab

Figure 3.89, 3.99, and 3.90 show the Notifications tab under Settings. Admin can toggle Low Stock Alerts on or off. The page also displays current stock status showing 5 low stock items and 3 critical items. A notification banner appears at the top when there are items running low, with a "View Stock" button for quick access. Once settings are changed, clicking "Save Notification Settings" will update the preferences. This feature helps admin stay informed about low stock levels.

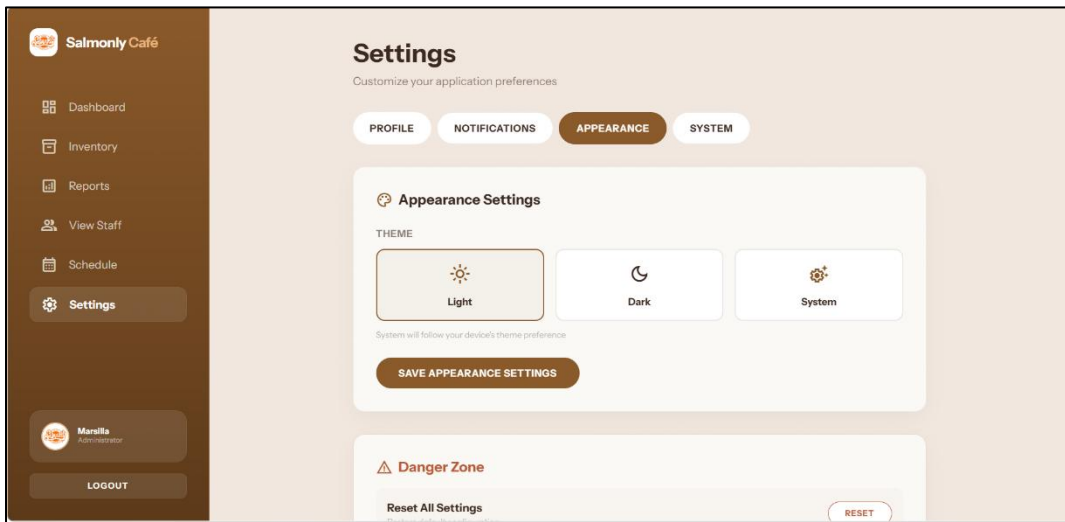


Figure 3.91: Settings Appearance Tab

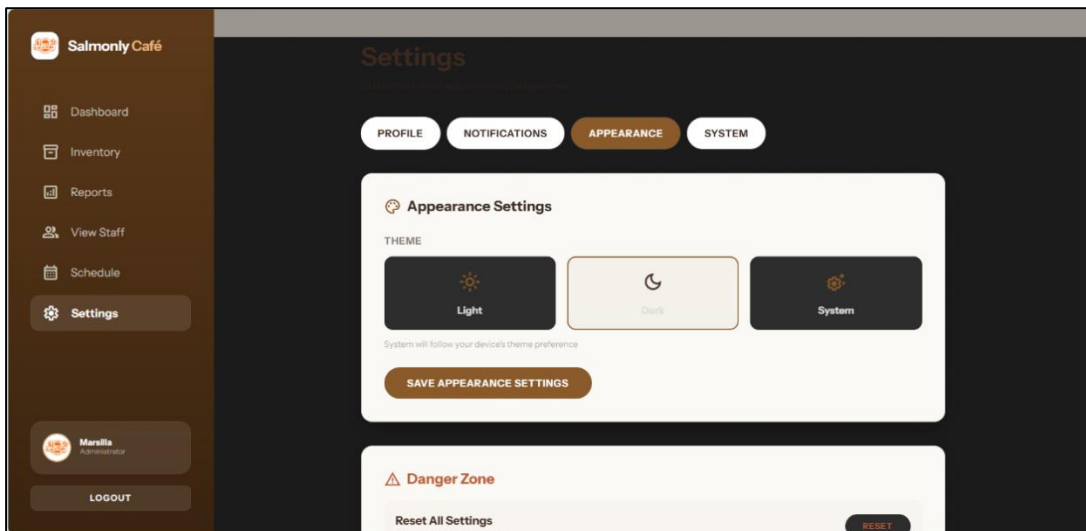


Figure 3.92: Settings Appearance Dark Mode

Figure 3.91 and 3.92 show the Appearance tab under Settings. Users can choose between three themes: Light, Dark, or System. The System option will follow the user's device theme preference. Once a theme is selected, clicking "Save Appearance Settings" will apply the changes immediately. The Danger Zone section at the bottom allows users to reset all settings to default. This feature allows both admin and staff to customize the look of the system according to their preference.

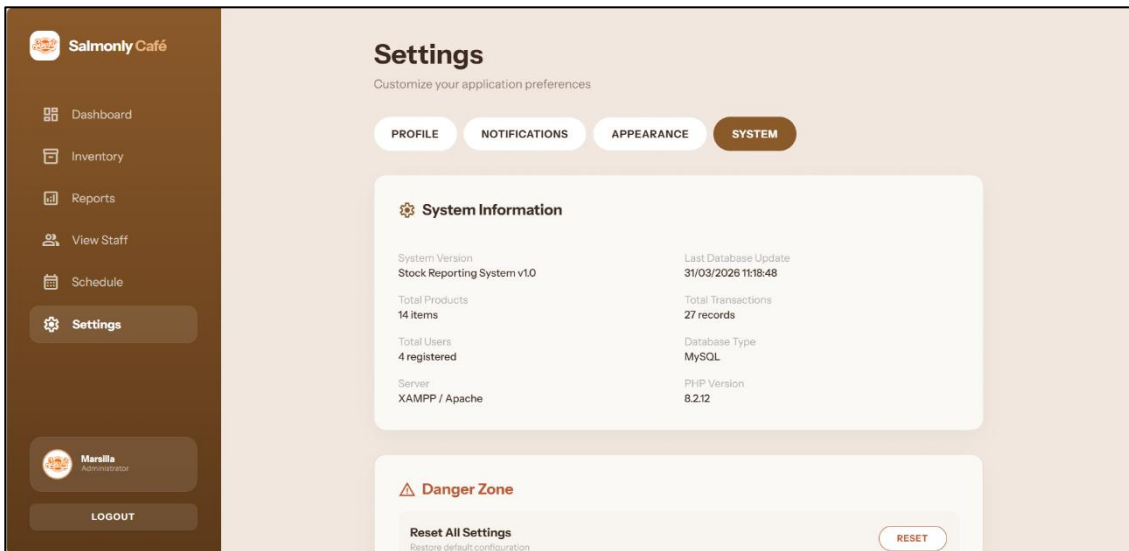


Figure 3.93: Settings System Tab

Figure 3.93 shows the System tab under Settings Page. In this page, all the informatios including the system version, last database update, total products, total transaction, total users, database type, server, and PHP version. This helps admin monitor the system status and technical details at a glance.

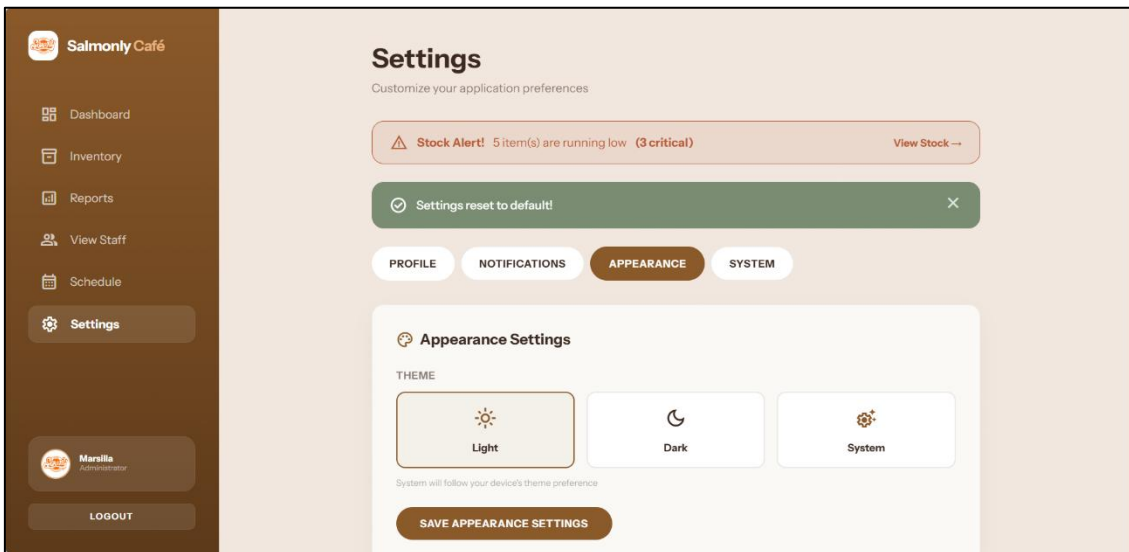


Figure 3.94: Reset All Settings

Figure 3.94 shows the pop-up message at the top that states “ Settings reset to default!”. This happens when user click the “Reset” button and all the setting will be reset to the original state.

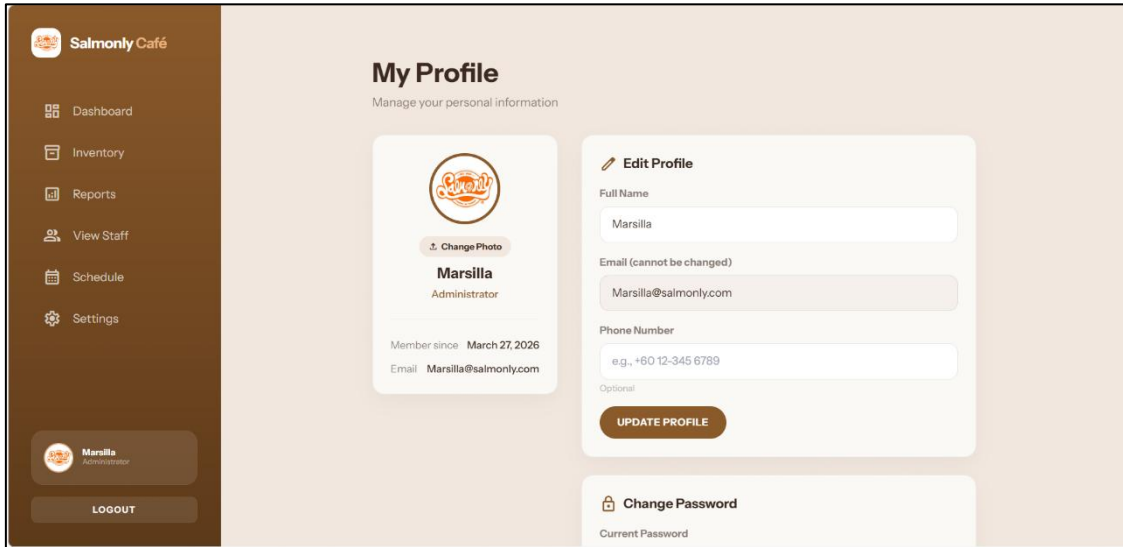


Figure 3.95: Admin Profile Page

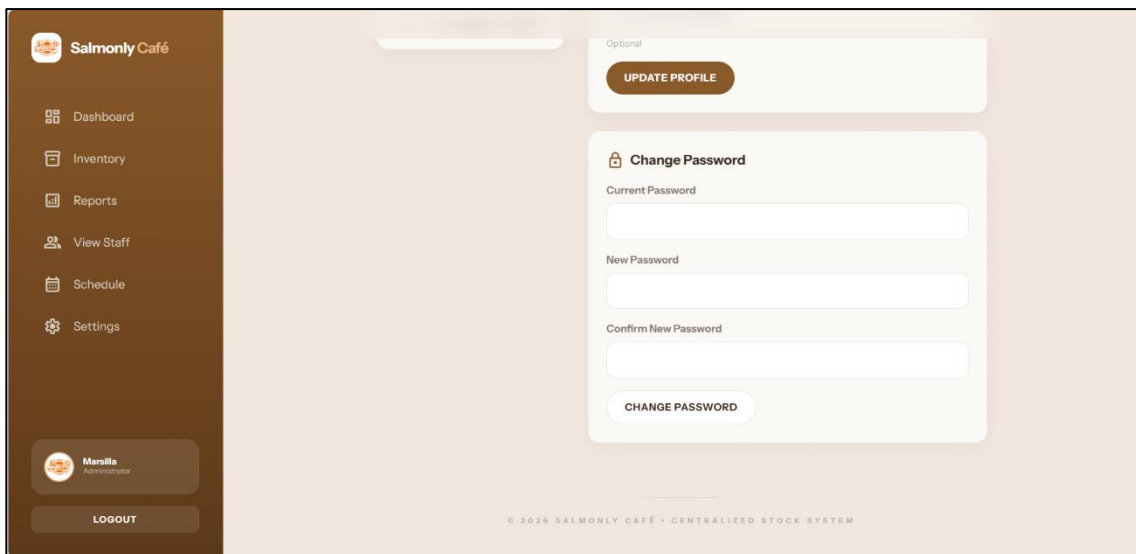


Figure 3.96: Admin Profile Page 2

Figure 3.95 and 3.96 display the “My Profile” Page. This is where user may access their account information. They may also perform an edit or update profile data and change their profile picture.

Interface for staff:

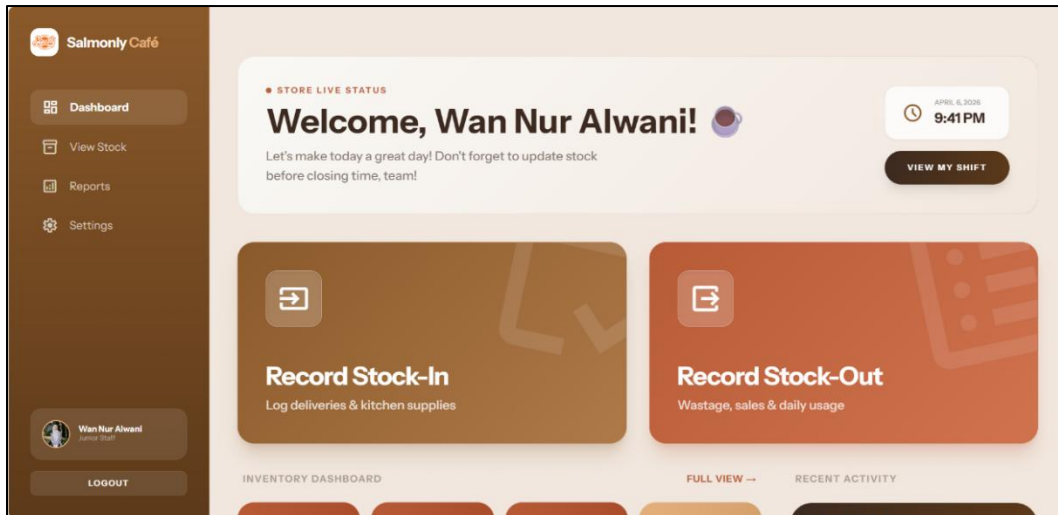


Figure 3.97: Staff Dashboard Page

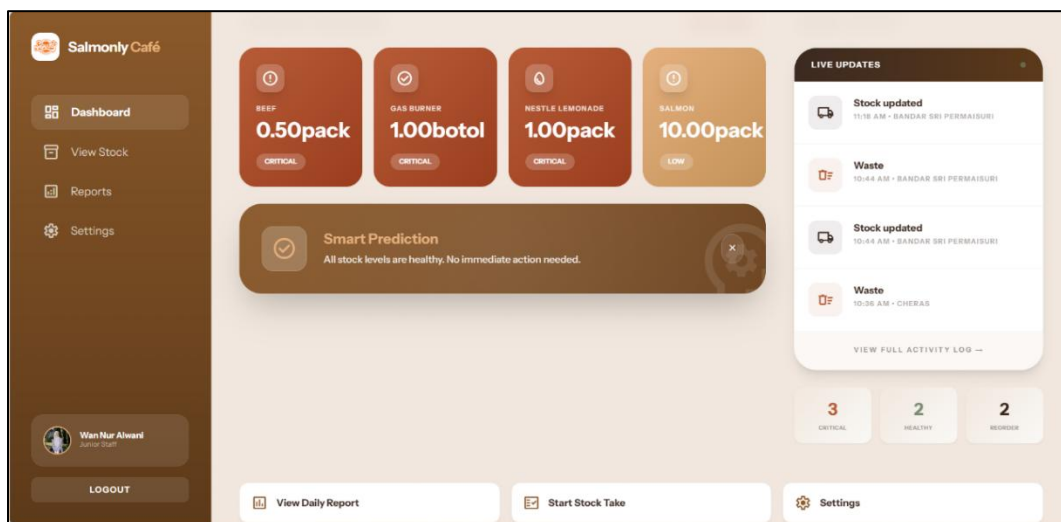


Figure 3.98: Staff Dashboard Page 1

Figure 3.97 and 2.98 show the Staff Dashboard Page of this Stock Reporting System. The first thing user will see is a staff welcome message, which says "Welcome, Wan Nur Alwani!" and a clock that shows the current time. User also can access to "View My Shift" which they can see their schedule for the month. Furthermore, there are two large buttons for staff to record Stock-In or Stock-Out activities. With this layout, staff can immediately get to the key functionalities of the system. Additionally, users may see a "Real-Time Prediction" indicator, which displays the current inventory situation. In this case, the system shows "All stock levels are healthy, no immediate action needed. Staff members will be able to determine if there are any items that require immediate attention. The "Live Updates" section displays a chronological list of recent stock quantities. There is also a "View Full Activity Log" button to access a full list of historical transactions. There are three buttons at the bottom of the dashboard that allow staff to "View Daily Report", "Start Stock Take" and "Settings". The entire dashboard gives the personnel all of the necessary items and resources needed to successfully perform their daily Stock operations.

