

# **SALON MANAGEMENT SYSTEM CASE STUDY: MBALE CITY**

**AGNES KULUME**

**J23/MUC/BSIT/013**

**A DISSERTATION SUBMITTED TO THE FACULTY OF ENGINEERING, DESIGN AND  
TECHNOLOGY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD  
OF THE BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY OF UGANDA  
CHRISTIAN UNIVERSITY**

**October, 2024**



**UGANDA CHRISTIAN  
UNIVERSITY**

*A Centre of Excellence in the Heart of Africa*

## **DECLARATION**

This research project is my original work and has not been submitted to any other University for academic award.

Signature:

Date: 15/08/2024...

A small, stylized handwritten signature in black ink, consisting of several loops and a trailing line.

Name: KULUME AGNES


Registration Number: J23/MUC/BSIT/013

**APPROVAL**

This is to certify to the best of my knowledge and profession that the piece of work titled “The salon management System submitted by KULUME AGNES with Registration Number J23/MUC/BSIT/013 to the Department of Computing and Technology has not been duplicated by any other University for the award of a degree.

**Faculty Supervisor**

**Name of Supervisor:** DR EILU EMMANUEL

**Signature:** 

**Date**.....01/10/2024.....

## **DEICATION**

I dedicate this to my lovely parents Mr. Okiring John and Mrs. Imou Hellen and all my siblings for all the support towards my project

## **ACKNOWLEDGEMENT**

I thank the Lord almighty for enabling me to accomplish my project program. I acknowledge my parents for being there for me

Special thanks to my supervisor Dr. Eliu Emanuel who guided me to achieve my goals and expectations during the research.

Finally, I take this opportunity to maintain my sincere thanks to all those who helped me directly and indirectly for the completion of my project.

## **ABSTRACT**

The Unisex Salon in Mbale City, a popular destination offering a wide range of services including haircuts, styling, coloring, and spa treatments, is facing challenges in managing its daily operations due to an increasing number of clients. The current manual system for handling appointments, staff schedules, inventory, and client records is inefficient, leading to frequent errors such as missed appointments, double bookings, and inventory shortages. These issues result in reduced productivity, customer dissatisfaction, and financial losses.

To address these challenges, this project proposes the development of a web-based Salon Management System specifically tailored for the salon in Mbale City. The system aims to automate and streamline various salon operations, including appointment scheduling, staff management, inventory tracking, and client record management. By replacing the manual processes with a digital platform, the system will reduce human error, improve operational efficiency, and enhance the overall customer experience.

The proposed system will allow customers to book appointments online, reducing wait times and ensuring that their preferred stylists are available at the desired time. It will also provide the salon staff with an easy-to-use interface to manage their schedules, track inventory levels, and access client information quickly and accurately. Moreover, the system will generate detailed reports to help the salon management make informed decisions and optimize business operations.

Implementing this Salon Management System will not only improve the efficiency and accuracy of the salon's daily operations but also position the salon as a modern, tech-savvy business in the competitive market of Mbale City. The project's success will be measured by increased customer satisfaction, higher staff productivity, and enhanced revenue growth.

Contents

**DECLARATION..... 2**

**APPROVAL..... 3**

**DEDICATION..... 4**

**ACKNOWLEDGEMENT... 5**

**ABSTRACT ..... 6**

BACKGROUND OF THE CASE STUDY.....10

Problem Statement: .....10

Main Objective:..... 10

Specific Objectives: ..... 11

Scope .....11

Significance.....11

2.0 Introduction ..... 12

2.1 Salon Management System.....12

2.2 Types of Salon Management Systems.....12

2.2.1 Salon Management Information Systems (SMIS) ..... 12

2.2.2 Inventory Management Systems..... 12

2.2.3 Client Management Systems..... 13

2.2.4 Financial Management Systems.....13

2.2.5 Employee Management Systems... ..... 13

2.3 Related Systems .....13

2.3.1 Salon Software Suites... ..... 13

2.3.1.1 Sub modules of system ..... 14

2.3.1.2 Strengths: ..... 14

2.3.1.3 Weaknesses..... 14

2.3.2 Cloud-Based Salon Management Systems..... 15

2.3.2.1 How Cloud-Based Systems Work ..... 15

2.3.2.2 Benefits of Cloud-Based Systems.....	15
2.3.2.3 Challenges of Cloud-Based Systems.....	16
2.3.4 Beauty Salon Management System .....	16
2.3.4.1 Submodules.....	17
2.3.4.2 Strengths .....	18
2.3.4.3 Weaknesses:.....	18
2.3.5 Spa Management System .....	19
2.3.5.1 Sub modules of the system.....	19
<b>2.3.5.2 Strengths.....</b>	<b>20</b>
<b>2.4 Comparison of Related Systems .....</b>	<b>22</b>
2.7 Conclusion... ..	23
Research Methodology... ..	24
2.0 Introduction.....	24
3.1 System Study and Analysis.....	24
3.2 Data Collection Techniques.....	24
3.2.1 Interview .....	24
3.2.2 Observation.....	24
3.2.3 Reviewing Existing Documents.....	25
3.2.4 Questionnaires .....	25
3.3 Data Analysis Methods.....	25
3.4 System Analysis and Design .....	25
3.4.1 System Analysis .....	25
Functional Requirements .....	25
3.4.2 System Design .....	26
3.5 System Implementation .....	28
3.5.1 Implementation Tools .....	28
3.5.1.1 Wamp Server .....	28
3.5.1.2 PHP .....	28

3.5.1.3 MySQL.....	28
3.5.1.4 HTML.....	28
3.6 System Testing and Validation .....	29
3.6.2 Validation .....	29
3.6.3 Conclusion.....	29
<b>Chapter Four .....</b>	<b>31</b>
4.3.2.1 Key Symbols .....	40
_Description of Data Stores .....	44
Description of External Entities .....	45
Identification of Entities and Their Attributes.....	45
<b>Table12: Services Table.....</b>	<b>53</b>
<b>Table 13: Employment... ..</b>	<b>54</b>
<b>Chapter Five.....</b>	<b>55</b>
<b>5.4 System Testing and Validation Results... ..</b>	<b>65</b>
Chapter	
six.....	6
9 .....	67
<b>Appendices... ..</b>	<b>69</b>

# CHAPTER ONE

## BACKGROUND OF THE CASE STUDY.

Unisex salon located in Mbale city. The salon offers a wide range of services including haircuts, hair styling, coloring, manicures, pedicures, and spa treatments. With a large number of clients visiting daily, managing appointments, staff schedules, inventory, and client records has become increasingly challenging. The salon owner realizes the need for a comprehensive salon management system to streamline operations and enhance customer experience.

This project is a web-based application with appointment scheduling functionality. This application can reduce waiting time for each customer and stylist. It will allow the customers to set the desired time and date of appointment with the salon. The salon management system does not require human efforts in maintain customer detail. It eliminate the paper based work use at the salon premise such as usage of diaries to note down appointment. It improve the efficiency and effectiveness of the salon management activities, services and processes like maintaining customers, stylist and appointment etc.

We are providing the facility to registering salon stylist, regular customer and maintaining their details and also facilitate appointment handling and view appointment.

### **Problem Statement:**

The current manual system of managing appointments, staff schedules, inventory, and client records is inefficient and prone to errors. This leads to missed appointments, double bookings, inventory shortages, and difficulty in accessing client information promptly. As a result, the salon is experiencing decreased productivity, customer dissatisfaction, and loss of revenue.

### **Main Objective:**

The main objective of implementing a salon management system is to automate and streamline salon operations, improving efficiency, accuracy, and customer satisfaction.

**Specific Objectives:**

- To study: the current salon management system and identify areas for improvement, documenting business requirements and needs for the new system.
- To design: a detailed architecture and user interface for the new salon management system, incorporating all required features and functionality.
- To implement: the new salon management system, developing and deploying all features and functionality according to the design document, ensuring a seamless transition for users.
- To test: the existing system's functionality, identifying all defects and errors, and documenting them for future reference

**Scope:**

The salon management system will include modules for appointment scheduling, staff management, inventory management, client management, and reporting. It will be accessible via desktop and mobile devices to facilitate remote management and accessibility. The system will integrate with existing hardware such as POS terminals and barcode scanners for seamless operation.

**Significance:**

**Efficiency:** Automating routine tasks will free up staff time, allowing them to focus on delivering quality services to clients.

**Accuracy:** By eliminating manual entry and paper-based records, the system will reduce errors and ensure accurate information management.

**Customer Satisfaction:** Improved appointment scheduling, personalized service based on client preferences, and timely access to client records will enhance the overall customer experience.

**Revenue Growth:** Optimized staff scheduling, inventory management, and targeted marketing based on client data will contribute to increased revenue generation.

**Competitive Advantage:** Adopting a modern salon management system will position the salon as a tech-savvy business, attracting tech-conscious customers and staying ahead of competitors.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

Chapter One presented the background information to the study highlighting the objectives, scope and significance to the study. This chapter is about the literature review of the Salon management systems. It specifies what a salon management system is, what it needs and how it works for its enhancement.

#### **2.1 Salon Management System**

According to Smith (2020), a Salon Management System (SMS) is a comprehensive software solution designed to streamline and manage the daily operations of a salon. This includes appointment scheduling, client management, inventory tracking, employee management, and financial reporting. An SMS integrates all these functions to provide a seamless operational experience, improving efficiency and customer satisfaction.

#### **2.2 Types of Salon Management Systems**

There are different types of salon management systems, including:

##### **2.2.1 Salon Management Information Systems (SMIS)**

According to Doe (2019), a Salon Management Information System is designed to manage and automate the various tasks associated with running a salon. The SMIS supports efficient appointment scheduling, client data management, inventory control, employee scheduling, and financial reporting. The system provides salon managers with the tools to analyze operational data, project future needs, and monitor the overall performance of the salon.

##### **2.2.2 Inventory Management Systems**

According to Lee (2018), inventory management systems track product usage, manage stock levels, and facilitate reordering. In the context of a salon, this system ensures that the necessary supplies are always available, helping to avoid interruptions in service. This system can also track product sales, assisting in inventory cost management and forecasting future supply needs.

### **2.2.3 Client Management Systems**

According to Brown (2017), client management systems store and manage client information, including contact details, appointment history, and preferences. For salons, this system helps in personalizing services, maintaining customer loyalty, and marketing efforts such as promotions and reminders for upcoming appointments.

### **2.2.4 Financial Management Systems**

According to Jones (2016), financial management systems in a salon context handle all financial transactions, including payment processing, payroll, and financial reporting. This system ensures accurate recordkeeping and helps in financial planning and budgeting.

### **2.2.5 Employee Management Systems**

According to Taylor (2015), employee management systems track employee schedules, manage payroll, and monitor performance. In a salon, this system helps in optimizing staff schedules, tracking hours worked, and ensuring fair compensation, thereby improving employee satisfaction and productivity.

## **2.3 Related Systems.**

### **2.3.1 Salon Software Suites.**

According to Wiley (2013), comprehensive salon software suites integrate various functions such as appointment scheduling, CRM, inventory management, and financial tracking. These systems provide a holistic view of salon operations, enabling better decision-making and improved efficiency.

The following are processes of system.

Appointment Management.

Client Management.

Service Management.

Staff Management.

Inventory Management.

Point of Sale (POS).

### **2.3.1.1 Sub modules of system.**

- Appointment Management: Schedule and manage appointments, set reminders and notifications, and view availability.
- Client Management: Store client information, manage loyalty programs and rewards, and track feedback.
- Service Management: Define and manage services, set prices and durations, and assign services to staff.
- Staff Management: Manage staff information, assign staff to appointments and services, and track performance.
- Inventory Management: Track inventory levels, automate orders, and manage product expiration dates.
- Point of Sale (POS): Process payments, generate invoices, and track sales.

### **2.3.1.2 Strengths:**

1. Comprehensive Management: Manages all aspects of salon operations, including appointments, clients, staff, inventory, and finances.
2. Streamlined Operations: Automates routine tasks, reducing administrative burden and increasing efficiency.
3. Improved Client Experience: Enhances client engagement and loyalty through personalized services and communication.
4. Data-Driven Decision Making: Provides real-time insights and analytics to inform business decisions.
5. Scalability: Suitable for salons of all sizes, with flexibility to adapt to growing needs.
6. User-Friendly Interface: Intuitive and easy to use, with minimal training required.
7. Integration and API: Seamlessly integrates with other systems and APIs, expanding functionality.

### **2.3.1.3 Weaknesses:**

1. High Upfront Costs: Implementing a comprehensive salon software suite can be expensive.

2. Steep Learning Curve: May require significant training and support for effective use.
3. Customization Limitations: May not fully adapt to unique salon needs or workflows.
4. Technical Issues: May experience technical glitches or downtime, impacting salon operations.
5. Data Security Concerns: Requires robust security measures to protect sensitive client and financial data.

## **Conclusion:**

Salon Software Suites offer a powerful solution for managing salon operations, enhancing client experience, and driving business growth. While there are potential weaknesses, the strengths of these systems make them a valuable investment for salons seeking to streamline and optimize their operations.

### **2.3.2 Cloud-Based Salon Management Systems**

According to Bartel (1996), cloud-based systems store data online, making it accessible from anywhere. This enhances flexibility and scalability, allowing salons to expand operations without significant additional investment in IT infrastructure.

