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The Impact of Mobile App Integration on Salon Appointment Booking Systems

Priti Warungse

Department of computer engineering,
Institute Campus, Pune

Krishna Poplayat

Department of computer engineering,
Institute Campus, Pune

Rushikesh Jamodkar

Department of computer engineering, NBN Sinhgad Technical
NBN Sinhgad Technical Institute Campus, Pune

Sahil Agrawal

Department of computer engineering, NBN Sinhgad Technical
NBN Sinhgad Technical Institute Campus, Pune

Krishna Zawar Department of Computer Engineering,
NBN Sinhgad Technical Institute Campus, Pune

Abstract— Salon appointment booking systems have undergone significant transformation over the years, adapting to salon owners and their clientele's evolving needs and preferences. With the advent of mobile technology, integrating mobile apps into these systems has become increasingly common. This system can reduce waiting time for each barbershop and salon. The methodology used to analyze system requirements is to compile a list of questions and disseminate with online Google docs and analyze using partial correlation. The data obtained is then processed to get an overview of the need for this system to be developed. As a result of this research, the Online Reservation System is suitable for use to reduce customer waiting time. We have come up with the idea of merging these two aspects and coming up with an Android application for ease of use and time efficiency. The customer shall view various salons and the services they provide along with the fee. The customers shall proceed to make an appointment request where they have the feature of setting a suitable time Slot. The customer can also know if the time slot he wishes to book is already taken so that they can redirect their booking. This research paper explores the impact of mobile app integration on salon appointment booking systems, focusing on the benefits it offers to salon businesses, customers, and the broader beauty industry. By analyzing case studies, conducting surveys, and reviewing existing literature, this paper sheds light on the advantages, challenges, and prospects of this integration.

Keywords— Online reservation, Salon Management System, Real-time Online booking platform, Haircut Reservation, Beauty Treatment Scheduler.

I.

INTRODUCTION

Salons and beauty establishments calculate effective appointment reserving systems to manage their operations effectively. Traditional styles frequently involved phone calls, in-person visits, or website-grounded scheduling. still, the rise of mobile technology has introduced a new paradigm in the form of mobile apps, which have revolutionized the way guests and salon staff interact with appointment reserving systems. moment is the period of digital technology and the development of technology. The rise of the INTERNET gives a boost to the digital field and India is also accepting it and runs numerous movements like Digital India, UPI plutocrat transfer, and numerous further. The growth of internet druggies is adding day by day and we're apprehensive of the advantages of the internet. At present, numerous people run their businesses without any physical setup of their business digital marketing agency, digital marketing, and numerous further. There are colorful types of online websites available, ranging from online e-commerce websites(AMAZON), online trip reserving websites(MAKE MY TRIP), and online food delivery systems(ZOMATO). Using this platform druggies can view all the salons which are partnered with our salon operation system and also view their services.Zomato.com serve an analogous need in the eatery assiduity, but our system brings guests and salons together online. When guests search the salon, the system will show all the available salons in their locales and if by chance the time you have searched isn't available also it'll show the coming vacant places on our system which is registered with our platform on that position. It'll be useful for guests because now they've their bookings with the places available. It'll also remove all the paperwork as the proprietor will have access to all the guests' details and their records to serve them better. Online Payments promote cashless deals as it's further secure and secure from both sides. guests looking for similar services search online, gather information about the providers, and, at best, book an appointment. Some applicable aspects, such as coitus, age, and address of the provider, can be observed directly. still, if a service provider is unknown, the provider's quality is uncertain. In a hunt process, the offer sets of providers may give information to the oblivious client about whether other guests have preliminarily reserved the services. guests may infer quality from lower offer sets when they presume that the other guests who

preliminarily reserved the services know about the providers' quality. This paper examines the impact of mobile app integration on salon appointment reserving systems and its counteraccusations for assiduity.

II.

LITERATURE REVIEW

Grounded on the background and references above, this exploration focuses on developing a system that facilitates commerce between the service providers of beauty salons and barbershops with guests. There's a difference between the current study with the former one. In the former study, there has been no result that facilitates salon and hairstylist druggies. This is because the former study only concentrated on one seller, unscheduled bookings, and the attainability of RCM features similar to elevations, converse, conditions, and reviews. Some motifs still be used as supporting references in erecting a beauty salon and barbershop information systems similar to ASE-CRM, reserving or reserving, using Google Charts in Civilians, and so on. This exploration is also anticipated to develop a friendly system for colorful merchandisers(1),(2).

