

GS Barbershop Service Management System

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Abstract

The GS Barbershop, located in Taman Cempaka Serom and operational since 2020, offers various grooming services such as haircuts, beard trims, and hair treatments, catering to men and children. However, the barbershop faces challenges with manual processes for appointment bookings, leading to long wait times, scheduling conflicts, and a lack of systematic customer management. These issues influence operational efficiency and affect customer satisfaction. This project aims to design, develop, and test a GS Barbershop Service Management System to streamline operations and enhance customer experience. The system will include modules for login and registration, appointment booking and management, barber availability, payments, reports, and service management, catering to key users such as administrators, barbers, and customers. The prototyping methodology is chosen as it enables the creation of an initial model for users to interact with before the final system is developed. The system will also improve transparency in appointment handling, reduce no-shows through email reminders, and enhance the barbershop's financial reliability via a deposit payment feature. Data analysis shows that the GS Barbershop Service Management System can improve appointment scheduling efficiency, reduce errors, and enhance communication between customers and staff. A significant finding is the need for an integrated system to ensure smooth operations and better customer experience. These findings indicate that a structured system can elevate barbershop operations and improve overall customer satisfaction. Future studies could focus on integrating advanced technologies like data analytics to provide insights into customer preferences and further enhance service delivery.

1. Introduction

The hair-cutting industry has grown significantly, catering to increasing demand for grooming services like haircuts, beard trims, and hairstyling. Barbershops, once confined to cities, now thrive in smaller towns, offering modern facilities and personalized services, such as memberships and discounts, to attract regular customers.

Technology has brought change the world of businesses, enabling them to adapt and remain competitive in a fast-paced market. The internet is a powerful tool, allows businesses to promote their services, manage transactions, and connect with customers effectively [1]. Accordingly, an online booking system can streamline operations and improve customer satisfaction by managing reservations efficiently, as it allows users to conveniently plan and secure their desired services in advance and reduce wait times [2].

GS Barbershop, located in Taman Cempaka Serom and operated by Shahmil Sahak, has been serving customers since 2020. It offers services like haircuts, beard trims, and hair treatments, charging RM15 for adults and RM10 for children, with additional fees for premium services. The barbershop operates daily, except Fridays, from 10:30 AM to 6:00 PM, with peak times during weekends, Eid, and school holidays. However, the current manual system for bookings, payments, and reporting causes long queues and operational inefficiencies, affecting customer satisfaction.

To address these challenges, this research develops a service management system to streamline bookings, transactions, and customer records. This system will reduce waiting times, improve service quality, and support barbershop operations, especially during busy periods like holidays. By offering an accessible booking platform, this system will enhance the overall customer experience and optimize barbershop management [3].

This paper is organized into 5 sections. The first section introduces the project background. The second section gives a review of related work to the study. Project methodology and findings from analysis and design are explained in section three. Section 4 demonstrates the results and its discussion. Section five ends the paper with a conclusion.

2. Literature Review

This section reviews the literature and technologies relevant to developing the GS Barbershop Service Management System. It begins with a case study of GS Barbershop, outlining its current manual appointment scheduling and data management challenges. It then explores key technologies, such as web-based platforms and customer data management, explaining their suitability for the project. A comparison of three existing appointment management systems follows, evaluating their features, strengths, and limitations. Finally, the chapter compares the proposed system with these existing solutions, highlighting improvements and key features that address current challenges.

2.1 GS Barbershop Service Management System

Barbershop service management systems are commonly used to streamline daily operations such as appointment booking, staff scheduling, customer data management, and sales tracking. Existing systems like Ojisan Barber & Salon, Nimroc Barbershop, and Fresha provide a range of features, from simple booking tools to advanced analytics and customer engagement modules. However, these platforms are often designed for large-scale businesses and may include complex functions or subscription costs that are not suitable for smaller operations.

In response to this, the GS Barbershop Service Management System is developed as a tailored, web-based solution specifically for small to medium-sized barbershops like GS Barbershop in Taman Cempaka Serom. It focuses on essential features such as online booking, barber availability tracking, and report generation, with a user-friendly interface for both staff and customers. Although it does not include advanced features like AI or automation, it meets the barbershop's core operational needs in a cost-effective manner. This system is inspired by and simplifies the functionality seen in more complex systems, offering a practical and affordable alternative.

2.2 Study of Existing Related Systems

There are three existing barbershop management systems analyzed: Ojisan Barber & Salon, Nimroc Barbershop, and Fresha. Ojisan Barber & Salon is a web application that offers features such as online booking, service selection, and barber preference management. However, it lacks advanced functionalities like payments and barber availability tracking. Nimroc Barbershop provides features such as appointment booking, service customization, and customer preferences management. While it allows flexibility, it does not include email reminders or report generation. Fresha stands out by offering online booking, payment processing, customer databases, and deposit payments to reduce no-shows. However, it does not manage barber availability directly, which can create scheduling challenges.

The existing systems cater to different needs in barbershop management. Some are comprehensive but lack key functionalities, while others are simple but do not address advanced operational requirements. The proposed GS Barbershop Service Management System aims to combine the best features of these systems while overcoming their limitations. It will include modules such as login and registration, online booking, barber availability management, payments, and report generation. This system is designed to be user-friendly, efficient, and suitable for small to medium-sized barbershop operations. Table 1 summarizes the findings of the system's comparison.

Table 1: System Comparison

System	Ojisan Barber & Salon [4]	Nimroc [5]	Fresha [6]	GS Barbershop Service Management System
Log in and registration	√	√	√	√
Manage Services	√	√	√	√
Appointment Booking and Management	√	√	√	√
Barber Availability Management	X	√	X	√
Payment	X	√	√	√
Report Generation	X	X	√	√

3. Methodology

The development model chosen for this project is the Prototyping Model, a system development methodology that focuses on creating and refining prototypes through iterative feedback and improvement [7]. This approach ensures that the final system aligns closely with user needs and expectations. The Prototyping Model is particularly effective for projects like the GS Barbershop Service Management System, where user-facing interfaces and functionality are critical. There are a total of seven phases in the Prototyping Model, as shown in Table 2. Each phase has its specific tasks and outputs that need to be produced throughout the project development. Additionally, these outputs are planned to be completed within the designated timeframe to ensure systematic progress and timely completion of project milestones.

Table 2: GS Barbershop Service Management System Development Activities and Their task

Phase	Task	Output
Planning	<ul style="list-style-type: none"> Proposed the project Determine the project schedule, activities and output 	<ul style="list-style-type: none"> Project proposal Gantt chart
Analysis	<ul style="list-style-type: none"> Analyse existing system procedure Determine project's scope and objective Conduct requirement analysis session with stakeholder 	<ul style="list-style-type: none"> Data Flow Diagram (DFD) Entity Relationship Entity Relationship Diagram (ERD) Flowchart
Design	<ul style="list-style-type: none"> Design system architecture Design user interface Navigation structure and system flow Plan database design 	<ul style="list-style-type: none"> System architecture Database schema Data dictionary UI Design
Prototyping	<ul style="list-style-type: none"> Develop an initial prototype Implement core features Develop basic UI and functionalities 	<ul style="list-style-type: none"> Initial prototype
User Evaluation	<ul style="list-style-type: none"> Gather feedback from users Conduct usability testing Identify areas for improvement based on user feedback 	<ul style="list-style-type: none"> Evaluation report User feedback
Refined Prototype	<ul style="list-style-type: none"> Integrate user feedback Refine system features and interface Conduct internal testing for improvements 	<ul style="list-style-type: none"> Updated prototype
Final Implementation	<ul style="list-style-type: none"> Deploy final version Conduct system-wide testing Ensure all modules function as expected 	<ul style="list-style-type: none"> Finalized system Report

3.1 System Requirements

The system requirements for the GS Barbershop Service Management System are categorized into functional and non-functional requirements. Functional requirements specify the behaviours the product will exhibit under specific conditions. They describe what the developers must implement to enable users to accomplish their tasks (user requirements), thereby satisfying the business requirements. Non-functional requirements address the environment in which the system operates, such as platform, portability, compatibility, constraints, performance, security, and usability aspects that ensure the system operates effectively [8]. Table 3 shows the functional requirements and table 4 shows the non-functional requirements.