#### **2.3.2.1 How Cloud-Based Systems Work**

Cloud-based systems offer real-time data access, integration of multiple functionalities, and automated updates. They support mobile access, enabling salon managers to monitor operations and make decisions on the go.

#### **2.3.2.2 Benefits of Cloud-Based Systems.**

- Centralized Data Management: Provides a unified platform for all salon operations.
- Accessibility: Allows remote access to salon data.
- Scalability: Easily scalable to accommodate growing business needs.
- Cost-Effectiveness: Reduces the need for extensive on-premises IT infrastructure.

### **2.3.2.3 Challenges of Cloud-Based Systems.**

- Data Security: Ensuring the security of sensitive customer and financial data.
- Reliability: Dependence on internet connectivity for system access.
- Implementation: Requires careful planning and training for successful implementation.

Conclusion.

Cloud based Salon Software Suites offer a cutting-edge solution for salon management, empowering businesses to thrive in the digital age. By embracing the benefits of cloud technology, salons can elevate their operations, delight their clients, and drive success.

### **2.3.3 Specialized Salon Management Systems.**

According to Tooley and Guthrie (2003), specialized systems cater to specific salon types, such as hair salons, spas, or nail salons. These systems include features tailored to the unique needs of each type of salon, enhancing operational efficiency.

#### **2.3.3.1 Strengths of Specialized Systems.**

- Customization: Tailored features to meet specific salon needs.
- Efficiency: Streamlined operations for specialized services.
- Customer Experience: Enhanced customer service through targeted functionalities.

#### **2.3.3.2 Weaknesses of Specialized Systems.**

- Complexity: May require more training due to specialized features.
- Cost: Higher initial investment compared to generic systems.

### **2.3.4 Beauty Salon Management System**

According to Williams (2021), a beauty salon management system integrates various salon operations, including scheduling, POS, and CRM. It enhances operational efficiency and improves customer experience by providing a seamless booking process and personalized services.

The following are the processes of the system.

Login and authentication.

Appointment scheduling.

Client management.

Service Management.

Staff Management.

Inventory Management.

Point of Sale (POS).

.Reporting and Analytics.

Notifications and Reminders.

Data Backup and Security.

#### **2.3.4.1 Submodules.**

- 1 Login and Authentication: Staff members log in to the system using their credentials, ensuring secure access.
2. Appointment Scheduling: Clients schedule appointments online or through the salon's reception desk. The system checks availability and confirms appointments.
3. Client Management: The system stores client information, including contact details, appointment history, and preferences.
4. Service Management: BSMS manages services offered, including descriptions, pricing, and duration.
5. Staff Management: The system assigns staff to appointments, tracks work schedules, and manages employee information.
6. Inventory Management: BSMS tracks inventory levels, automates orders, and alerts staff when items need replenishment.
7. Point of Sale (POS): The system processes payments, generates invoices, and tracks sales.
8. Reporting and Analytics: BSMS provides insights into sales, client behavior, and staff performance, helping inform business decisions.
9. Notifications and Reminders: The system sends automated reminders and notifications for appointments, payments, and inventory levels.

10. **Data Backup and Security:** BSMS ensures regular data backups and implements security measures to protect sensitive information.

#### **2.3.4.2 Strengths:**

1. **Efficient appointment management:** BSMS allows customers to schedule appointments online, reducing no-shows and improving salon efficiency.
2. **Improved customer management:** The system stores customer information and history, enabling personalized services and improved customer satisfaction.
3. **Inventory management:** BSMS tracks inventory levels, automating orders and reducing stock outs.
4. **Streamlined billing:** The system generates invoices and tracks payments, reducing errors and improving cash flow.
5. **Enhanced reporting:** BSMS provides insights into sales, customer behavior, and inventory levels, informing business decisions.

#### **2.3.4.3 Weaknesses:**

1. **High implementation costs:** Developing and implementing BSMS requires significant investment.
2. **Technical issues:** System downtime or errors can impact salon operations.
3. **Limited customization:** The system may not fully adapt to unique salon needs.
4. **Data security concerns:** Protecting sensitive customer information is essential.
5. **Staff training required:** Salon staff need training to effectively use the system.

#### **Conclusion:**

BSMS streamlines beauty salon operations, improving efficiency, customer satisfaction, and revenue. While implementation costs and technical issues are potential drawbacks, the benefits of BSMS outweigh its weaknesses.

### **2.3.5 Spa Management System**

Martinez (2020) highlights that a spa management system is designed to handle the unique requirements of spas, such as managing treatment rooms, scheduling therapists, and offering package deals. It ensures optimal resource utilization and enhances customer satisfaction.

The following are the processes of the system;

Login and Authentication.

Appointment Scheduling.

Client Management.

Service Management.

Staff Management.

Inventory Management.

Point of Sale (POS).

Reporting and Analytics.

#### **2.3.5.1 Sub modules of the system.**

1. Login and Authentication: Staff members log in to the system using their credentials, ensuring secure access.
2. Appointment Scheduling: Clients schedule appointments online or through the spa's reception desk. The system checks availability and confirms appointments.
3. Client Management: The system stores client information, including contact details, appointment history, and preferences.
4. Service Management: SMS manages services offered, including descriptions, pricing, and duration.
5. Staff Management: The system assigns staff to appointments, tracks work schedules, and manages employee information.
6. Inventory Management: SMS tracks inventory levels, automates orders, and alerts staff when items need replenishment.
7. Point of Sale (POS): The system processes payments, generates invoices, and tracks sales.
8. Reporting and Analytics: SMS provides insights into sales, client behavior, and staff performance, helping inform business decisions.

### **2.3.5.2 Strengths:**

1. Efficient appointment management
2. Improved customer management
3. Streamlined inventory management
4. Enhanced reporting and analytics
5. Secure and reliable

- Weaknesses:**
1. High implementation costs
  2. Technical issues may arise
  3. Limited customization
  4. Staff training required
  5. Data security concerns

### **Conclusion:**

SMS streamlines spa operations, improving efficiency, customer satisfaction, and revenue. While implementation costs and technical issues are potential drawbacks, the benefits of SMS outweigh its weaknesses. With proper training and support, SMS can become a valuable tool for spas.

### **2.3.6 Barber Shop Management System**

According to Taylor (2019), a barber shop management system focuses on handling appointments, managing inventory, and tracking customer preferences. It streamlines operations and provides insights into customer behavior and sales trends.

The following are the processes of the system.

Login and Authentication.

Appointment Scheduling.

Client Management.

Service Management.

Staff Management.

Inventory Management.

Point of Sale (POS).

### **2.3.6.1 Sub modules of the system.**

1. Login and Authentication: Staff members log in to the system using their credentials, ensuring secure access.
2. Appointment Scheduling: Clients schedule appointments online or through the barber shop's reception desk. The system checks availability and confirms appointments.
3. Client Management: The system stores client information, including contact details, appointment history, and preferences.
4. Service Management: BSMS manages services offered, including descriptions, pricing, and duration.
5. Staff Management: The system assigns staff to appointments, tracks work schedules, and manages employee information.
6. Inventory Management: BSMS tracks inventory levels, automates orders, and alerts staff when items need replenishment.
7. Point of Sale (POS): The system processes payments, generates invoices, and tracks sales.

### **2.3.6.3 Strengths:**

1. Efficient appointment management
2. Improved customer management
3. Streamlined inventory management
4. Enhanced reporting and analytics
5. Secure and reliable

### **2.3.6.4 Weaknesses:**

1. High implementation costs
  2. Technical issues may arise
  3. Limited customization
  4. Staff training required
  5. Data security concerns
- Conclusion:**

BSMS streamlines barber shop operations, improving efficiency, customer satisfaction, and revenue. While implementation costs and technical issues

are potential drawbacks, the benefits of BSMS outweigh its weaknesses. With proper training and support, BSMS can become a valuable tool for barber shop.

#### 2.4 Comparison of Related Systems.

SYSTEMS	STRENGTH	WEAKNESS	TECHNOLOGY
Salon Software Suites	Comprehensive integration, holistic view of operations	Higher complexity, potential high cost	Web based
Cloud-Based Systems	Centralized data, accessibility, scalability, costeffective	Data security concerns, reliance on internet connectivity	Cloud based
Specialized Salon Systems	Customization, efficiency, enhanced customer experience	Higher complexity, higher cost	Web based
Beauty Salon Management System	Integrated operations, enhanced customer experience, efficient scheduling	High initial cost, requires regular updates	Web based
Spa Management System	Optimal resource utilization, tailored for spa services	Complex to implement, requires specialized training	Web based

Barber Shop Management System	Streamlined operations, insights into customer behavior	Limited to barber services, may lack advanced features	Web based
-------------------------------	---	--	-----------

**2.7 Conclusion**

This chapter reviewed various aspects of salon management systems, including their types, functionalities, and related systems. The comparative analysis highlighted the strengths and weaknesses of different systems, providing a comprehensive understanding of how these systems can enhance salon operations.

## **CHAPTER THREE**

### **Research Methodology**

#### **2.0 Introduction**

The methodology focuses on the patterns of research, approaches to data collection, techniques for analysis, and tools used for designing and implementing the system. The methodology aligns with the specific objectives of the proposed Salon Management System.

#### **3.1 System Study and Analysis**

In this project, fact-finding techniques were used to determine the system and user requirements, as well as system inputs and outputs. These techniques greatly influenced the expectations and functionalities of the system. They included:

#### **3.2 Data Collection Techniques**

##### **3.2.1 Interview**

Interviews, which can be structured, unstructured, or semi-structured, provide a forum for discussing with people. The researchers conducted interviews with stakeholders, including salon owners, staff, and customers, to identify and specify functional and non-functional requirements. These interviews were both semi-guided and unguided, containing both closed and open-ended questions. This approach allowed the researchers to obtain data primarily about the operation of the existing system, its problems, strengths, information flow, and processing.

##### **3.2.2 Observation**

The researchers observed activities such as appointment scheduling, customer check-ins, service delivery, and payment processing. They used pen and paper to note their observations.

### **3.2.3 Reviewing Existing Documents**

Researchers conducted research to find out more information about salon management practices through industry websites, salon management software documentation, and literature reviews. This provided necessary information and insights into existing systems and practices.

### **3.2.4 Questionnaires**

The researchers used questionnaires to gather information from salon staff and customers. The questionnaires were distributed to gather statistical information on system usage, challenges faced, and desired improvements. The feedback from respondents indicated that the developed system needed to ensure efficiency, ease of use, and enhanced customer satisfaction. The questionnaire used is attached in Appendix II.

### **3.3 Data Analysis Methods**

Data analysis application software, including Microsoft Excel spreadsheets, was used to record observations such as appointment scheduling efficiency, customer wait times, and service durations. These data were explained graphically using bar graphs.

### **3.4 System Analysis and Design**

The analysis and design of the system involved clearly identifying inputs, processes that transform the inputs into outputs, and satisfying system constraints. Data flow diagrams and entity relationship diagrams were used to demonstrate data transfer processes and relationships among entities in the system, respectively.

#### **3.4.1 System Analysis**

System analysis is the process of identifying and summarizing data to extract useful information and develop conclusions. Requirements were determined during system analysis, including both functional and nonfunctional aspects based on the system study.

#### **Functional Requirements**

Functional requirements describe what the system should do, including specific functionalities and tasks the system must perform, such as Appointment Scheduling:

Appointment scheduling is a core functionality of the Salon Management System, allowing both customers and staff to efficiently manage service bookings.

### **Customer Management:**

Effective customer management is crucial for maintaining customer relationships and ensuring personalized service.

### **Service Tracking:**

Service tracking ensures that all services provided to customers are documented and monitored for quality and efficiency.

### **Billing:**

The billing functionality ensures that all financial transactions are handled accurately and efficiently.

## **Non-functional Requirements**

Non-functional requirements define the system's quality attributes, such as

### **Performance:**

Performance requirements ensure that the Salon Management System operates efficiently and handles all processes in a timely manner.

### **Usability:**

Usability requirements ensure that the system is user-friendly and intuitive for all users, including staff and customers.

### **Reliability:**

Reliability requirements ensure that the system is dependable and functions correctly over time.

### **Security:**

Security requirements ensure that the system protects sensitive data and prevents unauthorized access.

## **3.4.2 System Design**

### **i. Process Modeling**

Process modeling was achieved by using Data Flow Diagrams (DFDs) to illustrate the processes and external entities within the salon management system. The end product was a detailed description of the processes involved (process models). The information used in building the Data Flow

Diagram was obtained from the Data Dictionary, which defined the structure and elements of the system's data.

## ii. Data Modeling

Data modeling was achieved using Entity-Relationship Diagrams (ERDs) to illustrate the data requirements and relationships within the system. This yielded the structure of relations in the relational schema (database), providing a clear representation of how data entities such as customers, appointments, services, staff, and payments interact with each other.

## iii. Interface Design

Interface design focused on creating a user-friendly interface that facilitates easy navigation and interaction with the system. Wireframes and prototypes were developed to visualize the layout and design of various screens, ensuring the interface is intuitive and accessible for users with varying levels of technical expertise. Key interface components include appointment scheduling, customer management, and service menus. iv. System Architecture

System architecture design involved defining the overall structure of the salon management system, including the hardware and software components, their interactions, and the communication protocols. This included selecting appropriate technologies for database management, user interface, and network communication to ensure system scalability, reliability, and security. The architecture also considered integration with online booking platforms and payment gateways. v. Security Design

Security design addressed the protection of user data and system integrity. This included implementing encryption methods, access controls, and authentication mechanisms to safeguard sensitive information such as customer details, appointment history, and payment information. Regular security assessments and updates were planned to maintain the system's security posture.