A. Existing system

The presently being system(5), and (6) substantially deals with a particular salon and is substantiated for them. There are only many operations that give a platform for multiple salons to set up their own business in the operation. utmost of the system only deals with the client module. Indeed though many operations give the features for possessors, the systems aren't effectively enforced and utmost of them are confined to a particular area.

B. Proposed system

The salon reserving operation is substantially divided into two modules, one for the client and the other for the proprietor or salon. The system starts with enrollment where the stoner has to register himself and also allows the stoner to log in to the operation(7). The operation provides position services that indicate the salons near the position of the stoner. The operation is designed in a simple format so that indeed a fresher can detect the nearby salons and book movables in just many gates. guests can elect the salon they prefer and can elect services from the services list handed in during the operation. The proposed operation offers full-featured operation functionality. The operation uses the First Come First Serve(FCFS) fashion for the scheduling of bookings. The operation allows druggies to manage and control bookings fluently. guests can bespeak their movables according to the date and niche available(8). places available for a week will be given and formerly a niche is reserved, the niche won't be available for another client. The salon proprietor can view the places that a client has reserved and once the service is finished, the proprietor can mark the service as finished and if time is available the niche can be used by another client.

2.1 Technology

In this technology period, mobile operations are arising fleetly around the world. nearly every smartphone including an entry- position phone and anyhow of the price can run and download a mobile operation(1). therefore, the system will be developed as a native mobile operation. The system development only targets a specific platform which is Android. Android is an operating system(zilch) grounded on the Linux kernel, which was originally developed for mobile bias. The development tool tackle, which is an Android Software Development Kit(SDK), is needed to make an Android operation. Android has a different variety of SDKs and a well-formed library that's ready for inventors to make operations. This has become a good point as Android inventors can pierce anything that can be penetrated by the operating system. The system will be developed in Android Studio using the Flutter frame. Android Studio is a sanctioned intertwined development terrain(IDE) specifically for Android operation development. Flutter is a featherlight stoner interface(UI) frame developed by Google to develop contemporary, native, and reactive apps for iPhone OS(iOS) and Android(2). either, Firebase is a back-as-an-service (BaaS) software development platform that provides colorful useful, and functional hosted back-end services(3). therefore, Firebase is chosen to manage the database of the system. also, the Management Information System(MIS) is one of the main computer-grounded information systems in an association that offers business information to help an association operate. MIS provides comprehensive and intertwined content on new technologies, information systems operations, and their impact on business models and operation opinions engagingly and interactively(4).

2.2 Manual Management System for SalonSync: Innovative Appointment Booking System

The current operation system of SalonSync Innovative Appointment Booking System is performed manually to achieve their business processes by using Microsoft Excel to key in the data of the guests and their business similar to hand data, and incoming or gregarious charges. The Microsoft Excel document which contains the recorded data is saved in a brochure on the Personal Computer(PC), which is placed at the cashier's counter. The employer can view and manage the details of the recorded data whenever he wants. still, the homemade operation system is insecure because no database automatically creates a backup for this data, and this may beget the loss of client records and reclamation lines. either, the current operation system allows guests to walk in or make an appointment via a phone call for a hair service. Guests who walk into the hair salon, a client may waste a lot of time waiting for the receptionist to arrange an available stylist during peak time. For guests who make an appointment, the appointment details are originally written on a piece of paper. Also, appointment details are gathered, anatomized, and listed by using Microsoft Excel to induce a schedule. Next, the schedule is published for workers as a reference. However, the process of scheduling must be repeated until a precise schedule is generated, If there's a mistake in the schedule. Similarly, guests who are interested in copping any hair product from a Hair Fashion Salon must walk into the hair salon to make purchases. also, the admin in the hair salon doesn't have an applicable announcement system to notify all the guests about the exigency

update of the hair salon. The entire operation system, which is conducted manually, is time-consuming and contains queries similar to misapprehension or miscommunication. thus, the process needs to be supported by a motorized system that can perform effective record keeping, data storing and reclamation, analysis, announcements, and others that ameliorate the effectiveness of the operation process.

2.3 Comparison with the Existing Systems

The three existing systems are studied and compared to the important features of the system. Table 1 shows a precise summary of the comparison between the three existing systems namely SuperSalon [5], MySalon Hair Studio [6], JeffLee the Hair Company [7], and the system which is SalonSync: Innovative Appointment Booking System.