Table 3: *Functional requirements.*

No	Module	Description
1	Login and Registration Module	<ul style="list-style-type: none"> Allow the new users to register new account before login. Allow the existing users to login with the username and password. Redirect the authorized users to the dashboard upon successful login.
2	Manage Services Module	<ul style="list-style-type: none"> Allow the barbershop staff to add services offered. Allow the barbershop staff to edit services offered. Allow the barbershop staff to remove services offered. Enables users to view service details and pricing
3	Appointment Booking and Management module	<ul style="list-style-type: none"> Allow customers to book available time slots with their preferred barber Notify customers of their appointment via email reminders. Allow staff to update appointment schedules
4	Barber Availability Management Module	<ul style="list-style-type: none"> Allow barbers to update their working hours. Allow the barbershop staff to manage barber schedules and block specific time slots.
5	Payment Module	<ul style="list-style-type: none"> Enable customers to make payments during the booking process. Notify customers about the cancellation policy. Allow barbershop staff to track payments associated with bookings.
6	Report Generation Module	<ul style="list-style-type: none"> Generate reports on total appointments, completed and cancelled bookings. Provide admin with financial reports, total revenue and service trends

Table 4: *Non-functional requirements.*

No	Requirement	Description
1	Performance	<ul style="list-style-type: none"> The system should always be usable, ensuring minimal downtime and smooth operation during peak hours.
2	Operational	<ul style="list-style-type: none"> The website's loading time should not exceed 1 minute to maintain efficiency and provide a seamless experience. The system should be user-friendly, ensuring that users can securely access and navigate without technical challenges. The system should maintain 99% uptime to provide uninterrupted service for customers and staff.
3	Security	<ul style="list-style-type: none"> Data privacy should be ensured through encrypted login credentials and secure payment methods. The password must be at least eight characters long and include a combination of letters and numbers.
4	Compatibility	<ul style="list-style-type: none"> The system must be compatible with various devices, including desktops, tablets, and smartphones.

3.2 System Analysis

The system analysis stage involves understanding the users' requirements and the current manual processes to identify areas for improvement in the GS Barbershop Service Management System. This stage included discussions and observations of the barbershop's operations, focusing on appointment scheduling, payment handling, and customer management. Based on these observations, user needs were documented, and improvement areas were identified.

3.2.1 Context Diagram

The proposed GS Barbershop Service Management System involves three main users that is Customer, Barber (Staff), and Manager (Admin). The interaction between these users and the system is structured to ensure efficient operation and seamless service delivery. Information and data exchanged between the users and the system are shown in Fig. 1.

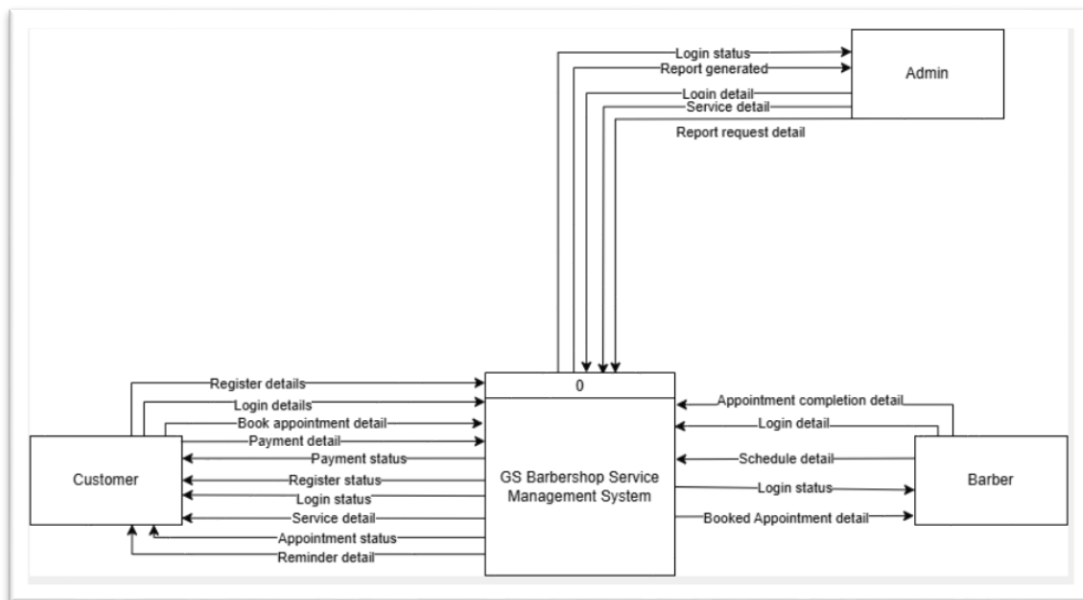


Fig. 1 Context Diagram

3.2.2 Data Flow Diagram

The proposed GS Barbershop Service Management System consists of six functional modules: User Login and Registration, Service Management, Appointment Booking and Management, Barber Availability Management, Payment Processing, and Report Generation. These modules work together to provide a comprehensive solution for managing barbershop operations efficiently. The system utilizes seven databases to store and manage the data generated by these modules. These databases include the Admin Data Store, Barber Data Store, Customer Data Store, Service Data Store, Appointment Data Store, and Payment Data Store. Each database is designed to ensure secure and efficient storage of information relevant to its module, such as user credentials, service details, appointment schedules, and payments. The flow of data between the modules and the databases is shown in Fig. 2, which illustrates how the system processes and manages information to support barbershop operations. This structured approach ensures that data is handled securely and effectively, aligning with the operational requirements of GS Barbershop.

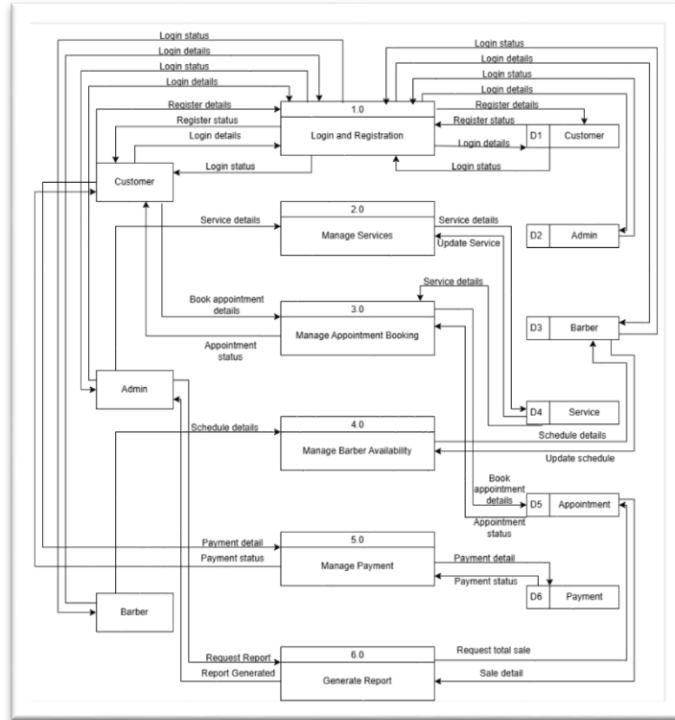


Fig. 2 Data Flow Diagram

3.2.3 Entity Relationship Diagram

An Entity Relationship Diagram (ERD) visually represents the relationships between different entities in a system. ERDs are essential for database design, as they help model the database structure and ensure data integrity. Fig. 3 displays the ERD for the developed system, showcasing the relationships and cardinalities among the identified entities.

