A report on

UNIVERSITY MANAGEMENT SYSTEM – BML SALON

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Prepared in partial fulfillment of the

Major Project-1

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SCHOOL OF ENGINEERING AND TECHNOLOGY

BML MUNJAL UNIVERSITY GURGOAN

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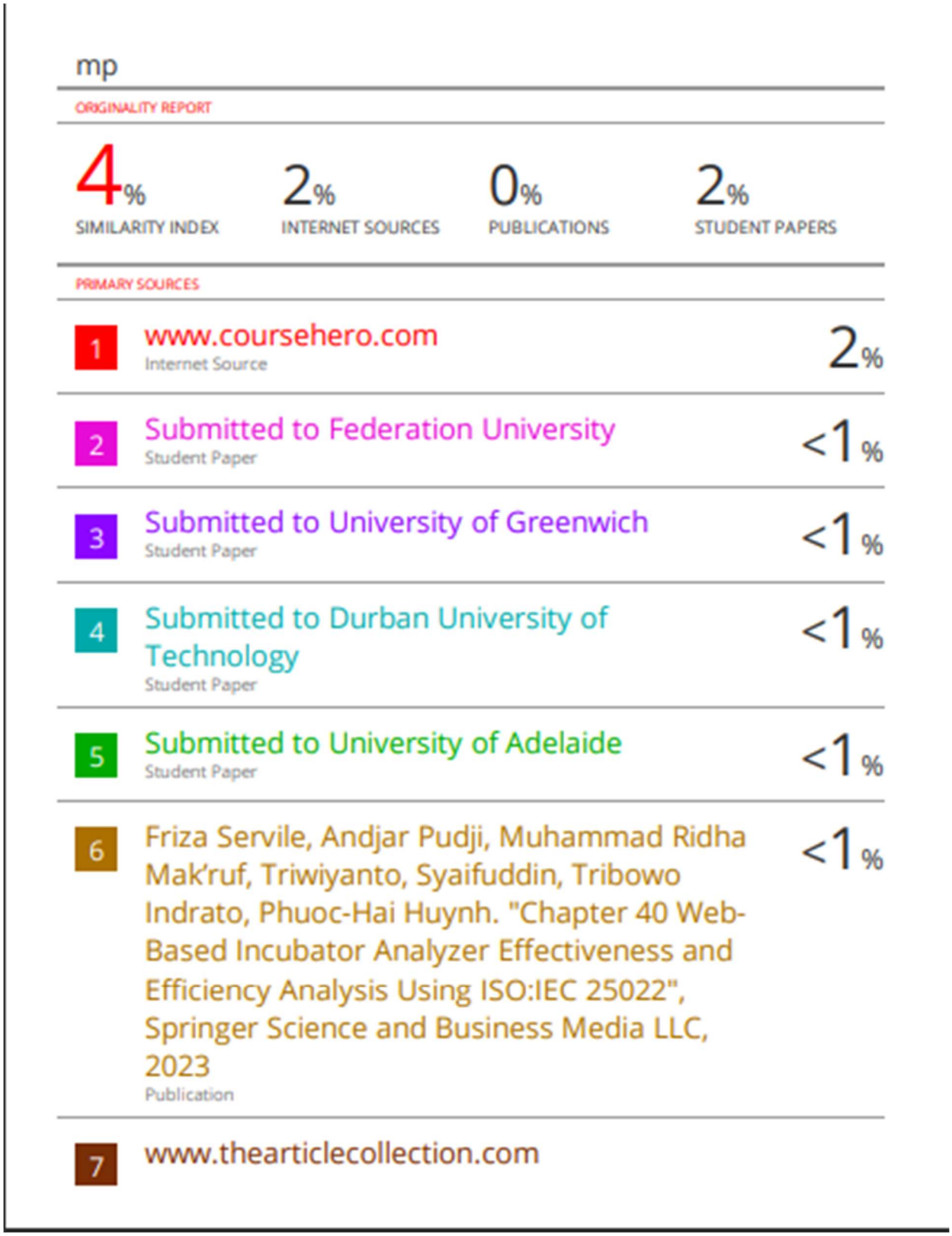
Plagiarism Report



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Thanking you

Chittepu Rohith Reddy

Maram Anvitha

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Ravindhranadh Thakkellapati

BML MUNJAL UNIVERSITY, GURGAON

HARYANA

CANDIDATE'S DECALARATION

We hereby declare that the work done in our core project entitled "**UNIVERSITY MANAGEMENT SYSTEM – BML SALON**" in fulfillment of completion of 7th semester of Bachelor of Technology (B. Tech) program in the Department of Computer Science and Engineering, BML Munjal University is an authentic record of my original work carried out under the guidance of **Dr. Satyendr Singh**. Due acknowledgements have been made in the text of the project to all other materials used. This core project was done in the full compliance with the requirements and constraints of the prescribed curriculum.