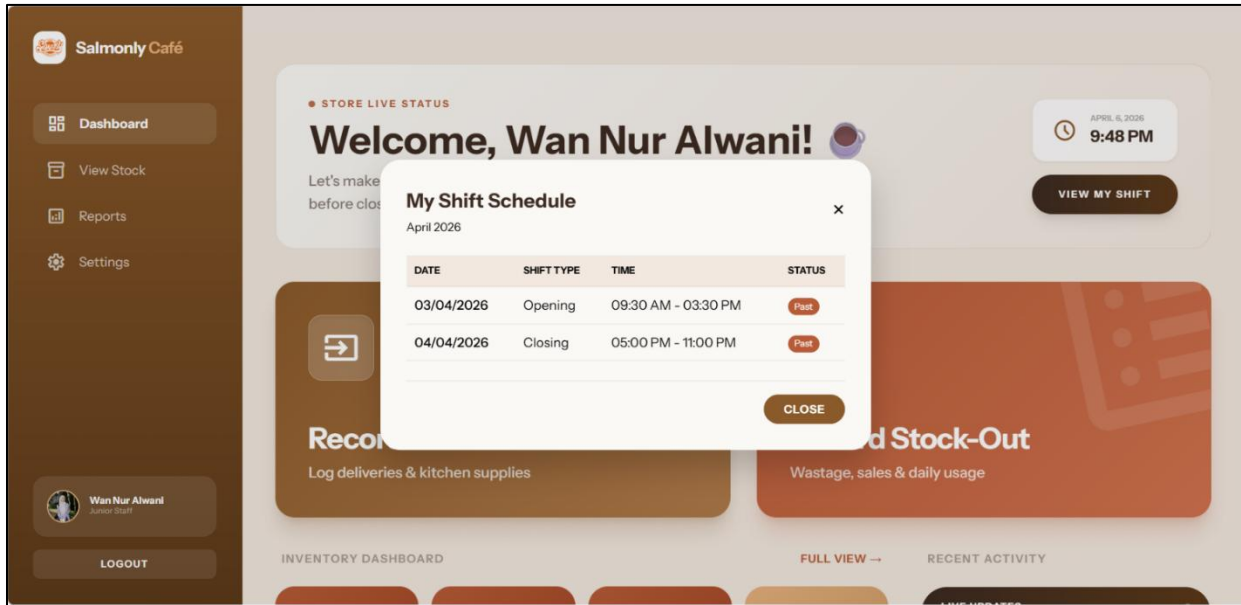


Figure 3.99: Staff View Shift Modal

Figure 3.99 shows the the "View My Shift" dialog box, which is accessible for staff by pressing the View My Shift button located on the screen of the main operating window (Dashboard). It displays an staff's complete work schedule of a whole month. Once they press the Close button at the bottom of the dialogue box, it will closes the dialogue box so that the user may return to the main dashboard. The purpose of this new feature is to provide employees with a way to view their scheduled shifts in advance to avoid unnecessary contact with the administrator.

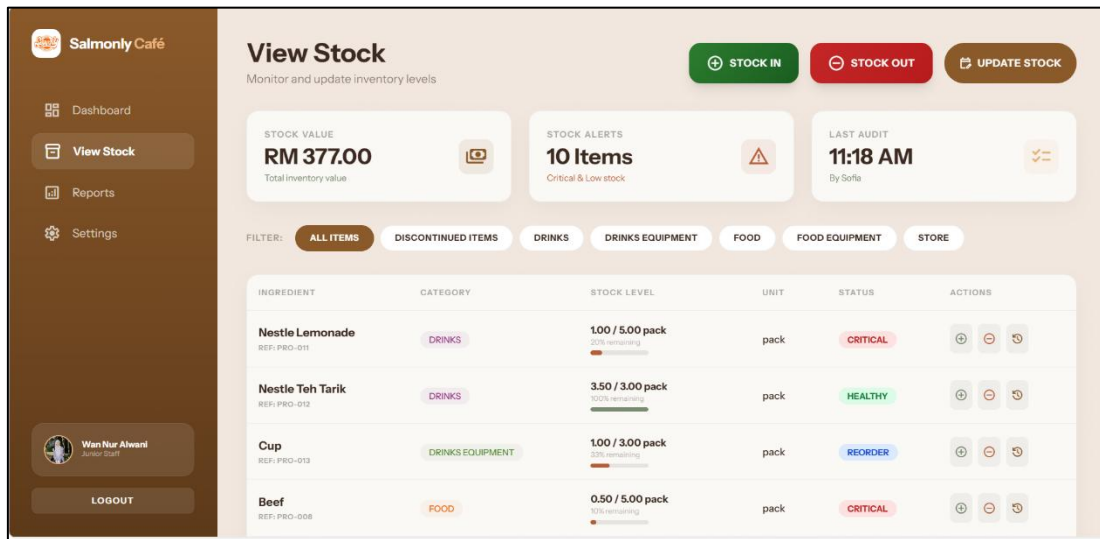


Figure 3.100: Staff View Stock Page

Figure 3.100 shows the View Stock Page, with an overall view of all the Inventory items that are available in the system. There are three summary cards at the top page which are Stock Value, Stock Alerts, and Last Audit. The inventory item table lists all of the products by reference number and by category. The table also shows the remaining quantity of each product by reference number, product category, stock level & unit of measurement, status and action buttons. An example of this would be Nestle Lemonade shows 1.00 remaining. The image stores the same page as above, but with the filter in use. The filter is used to restrict the list of items shown on the page to only those items that belong to the Drinks and Drinks Equipment categories.

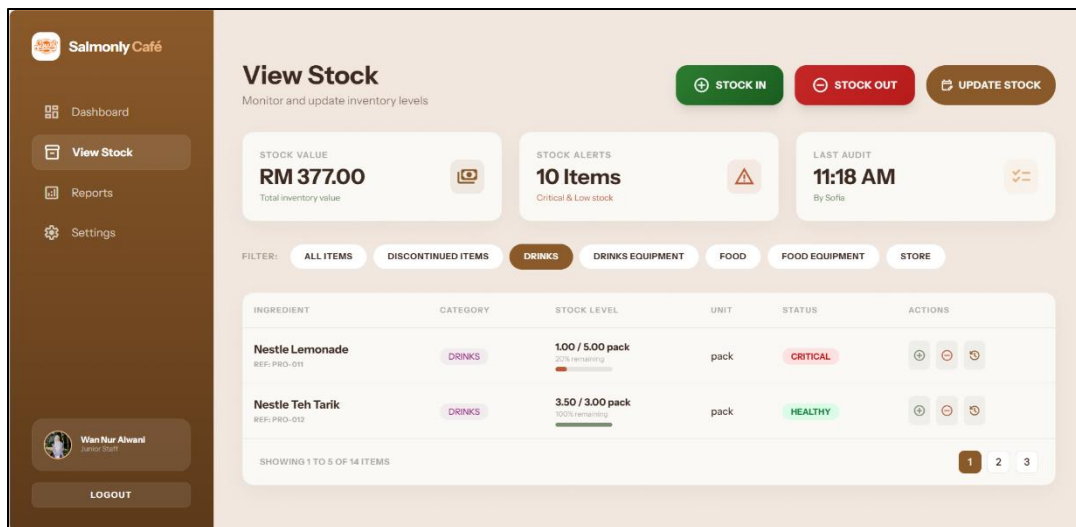


Figure 3.101: Staff View Stock Page 1

Figure 3.101 shows that the table has filter in use. This allows the staff to look at particular categories of products without having to scroll through the entire inventory. This allows the staff to easily see the stock levels for a specific group of items (e.g., all drinks, all food products), especially when there are a large number of products in the inventory.

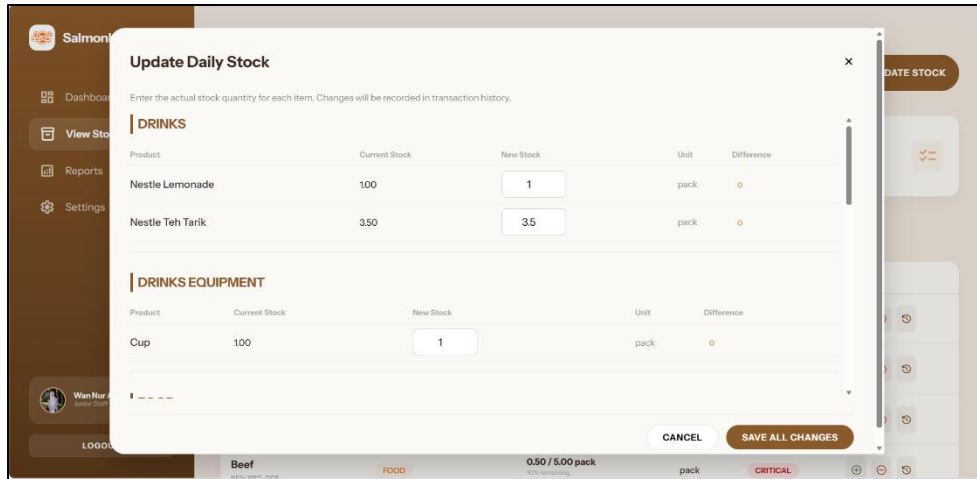


Figure 3.102: Update Daily Stock Modal

Figure 3.102 shows the modal that popped-up when user click the “Update Stock” button. This pop-up allows the staff to perform the daily stock count by entering the real quantity of the products in sales or use. The products are divided into various types, including beverages and beverage machines. staff will be presented with a screen that displays the name of the service/product/ item, how many of that item are presently available in the system, a box to input the updated quantity, along with the unit of measurement, and the difference between the current quantity and the new quantity. Once the entire amount of new products has been entered into the system, staff can "Save All changes"; this updates the system with the new stock quantity and logs all modifications made to the system in all system records. Staff can select cancel to exit the modal without applying any changes to the modal. The daily stock-taking process is much faster and more accurate than before with the UI. Previously staff did daily stock-taking with paper-based approach but now they will do it using modern UI.

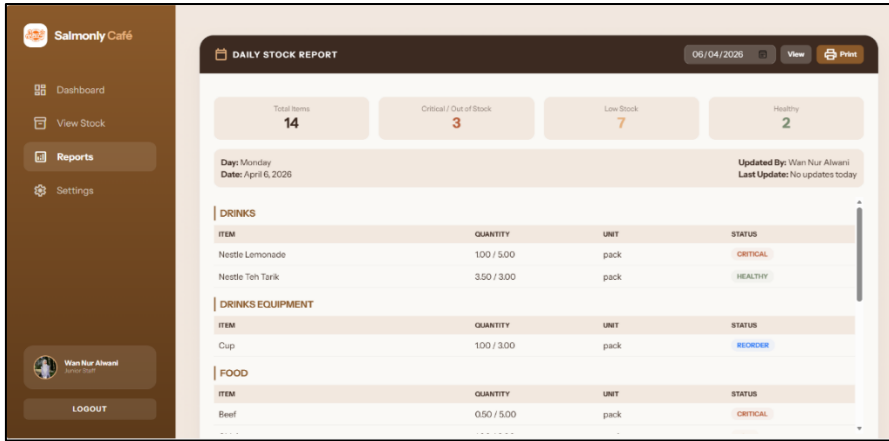


Figure 3.103: Staff Reports Page

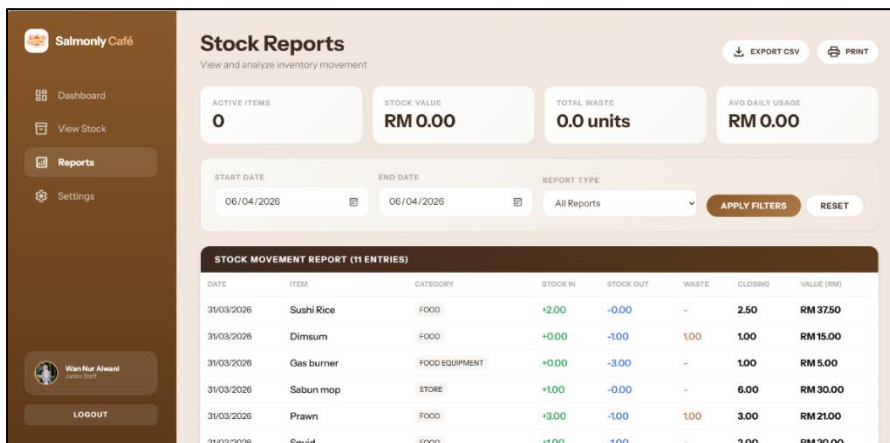


Figure 3.104: Staff Reports Page 1

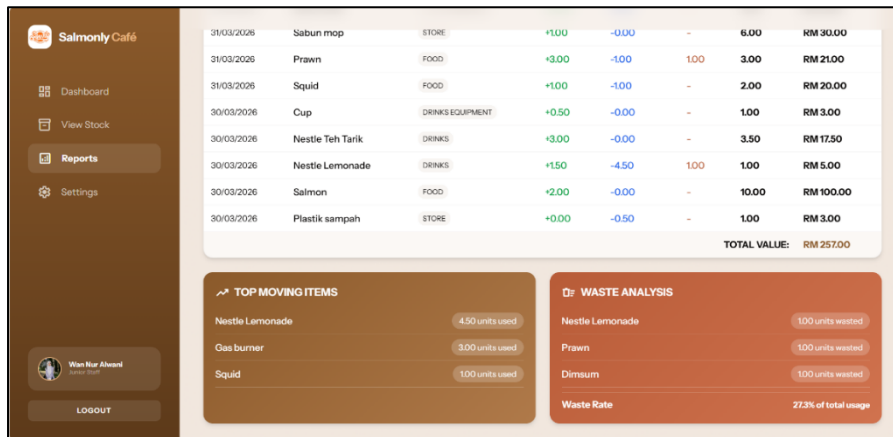


Figure 3.105: Staff Reports Page 2

Figure 3.103, 3.104, 3.105, show the Reports Page for Staff. This page is displayed exactly the same as in admin Reports Page. All the data and functions will work the same with admin. This means that staff can also generate report in PDF or CSV format.

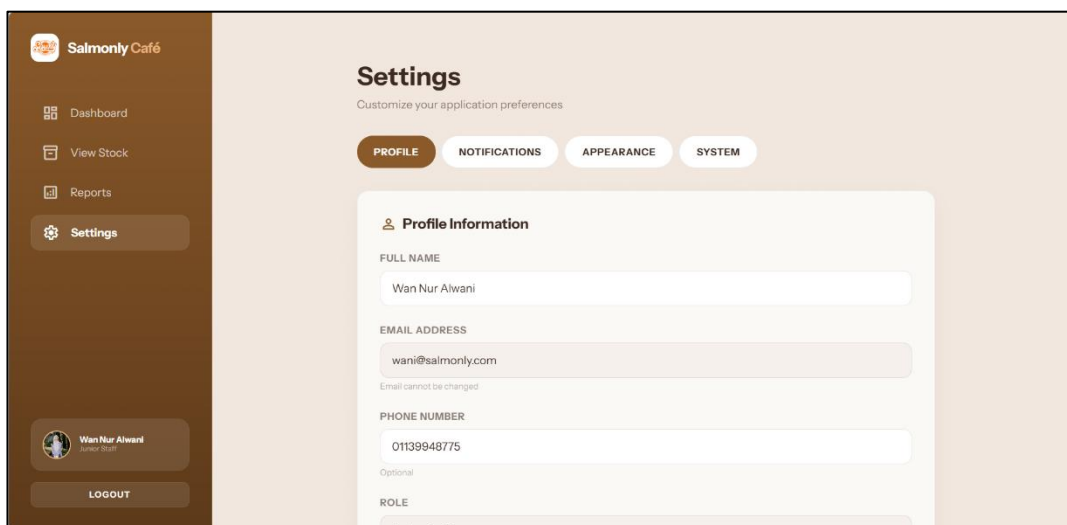


Figure 3.106: Staff Settings Page

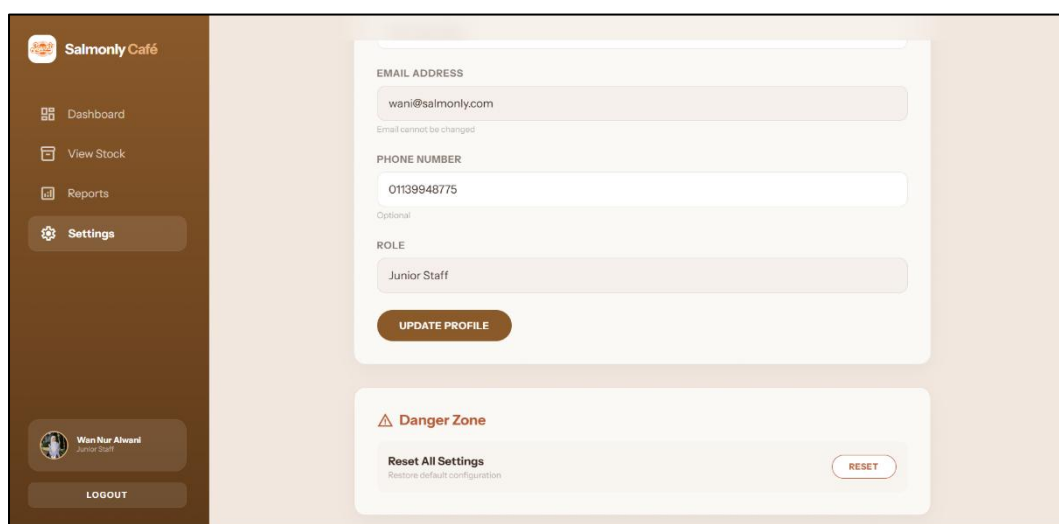


Figure 3.107: Staff Settings Page 1

Figure 3.106 and 3.107 are the Staff Settings Page. This page illustrates 4 tabs which are Profile, Notifications, Appearance, and System. Both admin and staff have the same Settings page. By that being said, all the functionalities for both users are the same.

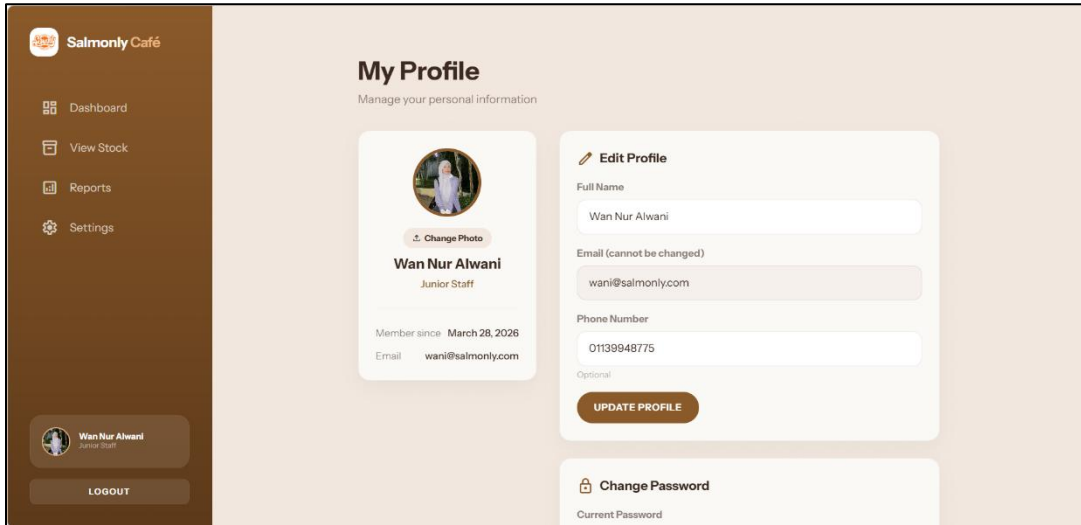


Figure 3.108: Staff Profile Page

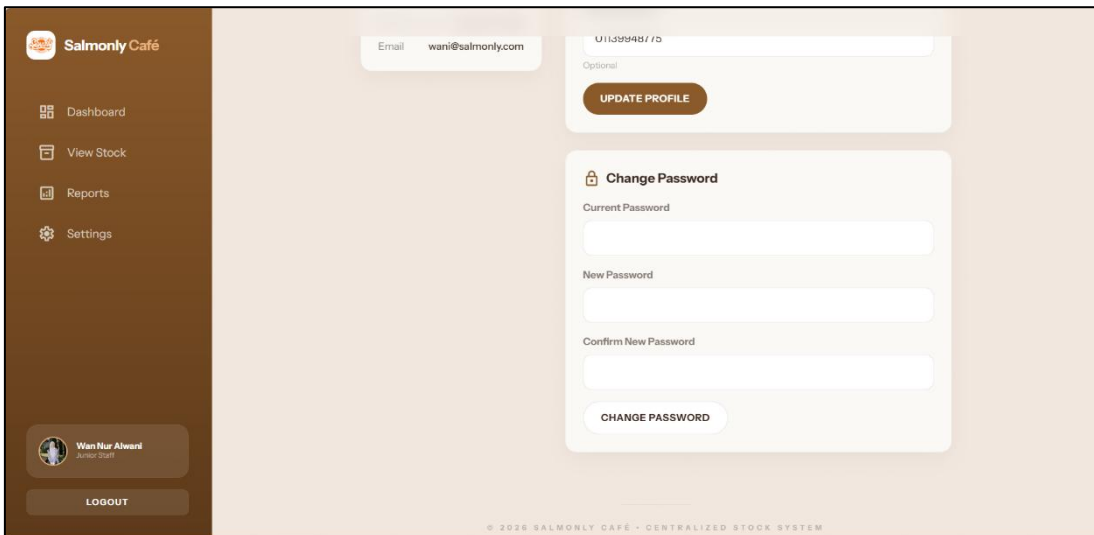


Figure 3.109: Staff Profile Page 1

Figure 3.108 and 3.109 are the Staff's Profile Page. This is the page where staff may update their informations such as name, and they can even update their account password to a new one.