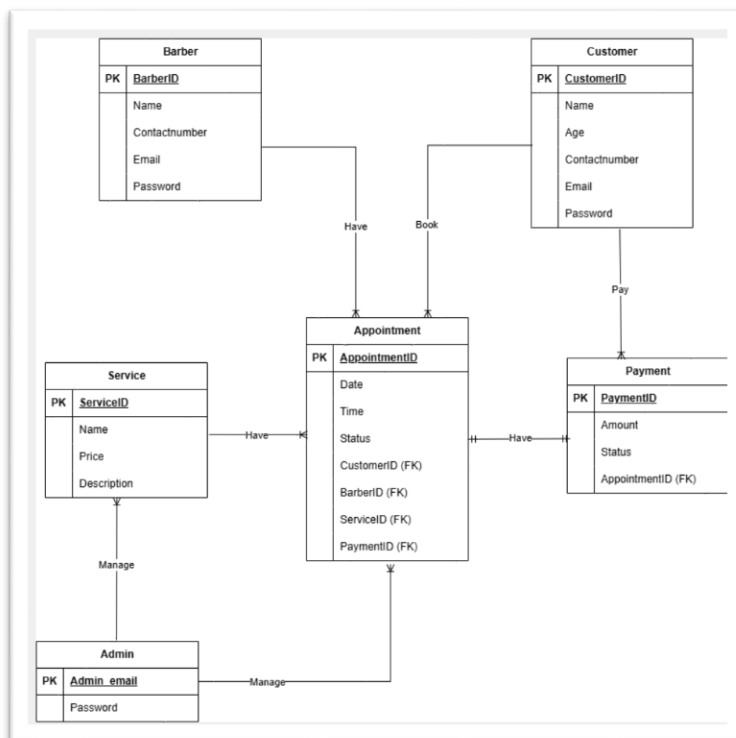


Fig. 3 Entity Relationship Diagram

3.2.4 Flowchart

A flowchart is a diagram that shows the steps in a process, used to visualize, analyze, and communicate workflows effectively. Flowcharts serve as a pictorial means of communicating from one person to another the time-ordering of events or actions. The flowchart is shown in the appendix B

3.3 System Design

The system design phase focuses on defining the architecture, database structure, and user interface (UI) of the GS Barbershop Service Management System. This phase ensures that the system is well-structured, efficient, and user-friendly.

3.3.1 System Architecture

The system adopts a three-tier architecture comprising the presentation layer (web-based user interface for Customers, Barbers, and Managers), the application layer (handling business logic such as booking, payments, and report generation), and the data layer (storing and managing data for key entities like Customers, Barbers, Services, Appointments, and Payments). Fig. 4 show the system architecture diagram.

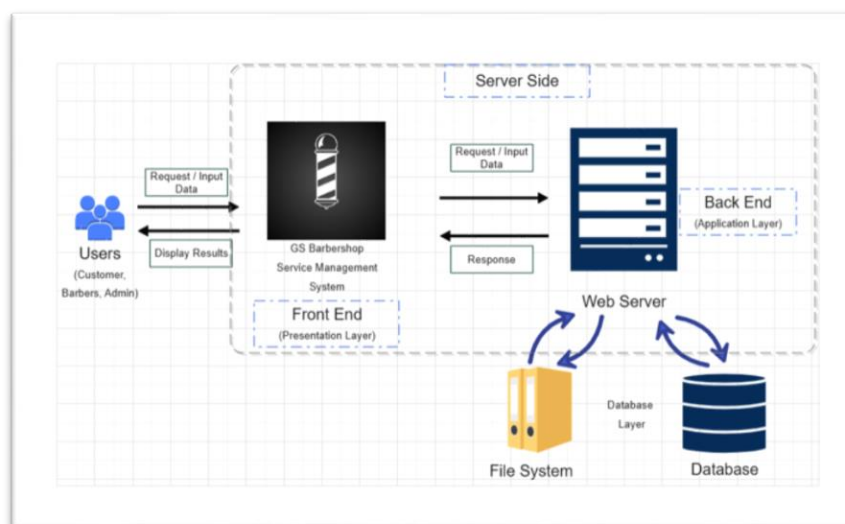


Fig. 4 System Architecture Diagram

3.3.2 Database Design

The data dictionary and schema table are provided in this section to show the database design of the proposed system.

- I. web_user (email, user_type)
- II. admin (admin_email, admin_password)
- III. customers (customer_id, customer_name, customer_email, customer_password, customer_phone, customer_age)
- IV. barbers (barber_id, barber_name, barber_email, barber_password, barber_phone)
- V. services (service_id, service_name, service_price)
- VI. appointments (appointment_id, customer_id, barber_id, service_id, appointment_date, appointment_time, status)
- VII. payments (payment_id, appointment_id, amount, payment_date, payment_status)

3.3.3 Interface Design

This section will indicate the user interface design of the proposed system. The user interface designs will show the layout of the system interface that users will interact with, including a login page for all users, a customer dashboard, a barber schedule management page to view and update availability, and an admin panel for monitoring bookings, managing services, and viewing reports. These design elements ensure the system meets the operational and usability requirements of GS Barbershop.



Fig. 5(a) Login Interface Design



Fig. 5(b) Register Interface Design

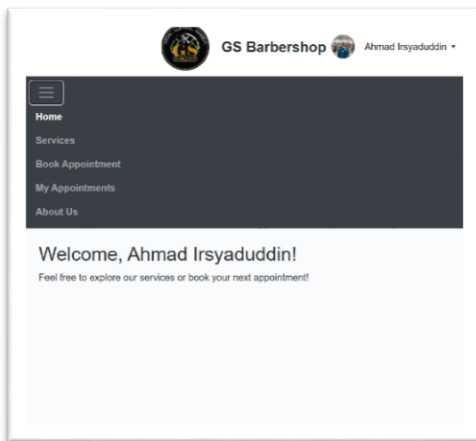


Fig. 5(c) Customer Home Interface Design

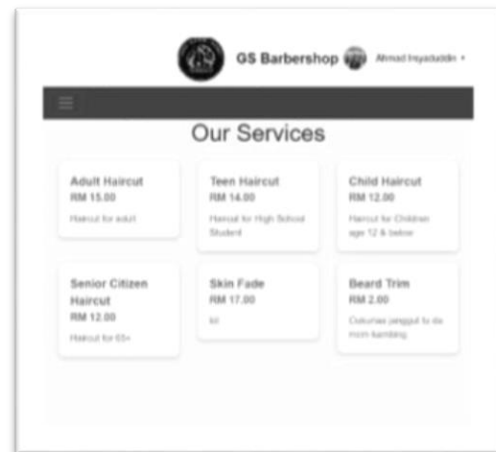


Fig. 5(d) Service Interface Design

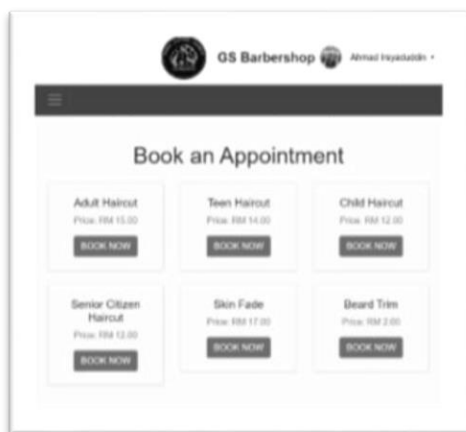


Fig. 5(e) Booking Interface Design



Fig. 5(f) Profile Interface Design

4. Implementation

The GS Barbershop Service Management System was developed as a web-based application using PHP and MySQL, guided by the Prototyping Model to ensure iterative feedback and alignment with end-user requirements. The system incorporates essential modules including login and registration, appointment booking and management, barber availability management, payment processing, and report generation. Each module is designed to cater to

key users which are the administrators, barbers, and customers by providing secure, real-time access to features and data.