Table 1: Comparison between existing system and SalonSync: Innovative Appointment Booking System

Features/System	SuperSalon	MySalon Hair Studio	JeffLee The Hair Company	SalonSync: Innovative Appointment Booking System
Type of User	Employer of the Salon	Customer	Customer	Admin, Employee, and Customer
System Type	Web-based, Android, and iOS applications	Web-based, Android, and iOS applications	Web-Based	Android application
User Registration	Yes	Yes	No registration needed	Yes
Login	Username and password needed	Username and password needed	No Username and password needed	Phone number and One-time password (OTP)
Online Appointment	Yes, provide online appointment	Yes, provide online appointment	Yes, provide online appointment	Yes, provide online appointment
Manage Salon Information	Yes, it provides a salon information management function	No, it does not provide	No, it does not provide	Yes, it provides a salon information management function
Manage Appointment	Yes, it provides an appointment management function.	No, it does not provide	No, it does not provide	Yes, it provides a salon information management function
Notification	Yes, it provides a notification function.	Yes, it provides a notification function.	No, it provides a notification function.	Yes, it provides a notification function.

Based on Table 1, it can be summarized that the system enables the SalonSync: Innovative Appointment Booking System to manage the hair salon information, appointments, and notifications, which helps the salon owner manage the salon more efficiently. Moreover, the system centralized all functions in one system platform which will help to reduce the operating cost and improve convenience to both the salon owners and customers. Based on the comparative system review, the system fulfills the uniqueness of the system evaluated. Therefore, the system has more strength and features compared to the other existing systems.

III. METHODOLOGY

The methodology is important to complete every exertion in the system development life cycle, including models, tools, and ways(8). The methodology chosen to develop the system is the simple Software Development Life Cycle(SDLC) model. In its utmost introductory form, the simple Software Development Life Cycle(SDLC) is a methodology for structuring software design operations (9). This methodology is applicable for a small design with no nebulous criteria and a tight timeframe. therefore, an introductory simple Software

Development Life Cycle(SDLC) model is used to develop the SalonSync Innovative Appointment Booking System to ensure the system is fulfilling conditions more stably. The SDLC model is generally divided into five phases that must be completed to finish the system’s development planning or conditions analysis, design, performance, testing, and conservation. Figure 1 depicts the whole graphical description of phases in a simple SDLC model.

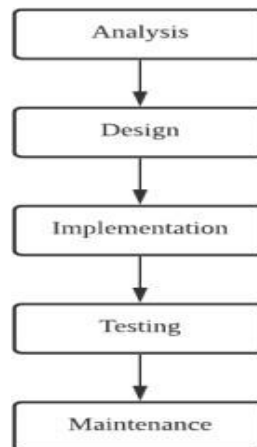


Figure 1: Simple Software Development Life Cycle [9]

3.1 System Development Workflow

System development workflow consists of a description of all phases, including analysis, design, perpetration, and testing. Each phase has its conditioning that produces different deliverables. Table 2 shows the workflow for the development of the SalonSync Innovative Appointment Booking System.

Table 2: System Development Workflow of the SalonSync: Innovative Appointment Booking System

No	Phase	Activities	Deliverables
1	Analysis Phase	<ul style="list-style-type: none"> Proposed the project Define the target user Identify problem statements, objectives, and scope of the project Set work plan Interview with the owner of the hair salon Analyse the system requirement specification. Analyse the current manual system Analyse the similar existing system. Analyse the hardware and software requirements 	<ul style="list-style-type: none"> Project Proposal Gantt chart User requirements Literature review Hardware and software requirements Functional and functional requirements. UML Diagram: Use case diagram, class diagram, sequence diagram, and activity diagram
2	Design Phase	<ul style="list-style-type: none"> Design database Design system interface according to the modules 	<ul style="list-style-type: none"> Data schema and Data dictionary table System interface according to modules
3	Implementation Phase	<ul style="list-style-type: none"> Implement all the functions and features designed by developing the system 	<ul style="list-style-type: none"> Complete workable system
4	Testing Phase	<ul style="list-style-type: none"> Conduct functional testing Conduct user acceptance testing 	<ul style="list-style-type: none"> Test report

4. Analysis and Design

This section describes the approach to analysis and design involved in the process of developing the system. therefore, this section includes the system conditions analysis, Use Case Diagram and Class Diagram.

4.1 System Requirements Analysis

System Conditions analysis is a process to determine stoner prospects and issues from the system. System conditions are clarified regarding the specifics of the system services along with the functional conditions(10). Functional conditions define what the system can do or how the system should bear(10). Table 3 shows the functional conditions of the system.