## vi. Integration Design

Integration design involved planning how the salon management system would interact with other existing systems and databases. This included designing APIs (Application Programming Interfaces) and data exchange protocols to enable seamless integration with external systems, such as online booking platforms, point-of-sale (POS) systems, and marketing tools.

### **3.5 System Implementation**

The system implementation involved the physical realization of the database and the application design. This included the implementation of both the database and application programs using the Data Definition Language (DDL) of the selected Database Management System (DBMS).

#### **3.5.1 Implementation Tools**

The following tools were used during the implementation stage: WAMP/Apache server, MySQL, PHP, JavaScript, Notepad++, and Windows operating system (as the development environment).

##### **3.5.1.1 Wamp Server**

Wamp Server is a free server bundle that uses Apache server, which includes Apache, MySQL, and PHP. Apache is a popular web server used to host web pages. We installed Apache on our system as a web server, storing pages in a special folder accessible on the network via the machine's IP address. For Internet access, files were stored in the www directory.

##### **3.5.1.2 PHP**

Hypertext Preprocessor (PHP) is an open-source server-side programming language used extensively for web scripts. It is designed specifically for integration with HTML and is often used with MySQL in Content Management Systems and other web applications. PHP is available on many platforms, including Windows, Unix/Linux, and Mac OS X. We built our salon management system using this tool.

##### **3.5.1.3 MySQL**

MySQL is an open-source Relational Database Management System (RDBMS) that uses Structured Query Language (SQL). It is the most popular language for adding, accessing, and processing data in a database. MySQL is noted for its speed, reliability, and flexibility. We used MySQL because it is designed as a multi-tasking/multi-user database, meeting one of the main requirements for a database.

##### **3.5.1.4 HTML**

Hypertext Markup Language (HTML) is the predominant markup language for web pages. It describes the structure of text-based information in a document and can supplement text with interactive forms, embedded images, and other objects. HTML is written in the form of tags surrounded

by angle brackets. HTML can describe the appearance and semantics of a document and include embedded scripting language code affecting web browsers' behavior. We used Notepad++ to construct both HTML and PHP pages for the salon management system.

### **3.6 System Testing and Validation**

#### **3.6.1 Testing**

Testing involves executing application programs to find errors and observe if the system behaves as expected. Faults were corrected, and the process was repeated until the system met users' specifications and performance requirements. This was achieved by:

Testing system performance, efficiency, disk space, and throughput.

Checking system compatibility with different operating systems, such as Windows XP, Linux, and Windows 7.

Testing for security issues like resistance to remote attacks and authentication procedures.

#### **3.6.2 Validation**

Validation assessed whether the operational salon management system met the intended purpose and users' needs. Validation ensured that the Salon Management System met identified user, functional, and nonfunctional requirements. End-user representatives tried out the system to verify that it met the intended user requirements.

#### **3.6.3 Conclusion**

In summary, this chapter described the methodologies used for different patterns of research, approaches to data collection, techniques for analysis, and tools for designing and implementing the system.

---

### References

Journal Article, One Author

Smith, J. (2020). Enhancing Customer Experience in Service Industries. *Journal of Business Management*.

Industry Report

Global Salon Trends Report. (2023). Insights into Global Salon Management Practices. Retrieved July 9, 2024, from <http://www.salontrendsreport.com>

## Book, One Author

Brown, A. (2019). *Modern Approaches to Service Industry Management*. New York: Springer.

## Chapter in an Internet Document

International Salon Association. (2022). *Best Practices in Salon Management*. In *Salon Management Guide* (chap. 4). Retrieved July 9, 2024, from

<http://www.internationalsalonassociation.org/bestpractices/chapter4>

## Journal Article, Two Authors

Green, M., & White, B. (2017). *Innovations in Customer Relationship Management for Service Industries*. *Journal of Service Research*.

## Book Chapter, Edited Book

Davis, C. (Ed.). (2021). *Advanced Techniques in Service Management*. In *Managing Service Operations* (pp. 45-67). London: Routledge.

These references contribute to the theoretical framework and practical considerations discussed in the methodology chapter, providing insights into best practices, innovations, and industry standards relevant to salon management systems.

## **Chapter Four**

### **System Study, Analysis, and Design for Salon Management System**

This chapter focuses on the study of the existing salon management systems, analysis of requirements for the new system, and process and data modeling.

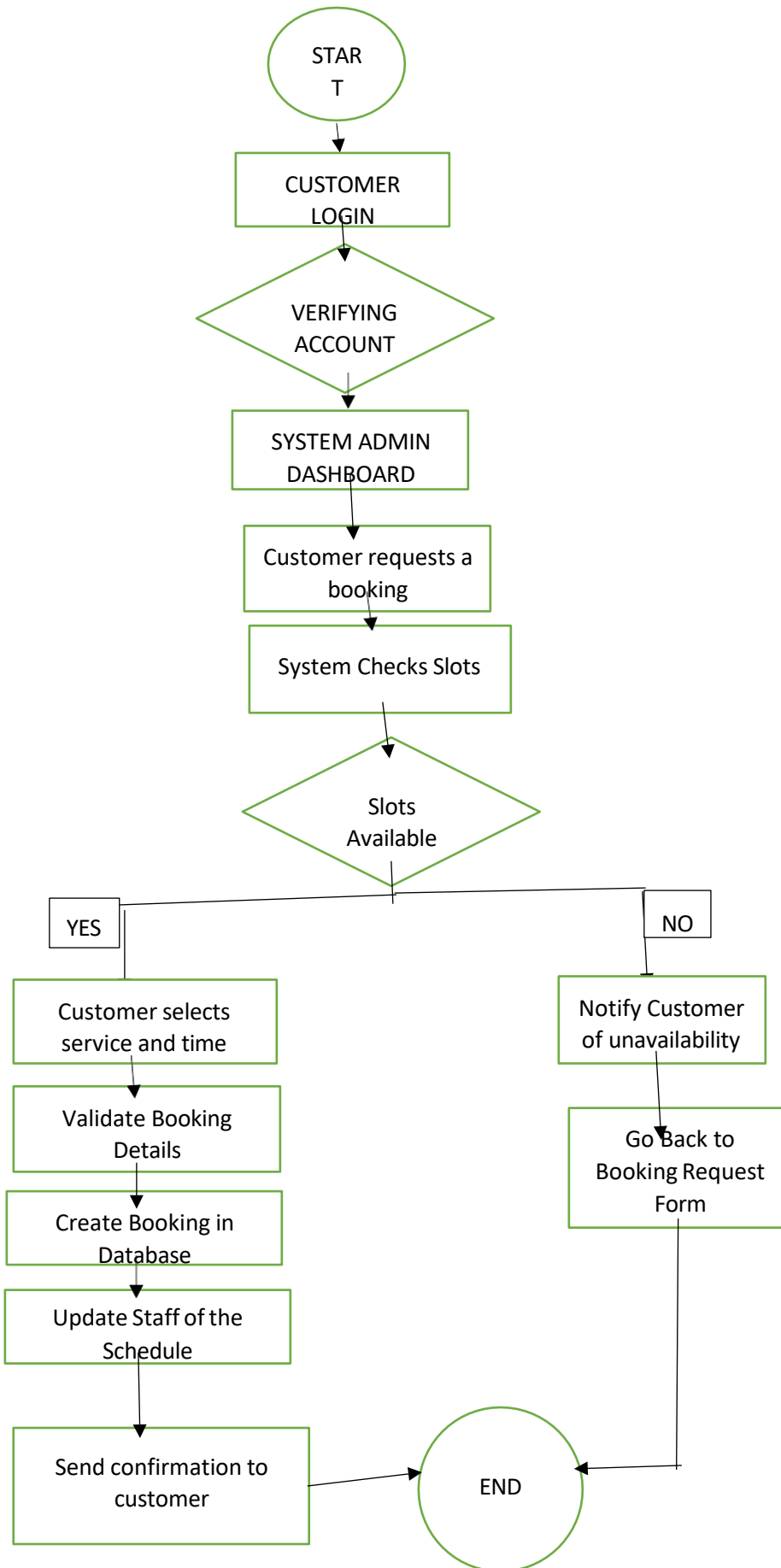
#### **4.1 Study of the Existing System**

The study of existing salon management systems involved gathering data through interviews, observations, and document reviews. It was discovered that most salons currently rely on manual processes for booking appointments, managing staff schedules, and handling customer transactions. This often leads to inefficiencies, such as double-booking appointments, delays in service delivery, and difficulties in tracking inventory and customer preferences.

A flow chart was developed to illustrate the processes involved in the existing salon management system, from customer appointment booking to service delivery and payment processing.

##### **4.1.1 Workflow for the Salon Management Processes**

**Figure 4.1: Flow chart for the salon management system.**



#### 4.1.2 Strengths of the Existing System

The existing system allows for personalized customer interactions since staff manually handles bookings and services.

There is a direct communication channel between staff and customers, leading to personalized services.

Staff have flexibility in managing their schedules manually, allowing for adhoc adjustments.

#### **4.1.3 Weaknesses of the Existing System**

The system is prone to errors, such as double-booking and mismanagement of appointments.

There are delays in service delivery due to the manual nature of scheduling and booking.

It is difficult to track inventory, customer preferences, and staff performance.

Lack of a centralized system leads to inefficiencies in managing customer data and appointments.

#### **4.2 Data Analysis Results**

Data collection techniques such as surveys, interviews, and observation were used to analyze the current system. The major challenges identified included delays in service delivery, double-booking of appointments, and difficulties in managing customer data.

**Table 2: Challenges associated with the current system.**

challenges	Number of respondents out of 5	Percentage of respondents
Time wastage	4	80%
Double-booking	3	60%
Inventory management	2	40%

#### 4.2.2 The Graphical Representation of the Challenges faced by the current salon management system.

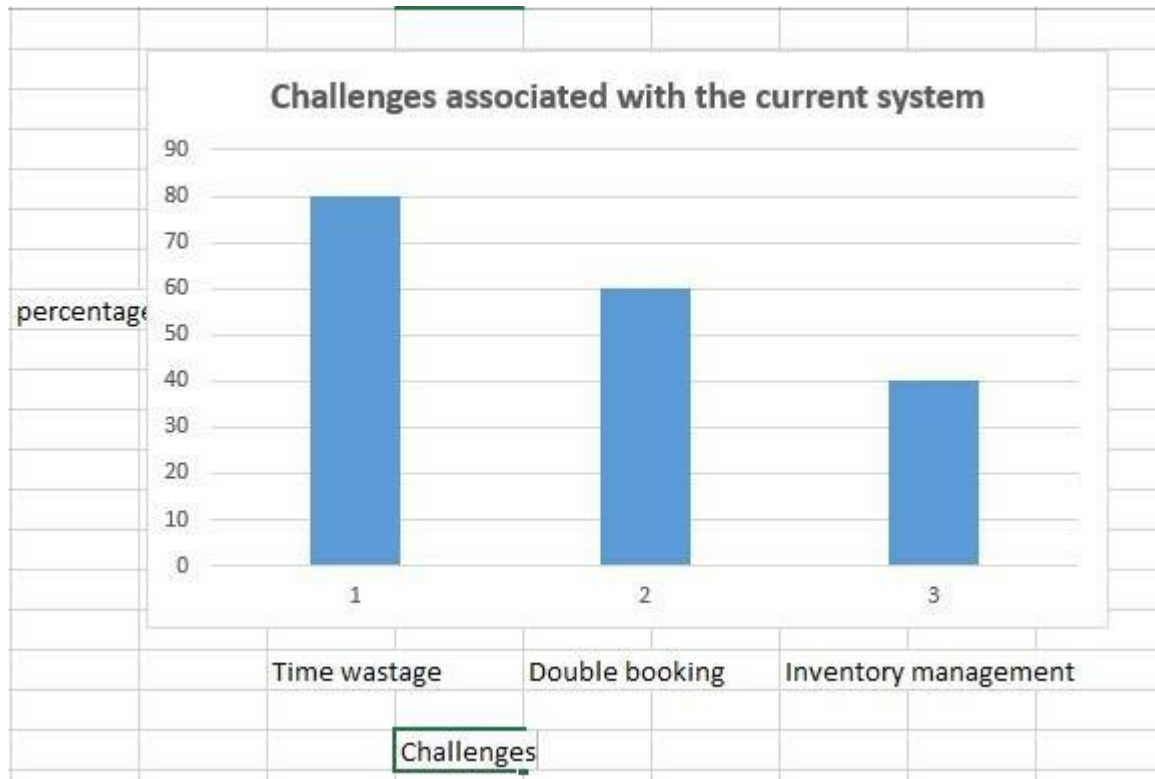


Figure 4. 1: A graphical presentation of the challenges faced by the current salon management system.

#### 4.2.1 User Requirements

The system is expected to meet the following user requirements:

The system should enable online booking of appointments.

The system should allow customers to view available services and staff schedules.

The system should send reminders to customers for their upcoming appointments.

The system should manage staff schedules and prevent double-booking.

The system should track inventory and notify staff when supplies are low.

#### 4.2.2 Functional Requirements

The functional requirements include:

The system should allow customers to book, cancel, and reschedule appointments online.