Critical functionalities such as dynamic time slot booking, email reminders, secure Stripe-based payment integration, and comprehensive reporting contribute to a streamlined user experience and improved operational efficiency. The back-end implementation uses MySQL to ensure structured and reliable data management, while the front-end is built using HTML, CSS, and JavaScript to deliver a responsive and intuitive interface across devices. The system reduces manual errors, enhances service transparency, and supports better decision-making by enabling digital management of barbershop operations. As a result, it significantly improves both staff productivity and customer satisfaction.

4.1 System Implementation

The system implementation phase involves constructing all functional modules of the GS Barbershop Service Management System. The development utilizes a combination of web technologies, including HTML, CSS, JavaScript, and PHP, to code both the user interface and back-end functionalities. For local server hosting and database management, XAMPP is employed, providing an integrated stack of Apache server and MySQL database components.

The development process is conducted using Microsoft Visual Studio Code as the integrated development environment (IDE), enabling efficient code editing, debugging, and real-time testing. This implementation approach ensures that the system remains lightweight, easy to maintain, and adaptable to future enhancements. Through rigorous testing and refinement, the developed system achieves its goal of digitizing and optimizing the key operational processes of GS Barbershop.

4.1.1 Login & Registration

Fig. 6(a) shows the login page of the GS Barbershop Service Management System, where all users including customers, barbers, and administrator must enter their email and password to access the system. The interface is designed to be simple and user-friendly, with clearly labeled input fields and a “Log In” button. A “Sign Up Now” link is also provided for new users who need to register. Fig. 6(b) displays the registration page, where users can create an account by entering their full name, email, password, confirm password, and phone number. The registration form is straightforward and well-structured, allowing users to register quickly and securely. After successful login, users are directed to their respective dashboards based on their roles in the system.

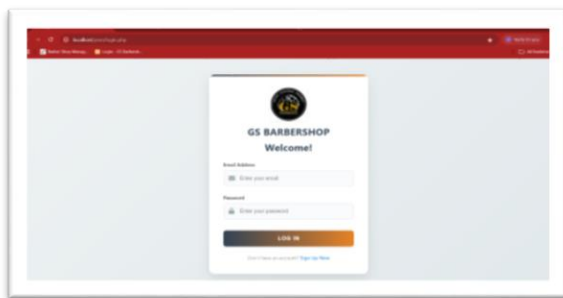


Fig. 6(a) Login User Interface

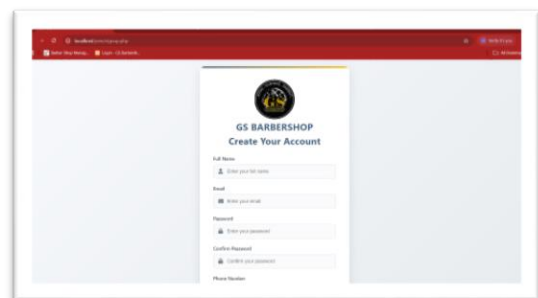


Fig. 6(b) Registration User Interface

4.1.2 Manage Services

Fig. 6(c) shows the Manage Services interface of the GS Barbershop Service Management System, where administrators can add, edit, or delete available services such as haircuts for adults, children, or senior citizens. Each service listing displays the name, price, and estimated duration, along with toggle switches for availability and action buttons for editing or deletion. Fig. 6(d) displays the service detail view with a dropdown that expands individual services to show detailed descriptions and associated haircut styles. Admins can manage styles by adding or removing them under each main service category, making it easy to customize offerings and keep service options up to date.

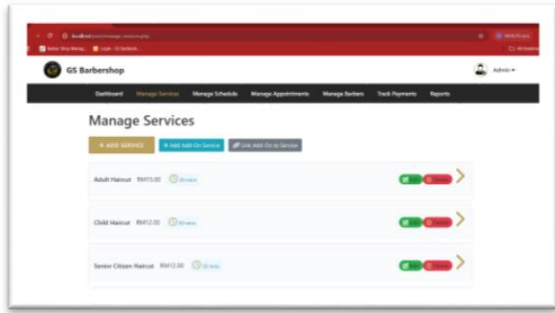


Fig. 6(c) Manage Service User Interface

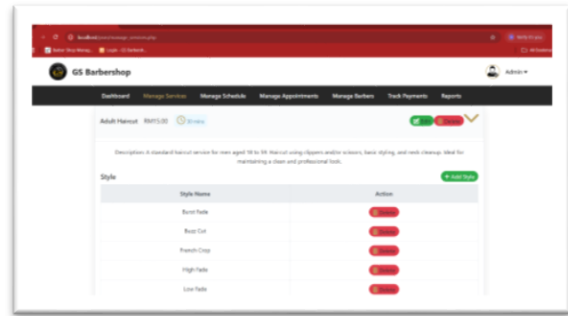


Fig. 6(d) Service Dropdown User Interface

4.1.3 Appointment Booking and Management

Fig. 6(e) and Fig. 6(f) show the appointment booking interface of the GS Barbershop Service Management System. In Fig. 6(e), users can view available haircut services such as Adult Haircut, Senior Citizen Haircut, and Child Haircut each of which has a brief description and pricing, alongside a “Book Now” button. After selecting a service, as shown in Fig. 6(f), the user proceeds to the booking form where they can choose their preferred barber, date, available time slot, and desired haircut style. On the right, the system displays a service summary including the base price, total price, and estimated duration. This module streamlines the booking process and ensures users have a clear, guided path to completing their appointment.

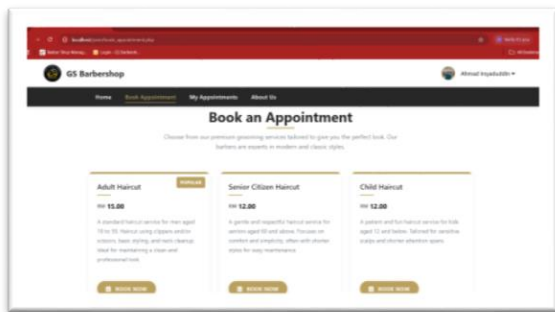


Fig. 6(e) Service Detail User Interface

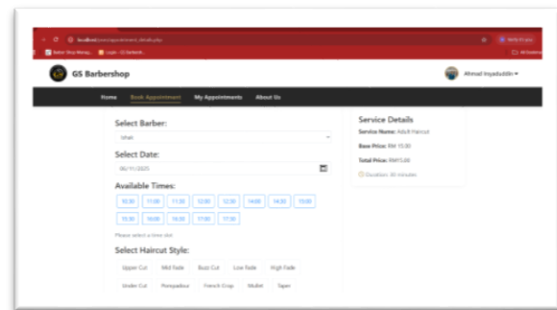


Fig. 6(f) Appointment Time Slot User Interface

Fig. 6(g) displays the "My Appointments" page of the GS Barbershop Service Management System, where users can view and manage their upcoming, past, and cancelled appointments. Each appointment entry shows essential details such as the selected service, date, time, and assigned barber. Users are provided with action buttons to view more details or cancel the appointment if needed. This interface helps users keep track of their bookings efficiently and ensures better planning and communication between the customer and the barbershop.