Place: BML Munjal University, Haryana
Date: 05-05-2023

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Contents

Abstract

Booking appointments at the salon in person has become challenging. It has become quite challenging for the service providers to organize and manage the appointments due to the large number of requests. To overcome this, an app where users may book slots according to their needs and administrators can accept or reject the booked slot depending on their availability would be helpful. This paper details the creation of an online slot booking application for a salon that is situated in our campus, BML Munjal University. An effective way to make reservations for the salon's services is through the app. Customers can check available time slots and schedule appointments for their selected services using the app's user-friendly design. Customers can choose the services they need more easily by using the app's complete catalog of salon services, which is also included. The development process of the app involved extensive research and analysis of user requirements, including factors such as ease of use, speed, and reliability. The software was created with cutting-edge technology and development tools, guaranteeing top speed and security. Overall, the online slot booking software provides customers with a practical and effective way to make salon appointments. By lowering wait times and enhancing the entire service delivery process, it could enhance the client experience.

Motivation

Booking appointments manually is an old-fashioned way at salons and other service-oriented businesses. This can take a lot of time and be ineffective. Long wait times for customers are common, and scheduling several bookings and appointments is a hardship for employees. These difficulties may have a detrimental effect on customers' overall experiences and lower profits for enterprises. There is a solution to these issues, though, thanks to the development of technology and the rising popularity of online reservation platforms.

An easy and effective way for both clients and employees to make appointments is through online slot booking software. Customers don't need to wait in line or make phone calls because they can quickly browse available time slots and arrange appointments from the convenience of their homes. The automated booking procedure benefits staff members by freeing up their time so they can concentrate on giving consumers high-quality services. Additionally, customers receive automated reminders about their appointments.

Overall, booking an online slot booking app for ***BML Salon - Budha*** **Salon** would be very helpful for both users and service providers. This is because, in the busy schedules of the users, a lot of time will be saved as you can book appointments as per your availability with just one click. It will be helpful for service providers, as it will be helpful for them in managing and scheduling the appointments.

1.Introduction

It can be difficult and time-consuming to schedule appointments for various services on a university campus. Students and staff members often have to wait in long queues or make phone calls to book appointments, leading to a less than ideal user experience. There is a chance to develop online slot booking software that is especially suited to the requirements of university students and staff, given the growing significance of technology in daily life.

The development of online slot booking software for the university offers a practical and effective way to make reservations for BML Salon, Budha Point. The software eliminates the need to stand in line or make phone calls by allowing users to browse available time slots, choose a service, and book an appointment from anywhere, at any time.

Beyond streamlining the booking process, the creation of an online slot booking app for the university offers several advantages. It can offer useful data insights that can be used to optimize corporate operations and enhance the user experience, such as user preferences and well-liked services. By automating the booking process, it can also improve efficiency by giving staff members more time to concentrate on giving customers high-quality services. The purpose of this paper is to give a thorough description of the process of developing an online slot booking salon app for the university. The report will go over the several phases of creating an app, such as conception, design, creation, and testing. The report will also examine the app's technical elements, including the use of different methods and processes.

Overall, the institution has a great opportunity to improve usability, increase efficacy, and streamline operations with the creation of an online slot booking salon app. Two distinct modules will be made. The first is the user module, where instructors and students can log in, browse all the services offered, and reserve a time slot for the required date and time. The second is the admin module, where salon employees may log in and see all the time slots that have been reserved along with the user's name, date, time slot, booked services, and total fee. Staff members can also approve or reject the booked slot according to their availability, which is another feature.

2. Problem Statement

Both students and staff members may find it tiresome and time-consuming to schedule appointments for numerous services at the university. Long wait times, phone calls, and manual record-keeping are all part of the present procedure, which can lead to mistakes made by humans and a less than ideal customer experience. Booking appointments manually wastes a lot of paper. Additionally, the current procedure does not give users the freedom to make appointments whenever they want, from wherever they are.

These problems render the present appointment booking procedure ineffective, which has a detrimental effect on customer satisfaction and business operations. Therefore, it is necessary to develop an online slot booking salon app that is especially made to satisfy the requirements of university students and staff. This also helps promote BML as an eco-friendly campus.