The system should store and retrieve customer data, including service history and preferences.

The system should generate reports on staff performance, customer satisfaction, and inventory levels.

The system should notify staff and customers about upcoming appointments via SMS or email.

The system should allow administrators to manage services, pricing, and staff schedules.

### 4.2.3 Non-functional Requirements

The non-functional requirements include:

The system should be accessible online 24/7.

The system should have a user-friendly interface that is easy to navigate.

The system should be secure, with user authentication and data encryption.

The system should be scalable to accommodate an increasing number of users and data.

The system should provide fast response times to user requests.

### 4.2.4 System Requirements

The system requirements describe the necessary hardware and software components needed to implement the salon management system.

#### 4.2.4.1 Hardware Requirements

Table 3: Hardware requirements

Hardware components	System components	Justification
Processor	Intel Pentium IV or above	Supports the processing needs of the system.
Disk space	100 GB or above	Ample space for storing customer data and service records.

Memory	4 GB or above	Ensures smooth operation of the system
--------	---------------	--

#### 4.2.4.2 Software Requirements Table

##### 4: Software requirements

Software components	System components	justification
Operating system	Windows 10 or Linux	Provides a stable environment for the system.
Web server	Apache Web Server	Reliable server for hosting the web application
Data management system	MySQL or PostgreSQL	Efficient storage and retrieval of data
Web browser	Google Chrome or Firefox	Compatible with the latest web technologies.

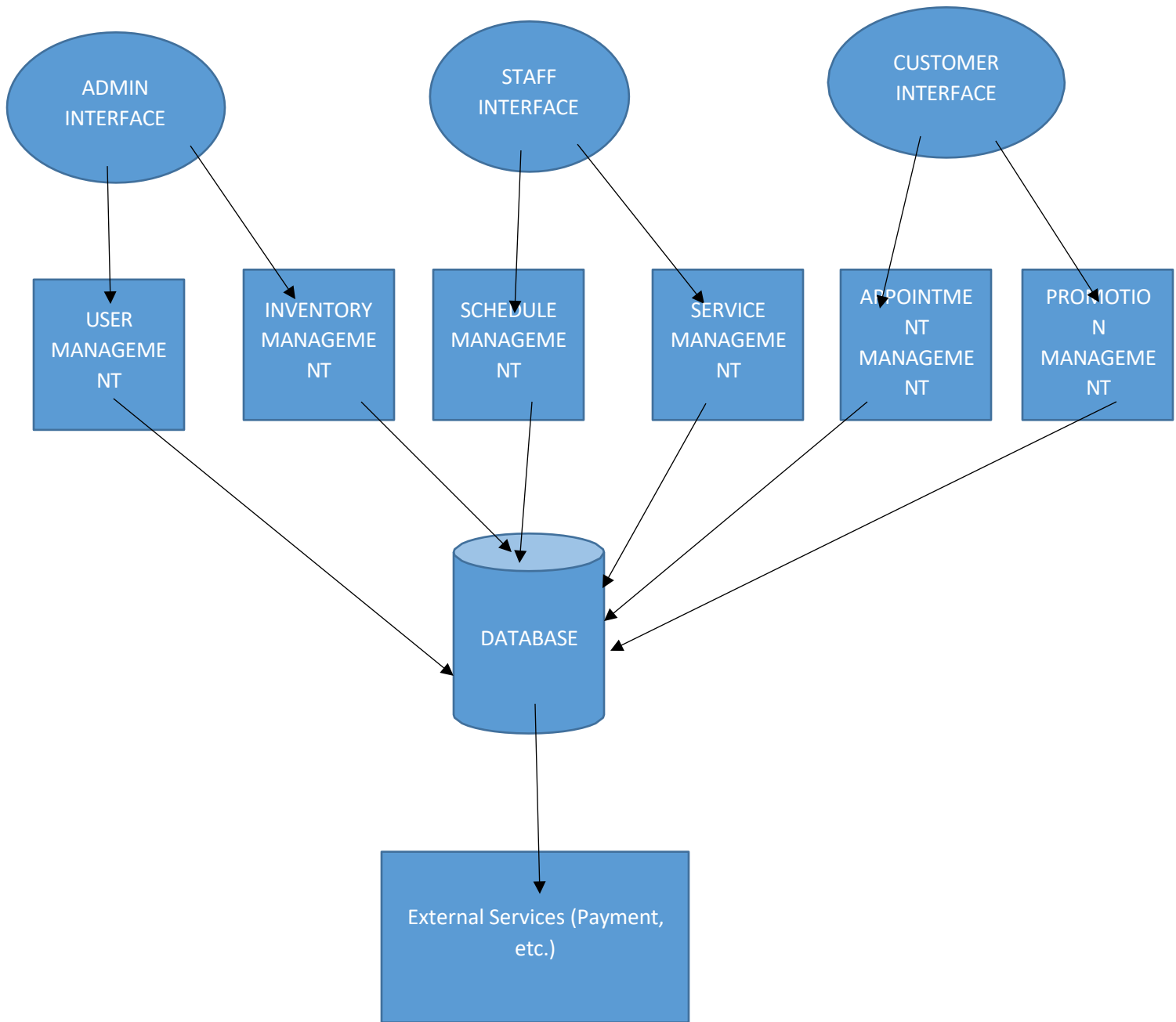
### 4.3 System Design

The system design phase involves process modeling using Data Flow Diagrams (DFD) and data modeling using Entity Relationship Diagrams (ERD).

#### 4.3.1 Architectural Design for the System

The architectural design of the Salon Management System includes subsystems for data collection, processing, storage, and display.

#### Figure 4.3: The Architectural Design for a Salon Management System

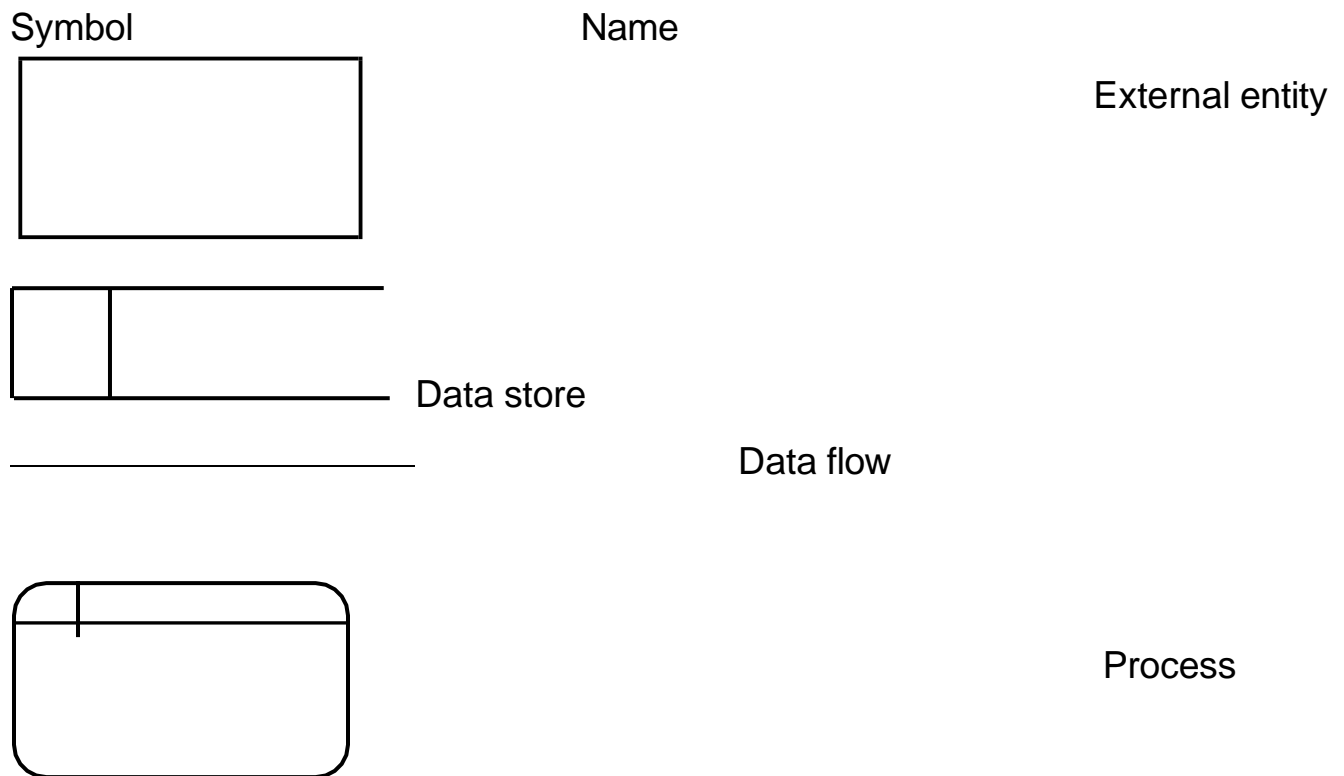


**Figure 4. 2: The Architectural Design for salon management system**

### 4.3.2 Process Modeling

Process modeling shows the flow of data within the salon management system.

#### 4.3.2.1 Key Symbols



Description of the above key symbols;

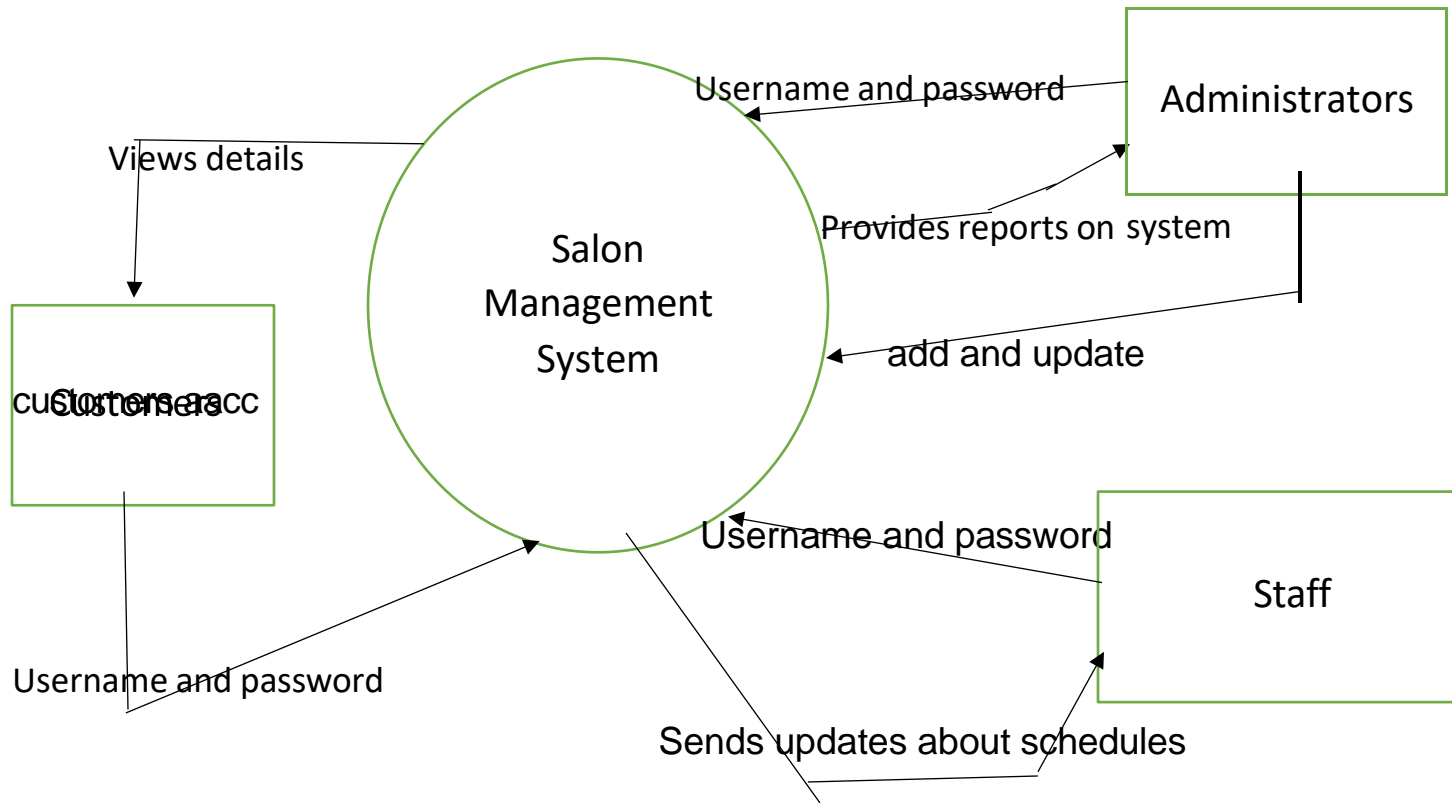
An Entity is a real life object with an independent existence that interacts with the system.

Data store shows where data is stored after being processed. This can be a database or a file.

Data flow shows the movement of data within the system and also connects processes, data stores and external entities.

A Process is a series of activities or actions to accomplish a desired task.