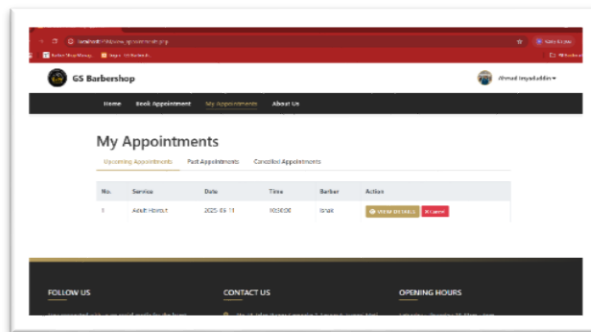


Fig. 6(g) Customer View Appointment User Interface

Fig. 6(h) shows the "Manage Booked Appointments" page designed for administrators, where all upcoming appointments are listed with complete details including customer name, barber name, service, style, add-ons, date, time, and booking status. Admins can filter by date or customer name, update appointment status, and send reminders to customers using the “Send Today’s Reminder” button. In contrast, Fig. 6(i) displays the "My Appointments" page for barbers, providing them with a focused view of only their assigned appointments. Barbers

can view customer names, scheduled services, dates, and times, and update the status of each appointment (e.g., Confirmed, Completed) to ensure smooth tracking of their daily schedules. Both interfaces play key roles in maintaining organized, role-based appointment management within the system.

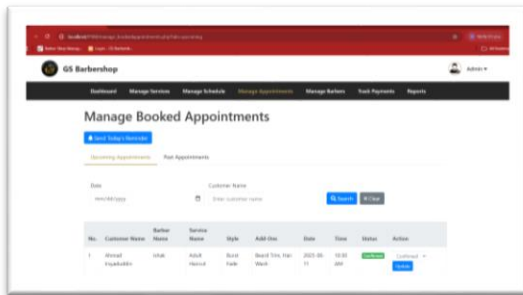


Fig. 6(h) Admin View Appointment User Interface

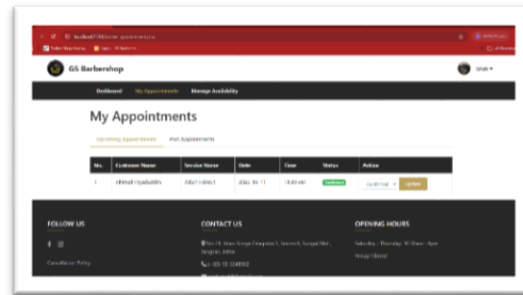


Fig. 6(i) Barber View Appointment User Interface

4.1.4 Barber Availability Management

Fig. 6(j) illustrates the "Manage Availability" page for barbers in the GS Barbershop Service Management System. This interface allows barbers to manage their working schedules by viewing, updating, or removing available time slots. At the top, a "Take Day Off" feature lets barbers select a date to block off entirely, preventing any bookings for that day. Below, the table lists all upcoming time slots, including the service name, date, time, booking status, and a delete option for available slots. This feature helps barbers efficiently manage their working hours while giving them flexibility to adjust availability based on personal or operational needs.

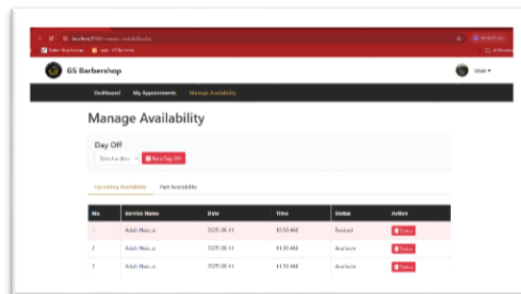


Fig. 6(j) Manage Availability User Interface

4.1.5 Payment

Fig. 6(k) and Fig. 6(l) show the payment process in the GS Barbershop Service Management System. Fig. 6(k) presents the checkout page, which summarizes the customer's appointment details, including the selected service, barber, date, time, and any additional services such as hair wash or beard trim, with a clear breakdown of total charges. Upon confirming the appointment, users are redirected to the Stripe payment gateway as shown in Fig. 6(l), where they can securely enter their card information and complete the transaction. Stripe ensures a safe and smooth payment experience, supporting various card types and one-click checkout options. This payment integration enhances the reliability of the system while providing convenience and transparency for both customers and barbershop staff.

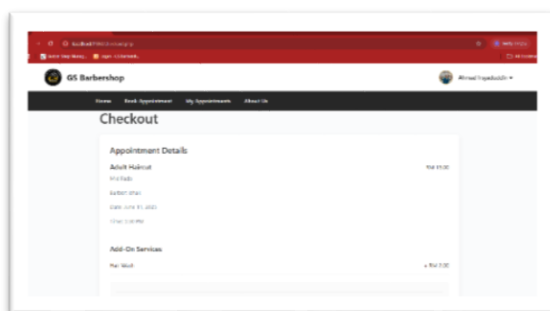


Fig. 6(k) Checkout User Interface

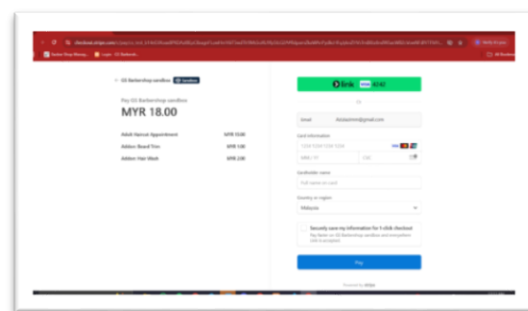


Fig. 6(l) Stripe Payment User Interface

Fig. 6(m) shows the "Track Payments" interface in the GS Barbershop Service Management System, accessible to administrators. This page allows admins to monitor payment records associated with confirmed and cancelled appointments. At the top, summary cards display the total number of paid and refunded transactions. Below, a searchable table presents detailed payment information including the customer's name, service booked, date of service, total amount paid, payment date, payment status, and current booking status. Admins can filter records by date, customer name, or payment status to efficiently manage financial tracking and ensure accurate reporting.

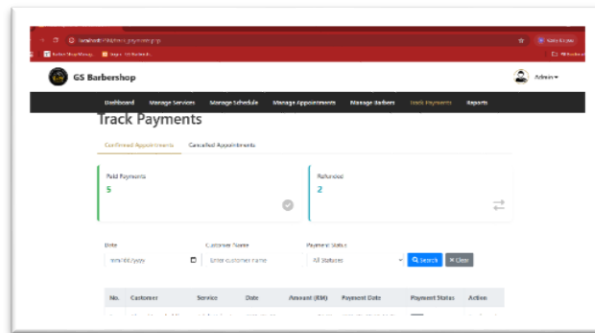


Fig. 6(m) Track Payment User Interface

4.1.6 Report Generation

Fig. 6(n) displays the "Reports" page in the GS Barbershop Service Management System, which is accessible to administrators for analyzing business performance over a selected time period. The interface allows users to filter reports by date range and generate summaries that include total appointments, completed services, cancellations, and total revenue. A "Service Trend" section provides insight into popular services and styles, while an "Export to PDF" feature enables admins to download reports for documentation or review purposes. This module supports informed decision-making by giving a clear overview of operational and financial performance.

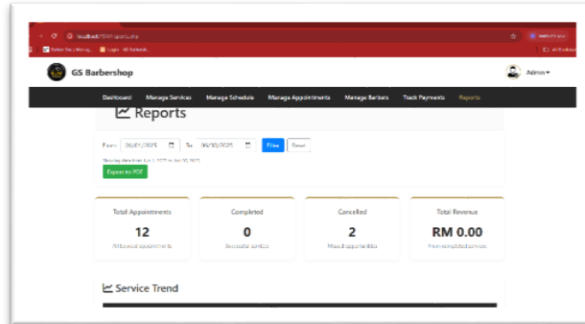


Fig. 6(n) Report User Interface

4.2 System Testing

System testing is a critical phase in the software development lifecycle that ensures the entire GS Barbershop Service Management System operates as intended. It involves testing the fully integrated system to verify that all components work together correctly and meet the specified functional and non-functional requirements. This testing phase focuses on the overall functionality, performance, and reliability of the system in real-world conditions. By thoroughly evaluating each part of the system, this process ensures that the platform is stable, efficient, and ready for deployment to actual users. System testing also contributes to higher product quality and user satisfaction by minimizing defects and confirming that all modules interact as expected.