3.6 System and Application Modelling

3.6.1 Flowchart

Two different of flowcharts were created as a way to describe both staff and administrator type users' processes in the Stock Reporting System at Salmonly Café. The flow charts show the order in which staff and admin make decisions and take actions, beginning with logging into the system, until they reach their final goal(s) in the system.

The staff flowchart describes the primary functionalities which include; viewing the weather conditions of the current stock levels, updating the records of the stocks coming in and going out, producing the daily stock report, doing the daily stock take update. It also contains staff can view their shift schedule and have access to update their profile information.

The admin flowchart contains several more and extensive function types. These includes managing the inventory items (addition, edition, and deletion of products and categories), managing staff accounts, creating and editing staff schedules, producing detailed stock movement reports, adjusting system settings (this includes theme and notification preferences as well).

The flowcharts are a clear visual indication of how the system works for both categories of users by showing the logical sequence of processes and decision points. This will ensure that the system will be designed in a way that will help in the efficient daily operation of the Salmonly Café.

Admin flowchart:

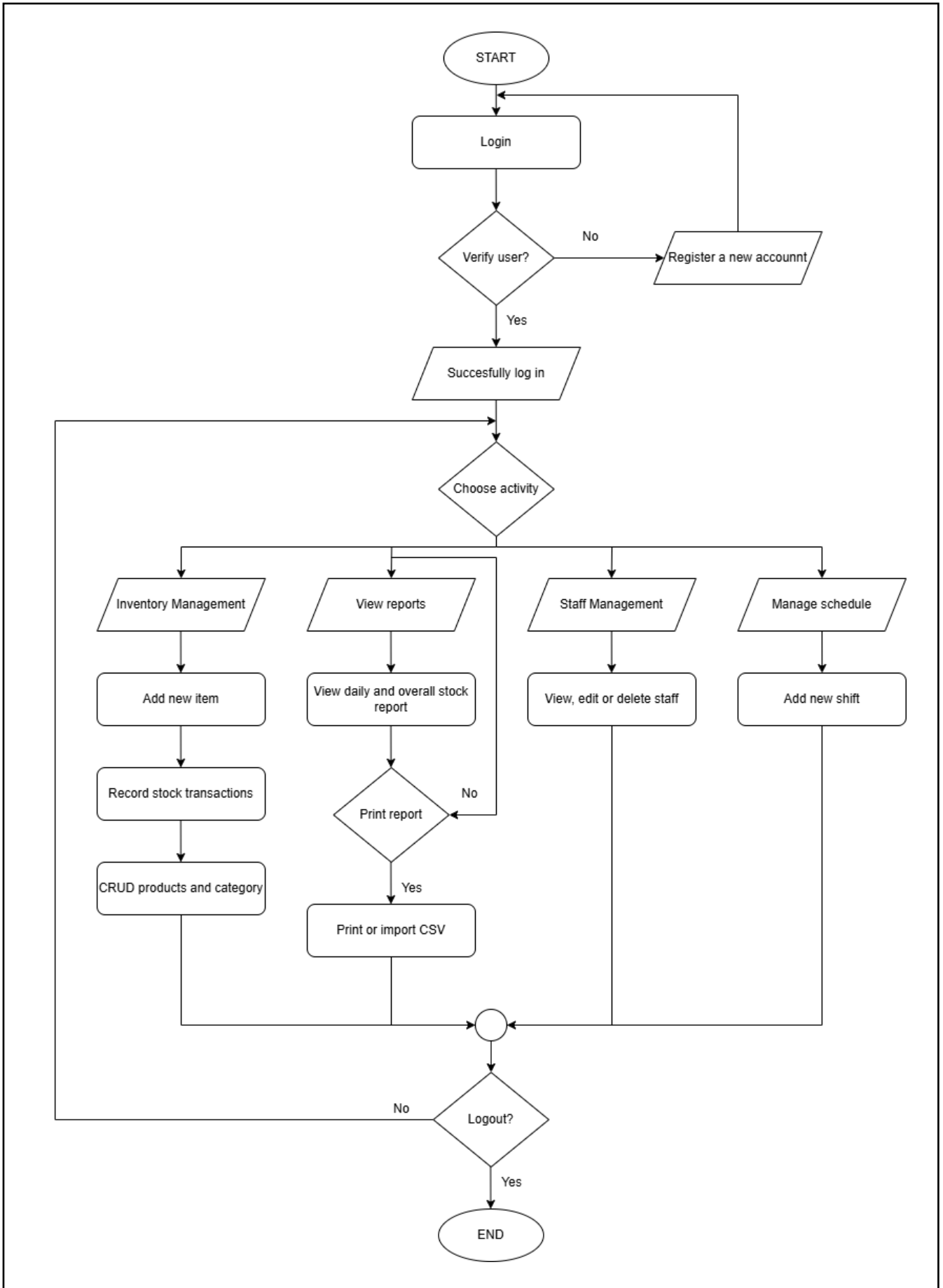


Figure 3.110: Admin Flowchart

Staff flowchart:

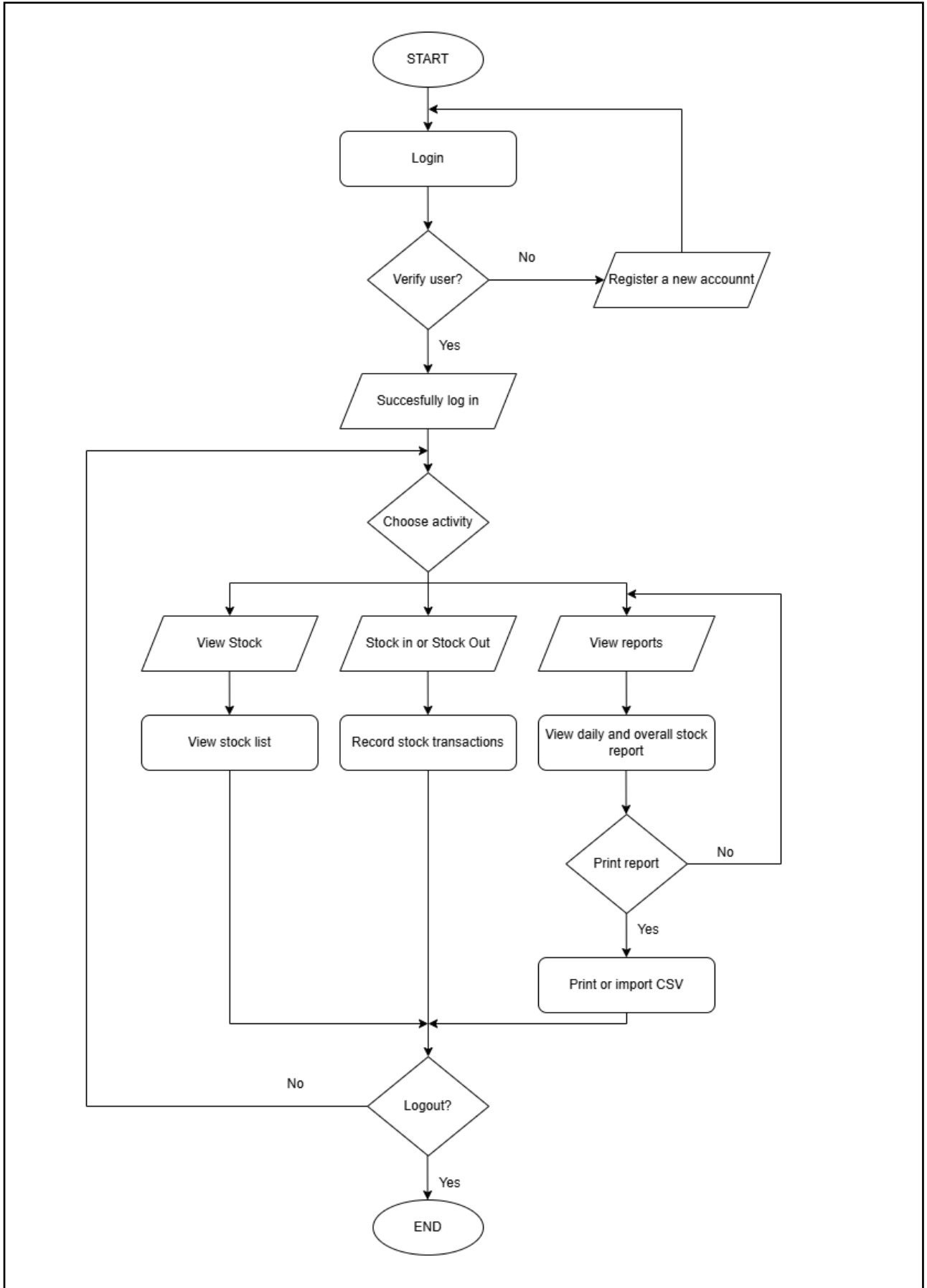


Figure 3.111: Staff Flowchart

3.6.2 Use Case Diagram

The Stock Reporting System's Use cases for the salmonly cafe are designed to demonstrate how the two user types, staff and admin, interact with this system. The key activities performed by each of the two categories of users are identified within the use cases.

Staffs are capable of examining their existing inventory status, registering both incoming and outgoing inventory transactions, creating a report for the day's inventory, carrying out routine inventory counting updates, reviewing their work schedule and updating their personal information. The relationships that indicate inclusion will encompass checking stock while recording stock-in and stock-out transactions, generating reports while viewing reports, and updating inventory while reviewing their history.

On the other hand, administrators have full access to almost all of the features within the system which includes the ability to manage users, manage items, manage supplier, manage schedules, view detailed inventory movement reports in CSV and PDF format, change the system settings such as theme or notification method, view analytical reports such as "Top 5 Moving Products" and "Waste Analysis".

These use case diagrams basically function not only to outline how the system works, but also to explain how each user interacts with the Stock Reporting system. Thus, they guide in ensuring that the needs and processes of operational nature at Salmonly Café are being met or satisfied.

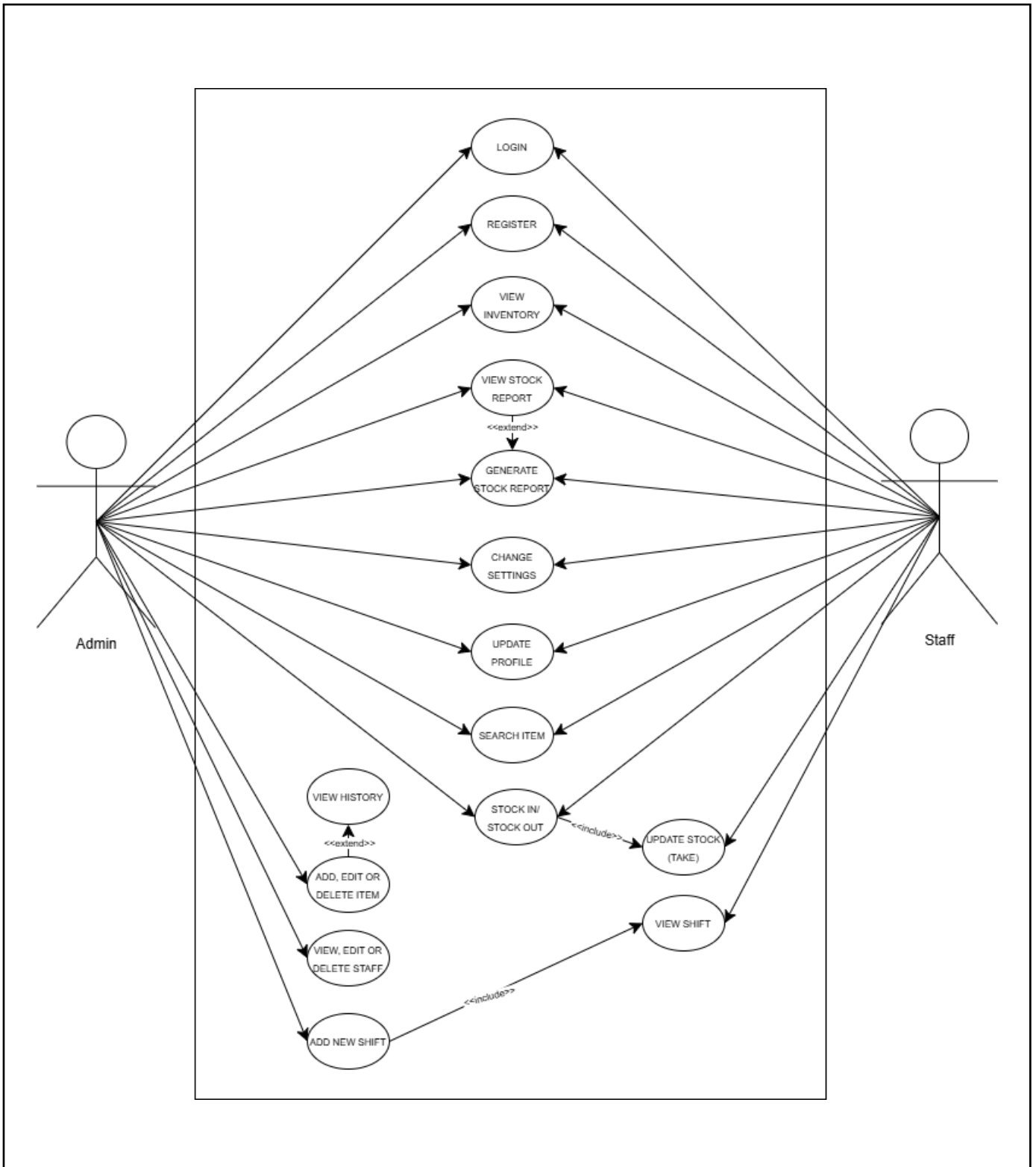


Figure 3.112: Use Case Diagram

3.6.3 Entity Relational Diagram

The Entity Relationship Diagram (ERD) illustrates the data structure for the Stock Reporting System for Salmonly Café, showing how key entities such as users, products, categories, stock_transactions, shifts, and user_settings are interconnected. Each entity contains specific attributes—for instance, the users entity stores user_id, full_name, email, password, role, and status. The products entity is linked to categories via category_id, establishing a one-to-many relationship. The stock_transactions entity connects products to users, recording all stock-in and stock-out activities. The shifts entity manages staff schedules, while user_settings stores individual preferences including theme and notification alerts. This diagram is essential for demonstrating how data is stored, related, and utilized throughout the system to support efficient inventory management at Salmonly Café.

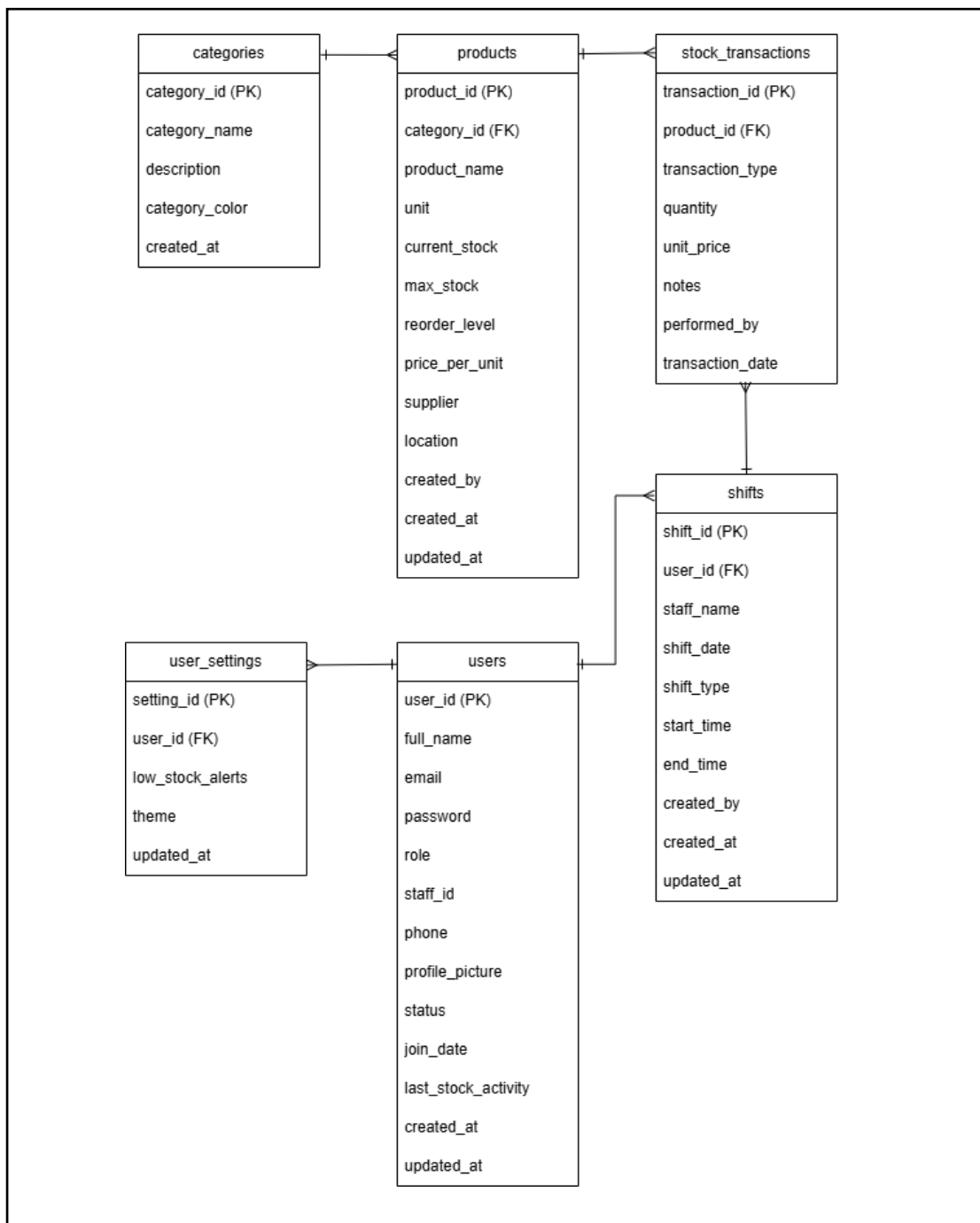


Figure 3.113: Entity Relational Diagram

3.6.4 Data Dictionary

Data dictionary is an exhaustive documentation of every database field used in the Stock Reporting System for Salmonly Café. It defines the table and field names, data types, description, and constraints (for example, primary keys or foreign keys). For example, the user_id field in the users table is an Integer that has been marked as the primary key and is used to identify every user uniquely. Data dictionary encourages consistency, simplicity, and proper enforcement of the database schema during development.