Table 3: Functional Requirements of the SalonSync: Innovative Appointment Booking System

No.	Modules	Functionalities
1	Login Module	<ul style="list-style-type: none"> The system should allow the users to log into the system using the user's phone number. The system should allow the users to input a valid phone number and One-time password code to log in as users. The system should alert the user for invalid input. The system should redirect the user to the respective homepage once successful login
2	Registration Module	<ul style="list-style-type: none"> The system should allow the registration of new customers. The system should show an error when an empty field is found
3	Users Profile Management Module	<ul style="list-style-type: none"> The system should allow the users to edit their personal information
4	Hair Salon Information Management Module	<ul style="list-style-type: none"> The system should allow the administrator to insert new hair salon information. The system should allow the administrator to edit the hair salon information. The system should allow the administrator to delete the hair salon information. The system should allow the users to view the hair salon information
5	Appointment Management Module	<ul style="list-style-type: none"> The system should allow the customer to insert a new appointment. The system should allow the customer to view the appointment details. The system should allow the administrator to view the appointment schedule. The system should allow the employee to view the appointment schedule
6	Notification Management Module	<ul style="list-style-type: none"> The system should allow the administrator to insert new notifications. The system should allow the administrator to delete notifications. The system should allow the users to view the notification

4.2 Use Case Diagram

SalonSync Innovative Appointment Booking System contains six main use cases as shown in Figure 2. They log login, register, manage stoner profiles, manage hair salon information, manage appointments, and manage announcements. The system druggies include directors, guests, and workers. Each of the druggies interacts with the use case to show the connection and limitations of the system features.

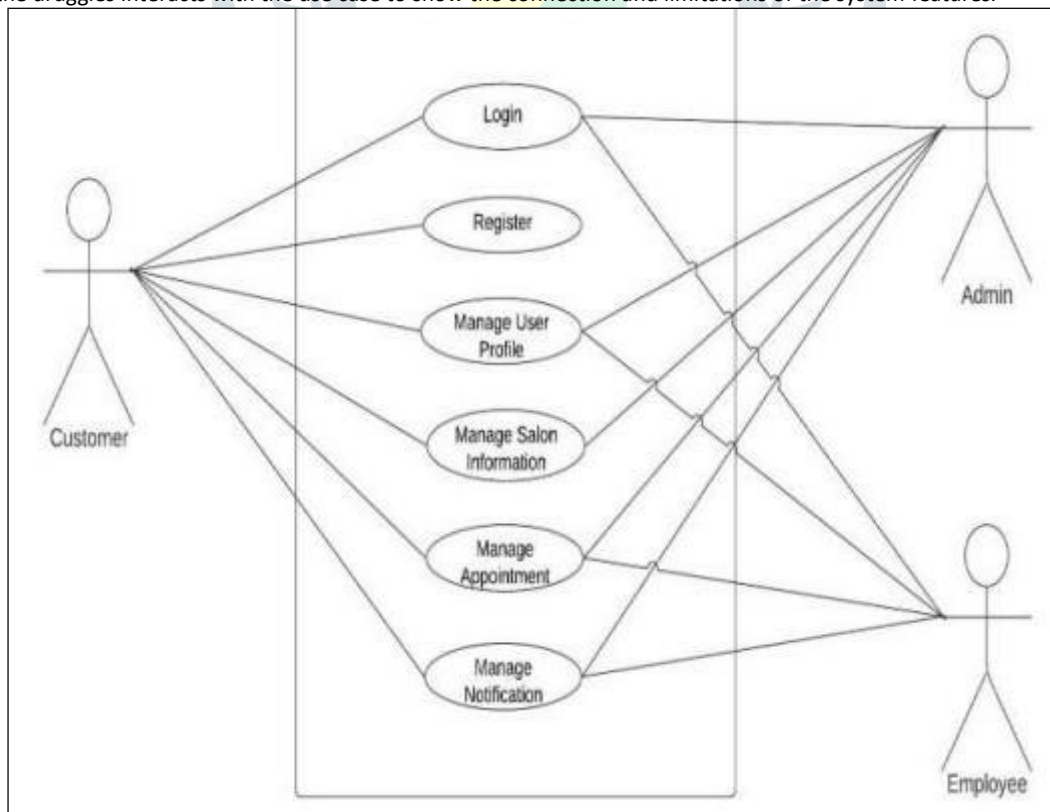


Figure 2: Use case diagram of SalonSync: Innovative Appointment Booking System

4.3 Class Diagram

In the class diagram, there are nine classes: Login, Administrator, Employee, Customer, Appointment, Appointment Schedule, Hairstyles, HairServices, and Notification. Each class holds its attribute value and can be linked to another class. There are 3 users involved in the class diagram which are administrator, employee, and customer. When the users proceed to log in to the system, there will be a “isStaff” and “isAdmin” Boolean method which is used to check the level of authorization. Based on their level of authorization, the system will redirect them to their specific homepage. After that, the users may start to access the function provided in the system. Figure 3 shows the class diagram of SalonSync: Innovative Appointment Booking System.