4.3 System Functionality Testing

Functional testing was conducted to evaluate the GS Barbershop Service Management System against its documented functional requirements. Each module including login and registration, service management, appointment booking, barber availability, payment processing, and report generation was tested by inputting sample values, observing system responses, and comparing the actual results with expected outputs. This process verified that each feature performs correctly under typical usage scenarios. For example, test cases confirmed that users could register and log in with valid credentials, that appointments could not be double-booked, and that

payments were processed securely via Stripe. These functional tests validated that the system aligns with its intended design and meets user expectations.

Table 5: Test Case for Account Registration and Login Module

Module: Account Registration and Login				
Test Case ID	Description	Expected Result	Actual	Result
M1-1	To check whether administrator can register for an account	The user should be able to create for an account	The user has successfully created for an account	Pass
M1-2	To check whether a administrator can login into the system	The user should be able to login into the system	The user has successfully logged into the system	Pass
M1-3	To check whether the system will restrict login whenever a wrong credential is entered	The system should restrict login when incorrect credentials has been entered	The system restricted the login when an incorrect or no credentials has been entered	Pass

Table 6: Test Case for Manage Services Module

Module: Manage Services				
Test Case ID	Description	Expected Result	Actual	Result
M2-1	Add a new service	Service should be added successfully and appear in the list	Service successfully added and listed	Pass
M2-2	Edit existing service details	Changes should be updated and reflected in the system	Service details updated correctly	Pass
M2-3	Delete a service	Service should be removed from the list	Service successfully removed	Pass

Table 7: Test Case for Appointment Booking and Management Module

Module: Appointment Booking				
Test Case ID	Description	Expected Result	Actual	Result
M3-1	Book an appointment with a barber	Appointment is saved and confirmation displayed	Appointment booked and confirmed	Pass
M3-2	Attempt to book the same slot twice	System should prevent double booking	System blocked duplicate booking	Pass
M3-3	View upcoming appointments	All user appointments should be listed	Appointments displayed correctly	Pass

Table 8: Test Case for Barber Availability Management Module

Module: Availability Management				
Test Case ID	Description	Expected Result	Actual	Result
M4-1	Barber marks a day off	Availability for selected date is removed	Time slots successfully deleted	Pass
M4-2	Notification sent on deletion	Customers with bookings are notified via email	Email sent via PHPMailer	Pass
M4-3	View barber availability	All active availability is listed correctly	Barber schedule shown accurately	Pass

Table 9: Test Case for Payment Module

Module: Payment				
Test Case ID	Description	Expected Result	Actual	Result
M5-1	Complete payment via Stripe	Redirect to Stripe and process payment successfully	Payment completed and redirected to success page	Pass
M5-2	Cancel payment midway	Redirect to cancellation page	User redirected to cancel page	Pass
M5-3	Record transaction data	Payment data is saved for reference	Transaction stored in session and database	Pass

Table 10: Test Case for Report Generation Module

Module: Report Generation				
Test Case ID	Description	Expected Result	Actual	Result
M6-1	Generate report for specific date range	Report displays correct statistics	Report generated accurately	Pass
M6-2	Export report as PDF	PDF file is downloaded	PDF exported successfully	Pass
M6-3	Reset filter	Clears previous data and resets form	Filter reset properly	Pass

4.4 User Acceptance Testing

This section outlines the results of the User Acceptance Testing (UAT) conducted for the GS Barbershop Service Management System. The testing involved a total of 15 participants who completed an online questionnaire designed to assess the system across several critical areas, including functionality, ease of use, interface design, and overall system performance. The goal of this UAT was to determine whether the system meets the practical needs of its users and successfully resolves the operational challenges previously faced by GS Barbershop.

The feedback received indicated a high level of user satisfaction. Most users found the system intuitive and user-friendly, particularly praising the booking process, service visibility, and secure payment integration. Additionally, all participants confirmed that they were able to navigate the system without difficulty and experienced no significant technical issues. These findings confirm that the system meets user expectations and is ready for full deployment in a real operational environment.

Fig. 7(a) shows the feedback for the login and registration module. Out of 15 users, 14 (93.3%) rated it as very easy to use, while 1 user (6.7%) gave it a good rating. No users rated it below 4. This shows that most users were very satisfied with how easy it was to register and log in to the system.

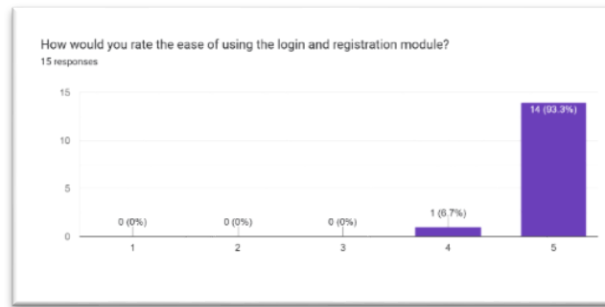


Fig. 7(a) Ease of Log in & Registration Feedback

Fig. 7(b) shows the user feedback on the convenience of the appointment booking process. Out of 15 users, 14 (93.3%) rated it as very convenient, while 1 user (6.7%) gave a good rating. None of the users rated the process below 4. This result shows that the appointment booking module was easy to use and well-received by most users.

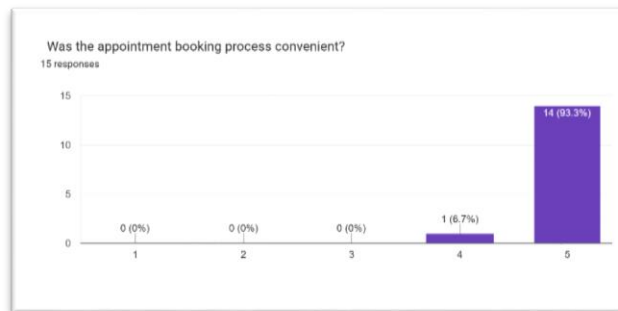


Fig. 7(b) Convenience of Appointment Booking Feedback

Fig. 7(c) shows the feedback on the display of available time slots and barber availability. Out of 15 users, 14 (93.3%) were very satisfied, and 1 user (6.7%) gave a good rating. No users rated it below 4. This indicates that the system clearly displayed schedule options, making it easy for users to choose a preferred time and barber.

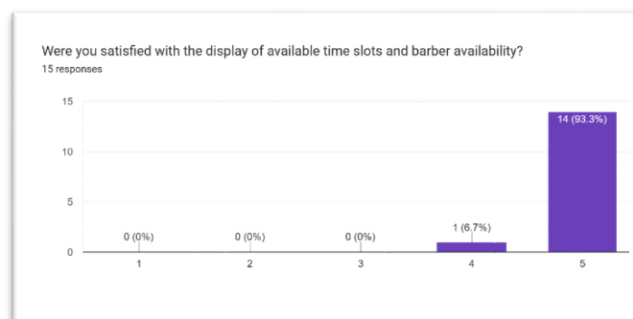


Fig. 7(c) Satisfaction with Display of Time Slots and Barber Availability

Fig. 7(d) shows the user feedback on the appointment reminder system. All 15 respondents (100%) confirmed that they received reminders before their appointment. This result indicates that the reminder feature is functioning perfectly and is an effective tool for ensuring users do not forget their scheduled appointments.