Table 3.1 users data dictionary

Field Name	Data Type	Constraint	Description	Example
user_id	int	Primary key	Unique identifier for each user	4
full_name	Varchar	Not null	Full name of the user	Alya
email	Varchar	Not null	User's email address for login	alya@salmonly.com
password	Varchar	Not null	User password (hashed using bcrypt)	\$2y\$10\$abc123...
role	Enum	Not null	User role to determine access level	Staff
staff_id	Varchar	Null	Unique staff identification number	ST-002
phone	Varchar	Null	User's phone number	01139948775
profile_picture	Varchar	Null	Profile picture file path	user_5_1774672579.jpg
status	Enum	Default 'active'	Current status of the user account	active
join_date	Date	Not null	Date when user registered	2026-03-28
last_stock_activity	Timestamp	Null	Timestamp of user's last stock transaction	2026-03-31 10:49:57
created_at	Timestamp	Not null	Timestamp when user record was created	2026-03-31 11:17:47
updated_at	Timestamp	Not null	Timestamp when user record was last updated	2026-04-05 11:19:07

Table 3.2: categories data dictionary

Field Name	Data Type	Constraint	Description	Example
category_id	int	Primary key	Unique identifier for each category	1
category_name	Varchar	Not null	Name of the item category	FOOD
description	Text	Null	Detailed description of the category	Beverage powders, syrups, and drink ingredients
category_color	Varchar	Null	Hex color code for UI display	#932f81
created_at	Timestamp	Not null	Timestamp when category was created	2026-03-27 14:57:57

Table 3.3: stock_transactions data dictionary

Field Name	Data Type	Constraint	Description	Example
transaction_id	int	Primary key	Unique identifier for each transaction	6
product_id	int	Foreign key	Item involved in the transaction	14
transaction_type	Enum	Not null	Type of transaction (IN = stock received, OUT = stock removed)	IN
quantity	Decimal	Not null	Quantity of stock added or removed	3.00
notes	Text	Null	Additional notes about the transaction	Usage – best seller
performed_by	int	Foreign key	ID of user who performed the transaction	6
transaction_date	Datetime	Not null	Date and time of the transaction	2026-03-29 01:21:17

Table 3.4: shifts data dictionary

Field Name	Data Type	Constraint	Description	Example
shift_date	int	Primary key	Unique identifier for each shift	1
user_id	int	Foreign key	Staff member assigned to the shift	6
staff_name	Varchar	Not null	Staff name (backup copy)	Nur Ain
shift_date	Date	Not null	Date of the shift	2026-03-23
shift_type	Enum	Not null	Type of shift (opening or closing)	opening
start_time	Time	Not null	Shift start time	09:30:00
end_time	Time	Not null	Shift end time	15:30:00
created_by	int	Null	ID of admin who created the shift	5
created_at	Timestamp	Not null	Timestamp when shift was created	2026-03-29 02:02:40
updated_at	Timestamp	Not null	Timestamp when shift was updated	2026-03-29 02:03:00

Table 3.5: user_settings data dictionary

Field Name	Data Type	Constraint	Description	Example
setting_id	int	Primary key	Unique identifier for each setting record	2
user_id	int	Foreign key	User associated with these settings	3
theme	Enum	Default 'light'	User interface theme preference	light
low_stock_alerts	Tinyint	Default 1	Enable/disable low stock notifications (1=ON, 0=OFF)	1

Table 3.6: products data dictionary

Field Name	Data Type	Constraint	Description	Example
product_id	int	Primary key	Unique identifier for each item	3
product_name	Varchar	Not null	Name of the item	Sushi rice
category_id	int	Foreign key	Category that the item belongs to	1
unit	Varchar	Not null	Unit of measurement for the item	pack
current_stock	Decimal	Not null	Current quantity of stock available	5.00
max_stock	Decimal	Not null	Maximum stock capacity	10.00
reorder_level	Decimal	Not null	Stock level that triggers reorder alert	2.50
price_per_unit	Decimal	Not null	Price per unit in Malaysian Ringgit	15.00
supplier	Varchar	Null	Name of the supplier	Sumo
location	Varchar	Null	Storage location in the cafe	Cheras
created_by	int	Foreign key	ID of user who created the item	2
created_at	Timestamp	Not null	Timestamp when item was created	2026-03-28 15:54:29
updated_at	Timestamp	Not null	Timestamp when item was last updated	2026-03-30 14:37:47

3.7 Conclusion

This chapter discussed the methods that were used in developing the Stock Reporting System for Salmonly Cafe, with the Agile methodology being the primary method to allow continued enhancements and flexibility in accordance with the users comments. The methodology can be broken down into six phases: which are planning, design, developing, testing, deploying and reviewing. The system was revised and improved to address the most significant problems the cafe owner and staff were encountering. Data collection was crucial to this process and involved distributing a survey using Google Form to both staff and the owner. Based on the input received from the survey, it was identified that there were several inefficiencies in the manual stock-keeping method at Salmonly Cafe, which mainly included the handwritten stock records that took too long to create and were subject to frequent errors; therefore, the development process was guided by these findings to improve the Cafe's Stock Management System.

The chapter also covered interface design, including wireframes and actual interface layouts, to create an intuitive system for different user roles. The admin was provided with a structured way to manage inventory and staff, while staff could record stock-in and stock-out activities with greater efficiency. Furthermore, the system and application modeling including flowcharts, use case diagrams, entity-relationship diagrams, and data dictionary were presented as a visual depiction of how the system operates. These structured methodologies ensured that the system was designed to be practical, user-friendly, and scalable, ultimately enhancing the overall management of stock at Salmonly Café.

CHAPTER 4

FINDINGS AND RESULTS

4.1 Introduction

This section is focused on running and confirming a test of the Salmonly Cafe Stock Reporting System. This is an extremely essential step that will allow the staff and administrators to be assured that the system will run properly when put to use. The main intent of the testing process is to validate that the system developed creates an environment that is efficient and simple to use for all users. Staff utilises the system to enter stock-in and stock-out transactions, update daily stock levels, and produce reports. The system will be used by the administrators to manage their stock, to manage employee schedules, and to produce automated reports. Because of that, the goals during testing were to ensure that a complete solution has been established to manage their inventory properly.

This chapter describes all testing activities performed to ensure that both user roles can operate the system adequately. Unit testing ensures that each individual function is operating without any errors or defects. Integration testing ensures that all portions of the system function together as a whole unit, in accordance with the specifications identified in the design of the system. System testing determines whether or not the system is consistent with both the design and performance criteria identified in the design. Finally, in this case, user acceptance testing determines whether or not the system meets the needs of both the café owner and staff. All of these tests will indicate that the entire Stock Reporting System for Salmonly Café will be fully operational and will provide an accurate report on its readiness to be implemented into a working environment.

4.2 System Evaluation

During the testing of the Stock Reporting System, the primary focus is to evaluate its complete performance as a system, including its usability and functionality as solutions for users, admin, and staff. This testing will ensure that the stock reporting system performs adequately, meets user requirements, is used efficiently, and does not pose problems with real-world use. Various forms of testing were completed, at different levels (test phases or stages), with the intent on identifying any problems that would affect overall system performance; the testing of the Stock Reporting System was conducted so that the Stock Reporting System will perform well, without disruption, and continue to support the staff, the admin, and assist in stock management and reporting.

The entire testing process comprises several testing phases, such as unit testing, integration testing, system testing, and ultimately, user acceptance testing. Each of those testing occurs in a different phase with one of them testing the functionality of the application, the user interface, the interaction between different modules, and others. The testing process helped uncover both weaknesses and strengths in the application's performance during the testing stage as well as confirmed that the application would be easy-to-use, robust and at its peak potential for product release. Testing will demonstrate that the Stock Reporting System will deliver a dependable and usable experience to all users.

4.2.1 Unit Testing

Unit Testing of the Stock Reporting Systems of the Salmonly Café detects the performance of each specific feature of the System to perform its functions as specified. Each test is prepared with input data, and the expected results (stock recording, inventory management, report generation, staff schedule management, system settings etc.) are used to validate whether the unit is functioning as it should. Once the expected and actual results match, the test is passed. However, if the expected and actual results do not match, the code is revised or modified as per the requirement. This ensures that all components of the Software System are working properly before they are integrated with the other components.

The advantage of unit testing lies in the ability to identify and fix problems ahead of time. By having each feature tested independently, bugs or defects can be discovered early on in development so that catastrophic problems will not arise when the system is already fully developed. It also maintains clean, efficient code while saving a lot of time and effort down the road in development. Identifying problems early makes it easier to fix and minimizes the risk of having larger, more complicated problems down the road.

Table 4.1: Admin Unit Testing

Module Testing	Input Data	Error Handling	Expected Output	Result
Login Screen	Email: admin@salmonly.com Password: admin123	If email or password is empty, error message appears. If credentials are invalid, error message appears.	User redirected to Admin Dashboard upon successful login	PASS
Admin Dashboard	No input data needed	No error handling	Display welcome message, quick stats (Total Items, Total Staff, Low Stock, Critical), and recent activities	PASS
Inventory Management - View Stock	No input data needed	Display blank table if no products exist	Display all products with name, category, stock level, unit, and status	PASS
Inventory Management	Product Name: Sushi rice, Category: FOOD, Unit: pack,	All fields must be filled. Product name cannot be empty.	New product added to inventory list. Success message displayed.	PASS

- Add Product	Current Stock: 50, Max Stock: 100, Reorder Level: 20, Price: RM45, Supplier: FreshFish Sdn Bhd, Location: Cheras			
Inventory Management - Edit Product	Product ID: 101, Change current stock from 50 to 75	Product ID must exist. Quantity must be valid number.	Product stock updated to 75. Success message displayed.	PASS
Inventory Management - Delete Product	Product ID: 101	Confirmation modal appears before deletion. Product must exist.	Product removed from inventory list. Success message displayed.	PASS
Inventory Management - Add Category	Category Name: Beverages, Description: Drinks and beverages, Color: #3498db	Category name cannot be empty. Category name must be unique.	New category added to category list. Success message displayed.	PASS
Inventory Management - Stock In	Select Product: Salmon, Quantity: 10, Notes: Supplier delivery	Quantity must be greater than 0. Product must be selected.	Stock increased by 10 units. Transaction recorded. Success message displayed.	PASS
Inventory Management - Stock Out	Select Product: Salmon, Quantity: 5, Reason: Usage, Notes: Kitchen usage	Quantity must be greater than 0 and not exceed current stock. Product must be selected.	Stock decreased by 5 units. Transaction recorded. Success message displayed.	PASS
Staff Management - View Staff	No input data needed	Display blank list if no staff exists	Display all staff with name, role, contact, status, and last activity	PASS
Staff Management - Add Staff	Full Name: Nur Ain, Email: Ain@salmonly.com, Role: Staff, Staff ID: ST-001,	All fields must be filled. Email must be unique. Password must be at least 6 characters.	New staff account created. Success message displayed.	PASS

	Password: staff123			
Staff Management - Edit Staff	User ID: 5, Change status from active to offline	User ID must exist.	Staff status updated to offline. Success message displayed.	PASS
Staff Management - Delete Staff	User ID: 5	Confirmation modal appears. User ID must exist and cannot be admin.	Staff account deleted. Success message displayed.	PASS
Schedule Management - View Schedule	Select month: April, Year: 2025	No error handling	Display calendar with all staff shifts for selected month	PASS
Schedule Management - Add Shift	Select Date: 2025-04-10, Staff: Nur Ain, Shift Type: opening, Start Time: 09:00, End Time: 15:00	All fields must be filled. Start time cannot be after end time.	New shift added to calendar. Success message displayed.	PASS
Schedule Management - Edit Shift	Shift ID: 101, Change shift type from opening to closing	Shift ID must exist.	Shift type updated. Success message displayed.	PASS
Schedule Management - Delete Shift	Shift ID: 201	Confirmation modal appears. Shift ID must exist.	Shift removed from calendar. Success message displayed.	PASS
Reports - View Daily Stock Report	Select date: 2025- 04-06	No error handling	Display daily stock report with all products, quantities, and status	PASS
Reports - View Stock Movement	Start Date: 2025- 04-01, End Date: 2025-04-07, Type: All Reports	Date range must be valid (start ≤ end)	Display stock movement report showing stock in, stock out, waste, closing stock, and value	PASS
Reports - Export CSV	Click Export CSV button	No error handling	CSV file downloaded with stock movement data	PASS

Reports - Print Report	Click Print button	No error handling	Print dialog opens with formatted report	PASS
Analytics - Top Moving Items	No input data needed	Display message if no data available	Display top 4 items with highest usage quantity	PASS
Analytics - Waste Analysis	No input data needed	Display message if no waste recorded	Display waste items and waste rate percentage	PASS
Settings - Change Theme	Select theme: Dark	No error handling	Interface theme changes to dark mode immediately	PASS
Settings - Low Stock Alerts	Toggle Low Stock Alerts to OFF	No error handling	Low stock notification banner disappears from dashboard	PASS
Settings - Update Profile	Full Name: Admin User, Phone: +60123456789	Name cannot be empty	Profile information updated. Success message displayed.	PASS
Settings - Reset Settings	Click Reset button	Confirmation modal appears before reset	All settings restored to default (Light theme, Alerts ON)	PASS
Logout	Click Logout button	No error handling	User redirected to Login page. Session destroyed.	PASS

Table 4.2: Staff unit testing

Module Testing	Input Data	Error Handling	Expected Output	Result
Login Screen	Email: staff@salmonly.com Password: staff123	If email or password is empty, error message appears. If credentials are invalid, error message appears.	User redirected to Staff Dashboard upon successful login	PASS
Staff Dashboard	No input data needed	No error handling	Display welcome message, quick stats, inventory cards, recent activities, and smart prediction	PASS
View Stock - Display Stock	No input data needed	Display blank table if no products exist	Display all products with name, category, stock level, unit, status, and action buttons	PASS
View Stock - Filter by Category	Select category: FOOD	No error handling	Only products in Seafood category are displayed	PASS
View Stock - Stock In (Dropdown)	Select Product: Salmon, Quantity: 5, Notes: Supplier delivery	Quantity must be greater than 0. Product must be selected.	Stock increased by 5 units. Transaction recorded. Success message displayed.	PASS
View Stock - Stock Out (Dropdown)	Select Product: Salmon, Quantity: 3, Reason: Usage, Notes: Daily usage	Quantity must be greater than 0 and not exceed current stock. Product must be selected.	Stock decreased by 3 units. Transaction recorded. Success message displayed.	PASS
View Stock - Stock In (Table Button)	Click Stock In button on product row, Quantity: 10	Quantity must be greater than 0.	Stock increased by 10 units. Modal closes. Success message displayed.	PASS
View Stock - Stock Out (Table Button)	Click Stock Out button on product row, Quantity: 4, Reason: Waste	Quantity must be greater than 0 and not exceed current stock.	Stock decreased by 4 units with Waste reason. Transaction recorded. Success message displayed.	PASS

View Stock - View History	Click History button on product row	No error handling	Modal opens displaying all past transactions for that product	PASS
View Stock - Update Stock (Stock Take)	Enter new stock quantities for multiple products	Quantity must be valid number.	All selected products stock updated. Transaction recorded for each change. Success message displayed.	PASS
View Stock - Insufficient Stock Alert	Try to remove 100 units when current stock is only 10	Error message appears: "Insufficient stock! Current stock: 10"	Stock out transaction not processed. Error message displayed.	PASS
Reports - View Daily Stock Report	Select date: 2025-04-06	No error handling	Display daily stock report with all products, quantities, and status	PASS
Reports - View Stock Movement	Start Date: 2025-04-01, End Date: 2025-04-07, Type: All Reports	Date range must be valid (start ≤ end)	Display stock movement report showing stock in, stock out, waste, closing stock, and value	PASS
Reports - Export CSV	Click Export CSV button	No error handling	CSV file downloaded with stock movement data	PASS
Reports - Print Report	Click Print button	No error handling	Print dialog opens with formatted report	PASS
Reports - View Top Moving Items	No input data needed	Display message if no data available	Display top 3 items with highest usage quantity	PASS
Reports - View Waste Analysis	No input data needed	Display message if no waste recorded	Display waste items and waste rate percentage	PASS
View My Shift	Click "View My Shift" button	Display message if no shifts scheduled for the month	Modal opens displaying staff's shift schedule for current month	PASS

Settings - Change Theme	Select theme: Light	No error handling	Interface theme changes to light mode immediately	PASS
Settings - Low Stock Alerts	Toggle Low Stock Alerts to ON	No error handling	Low stock notification banner appears on dashboard when stock is low	PASS
Settings - Update Profile	Full Name: Staff User, Phone: +60198765432	Name cannot be empty	Profile information updated. Success message displayed.	PASS
Settings - Reset Settings	Click Reset button	Confirmation modal appears before reset	All settings restored to default (Light theme, Alerts ON)	PASS
Profile - Change Profile Picture	Upload image file (JPG, PNG, GIF)	Only JPG, PNG, GIF files allowed. File must be valid image.	Profile picture updated and displayed. Success message displayed.	PASS
Profile - Change Password	Current Password: staff123, New Password: newpass123, Confirm Password: newpass123	Current password must match. New password must be at least 6 characters. New and confirm must match.	Password changed successfully. Success message displayed.	PASS
Logout	Click Logout button	No error handling	User redirected to Login page. Session destroyed.	PASS

4.2.2 Integration Testing

The Stock Reporting System integration for Salmonly Cafe is designed around key systems like inventory management and tracking, sales, and reporting, user authentication, staff management, schedule management, The combination of these systems, and how they interact with each other, is what we will be doing during our integration testing. It ensures that all data from one system moves to another smoothly. Another important aspect of Integration testing is ensuring that the modules all work together as an integrated whole.

A good instance of this is when a Staff Member creates a "stock-out" transaction, integration testing ensures that the product's current quantity is updated, the transaction is added to the stock_transactions table, and the quantity changes reflect on the inventory dashboard, as well as on the related stock reports. Similarly, when an Admin creates a new Product; integration testing is done to ensure the Product is successfully saved in the products table, appears in the inventory lists for both admins and staff members, and is available for creating stock transactions. This type of testing to identify the relatively mismatches and communication issues between the modules and ensure an uninterrupted experience between the admin and the staff user.