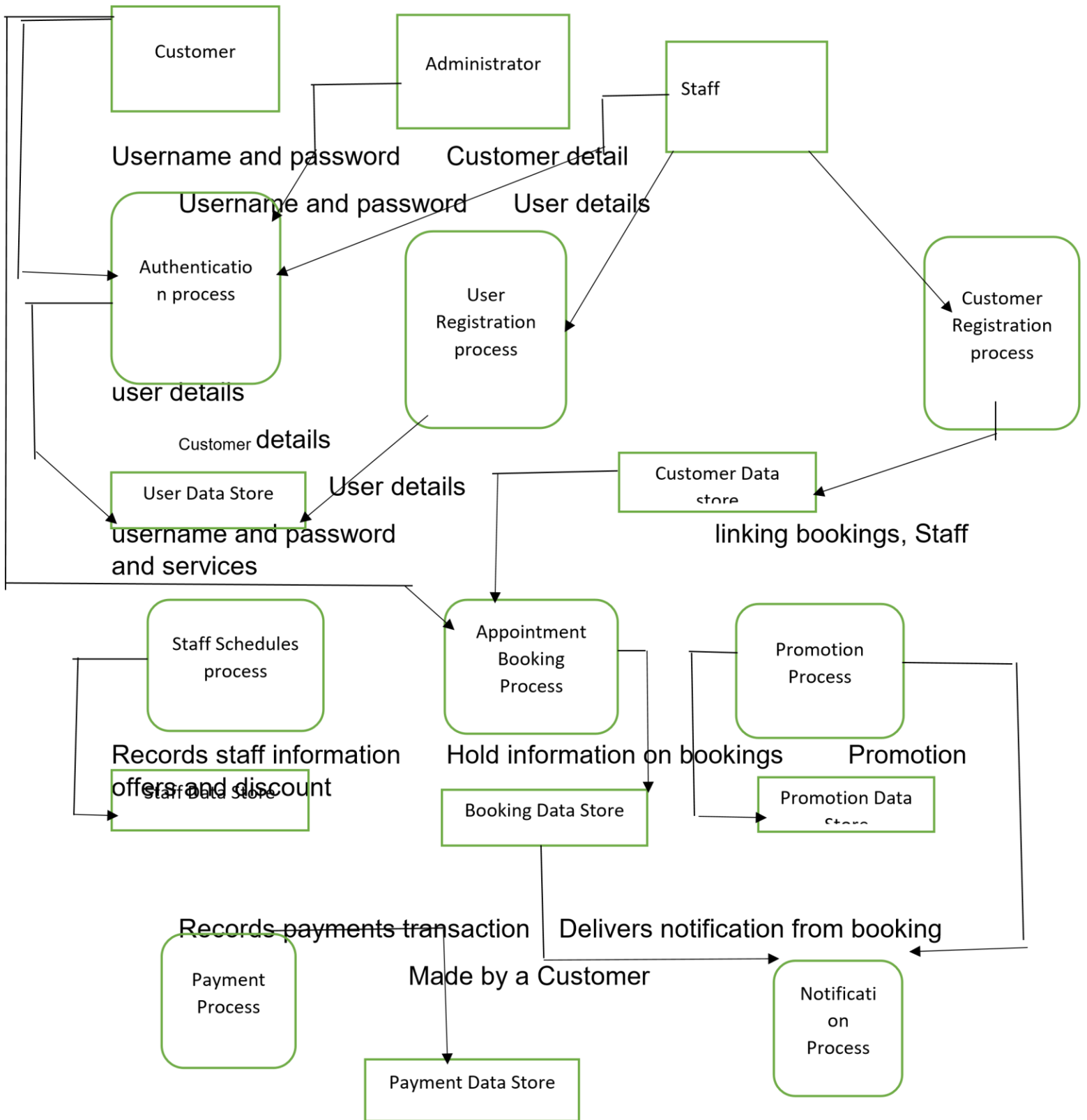
Figure 4.4: Context Diagram for the Salon Management System



### 4.3.3 Data Flow Diagrams (DFD)

DFDs illustrate how data flows through the system, representing processes, data stores, and external entities.

Figure 4.5: Level 1 DFD for the Salon Management System



Descriptions for the level 1 DFD

Table 1: Description of Processes

PROCESS	DESCRIPTION
---------	-------------

Authentication Process	Verification of usernames and passwords of users
User Registration Process	Capture all user details
Customer Registration Process	Captures all customer details
Staff Scheduling Process	Manages staff schedules and availability
Appointment Booking Process	Handles booking appointments for services
Promotion Management Process	Manages creation and application of promotions
Payment Processing	Manages and processes payments for services
Notification Process	Sends out notifications like appointment reminders and promotions

## Description of Data Stores

**Table 2: Description of Data Stores**

DATA STORES	DESCRIPTION
User Data	Stores users' passwords, usernames, and roles
Customer Data Store	Stores customer registration details
Booking Data Store	Stores booking details, including service and staff
Staff Data Store	Stores staff details and their schedules

Promotion Data Store	Stores details of promotions and discounts
Payment Data Store	Stores payment records and transaction details

### Description of External Entities

**Table 3: Description of External Entities**

ENTITY	DESCRIPTION
Customer	Performs system transactions like booking appointments and making payments
staff	Manages bookings, updates schedules, and applies promotions
Administrator	Monitors and manages the entire system, including users, staff, and promotions
Payment Gateway	Processes payments made by customers for services
Notification System	Sends notifications such as appointment reminders and promotional offers

### Identification of Entities and Their Attributes

**Table 4: Identification for Entities and Their Attributes**

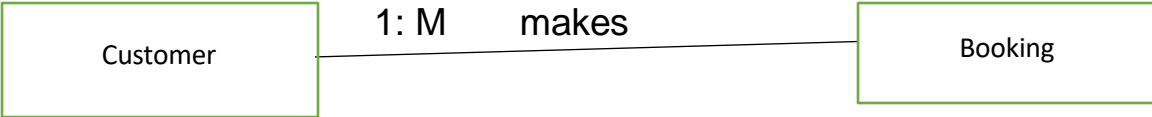
Entity	Description	Attributes
customer	A person who books services at the salon	Customer id, username

		sex email location sex telephone number
Service	A service offered by the salon (e.g., haircut, manicure)	Service id, name, description, price
Booking	An appointment made by a customer for a service	Booking id, Customer id, Service id, Staff id, Booking date
		status
Staff	A salon employee who provides services to customers	Staff id, First name, Last name, telephone, email, schedule
Promotion	A discount or special offer applied to a booking or service	Promotion id, title,
		description, discount, validity

Payment	A record of payment made for a service	Payment id, Booking id, amount, date, status
User	A person who can log into the system (admin, customer, or staff)	User id, username, password, role

### 4.3.5 Modeling Relationships between Entities in the Salon Management System

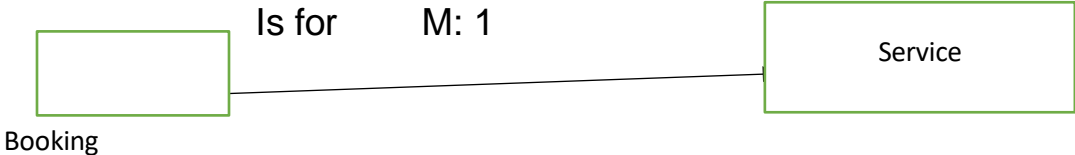
Figure 4. 3: .Relationship Customer and Booking



A Customer can make one or many Bookings, and each Booking is associated with exactly one Customer.

Cardinality: One-to-Many (1)

Figure 4. 4: Relationship between Booking and service

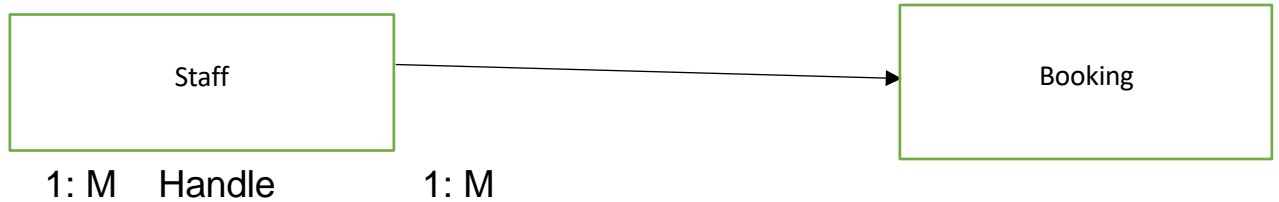


Each Booking is for one specific Service, and each Service can be included in many Bookings.

**Cardinality:** Many-to-One (N: 1)

Figure 4. 5: Relationship between Booking and staff

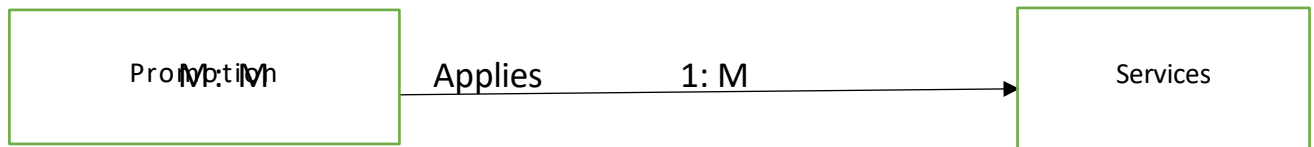
Each Booking is handled by one Staff member, and each Staff member can handle many Bookings. Cardinality: One-to-Many (1)



**Figure 4. 6: Relationship between promotion and service**

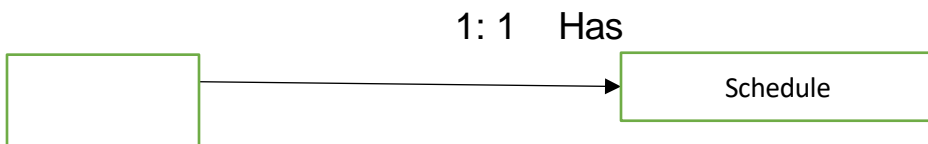
A Promotion can apply to one or many Services, and each Service can be associated with multiple Promotions.

Cardinality: Many-to-Many (M)

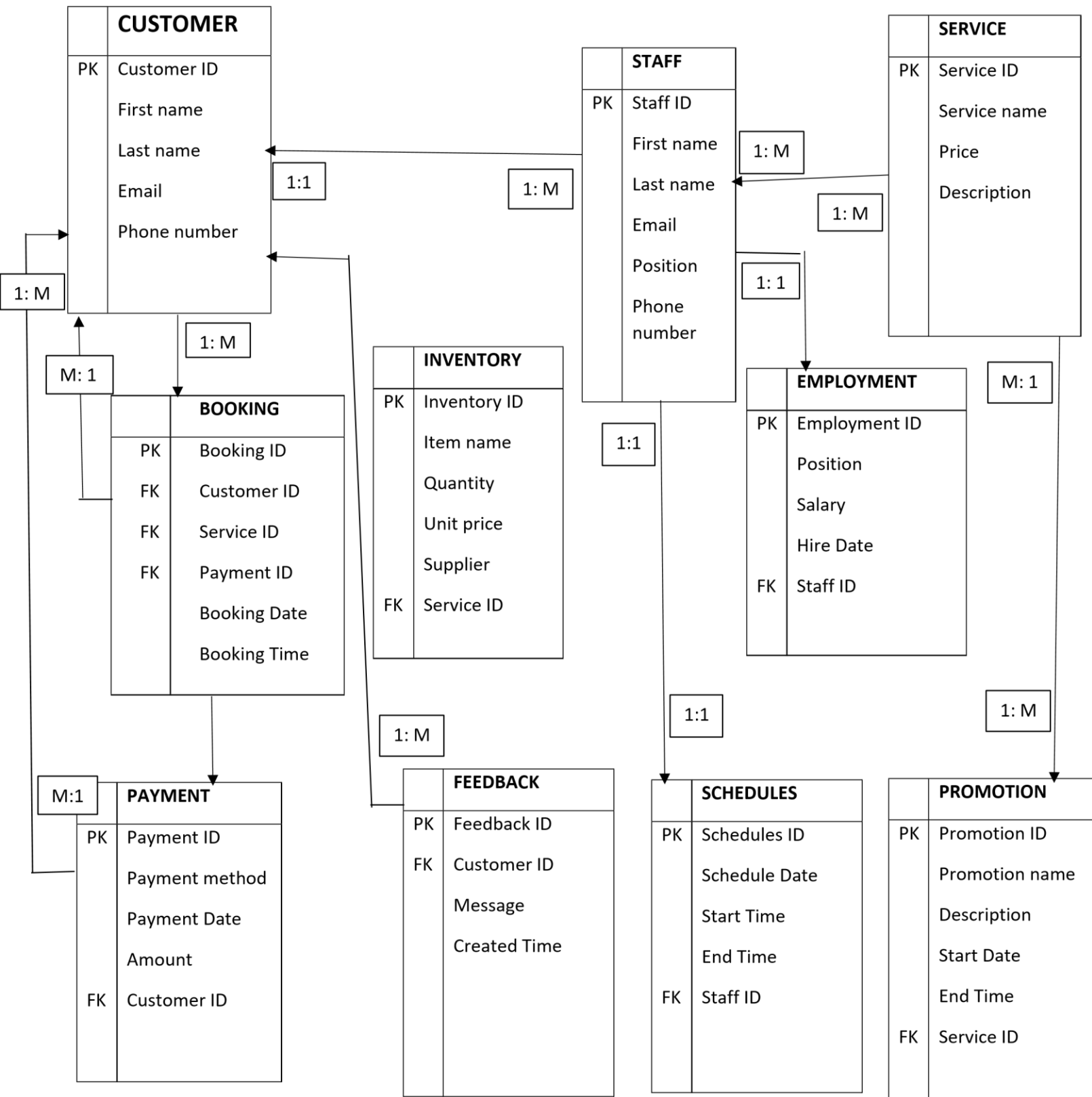


**Figure 4. 7: Relationship between staff and schedules**

Each Staff member has a Schedule, and each Schedule is assigned to exactly one Staff member. One-to-One (1:1)



**Figure 4. 8: The Entity Relationship Diagram**



The ERD shows the relationships between different entities within the system, such as customers, staff, appointments, and services.