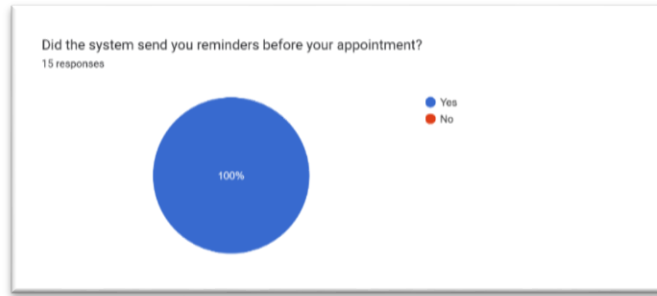


Fig. 7(d) Appointment Reminder System Feedback

Fig. 7(e) shows the feedback on the payment feature in the booking experience. Out of 15 users, 13 (86.7%) rated the payment feature as very helpful (5 out of 5), while 2 users (13.3%) rated it as good (4 out of 5). No users rated the payment feature below 4. This indicates that the payment system significantly enhanced the booking process, providing users with a seamless and convenient payment experience.

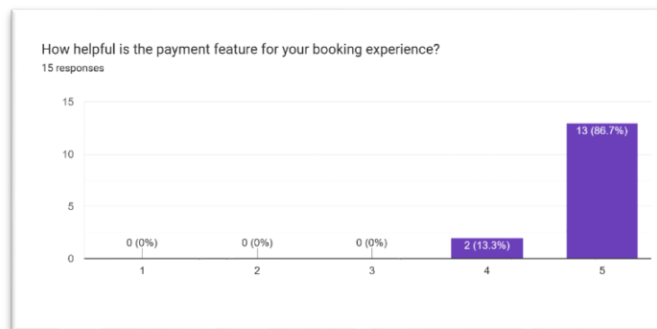


Fig. 7(e) Helpfulness of the Payment Feature Feedback

Fig. 7(f) shows the feedback on the user-friendliness of the system interface. All 15 users (100%) confirmed that the interface design was user-friendly. This indicates that the system's layout and navigation were intuitive, making it easy for users to interact with and perform tasks without difficulty.

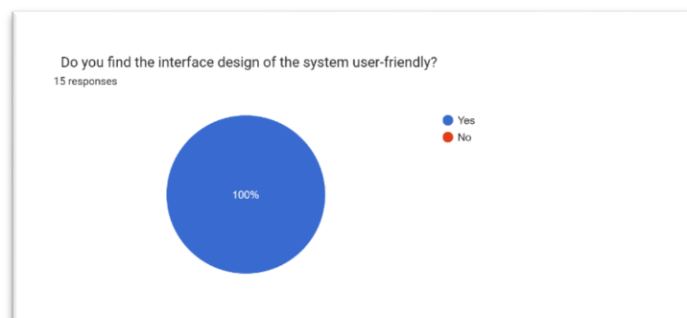


Fig. 7(f) User-Friendly Interface Feedback

5. Conclusion

The GS Barbershop Service Management System has successfully transformed traditional barbershop operations into a digital platform that is modern, efficient, and user centered. Developed using PHP, MySQL, HTML, CSS, and JavaScript, and implemented through the prototyping methodology, the system integrates essential modules such as login and registration, service management, appointment booking, barber availability, payment processing with Stripe, and performance reporting. The intuitive interface allows customers to book services effortlessly, while barbers and administrators benefit from streamlined schedules, accurate records, and notifications. User feedback confirms that the system is easy to navigate and meets key operational needs, particularly in reducing appointment conflicts, improving payment transparency, and facilitating real-time access to information. From both a technical and usability standpoint, the system demonstrates strong reliability and accessibility across devices. However, some limitations were identified, such as the lack of a mobile app, role-based access control,

live support features, and multilingual functionality. Addressing these in future updates will further enhance scalability and user satisfaction. Overall, the system has laid a strong foundation for digitizing barbershop operations. With future improvements focused on mobile integration, advanced user management, and better customer support tools, the GS Barbershop Service Management System is well-positioned to continue evolving into a comprehensive, scalable, and user-friendly solution for small to medium-sized grooming businesses.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Reference

The authors confirm contribution to the paper as follows: **study conception and design:** Ahmad Irsyaduddin Ibrahim, Abd Samad Hasan Basari; **data collection:** Ahmad Irsyaduddin Ibrahim; **analysis and interpretation of results:** Ahmad Irsyaduddin Ibrahim, Abd Samad Hasan Basari; **draft manuscript preparation:** Ahmad Irsyaduddin Ibrahim, Abd Samad Hasan Basari. All authors reviewed the results and approved the final version of the manuscript.

Reference

- [1] M. Fisichella and V. Kuswanto, "RANCANG BANGUN SISTEM INFORMASI BOOKING ORDER ONLINE BARBERSHOP BERBASIS WEBSITE," Oct. 27, 2022. <https://jurnal.buddhidharma.ac.id/index.php/aksel/article/view/1857>
- [2] D. Firmansyah, H. Purwanto, T. Wiharko, and B. Purbayanto, "Aplikasi Booking Barbershop Online Berbasis Web menggunakan Framework CodeIgniter," *INTERNAL (Information System Journal)*, vol. 6, no. 2, pp. 146–155, Jan. 2024, <https://doi.org/10.36040/jati.v8i4.10469>
- [3] M. A. Muaz, N. Natassa, D. M. Nofan, and R. Hendrowati, "Perancangan aplikasi pemesanan online barbershop berbasis mobile dengan pendekatan analisis dan desain berbasis objek," *Jurnal Ilmiah Sistem Informasi dan Manajemen Aplikasi*, vol. 7, no. 2, pp. xx-xx, 2023. [Online]. Available: <https://doi.org/10.52362/jisamar.v7i2.1038>.
- [4] Ojisan Barber Salon, "Official Website," [Online]. Available: <https://www.ojisanbarbersalon.com/>. [Accessed: Dec. 30, 2024].
- [5] Nimroc, "Official Website," [Online]. Available: <https://www.nimroc.com/>. [Accessed: Dec. 30, 2024].
- [6] Fresha, "Official Website," [Online]. Available: <https://www.fresha.com/>. [Accessed: Dec. 30, 2024].
- [7] Boar, B. (1986). Application prototyping: A life cycle perspective. *Journal of Systems Management*, 47(2), 25–41. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=0b05add730e04843e234937a070f24b19efaadc3>
- [8] Wiegers, K., & Beatty, J. (2013). Software requirements: 3-rd edition. *J. Beatty.-Washington: MS Press*. <https://ptgmedia.pearsoncmg.com/images/9780735679665/samplepages/9780735679665.pdf>