Table 4.3 Integration testing

Module Testing	Input Data	Error Handling	Expected Output	Result
Register New Staff	Admin registers staff details (Full Name, Email, Staff ID, Phone Number, Role, Password)	Show error message if mandatory fields are left blank, if email already exists, or if password is less than 6 characters	Staff information is successfully saved in users table, staff can login using registered credentials, and staff appears in Staff Management list	PASS
Staff Login	Staff enters email and password registered by admin	Show error message if email or password is incorrect or fields are empty	Staff successfully authenticated, session created, and redirected to Staff Dashboard	PASS
Admin Login	Admin enters email and password	Show error message if email or password is incorrect or fields are empty	Admin successfully authenticated, session created, and redirected to Admin Dashboard	PASS
Add Category	Admin adds new category (Category Name: Beverages,	Show error message if category name is	Category saved in categories table, appears in category filter	PASS

	Description: Drinks, Color: #3498db)	empty or already exists	dropdown on Inventory page and Add/Edit Product forms	
Add Product	Admin adds new product (Product Name: Salmon Fillet, Category: Seafood, Unit: kg, Current Stock: 50, Max Stock: 100, Reorder Level: 20, Price: RM45)	Show error message if product name or unit is empty	Product saved in products table, appears in inventory list for both admin and staff, available for stock transactions	PASS
Edit Product	Admin edits product (Change current stock from 50 to 75)	Product ID must exist. Quantity must be valid number.	Product stock updated in products table, new stock level displayed in inventory list and daily stock report	PASS
Delete Product	Admin deletes a product	Confirmation modal appears. Show error if product has existing transactions (optional)	Product removed from products table, no longer appears in inventory list or stock transaction dropdowns	PASS
Stock In Transaction	Staff records stock-in (Product: Salmon Fillet, Quantity: 10, Notes: Supplier delivery)	Quantity must be greater than 0. Product must be selected.	products.current_stock increases by 10, stock_transactions table records 'IN' transaction, new stock level appears in inventory list and daily report	PASS
Stock Out Transaction	Staff records stock-out (Product: Salmon Fillet, Quantity: 5, Reason: Usage)	Quantity must be greater than 0 and not exceed current stock	products.current_stock decreases by 5, stock_transactions table records 'OUT' transaction, stock movement reflected in reports	PASS
Waste Recording	Staff records stock-out with reason "Waste" (Product: Salmon Fillet, Quantity: 2, Reason: Waste)	Quantity must not exceed current stock	stock_transactions table records 'OUT' transaction with notes containing 'waste', waste appears in Waste Analysis report	PASS
Daily Stock Take	Staff performs daily stock update (Enter new quantities for multiple products)	New quantity must be valid number	Multiple products updated simultaneously, each change recorded in stock_transactions with notes "Daily stock adjustment", differences calculated correctly	PASS

Low Stock Alert Integration	Product stock falls below reorder level (Current stock: 15, Reorder level: 20)	No direct error handling	Low stock alert banner appears on both Admin and Staff Dashboards, product appears in Critical & Low Stock Items list	PASS
Critical Stock Alert Integration	Product stock falls below reorder_level/2 (Current stock: 8, Reorder level: 20, Reorder/2: 10)	No direct error handling	Critical stock alert appears on dashboard, product highlighted in red in inventory list	PASS
Add Staff Schedule	Admin adds shift (Date: 2025-04-10, Staff: Ahmad Faiz, Shift Type: opening, Start: 09:00, End: 18:00)	All fields must be filled. Start time cannot be after end time.	Shift saved in shifts table with user_id and staff_name, appears in staff's "View My Shift" modal on Staff Dashboard	PASS
View Staff Schedule	Staff clicks "View My Shift" button on dashboard	Display message if no shifts scheduled	Staff sees their shifts for current month in modal, data fetched from shifts table via AJAX	PASS
Daily Stock Report Generation	Admin views daily stock report for specific date	No error handling	Report displays all products with current stock, max stock, unit, and status, data fetched from products table	PASS
Stock Movement Report Generation	Admin selects date range (Start: 2025-04-01, End: 2025-04-07) and report type "All Reports"	Date range must be valid (start ≤ end)	Report displays stock in, stock out, waste, closing stock, and value, data aggregated from stock_transactions and products tables	PASS
Export Report to CSV	Admin clicks "Export CSV" button on Reports page	No error handling	CSV file downloaded containing all filtered report data, file name format: stock_report_YYYY-MM-DD.csv	PASS
Top Moving Items Calculation	Admin views Analytics section on Reports page	Display message if no data available	System calculates and displays top 4 items with highest total usage (SUM of stock_out quantities) from stock_transactions table	PASS

Waste Analysis Calculation	Admin views Waste Analysis section on Reports page	Display message if no waste recorded	System calculates waste items and waste rate percentage (waste/usage * 100) from stock_transactions table	PASS
Change Theme Setting	User changes theme from Light to Dark in Settings	No error handling	Theme preference saved in user_settings table, interface theme changes immediately, setting persists after logout and login	PASS
Low Stock Alert Setting	User toggles Low Stock Alerts to OFF in Settings	No error handling	low_stock_alerts set to 0 in user_settings table, low stock notification banner no longer appears on dashboard	PASS
Update Profile	Staff updates profile (Full Name, Phone Number)	Name cannot be empty	users table updated with new name and phone, changes reflected in session, displayed in sidebar and profile page	PASS
Change Password	Staff changes password (Current Password, New Password, Confirm Password)	Show error if current password wrong or new password and confirm password do not match	Password hashed and updated in users table, user can login with new password	PASS
Change Profile Picture	Staff uploads new profile picture (Image file: JPG/PNG/GIF)	Show error if file type not allowed or upload fails	Image saved in uploads/profiles/ folder with unique filename, users.profile_picture updated, new picture displayed in sidebar and profile page	PASS
Dashboard Statistics Integration	Admin views Admin Dashboard	No error handling	Dashboard displays Total Items (COUNT from products), Total Staff (COUNT from users WHERE role='Staff'), Low Stock and Critical counts (calculated from products.current_stock and reorder_level), data from multiple tables aggregated correctly	PASS

Recent Activity Feed	Staff views Staff Dashboard	No error handling	Dashboard displays recent stock transactions with user who performed them, data joined from stock_transactions, products, and users tables	PASS
Category Filter on Inventory	Staff selects category filter "Seafood" on View Stock page	No error handling	Inventory table displays only products belonging to selected category, filtering based on products.category_id joined with categories table	PASS
View Transaction History	Staff clicks History button on a product	No error handling	Modal opens displaying all past transactions for that product, data fetched from stock_transactions table via AJAX	PASS
Logout	User clicks Logout button	No error handling	Session destroyed, user redirected to Login page, cannot access dashboard pages without logging in again	PASS

4.2.3 System Testing

The Stock Reporting System has been tested to confirm its overall function for both user categories, staff and administrators. Functional testing has been performed to ensure the main functional areas which are stock in/stock out, daily stock level updates, and report generation are all working as intended, according to the designed functionality of this system, along with staff scheduling, and profile editing. Performance testing has also been conducted to ensure that the System will still have quick response times during peak periods when multiple users are recording stock-out transactions at the same time.

Usability, reliability, and security testing will also be included in testing to ensure that all other aspects of the system that are considered critical are properly tested. The usability test is to guarantee that the interface of the system can be used easily and accessed easily by anybody who is using it because most of the café staff are not advanced in computer skills. Secondly, reliability testing is done to ensure that the system is working well and not crashing down while performing any operation like recording stock transactions or generating reports. Finally, security testing is done to ensure that all user data, such as log in credentials and stock information are safe and that only authorised users have access to the system. Therefore, all these different tests collectively indicate that the Stock Reporting System can be rolled out based on the utmost assurance that the users will be satisfied with the system's performance.

Table 4.4: System Testing

Testing Type	Scenario	Expected Result	Result
Functional Testing	Verify core functions of the system (login, view stock, record stock in/out, generate reports, update stock take)	All functionalities work as intended without errors	PASS
Usability Testing	Evaluate user interface and ease of navigation for both admin and staff	Interface is user-friendly, straightforward, and easy to use for all users	PASS
Security Testing	Attempt unauthorized access without login or using invalid credentials	System restricts access and redirects to login page with error message	PASS
Reliability Testing	Run repeated tasks such as login/logout, stock transactions, and report generation	System behaves consistently without failure or data loss	PASS
Acceptance Testing	Test system with real user interactions (admin managing inventory, staff recording stock)	Users are satisfied, and system meets business needs of Salmonly Café	PASS
Compatibility Testing	Run the system on different browsers (Chrome, Firefox, Edge) and devices (laptop, desktop)	System displays correctly and works consistently across different platforms	PASS
Interface Testing	Verify data flow between user interface and database when recording stock transactions	Data transfers correctly between modules with no interruption or mismatch	PASS
Regression Testing	Test after code updates or bug fixes to inventory management module	Previously working functions continue to perform without new errors	PASS

4.2.4 User Acceptance Testing

User Acceptance Testing (UAT) for the Stock Reporting System for Salmonly Café was conducted through Google Form to evaluate whether the system meets the requirements and expectations of admin and staff.

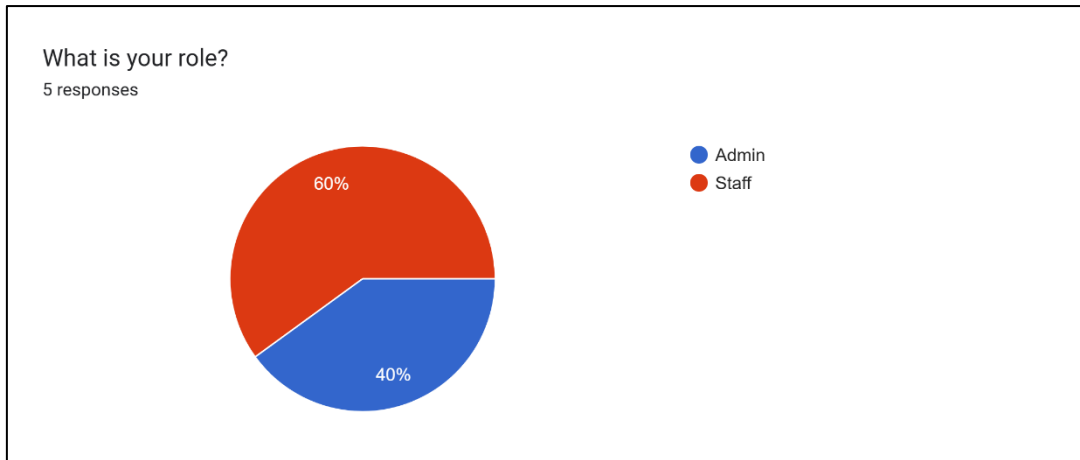


Figure 4.1: User questionnaire 1

Figure 4.1 shows that 60% of respondents are staff and 40% are admin. This distribution represents the actual user composition of the Stock Reporting System, where staff are the primary users that responsible for daily stock recording activities.

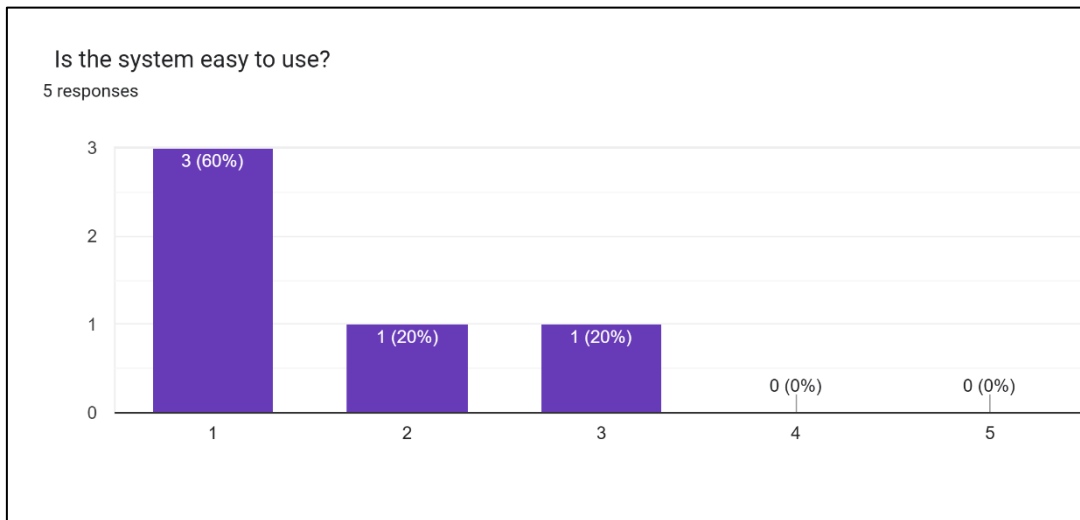


Figure 4.2: User questionnaire 2

Based on Figure 4.2, the majority of respondents (60%) rated the system as "Very Easy" to use (Rating 1), while 20% gave Rating 2 and another 20% gave Rating 3. No respondents rated the system as difficult (Rating 4 or 5). This indicates that the Stock Reporting System has a user-friendly interface that allows both staff and admin to navigate and perform their tasks without significant difficulty.

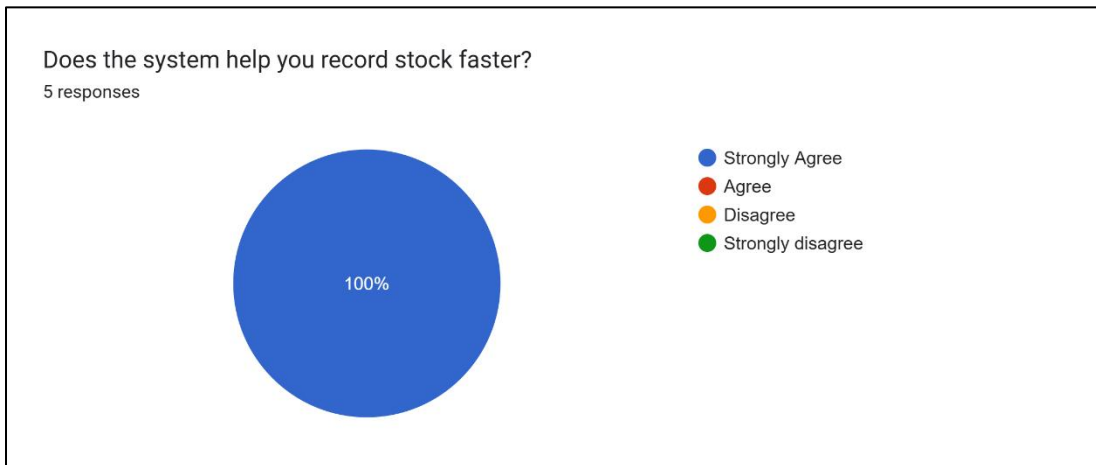


Figure 4.3: User questionnaire 3

Based on Figure 4.3, 100% of respondents agreed that the Stock Reporting System helps them record stock faster compared to manual methods. The majority selected "Strongly Agree" while the remaining selected "Agree". No respondents chose "Disagree" or "Strongly Disagree". This indicates that the digital system has successfully improved efficiency, allowing staff to complete stock-in and stock-out transactions more quickly than using handwritten logbooks. As a result, daily stock recording tasks at Salmonly Café can now be completed in less time.

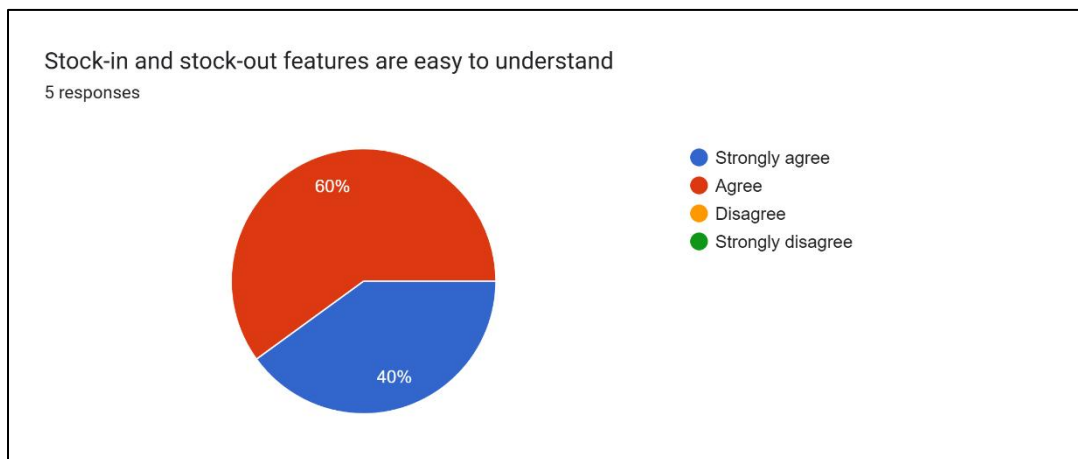


Figure 4.4: User questionnaire 4

Based on Figure 4.4, 60% of respondents strongly agreed that the stock-in and stock-out features are easy to understand, while 40% agreed. No respondents disagreed or strongly disagreed. This indicates that the interface for recording stock transactions is clear and intuitive, allowing staff to perform stock-in and stock-out tasks without confusion. The use of simple forms and dropdown menus helps users complete transactions accurately.

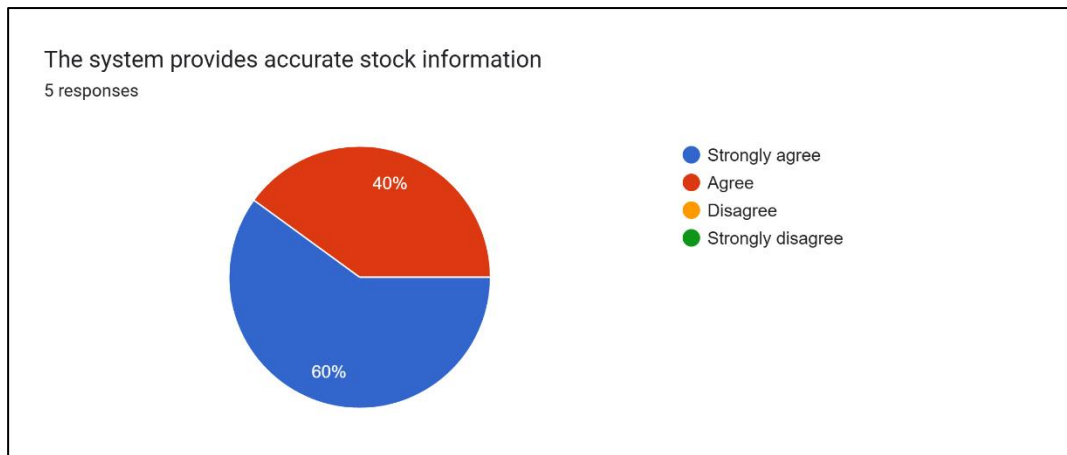


Figure 4.5: User questionnaire 5

Based on Figure 4.5, 60% of respondents strongly agreed that the stock-in and stock-out features are easy to understand, while 40% agreed. No respondents disagreed or strongly disagreed. This indicates that the interface for recording stock transactions is clear and intuitive, allowing staff to perform stock-in and stock-out tasks without confusion. The use of simple forms and dropdown menus helps users complete transactions accurately.