3. Literature Review

Urban Company [1] is an app that provides many different household services, such as carpentry, electrical repairs, painting, salon services, and more. Users of the app have the choice between two service booking options: affordable and luxurious. The budget-friendly choice is intended for people who wish to cut costs, while the premium choice is for people who appreciate receiving high-quality services. Users can select from a range of add-on services and combo offers to build their service package once they have decided on their chosen booking method. They can also choose a time period that is convenient for them. Credit/debit cards, net banking, and mobile wallets are just a few of the payment options that the app's secure payment infrastructure accepts. When users schedule home services with Urban Company, they can count on a smooth and hassle-free experience. The software makes sure that user data is safeguarded and that all transactions are secure. Urban Company has grown to be a well-liked option for customers wishing to book home services due to its extensive service offering and user-friendly interface.

Zylu [2], an app that helps customers locate salons in their area of choice. When a user picks a salon from the app's list of salons in their area, they may read that salon's contact information and address to make an appointment. The app's key feature is the availability of time slots for the chosen salon, which improves usability and aids in effective time management for users. Users of Zylu can also filter salons based on their preferences, including services provided, user reviews, and price. The app is made to make scheduling appointments easy and hassle-free, while also making sure that all the data is correct and current. Zylu has gained popularity among those wishing to make salon reservations due to its user-friendly UI and practical features.

A mobile app called “Yes Madam” [3] was created just for ladies. It works like e-commerce software and gives consumers a variety of price options to pick from. Users can choose their favorite time window for the service by visiting the service cart in the app, which shows all the specified services. Yes Madam offers specialist services like bridal cosmetics, spa treatments, and more in addition to conventional services like salon services. Users of the app may make reservations easily and without fuss, and they can securely pay for their purchases using a number of payment options, such as credit/debit cards, mobile wallets, and net banking. Yes, Madam, we make sure that every user's data is secure and that every transaction is safe. With its extensive

services and approachable UI. Yes Madam,has become a popular choice for women looking to book personalized services from the comfort of their homes.

Booksy is a smartphone application that makes it simple for customers to browse and choose the services they need by listing all of the services available on the home page. The app has a search box that lets users easily find particular services. Additionally, it shows all available times and dates, as well as any discounts that might be accessible at that specific moment. The app's user interface is engaging and attractive to the eye, making it simple to use and navigate. The user-friendly layout of the app and its alluring deals and discounts aid in drawing in more users. The software also provides a safe payment infrastructure that supports various payment options. Booksy is dedicated to ensuring the security of all transactions and the privacy of all user information.

Zaloon is a smartphone app with a stylish, straightforward user interface. The app shows all available dates for booking services and is location-specific. Users can choose their preferred stylist for the service because there are several stylists available. Users can checkout from their basket after choosing a service and adding it to it. The app shows each time slot that is open for the chosen service. Zaloon is designed to offer users a smooth and trouble-free booking experience. User data is safeguarded, and all transactions are secure thanks to the app. Zaloon has gained popularity as a preferred option for consumers wishing to make appointments for a variety of services because of its user-friendly layout and practical features.

The user experience might be significantly impacted by the limitations of many of the current apps for booking services. Some apps, for instance, only provide available time slots at the beginning of the booking process, which can be a hassle for users who want to look at a variety of alternatives. Additionally, some websites and apps can be challenging to use and confusing, which can make users frustrated and confused. These problems may lead to a bad user experience, which can prompt consumers to uninstall the app or look for different options. Apps must solve these issues and give consumers an easy-to-use interface that enables them to quickly identify and purchase the services they require in order to offer a seamless and hassle-free booking experience.

4. Methodology

4.1 Methods followed

When the user clicks on a particular service, they will enter that service's interface. The Model-View-Controller (MVC) architectural pattern is widely used in software development to separate the user interface from the underlying data and business logic. This pattern ensures that the application is modular and easily maintainable. In this app, the MVC pattern is employed, with Firebase being used as the data storage and retrieval platform. The use of Firebase is particularly useful because it makes it easy to manage and update data on a remote server.

We are using visibility for the onboarding page to switch between multiple card views, including login, signup, and forgot password. By doing this, we are limiting the number of pages that are being created and are now able to complete all the onboarding tasks in a single activity. Here, we are using Firebase to authenticate the user through email and password.