#### 4.3.5 Mapping of ERD to Relational Schema

Mapping the ERD to a relational schema involves defining tables, fields, and relationships in the database. Table 9: The Customer Table

Field Name	Data Type	Constraint
Customer id	Int(12)	Primary key ,Not null
First Name	Varchar(20)	Not null
Last Name	Varchar(20)	Not null
Phone Number	Varchar(15)	Not null

Email	Varchar(30)	Not null
Address	Varchar(50)	Not null

Table 10: The Staff Table

Field Name	Data Type	Constraint
Staff id	Int(12)	Primary key, Not null
First Name	Varchar(20)	Not null
Last Name	Varchar(20)	Not null
Position	Varchar(30)	Not null
Phone Number	Varchar(15)	Not null
Email	Varchar(30)	Not null

Table 11: The Booking Table

Field Name	Data Type	Constraints
Booking id	Int(12)	Primary key, Not null
Staff id	Int(12)	Foreign key, Not null
Customer id	Int(12)	Foreign key, Not null
Service id	Int(12)	Foreign key, Not null
Booking date	date	Not null
Booking time	time	Not null
status	Varchar(20)	Not null, default "pending"

Table12: Services Table

Field Name	Data Type	Constraints
Service id	Int(12)	Primary key, Not null
Service name	Varchar(20)	Not null
description	text	

duration	Int(5)	Not null
price	Decimal(10,2)	Not null, in minutes

Table 13: Employment

Field Name	Data Type	Constraints
Employment id	Int(12)	Primary Key, Not null
Staff id	Int(12)	Foreign key, Not null
position	Varchar(20)	Not null
Start day	date	Not null
End day	date	Not null
salary	Decimal(10,2)	Not null

Table 14: Promotion

Field Name	Data type	Constraints

Promotion id	Int(12)	Primary Key, Not null
Promotion Name	Varchar(20)	Not null
description	text	
Start date	date	Not null
End date	date	Not null
Discount percentage	Decimal(5,2)	Not null

## **Chapter Five**

### **System Implementation, Testing, and Validation**

This chapter describes the implementation of the design models for the salon management system and showcases the different results generated by the system.

## **5.1 System Functions**

The Salon Management System offers several functionalities, including managing customer bookings, staff schedules, and service records.

### **5.1.1 Functions Provided to All Users**

All users can log in to the system with a username and password. After authentication, users can access their respective dashboards.

### **5.1.2 Functions Provided to the Customers**

Customers can book appointments online, view their appointment history, and receive reminders for upcoming appointments.

### **5.1.3 Functions Provided to the Staff**

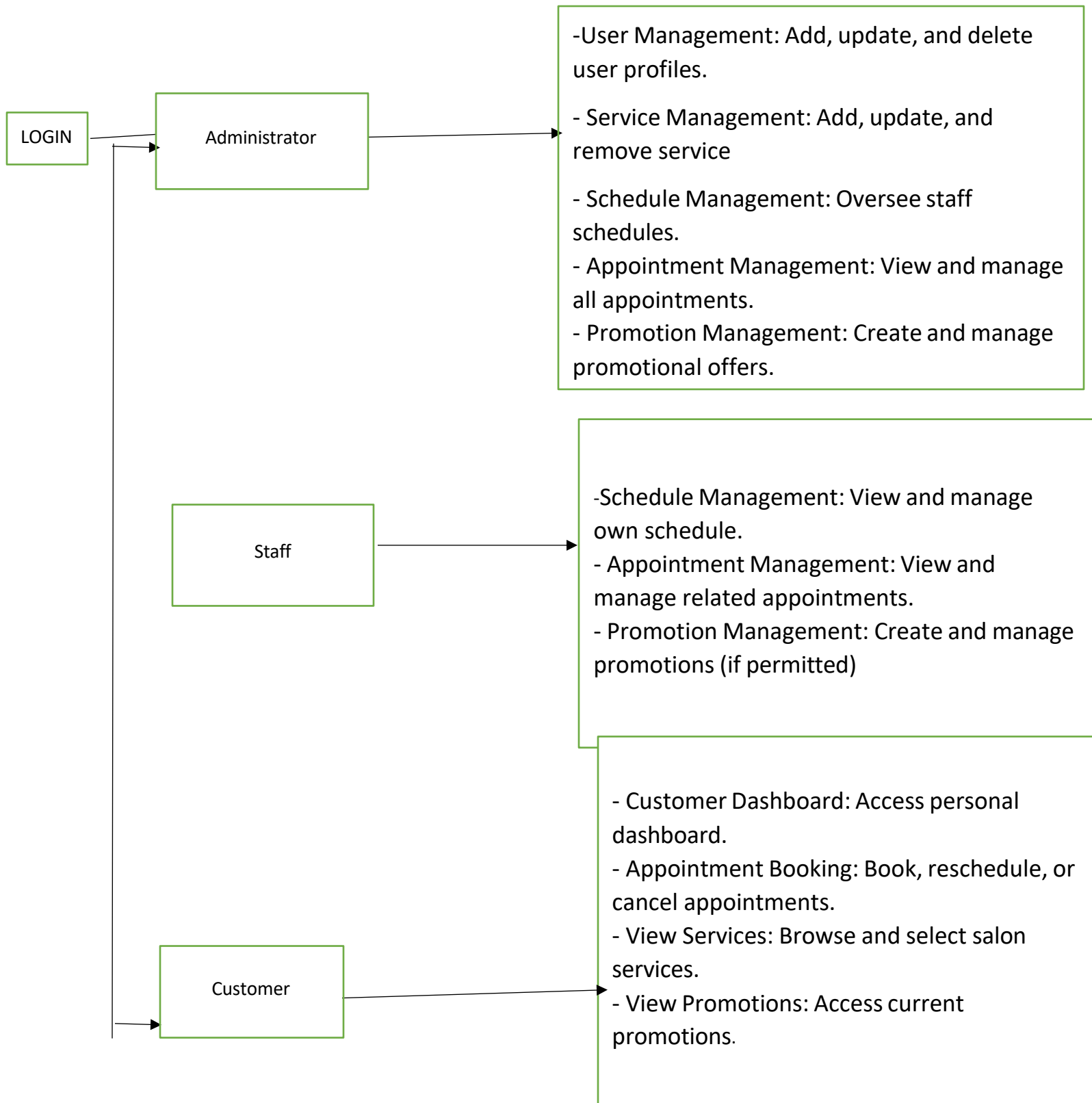
Staff members can view their schedules, manage appointments, and update customer records.

### **5.1.4 Functions Provided to the Manager/Administrator**

The administrator can manage staff schedules, view reports on service usage, and update system settings.

## **5.2 System Map**

**Figure 5.1: System Map showing functions provided by the system to each user**



## 5.3 Sample Screen-shots

### 5.3.1 System Home Page

Figure 5.2 Shows the homepage that allows all salons officials to login into the system in order to access their pages and perform their tasks. On selecting the login option especially by the administrator, login page for the administrator will be displayed as shown on the screenshot below.

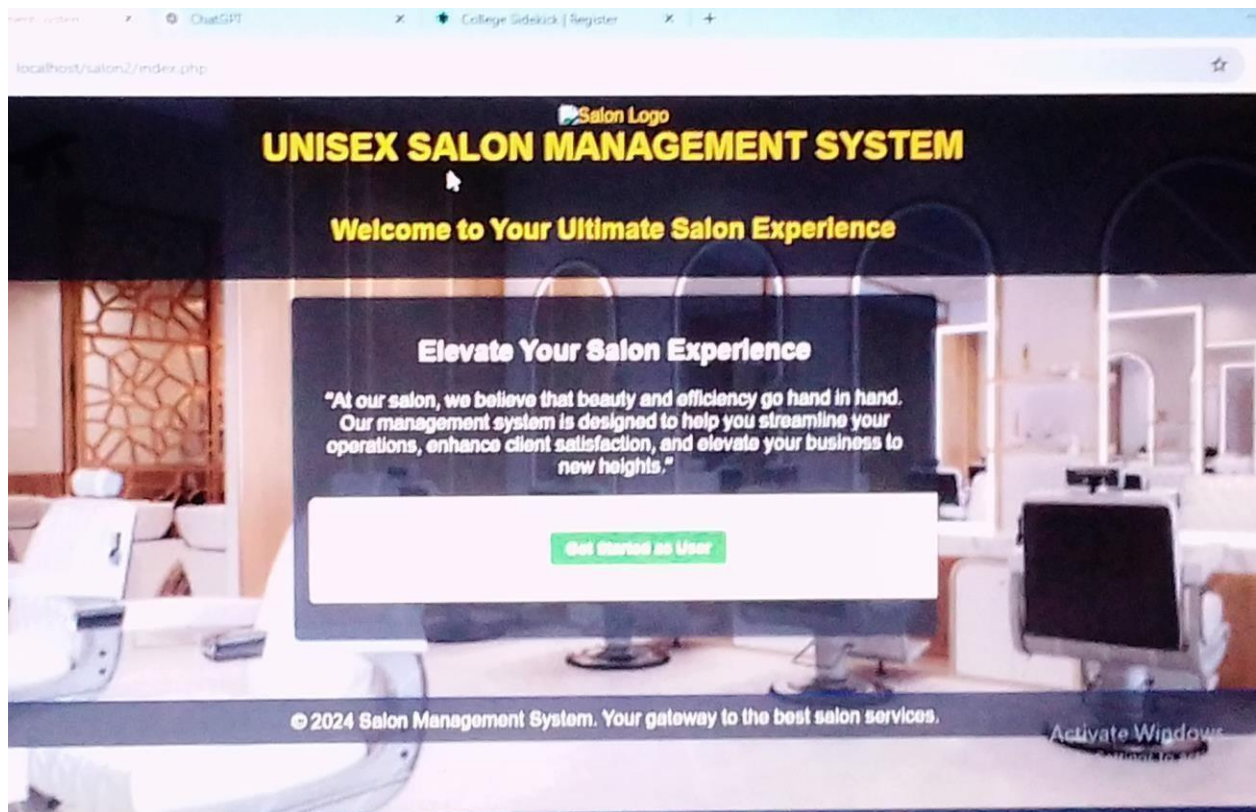


Figure 5. 1: System home page

### 5.3.2 Administrator's Login Page

Figure 5.3: Shows the administrator's login page where he or she selects the Admin option and fills in his or her password to login into the system.

This gives an administrator access to view the following: booking oversight, promotion management, user accounts, password setting and financial management, among others. Also in case of wrong username and password, the user will be denied access to the system.

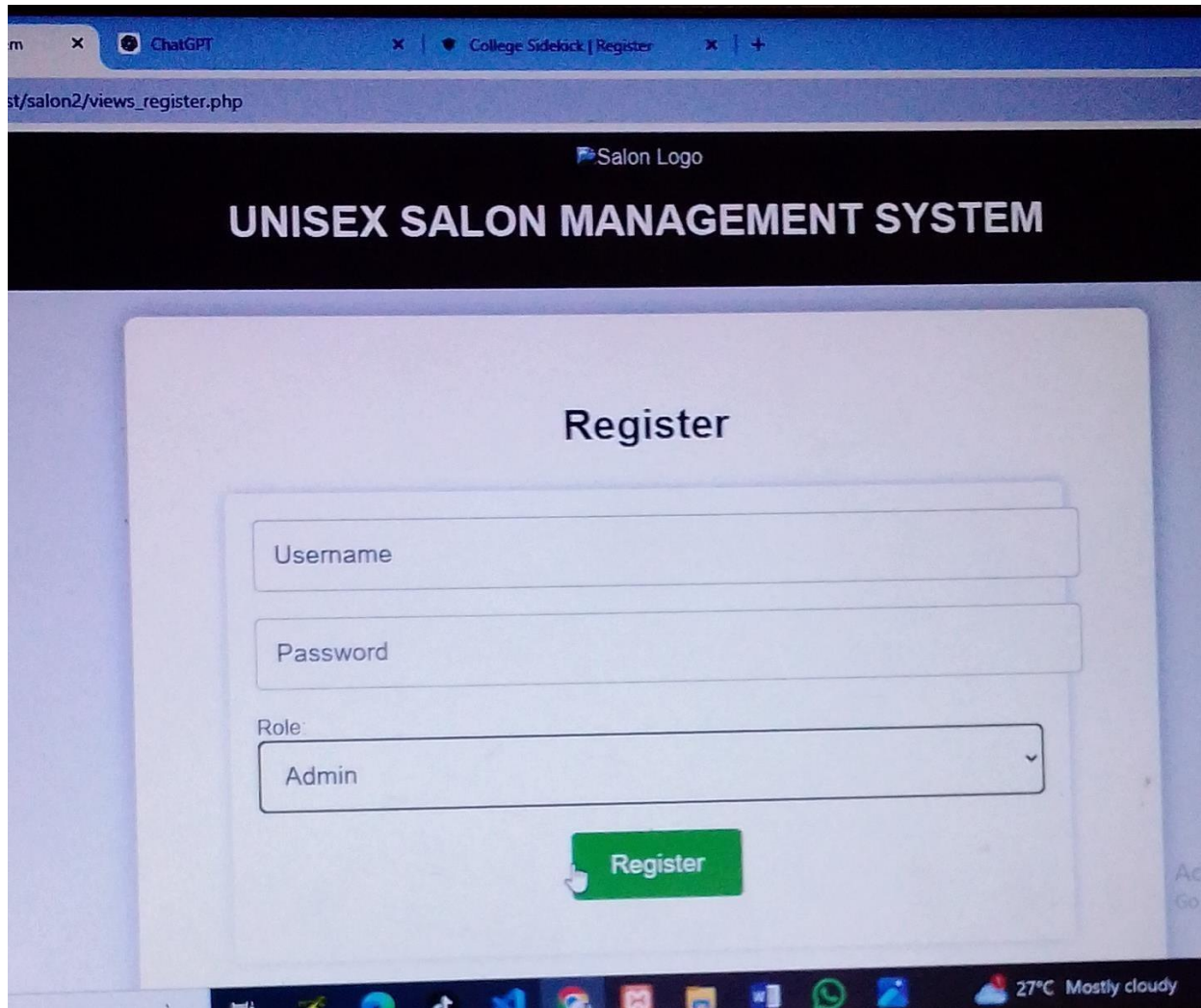


Figure 5. 2: Administrator login page

### Figure 5.3.3 Administrative view page

Figure 5.4: Shows the administrator fully logged in where he can perform all duties assigned to him. He can manage booking, manage promotions, view staff, view services, manage schedules and manages payments and transactions of the customers.