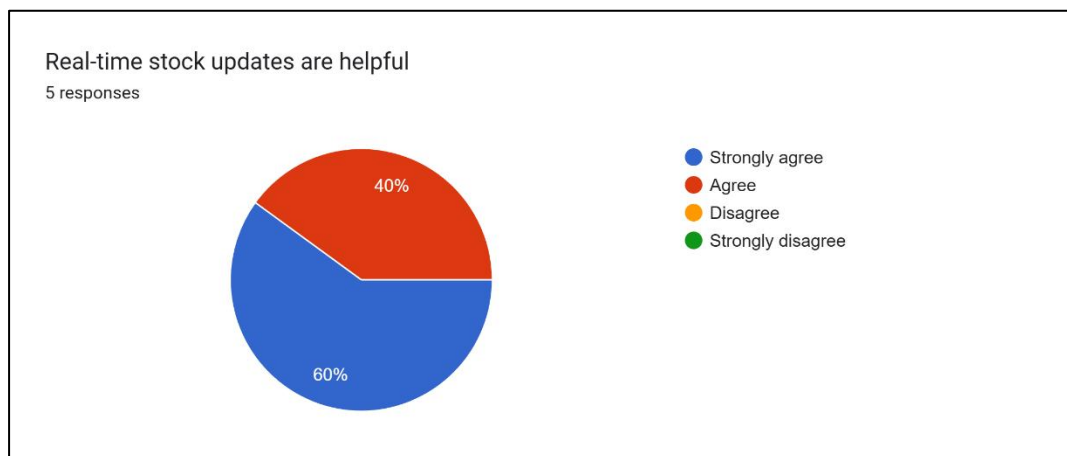


Figure 4.6: User questionnaire 6

Based on Figure 4.6, 60% of respondents strongly agreed that real-time stock updates are helpful, while 40% agreed. No respondents disagreed or strongly disagreed. This feedback shows that staff and admin find value in being able to see current stock levels instantly. Real-time updates help them avoid stock shortages and make better decisions for daily operations.

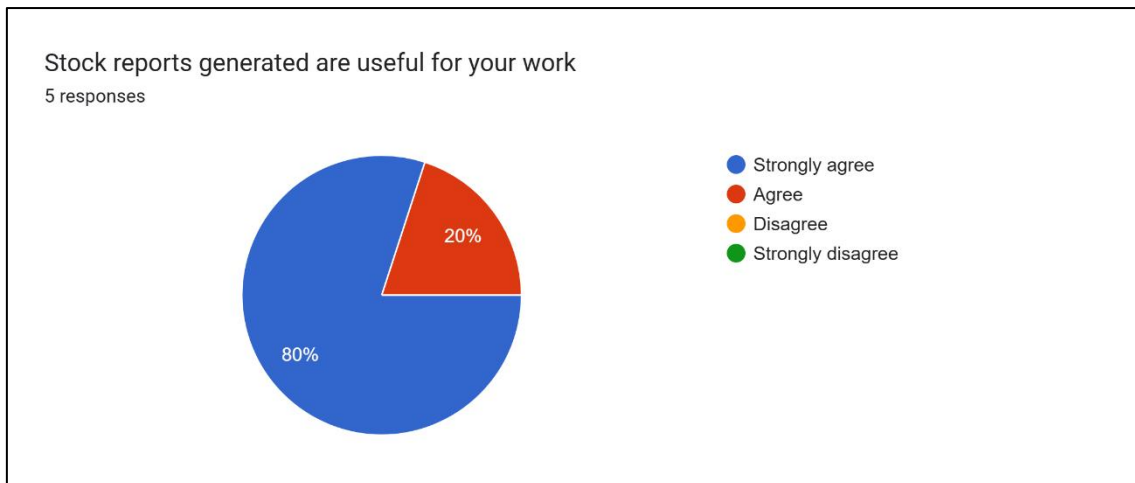


Figure 4.7: User questionnaire 7

Based on Figure 4.7, 80% of respondents strongly agreed that the stock reports generated are useful for their work, while 20% agreed. No respondents disagreed or strongly disagreed. This shows that the daily stock reports and stock movement reports provide valuable information for both staff and admin. The reports help them track inventory usage, identify low stock items, and make informed decisions for purchasing and menu planning at Salmonly Café.

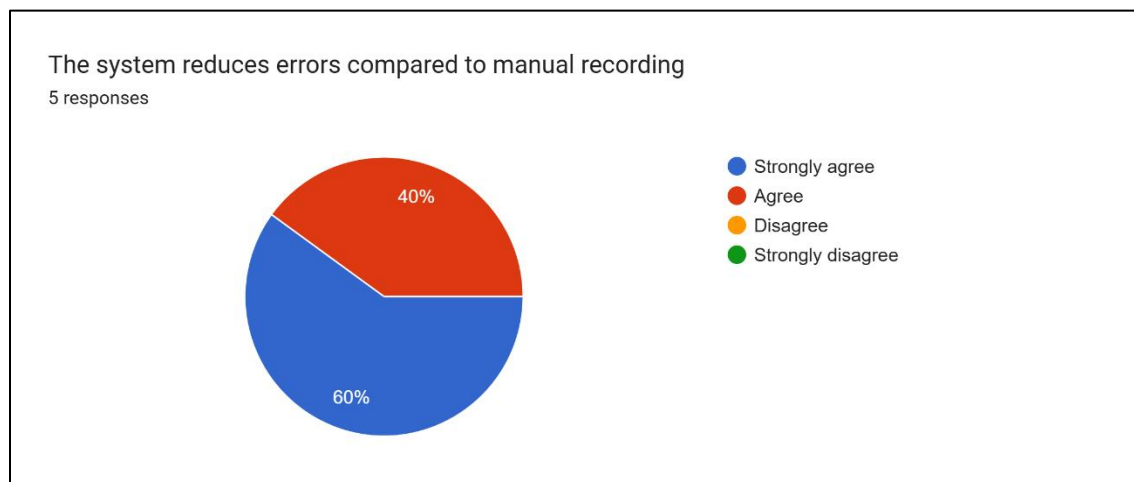


Figure 4.8: User questionnaire 8

Based on Figure 4.8, 60% of respondents strongly agreed that the system reduces errors compared to manual recording, while 40% agreed. No respondents disagreed or strongly disagreed. This indicates that staff and admin feel more confident using the digital system than handwritten logbooks. The system helps minimize mistakes such as incorrect entries, missing records, or miscalculations during stock recording.

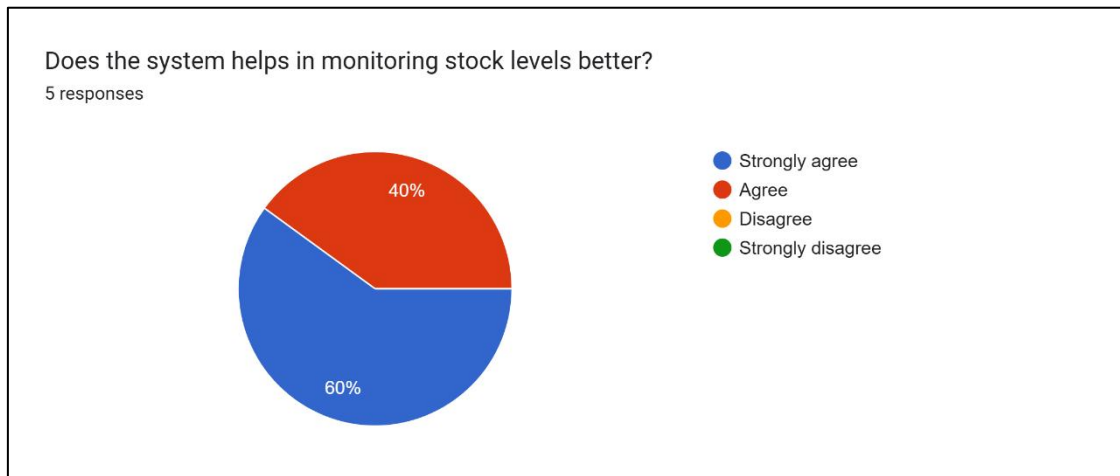


Figure 4.9: User questionnaire 9

Based on Figure 4.9, 60% of respondents strongly agreed that the system helps in monitoring stock levels better, while 40% agreed. No respondents disagreed or strongly disagreed. This shows that the real-time stock display and status indicators (Critical, Low, Healthy, Reorder) allow staff and admin to keep track of inventory more effectively. The owner can now identify which ingredients are running low without having to check physical records.

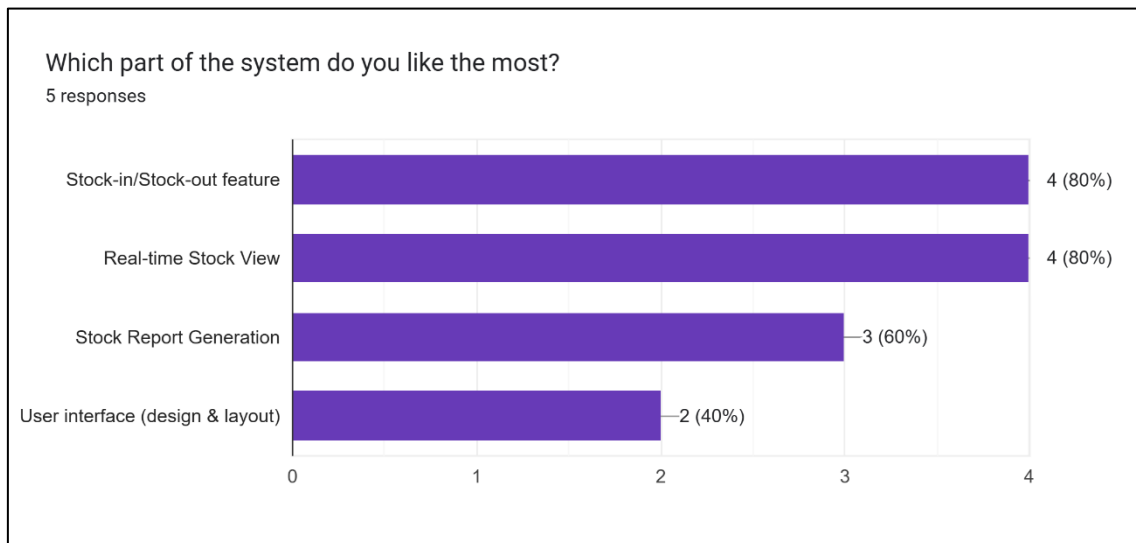


Figure 4.10: User questionnaire 10

Based on Figure 4.10, the Stock-in/Stock-out feature and Real-time Stock View were the most liked features, each receiving 80% of responses. The Stock Report Generation feature followed with 60%, while the User Interface received 40%. This indicates that users value the core transaction features the most, as these directly help them complete their daily stock recording tasks efficiently. The high preference for real-time stock view also shows that instant access to current stock levels is important for both staff and admin in managing cafe operations.

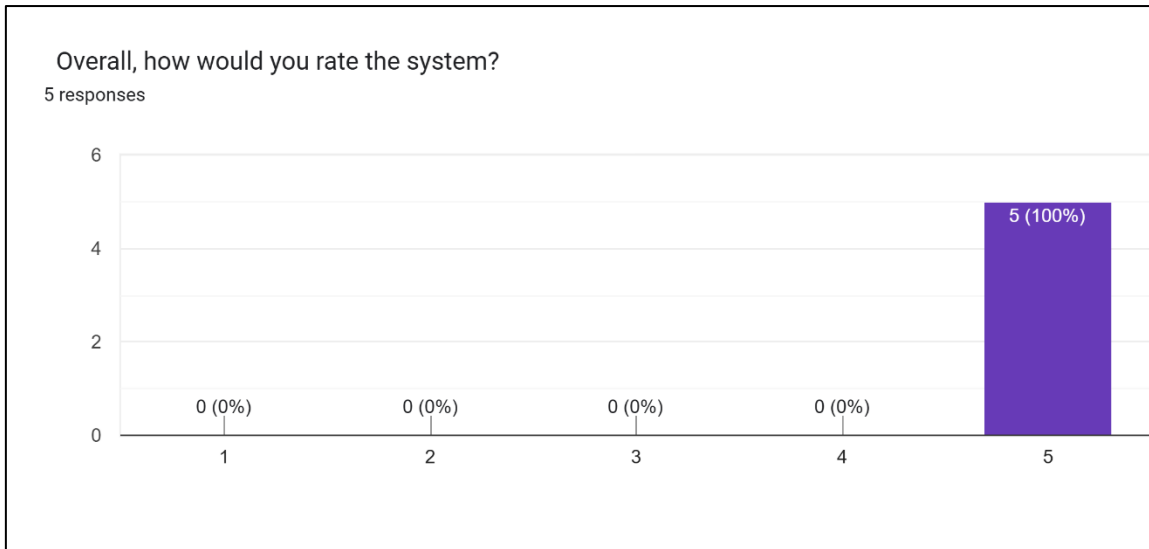


Figure 4.11: User questionnaire 11

Based on Figure 4.11, 100% of respondents rated the system with the highest score of 5. No respondents gave lower ratings of 1 to 4. This shows that all users were highly satisfied with the Stock Reporting System for Salmonly Café. The overall positive feedback confirms that the system meets user expectations and effectively addresses the stock management problems faced by the cafe, such as manual recording, lack of real-time information, and difficulty generating reports.

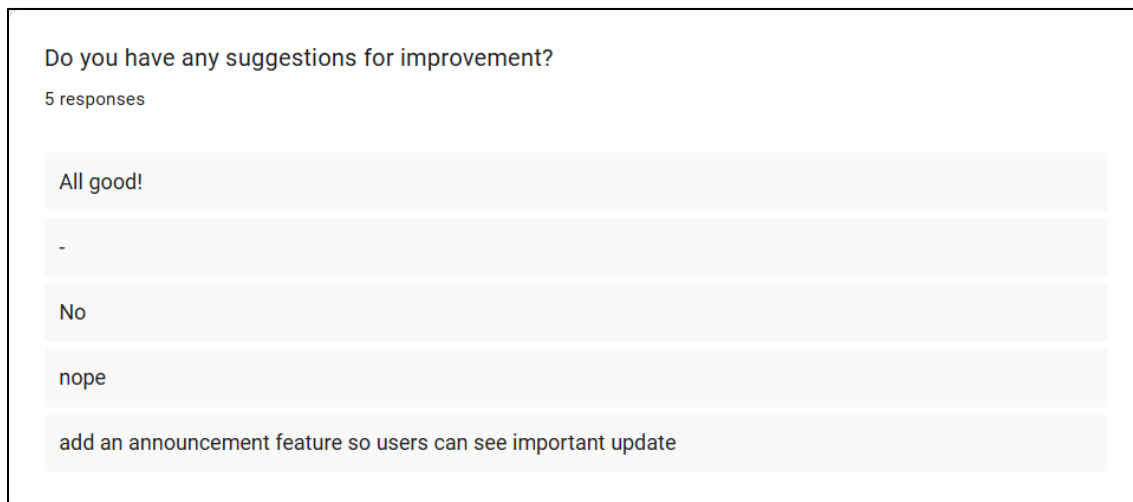


Figure 4.12: User questionnaire 12

Based on Figure 4.11, the majority of respondents indicated that they had no suggestions for improvement. However, one respondent suggested adding an announcement feature so users can see important updates. This feedback will be considered for future enhancements of the Stock Reporting System to improve communication between admin and staff at Salmonly Café.

4.3 Discussion

The Stock Reporting System went through thorough testing to confirm that every feature was working correctly. The testing included multiple phases, Unit Testing, Integration Testing, and System Testing.

Individual functions were tested, including registering a user, authenticating login, recording stock-in, recording stock-out, generating reports, and updating profiles during unit testing. There were no bugs or critical issues in any of those features. This testing, therefore, gave a solid base for the credibility of the System.

Next, integration testing was performed to confirm the smooth operation of the modules to one another. As an illustration, after a stock-out transaction was recorded by a staff member, the quantity available of the item decreased appropriately and the transaction was saved in the stock transaction table. The results of these tests indicated that the collaboration of all parts led to a unified and well functioning experience for the user.

System testing was the final step of this process. It tested the full capabilities of this system to address performance, usability, and security measures. Performance testing showed that this system could accommodate a number of users accessing it at once with zero downtime. Usability testing indicated that the system was user-friendly, and staff members would be able to use the system without much training. At Technical Testing, the Company checked for the integrity of staff access to their data; that admin could access all of the admin pages and that no staff members had any unauthorised access to the pages. Feedback from both the Owner and staff of the Cafe indicated that this system was working well in what it was designed to do so it's now ready for roll out!

4.4 Conclusion

After rigorous testing at each stage, the Stock Reporting System has proven to be ready for deployment. The system has cleared Unit Testing, Integration Testing, System Testing, and User Acceptance Testing, verifying its stability, functionality, and usability. The major components of the system i.e., registration, login, record of stock-in, record of stock-out, generation of report(s), and update of profile etc., have all been thoroughly and successfully tested in Unit Testing Process, and everything tested was working as expected. In integration testing, all the modules work well together, and stock transactions update inventory levels correctly. System Testing shows that multiple users can use the system simultaneously and wait for many different responses when they are logged in.

The feedback provided by both cafe owner and staff has been largely positive. Staffs have stated that the process of tracking stock in/out has been very simple, and the real-time updates on inventories helped to ensure that their inventory levels were correct. The cafe owner liked that they could see their stock levels in real-time and do automatic reports for the café which assisted the owner in developing sound purchasing and menu planning decisions. The system itself performed well with an intuitive user interface that allowed for easy use by users with all ranges of technical abilities.

While the stock reporting system has functional capabilities today, there are new functionalities that could be developed in the future to improve it. Some of the main upgrades could contain an integration with POS systems to enable deductions of inventory from sales process through automatic deductions, email and SMS notifications for the low stock alerts, and ability to develop mobile application that will allow the users to access the system on their mobile phones, and advanced analytics.

To summarize, the Stock Reporting System has shown it works for all of the stakeholders at Salmonly Café. The changes to the system will make it faster, provide better reports, and create for a more accessible and streamlined way to manage stock daily.

CHAPTER 5

CONCLUSION

5.1 Introduction

Chapter 5 provides a conclusion to the Stock Reporting System development for Salmonly Café. The first part of Chapter 5 looks at all aspects associated with the Stock Reporting System project objectives as well as actual achievements against those objectives. It also describes any challenges encountered during the development process and outlines the main limitations of the current system, while also providing recommendations for future enhancements to SRS system. The overall purpose of this chapter is to prove that the Stock Reporting System has provided solutions for manual stock recording problems and access to real-time information and reporting difficulties at the Salmonly Café.

This section discusses the input of the cafe owner as well as the staff members, to demonstrate how this system had made the daily stock management of the cafe a faster and more efficient process for the users. The cafe owner now has the ability to view stock levels at any moment throughout the day and can also generate automated reports. The staff now can log Stock-In and Stock-Out which will not make human mistakes. Additionally, the technical limitations that are faced while developing this system are also discussed in this chapter. Finally, the last part of this chapter gives recommendations for future enhancements which will allow this system to be able to grow and continue to improve with time.