In the onCreate method, the code initializes the user interface elements and sets up variables that are required for the proper functioning of the application. This method is called when the activity is first created and ensures that the UI elements are ready for user interaction.

The onClickListener is set up to handle user clicks on the "Book Appointment" button. The code checks if all the necessary data required for the appointment has been selected and, if so, sends the data to the Firebase database. The user is then notified of the successful booking via a Toast message. This ensures that the booking process is user-friendly and straightforward, without any ambiguity.

The service selection buttons (for example - the beard trim button, the head massage button, and the hair wash button) are set up with onClickListeners that add or remove the selected services from a list. This approach ensures that the user can select multiple services for their appointment, with the total price updated accordingly. This also changes the button background color to indicate whether a service has been selected or not, which is a helpful visual cue for the user.

The horizontal calendar view displays the available dates for the appointment, while the grid view displays the available time slots for the selected date. This ensures that the calendar displays dates

starting from the current date and ending on the next day. When a user clicks on a date in the calendar, the code updates a TextView to display the selected date. Similarly, when a user clicks on a time slot in the grid view, the code updates a variable to store the selected time slot. This ensures that the user can easily select the preferred appointment date and time.

The implementation of the Model-View-Controller (MVC) architectural pattern with the use of Firebase for data storage and retrieval ensures that the application is well-structured and easily maintainable. The bookAppointmentButton onClickListener, service selection buttons, calendar view, and GridView are all set up to provide a user-friendly and straightforward booking process. The use of Firebase ensures that the application can handle remote data storage and retrieval without any issues.

An appointment class is an essential part of the BML SALON application. This class represents an appointment made by a user at a salon. The class has six private fields, including selectedDate, selectedTimeSlot, totalPrice, userEmail, selectedServices, and mainService. These fields store data related to the appointment, such as the date and time slot of the appointment, the total price of the selected services, the user's email, and the selected services and main service. The class has two constructors. The first constructor is an empty constructor used for Firebase. The second constructor takes six parameters that initialize the fields of the class. This constructor is used to create a new appointment object when a user books an appointment. The class also has getters and setters for each field. These methods allow access to the fields of the class and provide encapsulation. Encapsulation ensures that the fields of the class are not directly accessible outside of the class. Instead, the fields are accessed through getter and setter methods. This provides better control over the data and helps prevent errors and bugs in the code. Overall, the Appointment class allows the application to store and retrieve data related to appointments made by users. The class provides encapsulation and control over the data and ensures the integrity of the application's data.

On the admin side, which displays a ListView of appointments retrieved from a Firebase database. The onCreate method initializes the ListView and the list of appointments. It then creates a database reference to the "Appointments" node in the Firebase database. A ValueEventListener is added to the database reference to listen for changes in the data and update the ListView accordingly. In the onDataChange method, the appointmentsList is cleared, and a loop is used to

iterate through the children of the dataSnapshot, which represents the "Appointments" node. For each child, a new appointment object is created by calling getValue on the child with the appointment class as the argument. The appointment object is then added to the appointmentsList. Finally, an AppointmentAdapter is created with the context of the activity and the appointmentsList as arguments. The adapter is then set as the adapter for the ListView. In the onCancelled method, a Toast message is displayed indicating that there was an error retrieving data from the Firebase database if the database reference is canceled.

4.2 Flow of the Project

First, we created the user interface, which consists of three sections: the homepage, the blog page, and the profile page. On the home page, we created a standard scrolling image that allows us to display the most well-known services, the best discounts, and the top service of the day. After that, we created two sessions: one for men's services and the other for women's services. In order to drive users into a specific activity layout, we have built a circular picture that is clickable.

After entering the specific layout, the user can find the horizontal date picker, where he can directly scroll the dates he wants to book for now. Next, we displayed the available slots, where users can book one slot that has a duration of 45 minutes. In the add-on block, the user can choose the specific service he wants in addition to the main service. For instance, if he wants to choose the service "Haircut," he can also choose add-on services like head massage, hair wash, beard trim, and more. When the user clicks on the specific service, the price changes in accordance, making it convenient for him to know the full price. After that, the user finally chooses to **book an appointment,** where the complete data will be sent to the Firebase realtime database.

To store the data, we have used Firebase, where we can perform the authentication data in real time and the storage data once the user appointment is sent to the real time database, where we assign the unique key so that it will be helpful for the admin to call the appointment details from his end. We will be using adaptors to store the data in the Firebase database, where we will assign the variables and use the getter and setter methods to set the value or get the value in the future. To send the data from the user interface to the firebase, where we will be using set value, and to load the data from the firebase to the admin interface, where we will be using get value. Here, we

will be performing a lot of logical coding where we can store multiples of data by assigning the key value or by storing the values in the way of parent and child.