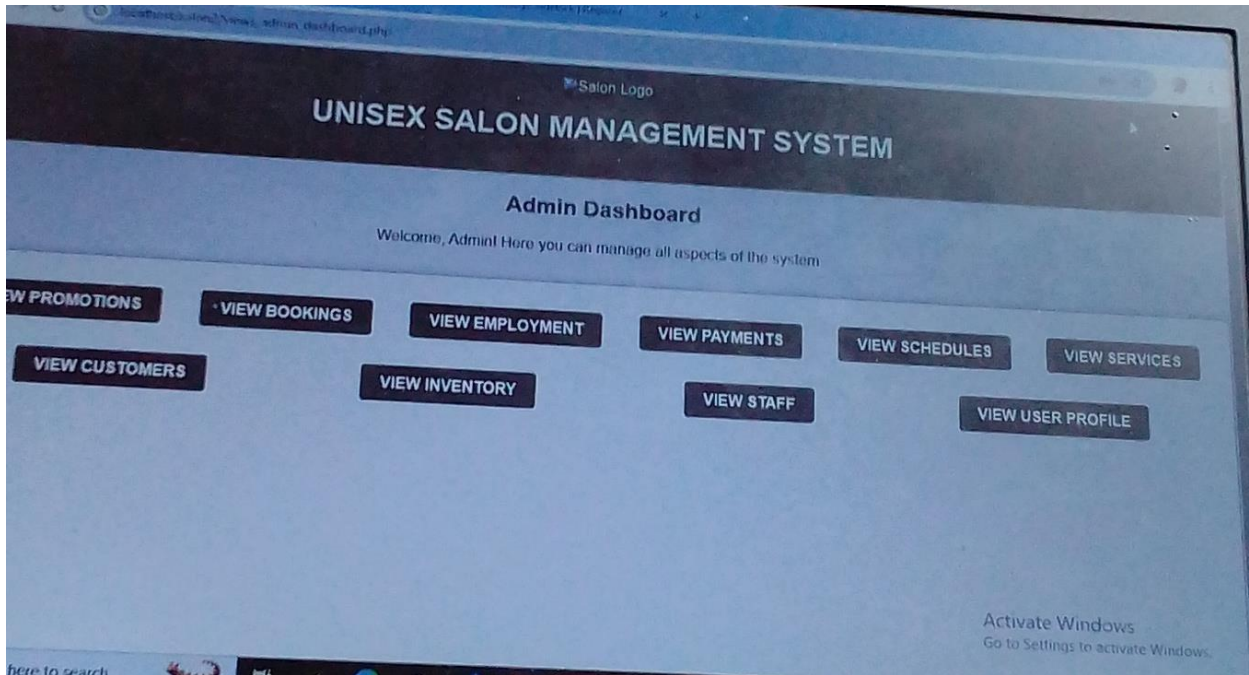


Figure 5.4: showing admin view page.

### Figure 5.3.4 Staff login page

Figure 5.5: Shows the staff's login page where he or she selects the staff option and fills in his or her password to login into the system. This gives staff access to view the following: booking oversight, view promotion, and view schedules, view employment among others. Also in case of wrong username and password, the user will be denied access to the system

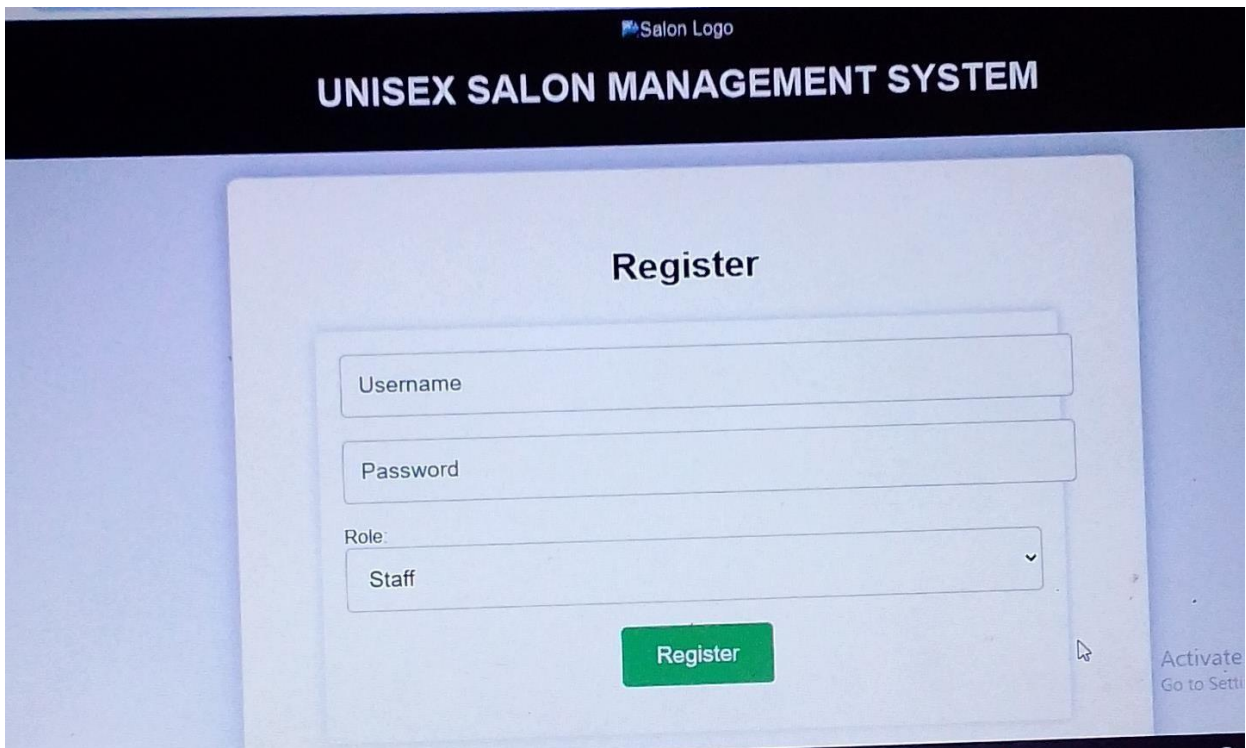


Figure 5.5: showing staff login page

### Figure 5.3.5: Staff view page

Figure 5.5: Shows the staff fully logged in where he can perform all duties assigned to him. He can view booking, view promotions, view staff, view services, view schedules and manages payments and transactions of the customers.

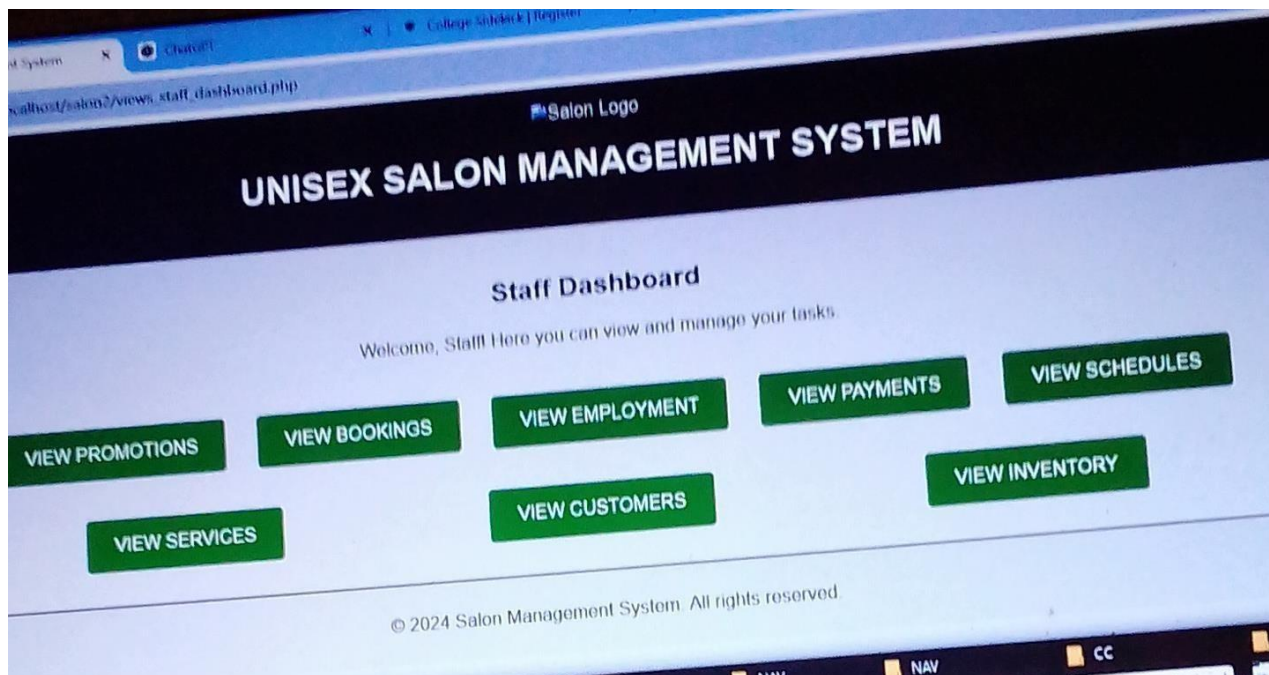


Figure 5.5: showing staff view page

### 5.3.6 : Booking Page

(Figure 5.6) is a central feature of the Salon Management System, enabling customers to schedule appointments for various services. This page allows users to select their desired service, choose a preferred time slot, and assign a specific staff member if needed. The streamlined booking process enhances customer convenience and ensures efficient scheduling within the salon.

Booking ID	Booking Date	Customer ID	Service ID	Payment ID	Check In	Check Out	Action
13	2024-08-05	4			2024-08-15 10:21:00	2024-08-15 10:21:00	Edit   Delete
14	2024-08-12	4	11	3	2024-08-15 17:10:00	2024-08-22 17:10:00	Edit   Delete
15	2024-08-13	3	18	3	2024-08-15 11:45:00	2024-08-10 11:45:00	Edit   Delete
20	2024-08-16	10	18	3	2024-08-30 14:23:00	2024-08-23 14:23:00	Edit   Delete
21	2024-08-16	11	20	2	2024-08-23 14:24:00	2024-08-24 14:24:00	Edit   Delete

© 2024 Salon Management System. All rights reserved.

Activate Windows  
Go to Settings to activate Windows.

Figure 5.6: showing Booking page

### 5.3.7 : Inventory records

(Figure 5.7) is a central feature of the Salon Management System, enabling customers to schedule appointments for various services. This page allows users to select their desired service, choose a preferred time slot, and assign a specific staff member if needed. The streamlined booking process enhances customer convenience and ensures efficient scheduling within the salon.