5.2 Project Achievement

The Stock Reporting System for Salmonly Café was successfully developed and effectively responded to its central objectives.. With the system, stock-in and stock-out transactions were easier to record, inventory was more visible, and staff and the café owner were provided with real-time stock status updates. The project highlighted user accessibility and usability of the system through the creation of a quick and easy method of managing stock, and helped to improve the way that staff and management could communicate inventory levels to each other. The system was easy to use with real-time monitoring of inventory levels, automated reports, daily stock take, and provided a structured system to meet the basic requirements for stock control for the Café.

5.2.1 First Objective

This objective was fully achieved. A fully functional Stock Reporting System was developed and implemented using PHP, MySQL, HTML, CSS, and JavaScript. Staff can use the system to register all stock in and stock out transactions through a very easy and user-friendly platform, instead of using the traditional paper ledger method. In addition to the stock in and out functionality, other functions, such as categorization of products, inventory control, and transaction history, are available in the system, which were not present in the traditional process. The evidence of goal attainment is a functional system where previously it took minutes for employees to record stock transactions, now they can perform the task in seconds.

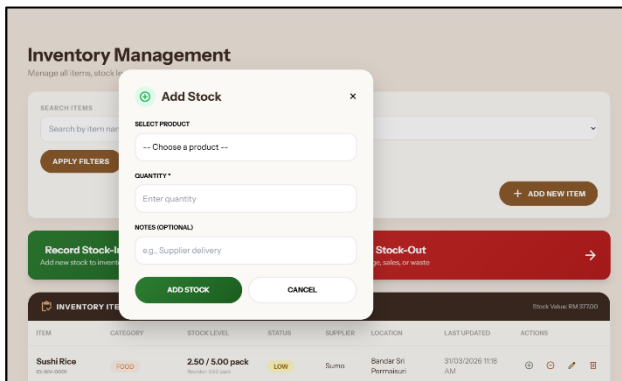


Figure 5.1: Record Stock-In

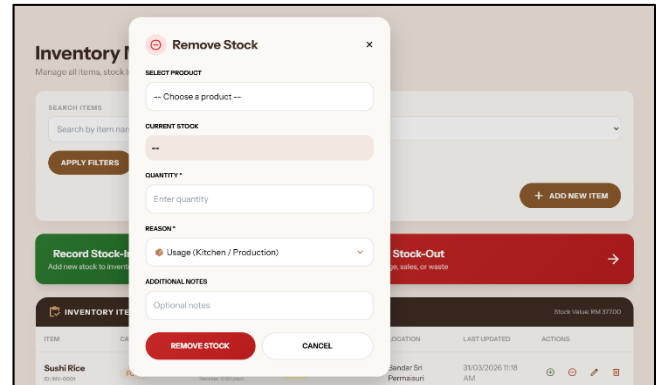


Figure 5.2: Record Stock-Out

Figure 5.1 shows that staff can add new stock using the simple "Add Stock" form. This proves that the system has successfully replaced the manual method with a more organized digital interface. Figure 5.2 shows the "Remove Stock" function, which allows staff to record stock-out transactions. Staff simply need to select a product, enter the quantity, and choose a reason such as Usage or Waste. The system will automatically calculate the remaining stock. This task was not possible to do quickly using the old logbook method, where staff had to write manually and recalculate each time.

5.2.2 Second Objective

This objective was fully achieved. The admin dashboard will have all the details of the stock available for each product such as, Stock quantity, Maximum quantity, Unit, and Status. There will be separate lists of critical & low-stock items available for the business owners to determine what should be reordered immediately. They also receive notifications through the smart predictive feature that some product is running out of stock. With this real-time visibility, the chances of running out of stock unexpectedly or overstocking issues are minimized. The record of this success can be viewed on the admin dashboard, where all stock values are updated in real-time every time a stock-in or stock-out transaction occurs.

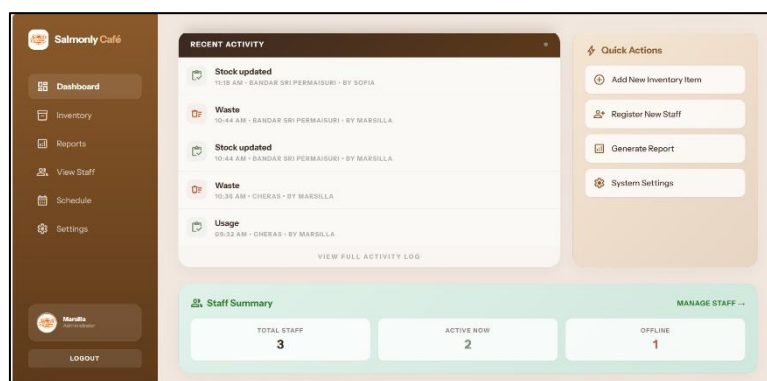


Figure 5.3: Admin Live Status Activity

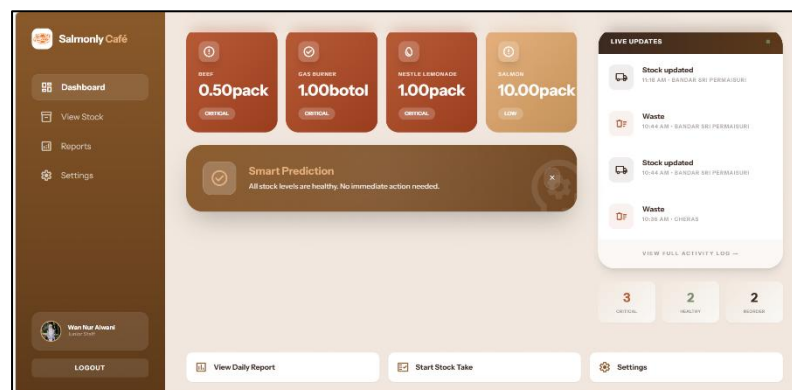


Figure 5.4: Staff Live Status Activity

Figure 5.3 shows the admin dashboard displaying real-time stock information. The "Recent Activity" section shows every stock transaction that occurs along with the time and location. Figure 5.4 shows the staff dashboard which also displays real-time stock information. The "Smart Prediction" feature alerts the owner about the current stock status. In this image, the system shows that all stock levels are healthy and no immediate action is needed. This feature helps the owner identify which ingredients need to be reordered without checking manual records. The bottom section of the dashboard also shows the number of Critical, Healthy, and Reorder items. This proves that the owner can monitor stock levels at any time in real-time.

5.2.3 Third Objective

This objective was fully achieved. The system provides two types of reports which are Daily Stock Report, and Stock Movement Report. The Daily Stock Report shows current inventory quantities for each item grouped by product type. It includes item name, quantity, unit, and status. The Stock Movement Report shows historical transactions with filters for date range and type of report. The reports can be printed or exported as csv files. The reports will assist the cafe owner in making well-informed purchasing decisions, planning the menu and controlling the costs of the items available in the cafe. Evidence of this being done is on the reports page where users can select a date and instantly create an entire stock report.

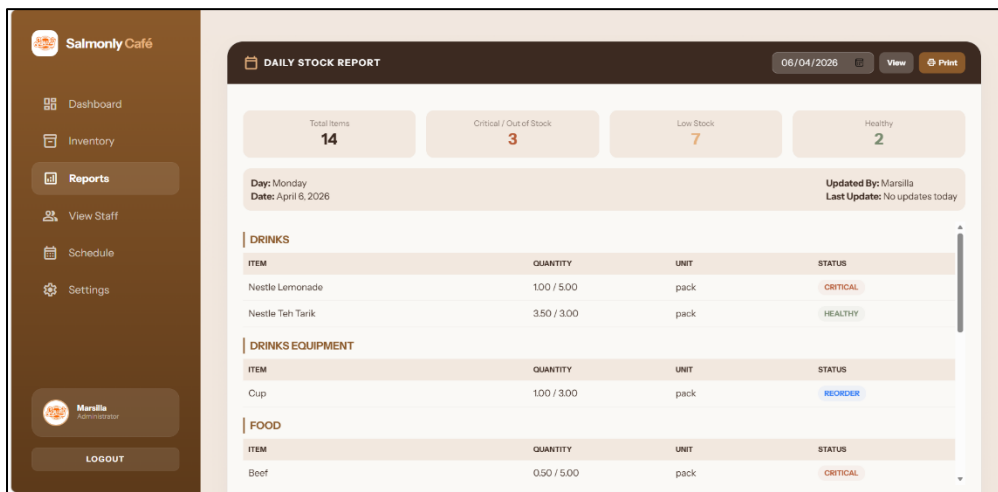


Figure 5.5: Daily Stock Reports

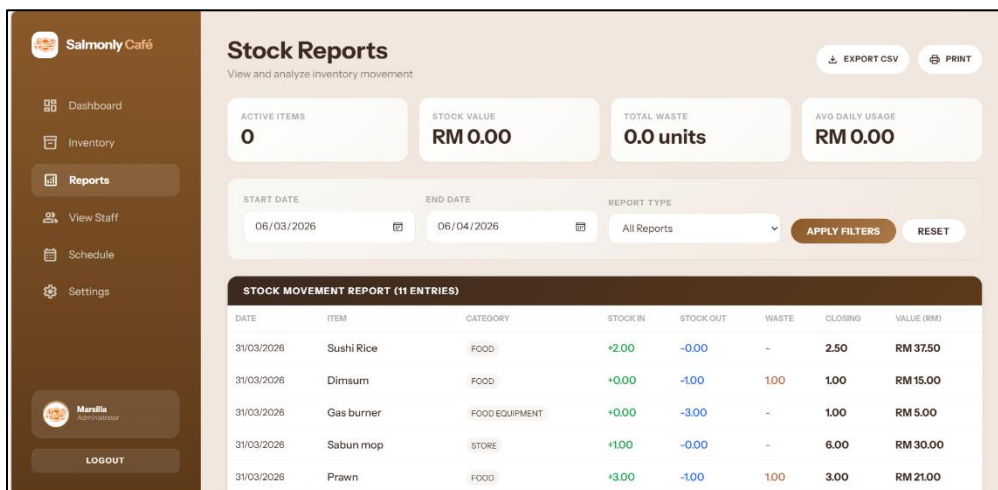


Figure 5.6 Overall Stock Reports

SALMONLY CAFÉ
Daily Stock Report
End of Day Inventory Summary

Day: Monday
Date: April 6, 2026
Updated By: Marsilla
Last Update: No updates today
Total Items: 14
Critical: 3

DRINKS

Item	Quantity	Unit	Status
Nestle Lemonade	1.00 / 3.00	pack	CRITICAL
Nestle Teh Tarik	3.50 / 3.00	pack	HEALTHY

DRINKS EQUIPMENT

Item	Quantity	Unit	Status
Cup	1.00 / 3.00	pack	REORDER

FOOD

Item	Quantity	Unit	Status
Beef	0.50 / 5.00	pack	CRITICAL
Chicken	1.00 / 3.00	pack	LOW
Dimsum	1.00 / 5.00	pack	LOW
Prawn	3.00 / 10.00	pack	LOW
Salmon	10.00 / 30.00	pack	REORDER
Squid	2.00 / 10.00	pack	LOW
Sushi Rice	2.50 / 5.00	pack	LOW

FOOD EQUIPMENT

Item	Quantity	Unit	Status
Gas burner	1.00 / 10.00	botol	CRITICAL
Mentali bekas	200.00 / 1000.00	pcs	LOW

STORE

Figure 5.7: Daily Stock Report PDF

Stock Reports
View and analyze inventory movement

EXPORT CSV PRINT

ACTIVE ITEMS: 0
STOCK VALUE: RM 0.00

TOTAL WASTE: 0.0 units
AVG DAILY USAGE: RM 0.00

START DATE: 30/03/2026
END DATE: 06/04/2026
REPORT TYPE: All Reports

APPLY FILTERS RESET

STOCK MOVEMENT REPORT (11 ENTRIES)

DATE	ITEM	CATEGORY	STOCK IN	STOCK OUT	WASTE	CLOSING	VALUE (RM)
31/03/2026	Sushi Rice	FOOD	+2.00	-0.00	-	2.50	RM 37.50
31/03/2026	Dimsum	FOOD	+0.00	-1.00	-1.00	1.00	RM 15.00
31/03/2026	Gas burner	FOOD EQUIPMENT	+0.00	-3.00	-	1.00	RM 5.00
31/03/2026	Sabun mop	STORE	+1.00	-0.00	-	6.00	RM 30.00

Figure 5.8: Overall Stock Report PDF

	A	B	C	D	E	F	G	H	I
1	Date	Item	Category	Stock In	Stock Out	Waste	Closing Stc	Value (RM)	
2	#####	Sushi Rice	FOOD	2	0	0	2.5	37.5	
3	#####	Dimsum	FOOD	0	1	1	1	15	
4	#####	Gas burner	FOOD EQU	0	3	0	1	5	
5	#####	Sabun mop	STORE	1	0	0	6	30	
6	#####	Prawn	FOOD	3	1	1	3	21	
7	#####	Squid	FOOD	1	1	0	2	20	
8	#####	Cup	DRINKS EC	0.5	0	0	1	3	
9	#####	Nestle Teh	DRINKS	3	0	0	3.5	17.5	
10	#####	Nestle Len	DRINKS	1.5	4.5	1	1	5	
11	#####	Salmon	FOOD	2	0	0	10	100	
12	#####	Plastik san	STORE	0	0.5	0	1	3	
13									
14									

Figure 5.9: Stock Report CSV

The system provides automatic stock reports which give the café owner some good information to help him make his decision on what to purchase, how to create his menu and how to control his costs. As shown in Figure 5.5, the Daily Stock Report provides the café owner with the current stock levels of all the products that he sells in his cafe, organized by product category, with the item name, quantity, unit, and the status of the item. The owner can select any date and generate the report instantly. Figure 5.6 shows a Stock Movement Report. The owner is able to view the Stock Movement Report by choosing the appropriate date range and report type and then exporting the report to a CSV file. Figure 5.7 shows how the Daily Stock Report will look when it is printed. The printed report format is very clean and ready for printing or saving as a PDF. These reports can let owners watch their inventory go out the door, find waste and do better planning on what to purchase. This shows that this system can create automated inventories reports that help the management make decisions at Salmonly Café.

5.3 Project Constraint and Limitation

Creating the Stock Reporting System for Salmonly Café faced quite a few challenges, mainly due to time constraints and some technical issues.

One big restriction was time. There was a short period to finish the project, which includes designing, planning, developing the system, testing the system and in the end, preparing documentation for the system. It was impossible to implement all the functionalities we wanted because the timeline was very short. For example, Email and SMS notification could not be implemented because of a lack of time as the mail server and SMS gateway will take more time to make them operational.

There was another limitation of the application due to the fact that it was not integrated with the Point-of-Sale system. In its current version, staff are required to manually record any stock-outs for sales. As such, when a customer purchases a product, the staff member must enter the number of units sold manually into the system. The ideal scenario would be that the system is connected to the POS system and that once a sale occurs, the stock will be automatically deducted from the inventory system. However, the development team did not have sufficient time and funds to connect the system to the POS system during the development of this version of the application.

The system was created specifically as a web-based system as well, therefore if you are trying to access the system, you must use a computer or laptop and access it via a web browser. It would be much easier for staff to use a mobile application version of this system, but due to the fact that developing a mobile application will take more time and knowledge of various programming language such as Kotlin (for Android) or Swift (for iOS), this will be considered as a future enhancement to this system.

Currently the reporting feature only allows printing reports or viewing them on screen. There is no function available for emailing the cafe owner a daily report automatically at the end of every day. This feature had been planned to be included, but it was not finished because of time constraints.

Despite all the limitations discussed, the Stock Reporting System was successful in performing its main purpose. It also serves as a good foundation for future upgrades, allowing new features and functions to be added once sufficient time and funding become available.

5.4 Recommendation and Future Work

Although the Stock Reporting System implemented at Salmonly Café have recorded great success in attaining their main objectives, there exist numerous ways to further improve its efficiency and usefulness for the café.

The biggest improvement here is the addition of mobile access development. Right now, users can only access the system via a web browser on their computers. Adding access to mobile devices will allow staff and cafe owners to update and monitor inventory anytime and anywhere. For example, staff members would be able to record a "stock out" immediately after making a sale by using a smartphone, instead of going to a computer. The owner would also be able to check the actual inventory level at any time, even if they are not at the cafe. This would make inventory management much more flexible and immediate than it is now.

A second major suggestion is to develop a notification alert feature. In the current moment, the user must manually check the system to determine whether or not an item will be depleted. However, when the new notification alert feature is developed, the system can automatically notify staff members or the owner when stock levels have dropped below reorder levels. Alerts can also be set up to be sent to staff via email and to other parties such as the business owner like an SMS message. This will allow all staff and the administrator (owner) to react immediately and reorder items before they run out. This also helps to ensure that products are not missing from inventory during peak hours. The study conducted by Khan et al., 2024, demonstrates that businesses can have access to real-time inventory data to avoid stockouts of inventory as well as make informed decisions regarding business operations.

Providing a real-time attendance monitoring system is the third recommendation. Currently, the system let the user track inventories and staff schedules. By including attendance monitoring, the owner could see which staff were present and could also see when staffs were late, early, or absent from work or excused from work. For example, the system can alert the owner if a staff member comes late to work and the manager can take appropriate action.

The incorporation of these features serves to benefit the system in the overall areas of efficiency, security, and ease of use. With their addition to the system, it will be able to meet all of its user's present needs, along with providing a stable foundation for future development. The approach of continuous development assures that the Stock Reporting System will grow to be a maintainable and operational system to grow with the café.

5.5 Conclusion

The Stock Reporting System's development at Salmonly Café resolved the three main problems with manual stock recording, lack of real-time stock information, and difficulty in generating stock report. The combination of web-based centralization and user friendly interface has greatly increased both staff and admin daily stock control functions. The Stock-In, Stock-Out, Daily Stock Take & Automated Reports features have reduced the amount of time devoted to the completion of inventory tasks while also diminishing the incidence of errors made by humans.

In addition, without the handwritten logbooks, inventory management has become much easier through a digital inventory management system. Some of the tools to make it simple include real-time stock monitoring, indicators to assist with identifying critical and low inventory items and the creation of a daily printout to allow the owner to make an informed decision about what item that need to be purchased.

The project accomplished most of its main objectives. However, several challenges affected the schedule. Tight timelines made it difficult to incorporate all the desired functionalities, including integration with the POS system and the ability to send email notifications. Despite the constrained 14-week development period, the project did succeed in creating a functional system for Salmonly Café. Future recommendations include creating a mobile app for customers, notifications of low stock levels, real-time monitor attendance and POS integration.

With gratitude I expresses to the supervisor, Madam Nor Hafiza Binti Abd Samad for her guidance, advises and support through-out the entire development processes is highly appreciated. I also acknowledge my parents for their support and encouragement which motivated and provided me sufficient strength to complete this project. Therefore, the successful implementation of the Stock Reporting System at Salmonly Café is a result to our hard work, technical invention, and dedication to providing solutions for real-life problems.

Appendix A – Questionnaire


Questionnaire data gathering:


Survey On Stock Reporting System for Salmonly Café

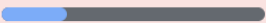
Assalamualaikum and hi, I am Wani. This questionnaire is conducted as part of the Final Year Project. The purpose of this questionnaire is to collect information regarding current stock management practices, challenges faced in manual stock recording, and user perceptions towards the proposed digital stock reporting system.