4.3 Block diagram of the project

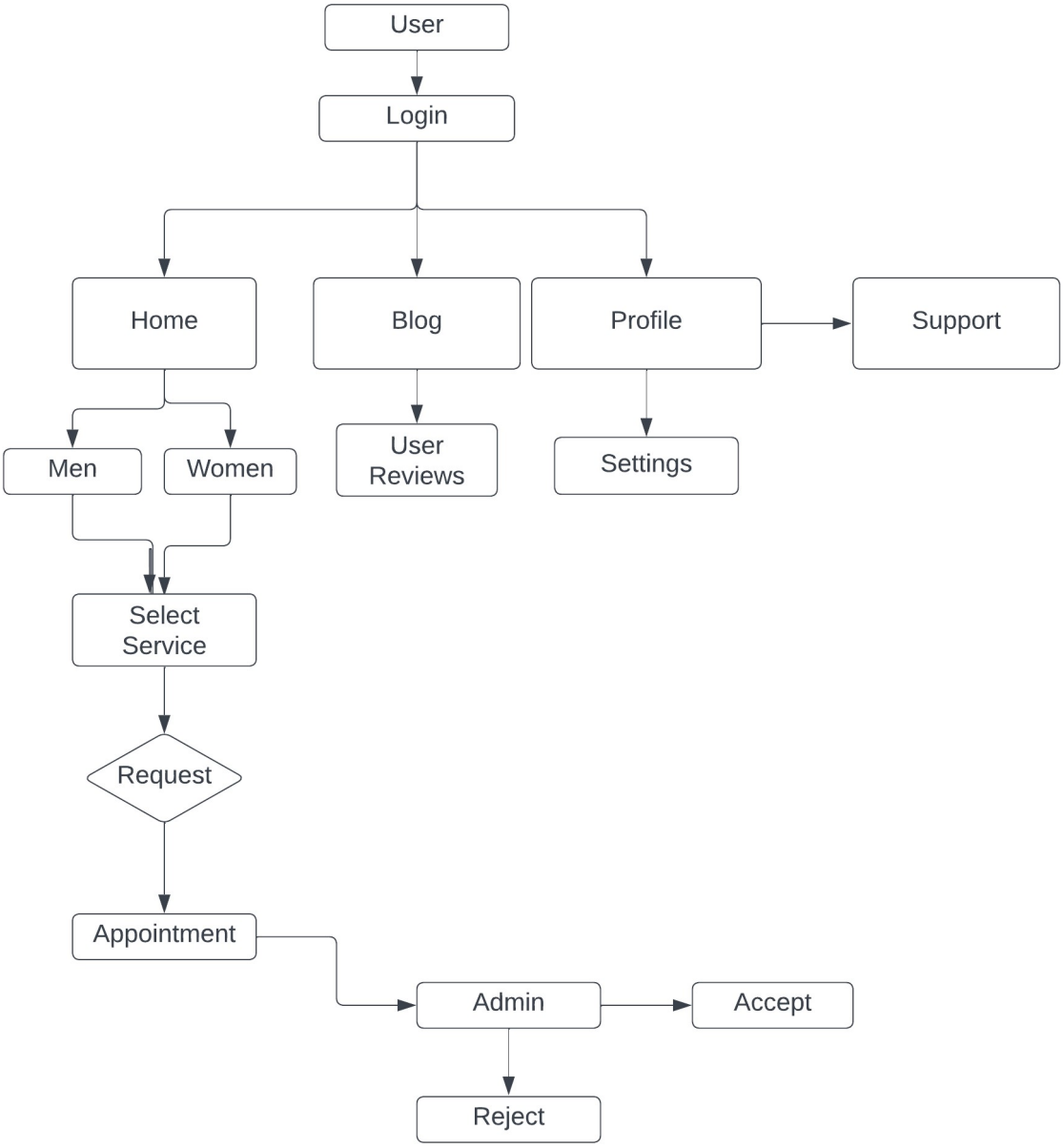

Fig. 1 Block diagram of the project

4.4 Components used in our project:

Hardware: There is no majorly used hardware for our project. But a smartphone to test the application was used.