Item ID	Item Name	Quantity	Unit Price	Supplier	Created At	Actions
1	agnes	1	23324.00	yyy	2024-07-30 18:28:09	Edit   Delete
2	1	1	-0.02	dfgg	2024-07-31 11:02:12	Edit   Delete
3	brazila	7867	7788.00	hellen	2024-08-03 15:14:03	Edit   Delete
4	123	6	0.04	hellen	2024-08-05 10:51:18	Edit   Delete
5	bread	5	0.04	hellen	2024-08-13 09:58:21	Edit   Delete

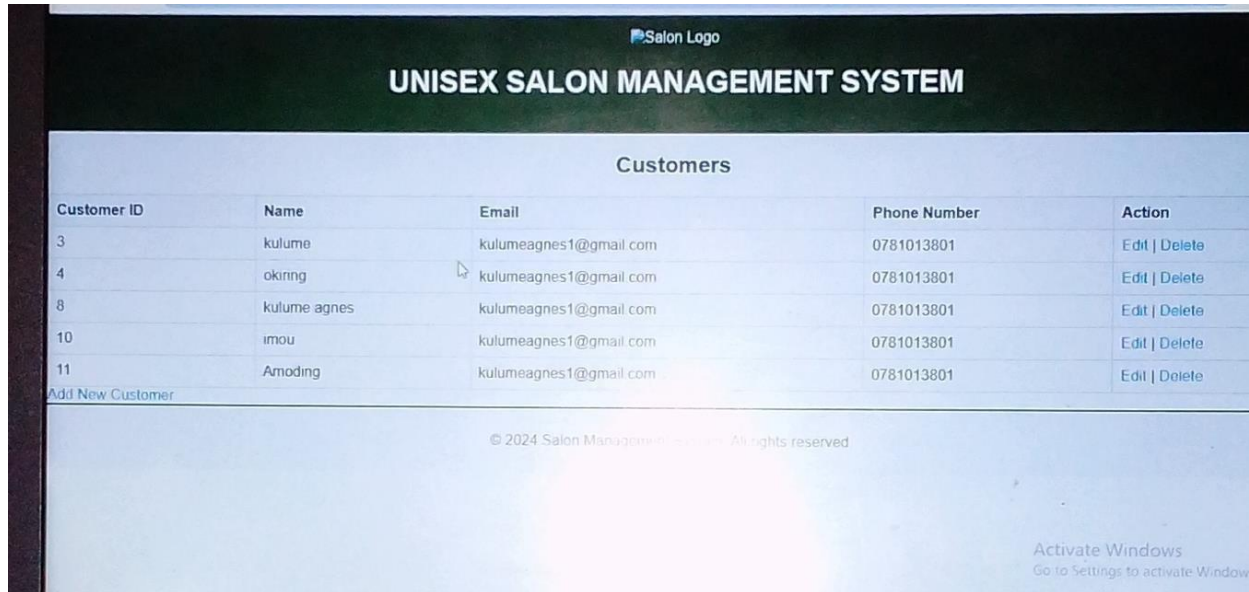
© 2024 Salon Management System. All rights reserved.

Activate Windows

Figure 5.7: showing inventory records.

### 5.3.8 Customer Details Page

(Figure 5.8) provides a comprehensive view of individual customer information, allowing salon staff to access and manage customer profiles, including personal details, service history, and preferences. This page is crucial for maintaining a personalized customer experience and efficient service delivery.



The screenshot displays the 'UNISEX SALON MANAGEMENT SYSTEM' interface. At the top, there is a 'Salon Logo' and the system title. Below this, a section titled 'Customers' contains a table with the following data:

Customer ID	Name	Email	Phone Number	Action
3	kulume	kulumeagnes1@gmail.com	0781013801	Edit   Delete
4	okirng	kulumeagnes1@gmail.com	0781013801	Edit   Delete
8	kulume agnes	kulumeagnes1@gmail.com	0781013801	Edit   Delete
10	imou	kulumeagnes1@gmail.com	0781013801	Edit   Delete
11	Amoding	kulumeagnes1@gmail.com	0781013801	Edit   Delete

Below the table, there is a link for 'Add New Customer'. At the bottom of the page, there is a copyright notice: '© 2024 Salon Management System. All rights reserved.' and a watermark for 'Activate Windows' with the instruction 'Go to Settings to activate Windows'.

Figure 5.8: showing customer details page.

### 5.3.9 Schedules Information Page

(Figure 5.9) is a key feature of the Salon Management System, dedicated to organizing and displaying the schedules of both staff and appointments. This page provides a comprehensive overview of daily, weekly, or monthly schedules, ensuring that salon management can efficiently allocate staff resources and manage customer appointments.

Schedule ID	Schedule Date	Start Time	End Time	Staff ID	Action
4	2024-08-23	11:57:00	11:57:00	2	Edit   Delete
5	2024-08-23	11:57:00	11:57:00	4	Edit   Delete
7	2024-08-23	19:19:00	19:19:00	2	Edit   Delete
8	2024-08-23	19:19:00	19:19:00	4	Edit   Delete
9	2024-08-16	19:19:00	19:19:00	4	Edit   Delete

© 2024 Salon Management System. All rights reserved.

Figure 5.9: showing schedules information page.

### 5.3.10 Service Information Page

(Figure 5.10) showcases the range of services offered by the salon. It includes detailed descriptions, pricing, and any special requirements for each service, enabling both staff and customers to easily access and understand the services available.

Service ID	Service Name	Price	Description	Actions
1	eeee	2.00	dfgh	Edit   Delete
2	bbbb	7899.00	fghjkl	Edit   Delete
3	bbbb	234.00	ghijkl	Edit   Delete
4	eeee	234.00	dvbnm,	Edit   Delete
5	eeee	234.00	dvbnm,	Edit   Delete
6	eeee	234.00	dvbnm,	Edit   Delete
9	eeee	234.00	dvbnm,	Edit   Delete
11	eeee	234.00	dvbnm,	Edit   Delete
13	eeee	234.00	dvbnm,	Edit   Delete
15	eeee	2.00	ghjk	Edit   Delete
18	brazila	300.00	ghjj	Edit   Delete
20	brazila	300.00	ghii	Edit   Delete

Figure 5:10: showing service information page.

## 5.4 System Testing and Validation Results

System testing and validation were carried out to identify and correct errors within the Salon Management System and to ensure that it met the defined user needs and requirements. This process involved presenting the system to users to gather feedback on its performance and compliance with their expectations.

### 5.4.1 System Testing Results

The Salon Management System was tested by users to uncover any faults and to verify its behavior against expected outcomes. The testing process involved:

**Error Identification and Correction:** Users tested the system to find errors, which were then corrected. This process was repeated until the system met the performance requirements.

**Data Validation:** The system's ability to capture valid data was tested by inputting incorrect data and observing the system's response through error messages. This ensured the system's robustness in handling erroneous inputs.

The system was successfully tested, and any identified issues were resolved, leading to a stable and reliable system.

### 5.4.2 Validation Results

Validation involved presenting the Salon Management System to different users to collect feedback on whether it met their needs and requirements. This process included:

**Checking Input and Output Data:** Ensuring the completeness and accuracy of the data, especially in the database, to confirm conformity with standards of similar systems.

**Further Validation Tests:** Verifying that the system met specified user requirements under defined operating conditions.

The table presented could be related to the feedback received from users regarding the system's usability and effectiveness in managing salon operations. Here's how the table might relate to the Salon Management System:

Feature	Number of users out of 5	Percentage of users
---------	--------------------------	---------------------

Learnability	4	80.0%
User-friendly	3	60.0%
Improves the booking process	3	60.0%
Solves the problem of appointment scheduling delays	4	80.0%

## 5.5 Conclusion

In summary, this chapter detailed the system functions provided to all users, including customers, staffs, managers, and administrators. Various screenshots illustrated these functions. The system underwent thorough testing and validation to identify errors and ensure it met specified user requirements. The results indicated that the system was effective, userfriendly, and capable of fulfilling its intended purposes, as confirmed by user feedback.

## **Chapter Six**

### **6.1 Summary**

The Salon Management System has successfully met its objectives by automating various aspects of salon operations. The system enables salon staff to manage appointments, handle customer records, process payments, and oversee staff schedules efficiently. Customers can book appointments online, view their booking history, and receive notifications about their appointments. The system enhances user experience by integrating features such as service management and promotional offers, making salon management more streamlined and effective. For security, each user is given a unique login credential, ensuring that sensitive information is protected. The system's administrative features allow for comprehensive oversight and control over salon operations.

#### 6.2 Recommendations

**Enhanced Features:** It is recommended to add more features to address the evolving needs of salon management. For instance, incorporating a customer feedback system could provide valuable insights into service quality.

**Integration with Other Systems:** Integrating the salon management system with other business tools such as accounting software could streamline financial tracking and reporting.

**User Training:** Offering training sessions for salon staff to fully utilize the system's capabilities will maximize its effectiveness and improve overall efficiency.

**Security Enhancements:** Continuous updates and improvements in security measures should be made to protect against potential vulnerabilities and ensure data privacy.

#### 6.3 Future Work

The system should be extended to include:

Customer Interaction Platform: Develop a feature that allows customers to interact with salon staff through an inbuilt chat or forum, facilitating better communication and service feedback.

ii. Advanced Analytics: Implement advanced analytics to provide insights into salon performance, such as tracking service popularity, customer retention rates, and revenue generation.

iii. Mobile App Integration: Develop a mobile application to provide customers with easier access to booking and managing appointments on the go.

#### 6.4 Conclusions

The Salon Management System has successfully achieved its objectives by providing a comprehensive solution for managing salon operations. The system's strengths lie in its ability to streamline appointment bookings, manage customer records, and handle staff scheduling efficiently. By automating these processes, the system not only enhances operational efficiency but also improves customer satisfaction. With ongoing improvements and the addition of new features, the system is wellpositioned to meet the future needs of salon management.

#### References

Leach, M. (2017). *Salon Management: A Complete Guide to Running a Successful Salon*. CreateSpace Independent Publishing Platform.

Provides an in-depth look at the various aspects of salon management including customer service, staff management, and business strategies.

Smith, J., & Brown, A. (2018). *Modern Salon Management: Tools and Techniques for Success*. Pearson Education.

Covers modern tools and techniques used in salon management, including software solutions and best practices.

Jones, L. (2019). *The Art of Salon Management: Essentials for Success*. Wiley.

Focuses on the essential skills and knowledge needed for effective salon management.

Brown, R. (2020). *Salon Software Solutions: Choosing the Right Tools for Your Business*. Routledge.

Discusses various salon software solutions and their features, helping salon owners select the right tools for their needs.

Peterson, M. (2021). *Salon Operations Management: Strategies for Success*. McGraw-Hill Education.

Provides strategies and insights into managing salon operations efficiently.

Williams, T. (2022). *Digital Tools for Salon Management: Leveraging Technology to Grow Your Business*. Springer.

Explores how digital tools and technologies can be used to enhance salon management and business growth.

Johnson, K. (2023). *Customer Relationship Management in Salons: Enhancing Client Experience*. Cambridge University Press.

Focuses on customer relationship management techniques specifically tailored for the salon industry.

Gordon, E. (2023). *Best Practices in Salon Management: Case Studies and Industry Insights*. Routledge.

Provides case studies and insights into best practices in salon management, including real-world examples.

Carter, P. (2024). *Effective Scheduling and Staffing in Salons: A Practical Guide*. Harvard Business Review Press.

Offers practical advice on scheduling and staffing for salons, ensuring optimal operation and customer satisfaction.

Appendices

Appendix I: Interview Schedule Sample Questions

What is your opinion on the current salon management system in your organization?

What is your highest academic qualification?

Do you have an efficient salon management and booking system in your organization?

What are the expected roles of the salon management system in your organization?

Does your organization set budgets for salon operations and marketing?

What are some of the difficulties you are facing with your current salon management system?

Is your system user-friendly?

What solutions do you think can work best in enhancing your current salon management system?

Does your system support data and information backups?

What are your expectations from the new salon management system?

How do you rate the system performance?

How do you rate the system reliability?

How do you rate the system simplicity?

How do you rate the system security?

## Appendix II: Questionnaires

Dear Respondent,

We are final-year BIT students from UCU conducting research on Salon Management Systems. The research is purely academic, and the information you provide will be treated with the highest level of confidentiality. Your assistance in answering these questions is highly appreciated.

Please put a tick ( ) in the spaces provided.

What is your position in the organization?

Top Management .....

Middle Management .....

Operational Management ..... Number

of years worked:

10 years and above.....

5-10 years .....

3-5 years .....

0-3 years ....

What is your highest education qualification?

Certificate .....

Diploma ..... Degree

.....

Masters .....

PhD .....

Do you have a salon management system?

No .....

Yes .....

Do you review your salon management system regularly?

No .....

Yes .....

Does your current system handle appointment scheduling?

No .....

Yes .....

Do you use your system to manage customer records?

No .....

Yes .....

What should the new system provide?

.....  
.....  
.....  
.....

How do you rate your system costs?

Very expensive.....

Expensive .....

Cheap .....

Very cheap.....

How user-friendly is your system?

Good .....

Very good .....

Fair .....

Very fair .....

**Appendix III: The System Validation Questionnaire Is**

the new salon management system easy to learn?

Yes .....

No .....

Does the new system improve the appointment booking process?

Agree .....

Disagree .....

Not sure .....

How would you rate the user-friendliness of the new salon management system?

Below 40% .....

50% ..... 60%

.....

Above 80% .....

Does the new system capture all necessary information from the customer?

Yes .....

No .....

Does the new system address issues such as appointment scheduling conflicts and delays?

Yes .....

No .....

Any other comments:

.....  
.....

.....  
.....  
.....

## **Appendix IV: Pseudo Code Pseudo Code for Appointment Booking**

Start;

Customer enters username and password;

If username or password is invalid, return an error message;

Else

    Return account details;

    Customer selects the desired service and appointment time;

    If the selected time is already booked, return an error message;

    Else

        Book the appointment;

        Send confirmation to the customer;

        Update the salon schedule;

## **Pseudo Code for Employee Management**

Start;

If employee enters username and password;

    If username or password is invalid, return an error message;

    Else

        Return employee dashboard;

        Employee enters customer details for booking;

        If customer has an existing account, proceed with the appointment booking;

        Else

            Register new customer;

End;