The responses collected from café staff and the owner will be used for academic purposes only and will help in identifying system requirements, validating problem statements, and evaluating project objectives. All information provided will be kept confidential.


Your cooperation and honest feedback are highly appreciated.


wanirfzall@gmail.com [Switch account](#) 

 Not shared

[Next](#)  Page 1 of 4 [Clear form](#)

Survey On Stock Reporting System for Salmonly Café

wanirfzall@gmail.com [Switch account](#) 

 Not shared

SECTION A: DEMOGRAPHIC INFORMATION

What is your role?

Owner

Staff

What is your age range?

Below 20 years old

20 -25 years old

Above 25 years old

How long have you been working at Salmonly Café?

- Less than 6 months
- 6 months - 1 year
- More than 1 year

[Back](#)

[Next](#)

Page 2 of 4

[Clear form](#)

SECTION B: CURRENT STOCK MANAGEMENT ISSUES

What type of difficulties do you experience when recording stock manually? (You may select more than one)

- Time consuming
- Easy to make mistakes
- Forget to update stock
- Difficult to track remaining stock

How often do you think stock records contain errors or missing information?

- Very often
- Sometimes
- Rarely
- Never

Do you find it difficult to know the current stock balance during busy working hours?

- Strongly agree
- Agree
- Disagree
- Strongly disagree

How much time do you usually spend on stock recording each day?

- Less than 5 minutes
- 5 - 10 minutes
- More than 10 minutes

[Back](#)

[Next](#)

Page 3 of 4

[Clear form](#)

SECTION C: PROPOSED SYSTEM

Do you think accurate stock information can help reduce food wastage?

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Do you agree that real-time stock monitoring would help improve inventory control at Salmonly Café.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Do you think a digital stock reporting system would make your work easier?

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Overall, would you support the implementation of a Stock Reporting System at Salmonly Café?

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Do you have any suggestions to improve stock management at Salmonly Café?

Your answer _____

[Back](#)

[Submit](#)

Page 4 of 4


[Clear form](#)


Questionnaire user acceptance testing:


Feedback Survey On Stock Reporting System for Salmonly Café

This survey is conducted to collect feedback from users after using the Stock Reporting System for Salmonly Café. The purpose of this survey is to evaluate the system's usability, effectiveness, and overall performance in supporting daily stock management activities.

Your responses will help identify strengths, areas for improvement, and ensure that the system meets user needs. All responses will be kept confidential and used for academic purposes only.

wanirfzall@gmail.com [Switch account](#) 

 Not shared

[Next](#)  Page 1 of 4 [Clear form](#)

SECTION A: SYSTEM USAGE

What is your role? *

Admin

Staff

Is the system easy to use? *

1 2 3 4 5

Easy Hard


Does the system help you record stock faster? *

Strongly Agree

Agree

Disagree

Strongly disagree

[Back](#) [Next](#)  Page 2 of 4 [Clear form](#)

SECTION B: FEATURES & FUNCTIONS

Stock-in and stock-out features are easy to understand *

- Strongly agree
- Agree
- Disagree
- Strongly disagree

The system provides accurate stock information *

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Real-time stock updates are helpful *

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Stock reports generated are useful for your work *

- Strongly agree
- Agree
- Disagree
- Strongly disagree

[Back](#)

[Next](#)



Page 3 of 4

[Clear form](#)

SECTION C: IMPACT & FEEDBACK

The system reduces errors compared to manual recording *

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Does the system helps in monitoring stock levels better? *

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Which part of the system do you like the most? *

- Stock-in/Stock-out feature
- Real-time Stock View
- Stock Report Generation
- User interface (design & layout)

Overall, how would you rate the system? *

- 1 
- 2 
- 3 
- 4 
- 5 

Do you have any suggestions for improvement? *

Your answer

[Back](#)

[Submit](#)

Page 4 of 4

[Clear form](#)

Appendix B – User Manual

Link Youtube: https://youtu.be/nZ_ZVHPZct0?si=vlr4Lteu76a0M21S

References

1. *5 Risks arising from poor inventory control* | SEIDOR. (2022). Seidor.com. <https://www.seidor.com/blog-pyme/5-risks-arising-poor-inventory-control>
2. albert. (2024, May 28). *Why Data Latency is a Real Problem in Decision-Centric Planning* | ToolsGroup. ToolsGroup. <https://www.toolsgroup.com/blog/why-data-latency-is-a-real-problem-in-decision-centric-planning/>
3. Alsaqqa, S., Sawalha, S., & Abdel-Nabi, H. (2020). Agile Software Development: Methodologies and Trends. *International Journal of Interactive Mobile Technologies (IJIM)*, 14(11), 246–270. <https://doi.org/10.3991/ijim.v14i11.13269>
4. <https://facebook.com/pecnow>. (2026). *What Are the Advantages of Automated Inventory Reporting?* | PEC. Process Equipment and Controls. <https://processequipmentandcontrols.com/what-are-the-advantages-of-automated-inventory-reporting/>
5. Ioana Neamt. (2024, September 4). *Digital Inventory Management Benefits* — Katana. Katana. <https://katanamrp.com/blog/digital-inventory-management/>
6. Kang, Y., & Gershwin, S. B. (2005). Information inaccuracy in inventory systems: stock loss and stockout. *IIE Transactions*, 37(9), 843–859. <https://doi.org/10.1080/07408170590969861>
7. Kenton, W. (2021, August 13). *What Is Real Time?* Investopedia. https://www.investopedia.com/terms/r/real_time.asp
8. Khan, A., Jhanjhi, N. Z., Hamid, D. H. T. B. A. H., & Omar, H. A. H. B. H. (2024). *Internet of Things (IoT) Impact on Inventory Management: A Review*. Wwww.igi-Global.com; IGI Global. <https://www.igi-global.com/chapter/internet-of-things-iot-impact-on-inventory-management/339252>
9. Khan, M. (2024, November 4). *Importance of Real-Time Inventory Management in Modern Business*. Meteor Space - Warehousing & Order Fulfillment Services in Ireland & Europe: Meteor Space. <https://www.meteorspace.com/2024/11/04/the-importance-of-real-time-inventory-management-in-modern-business/>

10. Kumar, A. (2025, March 21). *Agile vs. Waterfall Project Management: A Comparative Analysis*. Resources Library; Saviom Software. <https://www.saviom.com/blog/agile-versus-waterfall-quick-comparison/>
11. Palopak, Y., & Huang, S.-J. (2024). Perceived Impact of Agile Principles: Insights from a Survey-Based Study on Agile Software Development Project Success. *Information and Software Technology*, 107552–107552. <https://doi.org/10.1016/j.infsoc.2024.107552>
12. Roosevelt, S. C., Veemaraj, E., & Kirubakaran, S. (2024). Real Time Stock Inventory Management System. *2024 8th International Conference on Inventive Systems and Control (ICISC)*, 156–162. <https://doi.org/10.1109/icisc62624.2024.00034>
13. Sanghvi, P. (2025, October 30). *What Is Real-Time Stock Market Data? Definition, S...* What Is Real-Time Stock Market Data? Definition, S... <https://site.financialmodelingprep.com/education/marketHours/what-is-realtime-stock-market-data-definition-sources--use-cases>
14. Sortly. (2022, February 18). *Manual vs. Automated Inventory Management*. Sortly. <https://www.sortly.com/blog/manual-vs-automated-inventory-management/>
15. Wynn, S. (2021). The Financial Impact of Manual Inventory Record Errors. *Doctoral Dissertations and Projects*. <https://digitalcommons.liberty.edu/doctoral/3208/>
16. Lucidchart. (2019). *What Is a Flowchart*. Lucidchart.com; Lucidchart. <https://www.lucidchart.com/pages/what-is-a-flowchart-tutorial>
17. Visual Paradigm. (2019). *What is Use Case Diagram?* Visual-Paradigm.com. <https://www.visual-paradigm.com/guide/uml-unified-modeling-language/what-is-use-case-diagram/>
18. LucidChart. (2024). *What is an Entity Relationship Diagram (ERD)?* Lucidchart. <https://www.lucidchart.com/pages/er-diagrams>
19. Taufiq, M. B., Setiawan, R. R., & Irawan, Y. (2025). Implementation of Safety Stock and ROP Methods in the Inventory Information System of Kava Kudus Coffee Shop. *SISTEMASI*, 14(6), 2724. <https://doi.org/10.32520/stmsi.v14i6.5541>

20. Sari, N. K., Kusuma, D. W., Iqbal Sabilirrasyad, & Ferry Wiranto. (2024). Enhancing Operational Management at Cafe Rengganis through SISGANIS-Based Optimization of Raw Materials, Transactions, and Financial Reporting. *Image Jurnal Riset Manajemen*, 12(2), 239–246. <https://doi.org/10.17509/image.2024.018>
21. Reddy, Y. (2025). *Smart Inventory Management System*. Philarchive.org. <https://philarchive.org/rec/BNASIM>
22. Haloho, Estomihi M. (2022). Perancangan Sistem Informasi pada Kobasu Coffee Shop Berbasis Web. *Usu.ac.id*. <https://repositori.usu.ac.id/handle/123456789/47523>

Originality Result



2% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

Filtered from the Report

- ▶ Bibliography
- ▶ Quoted Text
- ▶ Cited Text
- ▶ Small Matches (less than 10 words)
- ▶ Submitted works

Match Groups

- 42 Not Cited or Quoted 2%**
Matches with neither in-text citation nor quotation marks
- 0 Missing Quotations 0%**
Matches that are still very similar to source material
- 0 Missing Citation 0%**
Matches that have quotation marks, but no in-text citation
- 0 Cited and Quoted 0%**
Matches with in-text citation present, but no quotation marks

Top Sources

- 2% Internet sources
- 1% Publications
- 0% Submitted works (Student Papers)

Integrity Flags

0 Integrity Flags for Review

No suspicious text manipulations found.

Our system's algorithms look deeply at a document for any inconsistencies that would set it apart from a normal submission. If we notice something strange, we flag it for you to review.

A flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.



Match Groups

- **42 Not Cited or Quoted 2%**
Matches with neither in-text citation nor quotation marks
- **0 Missing Quotations 0%**
Matches that are still very similar to source material
- **0 Missing Citation 0%**
Matches that have quotation marks, but no in-text citation
- **0 Cited and Quoted 0%**
Matches with in-text citation present, but no quotation marks

Top Sources

- 2% Internet sources
- 1% Publications
- 0% Submitted works (Student Papers)

Top Sources

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

1	Internet	indah.ump.edu.my	<1%
2	Internet	kupdf.net	<1%
3	Internet	ijrpr.com	<1%
4	Internet	repository.unam.edu.na	<1%
5	Internet	umpir.ump.edu.my	<1%
6	Internet	ijirt.org	<1%
7	Internet	www.casino-crush.com	<1%
8	Internet	core.ac.uk	<1%
9	Internet	www.alumni.uz.ac.zw	<1%
10	Publication	Fabricio Alonso Richmond Navarro. "Framework for flood risk management in ur...	<1%

11	Publication	Özçiftci, Hafsa Elif. "A New Web-Based Education and Monitoring System for Patie..."	<1%
12	Publication	da Silva Linhares Vieira, Lia. "Development of a Web Application for Real-Time Inf..."	<1%
13	Internet	dspace.mit.edu	<1%
14	Internet	fastercapital.com	<1%
15	Internet	github.com	<1%
16	Internet	www.windowsphoneinfo.com	<1%
17	Internet	acikbilim.yok.gov.tr	<1%
18	Internet	isjem.com	<1%
19	Publication	Ton Duc Thang University	<1%
20	Internet	eprints.utar.edu.my	<1%
21	Internet	etda.libraries.psu.edu	<1%
22	Internet	eprints.nottingham.ac.uk	<1%
23	Internet	forums.galciv4.com	<1%
24	Internet	mindster.com	<1%

25 Internet

www.cegeka.com

<1%

23% detected as AI

The percentage indicates the combined amount of likely AI-generated text as well as likely AI-generated text that was also likely AI-paraphrased.

Caution: Review required.

It is essential to understand the limitations of AI detection before making decisions about a student's work. We encourage you to learn more about Turnitin's AI detection capabilities before using the tool.

Detection Groups

- 61 AI-generated only 23%**
Likely AI-generated text from a large-language model.
- 0 AI-generated text that was AI-paraphrased 0%**
Likely AI-generated text that was likely revised using an AI-paraphrase tool or word spinner.

Disclaimer

Our AI writing assessment is designed to help educators identify text that might be prepared by a generative AI tool. Our AI writing assessment may not always be accurate (i.e., our AI models may produce either false positive results or false negative results), so it should not be used as the sole basis for adverse actions against a student. It takes further scrutiny and human judgment in conjunction with an organization's application of its specific academic policies to determine whether any academic misconduct has occurred.

Frequently Asked Questions

How should I interpret Turnitin's AI writing percentage and false positives?

The percentage shown in the AI writing report is the amount of qualifying text within the submission that Turnitin's AI writing detection model determines was either likely AI-generated text from a large-language model or likely AI-generated text that was likely revised using an AI paraphrase tool or word spinner.

False positives (incorrectly flagging human-written text as AI-generated) are a possibility in AI models.

AI detection scores under 20%, which we do not surface in new reports, have a higher likelihood of false positives. To reduce the likelihood of misinterpretation, no score or highlights are attributed and are indicated with an asterisk in the report (*%).

The AI writing percentage should not be the sole basis to determine whether misconduct has occurred. The reviewer/instructor should use the percentage as a means to start a formative conversation with their student and/or use it to examine the submitted assignment in accordance with their school's policies.

What does 'qualifying text' mean?

Our model only processes qualifying text in the form of long-form writing. Long-form writing means individual sentences contained in paragraphs that make up a longer piece of written work, such as an essay, a dissertation, or an article, etc. Qualifying text that has been determined to be likely AI-generated will be highlighted in cyan in the submission, and likely AI-generated and then likely AI-paraphrased will be highlighted purple.

Non-qualifying text, such as bullet points, annotated bibliographies, etc., will not be processed and can create disparity between the submission highlights and the percentage shown.
















FACULTY OF COMPUTING & MULTIMEDIA (FCOM)




COMPUTING PROJECT
(FYP3024)

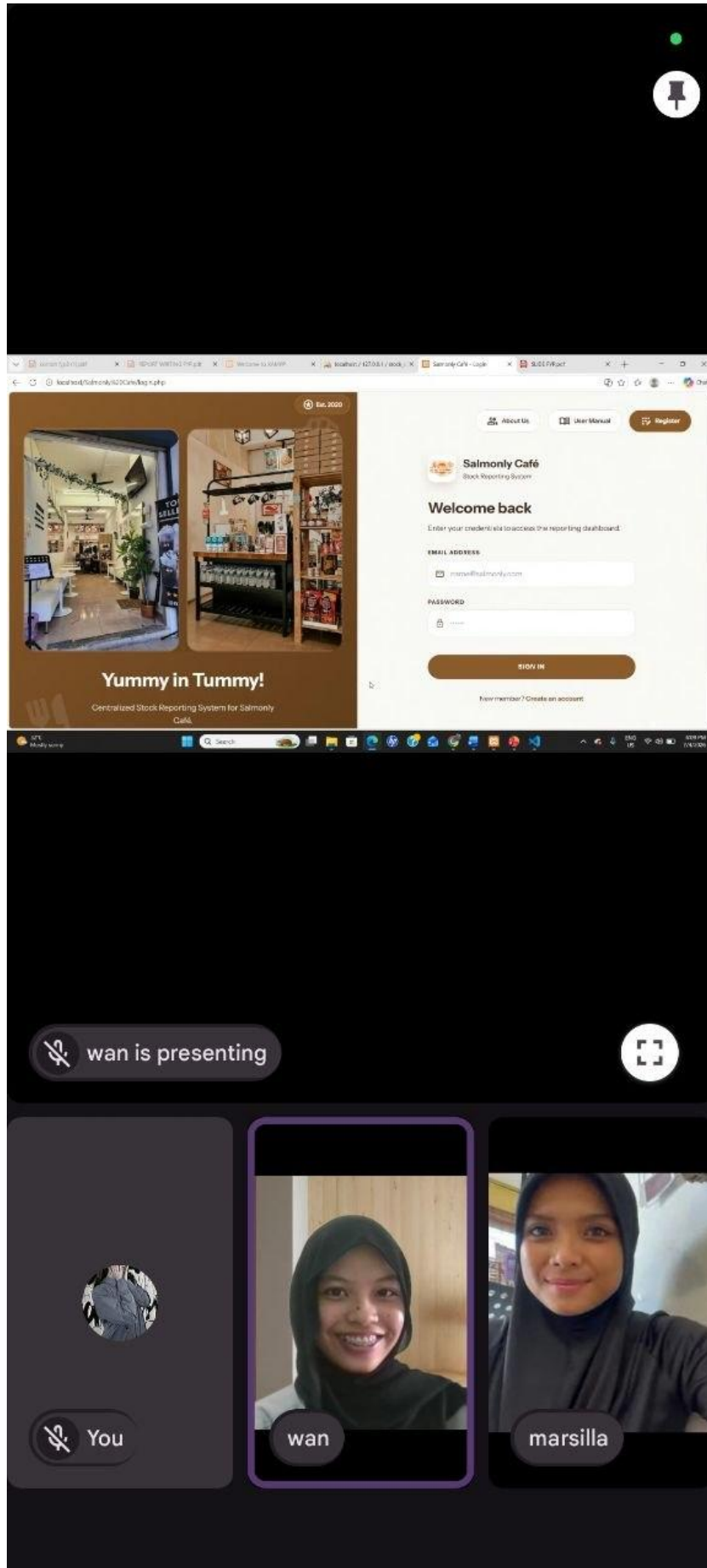
LOG BOOK

STUDENT'S NAME : WAN NUR ALWANI BINTI BEREN RAFIZAL
ID NO. : AM2408016769
SUPERVISOR : NOR HAFIZA ABD SAMAD
PROJECT TITLE : STOCK REPORTING SYSTEM FOR SALMONLY CAFÉ

Date/ Week		Agenda	Next Agenda	Signature (Supervisor)
29/12/2026	1	Find potential Supervisors	Finalize topic and title with SV	
5/12/2025	2	Discuss the topic and title with SV	Proposal writing	
7/1/2026	3	Proposal writing	Submit the proposal	
16/1/2026	4	Submit proposal softcopy	Discuss about user requirement	
22/1/2026	5	Discuss about user requirement	Prepare survey questions	
30/1/2026	6	Distribute survey and collect data	Show report progress	
5/2/2026	7	Discuss chapter 1 and 2	Show system progress	
11/2/2026	8	Show system progress	Discuss the new implementation	
16/2/2026	9	Check the new implementation	Discussion for improvement of the system	
27/2/2026	10	Discussion for improvement of the system	Show report progress	
5/3/2026	11	Show report progress	System testing for the user	

CC101/DIPLOMA IN COMPUTER SCIENCE

12/3/2026	12	System testing for the user	Discuss about slide and poster	
20/3/26	13	Review slide and poster	Presentation FYP	
31/3/26	14	Presentation	Report submission	



Link Github: <https://github.com/wanirfzl/Stock-Reporting-System-for-Salmonly-Caf-/tree/main>