Software:

A programming language and integrated development environment (IDE) such as Java and Android Studio for developing the app

A database such as Firebase to store the customer and appointment data. It is a web application development platform that provides various services, such as hosting, databases, storage, authentication, and analytics. It is owned by Google and is widely used by developers to build high-quality, scalable, and secure applications.

We used github, a web-based platform for version control and collaboration. It is widely used by developers to host, manage, and collaborate on code repositories. It is based on the Git version control system, which allows developers to track changes to code and revert to previous versions when necessary.

4.5 Technical Features

- Utilizes Firebase for user authentication and database management.
- Utilizes the Image Slider library to display images on the home screen.
- Uses a search function to filter through a list of salon services.
- Uses a horizontal scroll view to display the list of salon services.

1. ***User authentication:*** Users can sign up or log in to the application using their email and password or through their BMU ID.
2. ***Service booking:*** Users can browse and book available services offered by the salon, including haircuts, beard trims, hair washes, hair colors, facials, waxing, pedicures, manicures, and others.
3. ***Appointment scheduling*****:** Users can select a preferred date and time for their appointment and book it through the application.

4. ***User profile:*** Users can create and edit their profile, which includes their name, contact details, and other relevant information.
5. ***Salon management:*** The salon owner or manager can manage the availability of appointment schedules through the application.

Elements:

1. User Interface: The application has an easy-to-use user interface with a sleek design, providing a seamless user experience.
2. Navigation: The navigation bar allows users to easily move between different sections of the application, including the home page, review page, and profile.
3. Database integration: The application integrates with the Firebase Realtime Database to store user data, booking details, and other relevant information.
4. Search functionality: The search bar allows users to quickly find the desired service.
5. Rating and review system: Users can rate and review their salon experience, providing valuable feedback to improve the overall quality of service.

4.6 Features

There are a variety of features that are implemented in the app. For an app to improve the user experience and achieve a competitive edge in the market, it must include high-quality features. An app is more likely to stand out and attract new users if it has special and practical features. Additionally, increased usage and revenue generation can result from good features. When users find the features they require and want, they are more likely to use the app frequently and for longer periods of time. Some important features on the user side include:

1. Horizontal Calendar:

The user module's horizontal calendar feature offers users a practical method to browse the open slots for a particular service. Users can choose a date from the calendar's list of available dates to examine the time slots that are available. Another important thing to notice is that users can book slots only for the present day and the next day. This helps in avoiding the cancellation of slots and unnecessary confusion regarding the dates.

2. Add Ons:

Users can add more services to their appointment using the add-on services option in the user module. For example, a user can add a pedicure or manicure service to their appointment if they are scheduling an appointment for waxing. This helps the customers choose the services that they want easily.

3. Slot Booking:

This is one of the most important features of the app. Users can reserve a time slot for a certain service using the slot booking feature in the user module. Users can confirm their appointment after choosing a date and time from the available options.

4. Automatic Slider Option:

Users can more easily read and access offers, including the most well known with the help of the automated slider option feature in the user module. The next offer is automatically displayed by the slider after a predetermined amount of time.

Features on the admin side include:

5. Email of the user:

The email of the user is displayed on the admin side. This helps the service provider know how many appointments have been made for that particular day.

6. Date and time of the booked slot:

The date and time of the booked slot feature in the admin module displays the date and time of the appointment booked by the user. This helps the admin check which time slot is free and helps in the approval and disapproval of the appointments without confusion.

7. Services chosen:

The services chosen feature in the admin module displays the services chosen by the user during the booking process. This feature helps the admin know beforehand what type of services the customer wants and arrange things accordingly. This helps save a lot of time.

8. Total Price:

The total price feature in the admin module displays the total price of the appointment, including any additional services chosen by the user.

Overall, the admin module features concentrate on giving the admin crucial information to manage the booking process, while the user module features concentrate on providing a simple and effective manner for users to make appointments. By facilitating a smooth booking process and offering admins ease and transparency, these features seek to enhance the user experience. The app is designed in such a way that it promotes learnability, memorability and improves the user experience.

4.7 Alternative ways

Building a website may seem like a viable alternative to an app for managing bookings and appointments, but based on our research, it may not be the best solution. Firstly, apps offer a more seamless and personalized experience. Users can download the app to their mobile devices, which they carry with them at all times, making it easier and more convenient for them to book appointments and manage their schedules. Additionally, apps can be customized to suit the specific needs of the user, providing a more personalized experience.