Appendix A: Gantt Chart

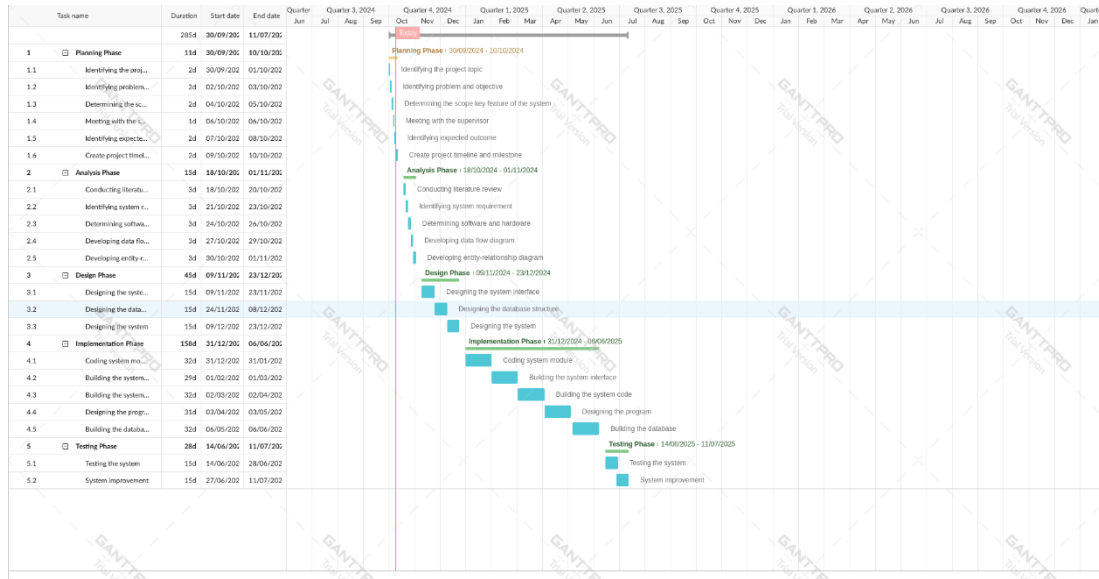
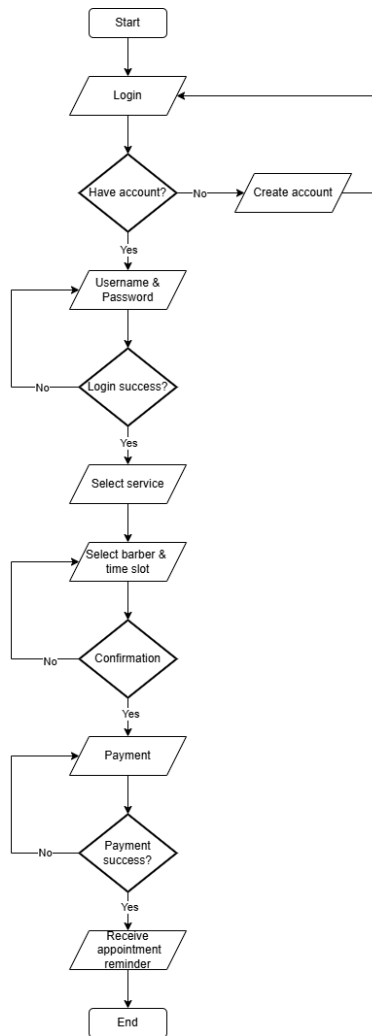


Fig. a1: Gantt Chart

Appendix B: Flowchart



[9]

Fig. b1: Flowchart for customers

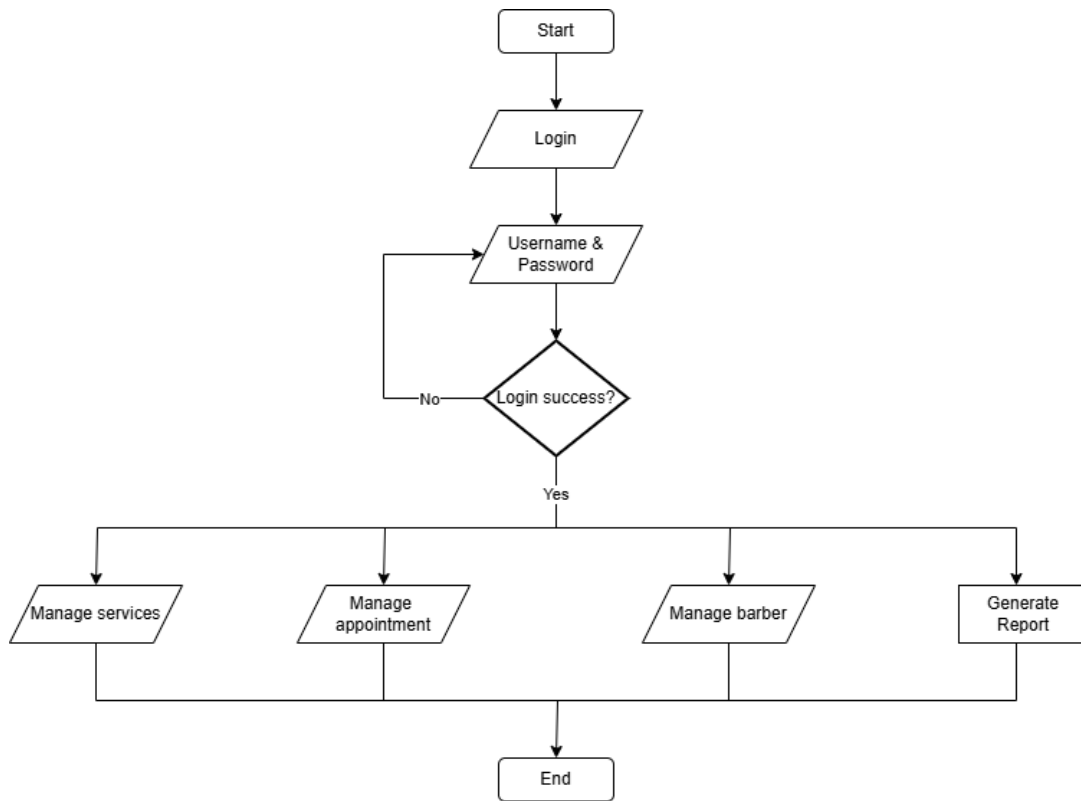


Fig. b2: Flowchart for admin

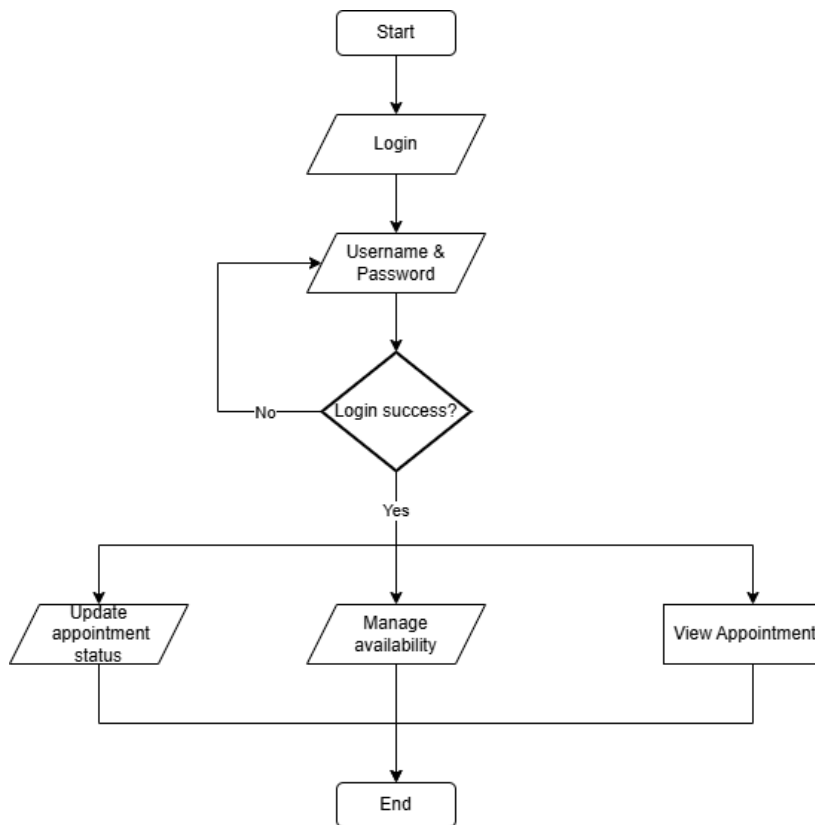


Fig. b3: Flowchart for barbers