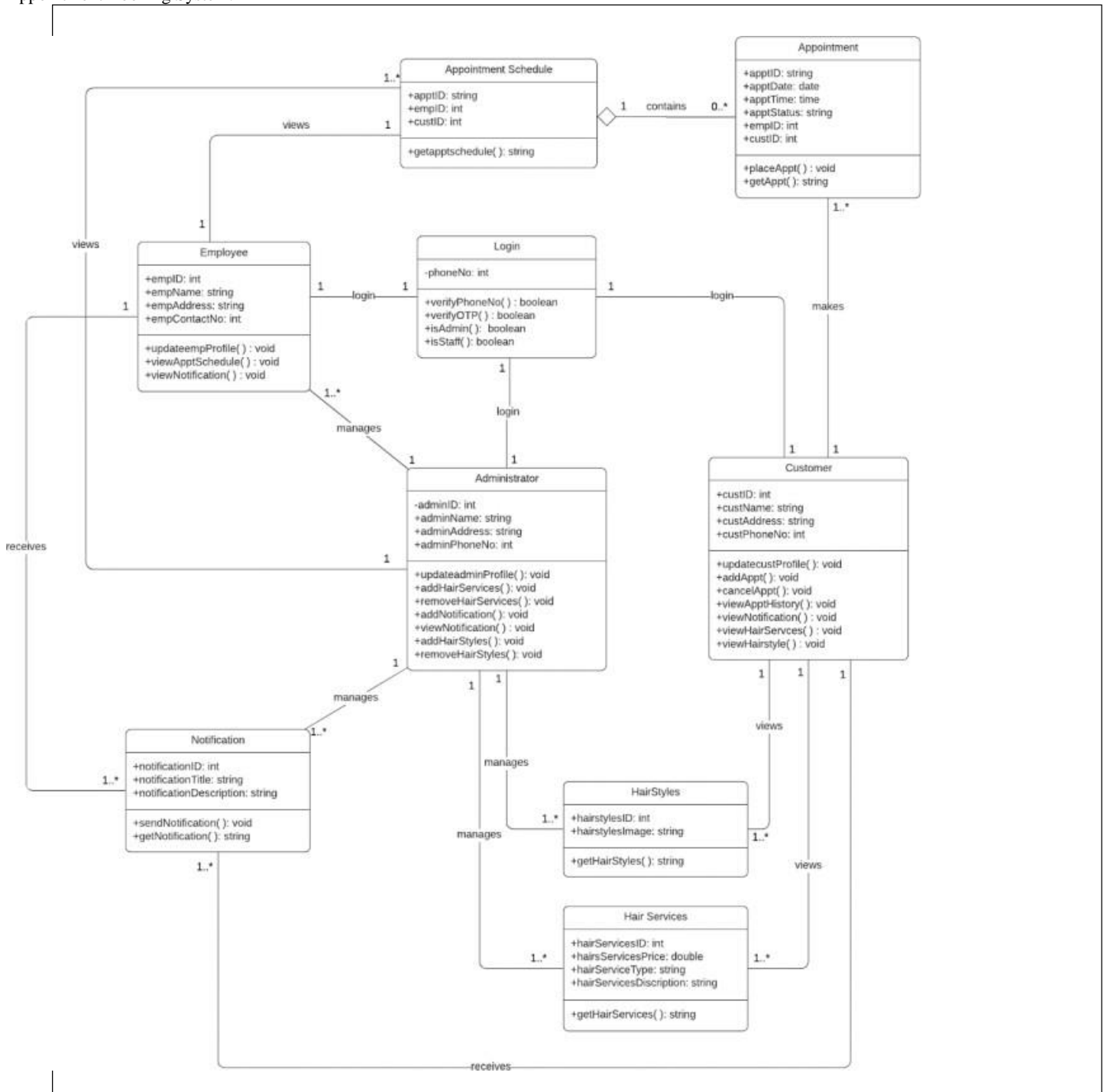


Figure 3: Class Diagram of SalonSync: Innovative Appointment Booking System

5. Implementation and Testing

This section focuses on the description of the perpetration and testing of the system. The perpetration and testing phases were important to ensure the system was well-performing without crimes. The testing is conducted to ensure the system is free from bugs before delivering it to a system stoner.