If someone knew our solution to the problem that we have solved, they would also choose the same solution, i.e., building an app. However, they still would not reach the mark. This is because our app is unique in its own way. The uniqueness includes add ons for every chosen service and a horizontal calendar that is useful for booking dates easily. This means that users can customize their bookings to suit their specific needs, by selecting additional services to go along with the main service. So, finding an alternative solution with the same level of user satisfaction may prove to be a challenge.

4.8 Status of our project

The BML Salon application is under development and we are working on the push notifications, two factor authentication, dark theme, and integration of the payments system. The first build of our application is expected to be soon. Unofficial feedback has been taken from the salon staff. The first implementation of our application is planned among a small number of students. Where they can book appointments and give feedback on the app's functionality.

Once the first successful build of the app is completed, we plan to conduct extensive user testing to identify any issues and make necessary improvements. We will also gather feedback from salon staff and customers to make sure the app meets their needs and expectations.

5. Results and Discussion

Our university's online slot booking tool has been successfully designed and tested. The app consists of two modules, a user module and an admin module, each with a unique set of functionalities.

Users can choose a date for their appointment using a horizontal calendar that is included in the user module. Every service has add-on options that let customers tailor their appointments. Slot reservations are possible, letting users select the time that works best for them. The app also has an automatic slider option where deals and discounts are displayed, boosting the likelihood that users will make more reservations. Email, the booked slot's time and date, the services selected, and the total cost are all displayed in the admin module. Utilizing this data will help the salon manage appointments, monitor sales, and improve its offerings.

Photos of the app that we have created are shown below.

User's module:

Fig. 2 Starting page

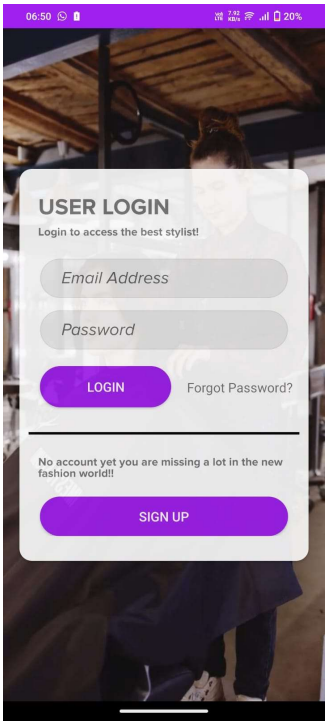

Fig. 3 Login page

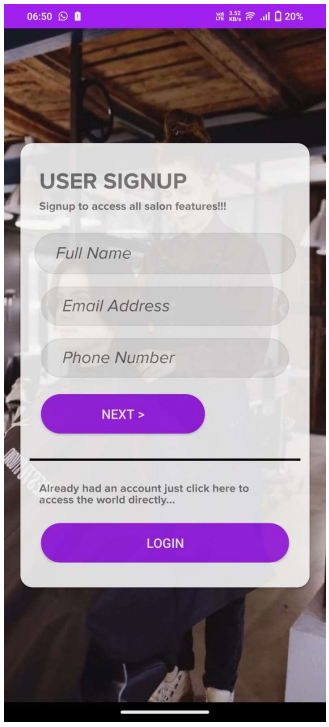

Fig. 4 Signup page

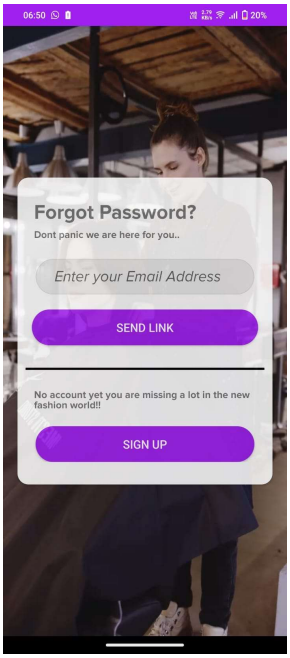

Fig. 5 Forgot password

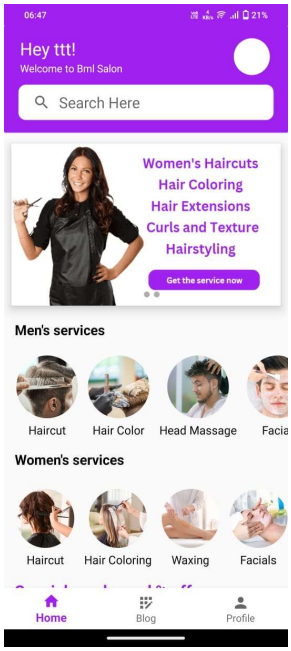

Fig. 6 Home page

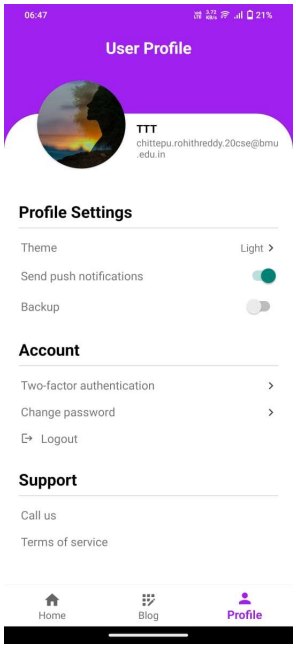

Fig. 7 Profile page

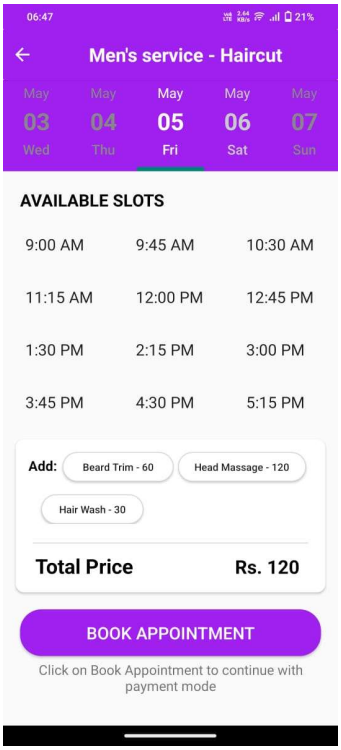

Fig. 8 Men's Service Page

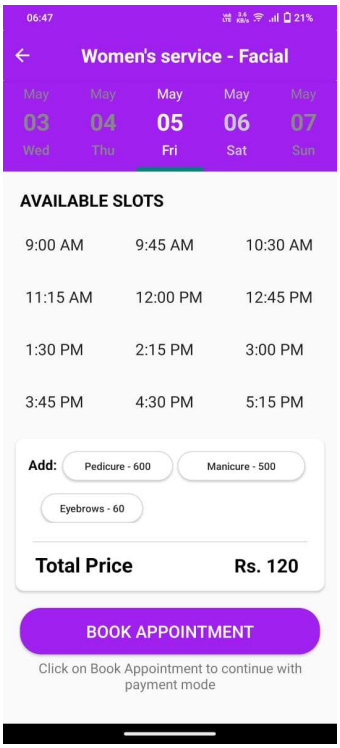

Fig. 9 Women's Service Page

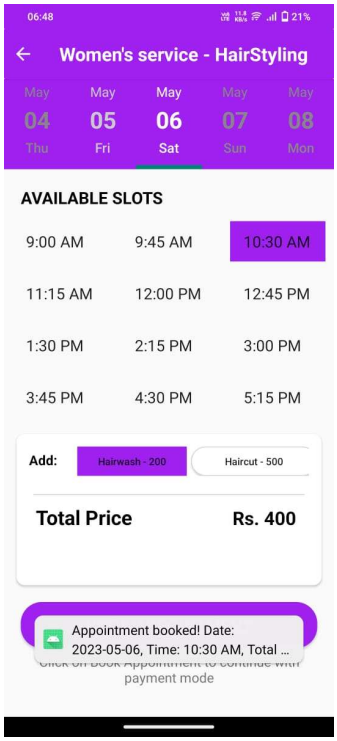

Fig. 10 Toast for appointment booking

Admin's module:

Fig. 11 Admin's module

A sample of users tested the app, and they provided positive comments. It was even shown to the salon staff for feedback. The ability to schedule appointments online and personalize them with add-on services was appreciated by users. The automated slider option was also well-liked by users, who found it to be a practical method to keep up with specials and deals.

6. Conclusions and Future Work

In conclusion, the university's online slot booking software is a useful tool that makes reservations easier and improves the user experience. The features of the app meet user needs while also giving the salon crucial data for managing its services.

The app was successfully developed, satisfying the project's objectives and expectations. The app is a useful addition to the salon's operations because it has the potential to boost sales and customer happiness. Additional features like the capability to cancel or reschedule appointments and the incorporation of a payment gateway to support online payments could be added to the app in the future.

Overall, our university's online slot booking app is a practical and effective tool that helps both the consumers and the salon. The creation and use of the app show how technology has the power to improve and streamline conventional corporate procedures.

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