5.1 Implementation

SalonSync Innovative Appointment Booking System perpetration is enforced in Android Studio IDE using the Flutter frame. The Dart programming language is used to give the sense part and design interface of the system development. Firebase database and Firebase authentication are used as the storehouse platform for the system. The modules in SalonSync Innovative Appointment Booking System are the login module, register module, manage stoner profile module, manage hair salon information module, manage appointment module, and manage announcement module. In this section, many named main modules will be described in terms of their interface and the functions they perform. The SalonSync Innovative Appointment Booking System requires its druggies to log in with a phone number to pierce the system. A one-time word(OTP) law is transferred to the stoner via SMS after fitting a valid phone number. OTP law will corroborate the stoner’s phone number, by turning the stoner to the home runner if the law is valid. Figure 4 shows the Login Module Interface.

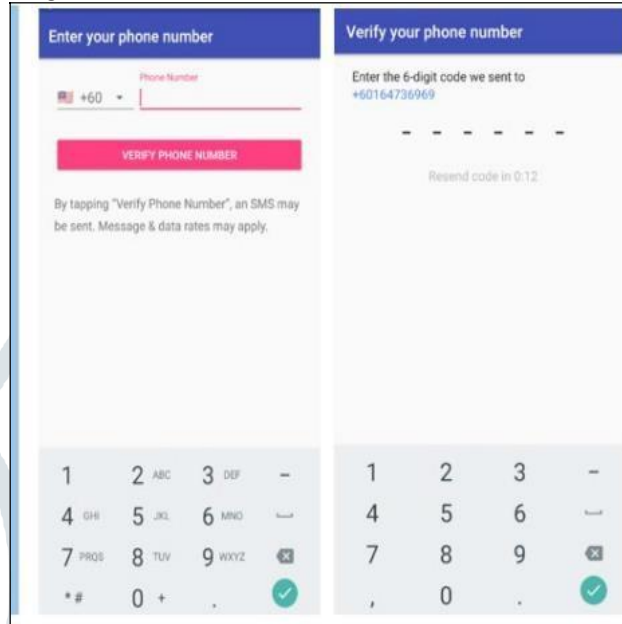


Figure 4: Login Module Interface

The Manage Hair Salon Information Module allows a director to add and cancel hair services and hairstyles of the salon. also, guests can view the hair services and hairstyles available in the hair salon. Figure 5 and Figure 6 show the Manage Hair Salon Information Module Interface.

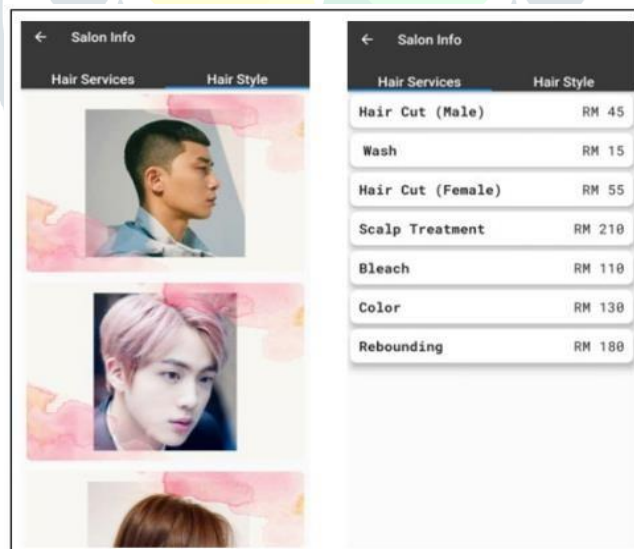


Figure 5: Manage Hair Salon Information Module Interface

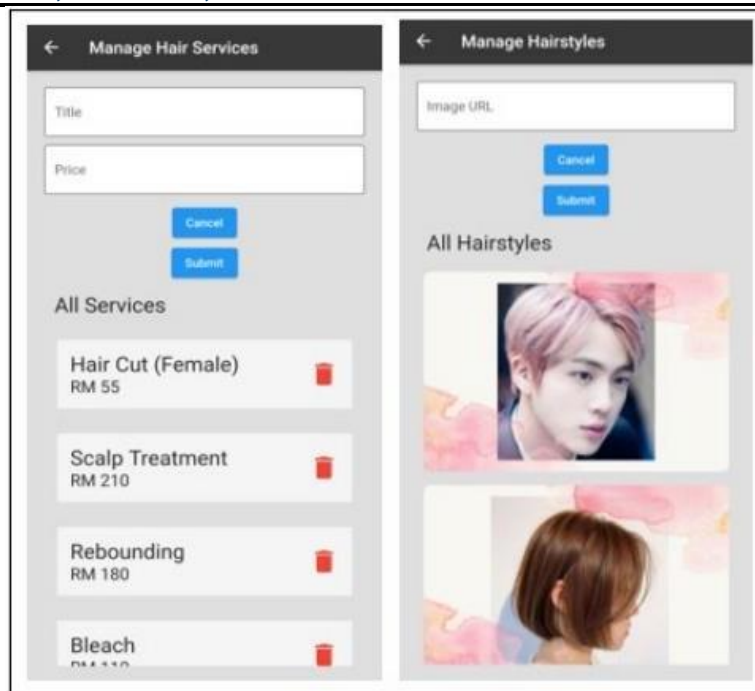


Figure 6: Manage Hair Salon Information Module Interface (cont.)

The Manage Appointment Module allows the client to make an appointment by opting for the state, salon, hairstylist, date, and time niche. also, the client can view the appointment information on the history runner after attesting the appointment. On the history runner, the stoner can also cancel a forthcoming appointment. directors and workers can view the appointment schedule after the client makes the appointment. It's accompanied in the Firebase database when guests make an appointment or cancel an appointment. Figure 7, Figure 8, and Figure 9 shows the Manage Appointment Module Interface.

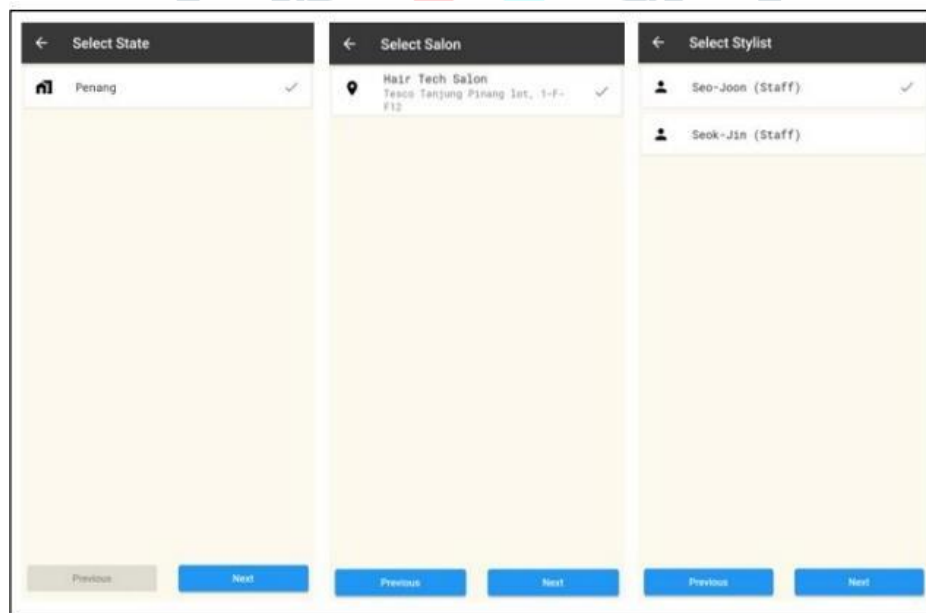


Figure 7: Manage Appointment Module Interface

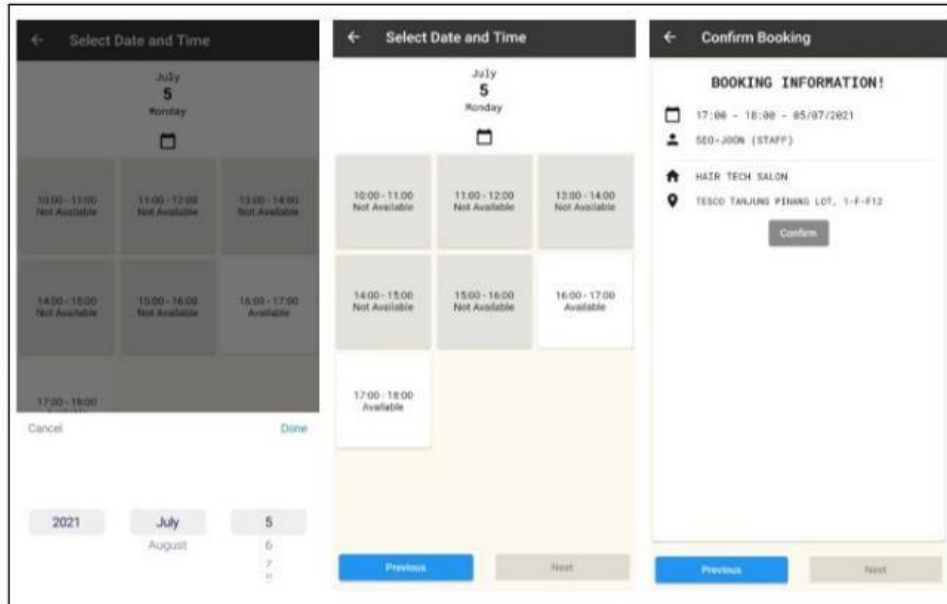


Figure 8: Manage Appointment Module Interface (cont.)



Figure 9: Manage Appointment Module Interface (cont.)

The Manage Notification Module allows the administrator to create a notification and delete the notification. If there are any emergency updates, the administrator can inform the customers by using the manage notification module in the system. This improves the convenience of the management of the hair salon. Figure 10 shows the Manage Notification Module Interface.

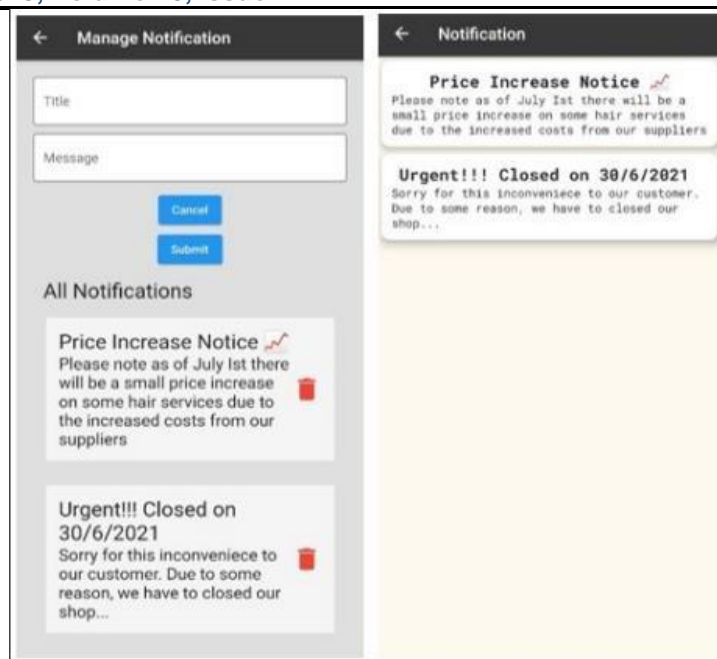


Figure 10: Manage Notification Module Interface

IV. FUTURE SCOPE

Unborn exploration in this area should explore the long- term goods of mobile app integration on salon businesses and the evolving technological geography. also, probing the use of artificial intelligence and machine literacy in these systems could further enhance their capabilities.

V.

CONCLUSIONS

The integration of mobile apps into salon appointment reserving systems has changed the way salons operate and serve their guests. While the challenges aren't insignificant, the benefits, including bettered client gests and functional effectiveness, are substantial. This paper underscores the growing significance of mobile app integration in the beauty assiduity and attendants salon possessors and inventors to make informed opinions regarding its relinquishment. We dissect guests ' choice geste in online appointment systems to probe the presence of the quality-conclusion effect and the failure effect. In two stylized online trials, we let subjects decide between two service providers of different service areas who only differ in the number of offered movables. We show that the two goods(quality and failure) have a nonlinear impact on guests ' interest in the service provider. We find some substantiation for the quality-conclusion effect, meaning that guests prefer providers who offer smaller movables, as they frequently associate a lower offer set with advanced quality. formerly with an infrequently employed booking system compared to an empty schedule, guests ' interest is increased. still, guests also like to have inflexibility when choosing an appointment. therefore, a too-scarce offer set may, in discrepancy, lead to dissuaded guests. The strength of the quality effect depends on the service and other available quality signals(e.g., star conditions). This system will help bars to pitch their business underneath their space to expand their everyday business. This design also helps original merchandisers show their presence encyclopedically on the internet and serve their guests with their art. In the salon and beauty assiduity, the Online Reservation System is suitable for use to reduce client staying time and experience a hassle-free terrain.

VII.

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VIII.

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