

QVID: AI based Salon Booking Application

Asha S
Computer Science Dept
SCMS School of Engg & TechnologyErnakulam, India

Vaibhav Nair
Computer Science Dept
SCMS School of Engg & TechnologyErnakulam, India

Neeraj Sagar
Computer Science Dept
SCMS School of Engg & TechnologyErnakulam, India

Silpa P T
Computer Science Dept
SCMS School of Engg & TechnologyErnakulam, India

Merin Mary Sabu
Computer Science Dept
SCMS School of Engg & TechnologyErnakulam, India

Abstract—The current pandemic is restricting the scope of human crowding at places which otherwise seemed to be normal. Safety of the highest order being followed, a common man now has to think twice before proceeding for the most basic of chores, like getting a haircut. The appointment booking system is a custom which has always existed in the community, but seldom used, except for the time-conscious individuals. But this pandemic has brought up the perfect opportunity to normalize this stratagem. And since all the power in the world is now at the tip of your fingers, in the form of a smartphone, we have come up with the idea of merging these two aspects and come up with an android application QVID for the 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. The application collaborates AI techniques to remind the user for booking an appointment by checking the frequency and dates of appointments already taken. The goal is to provide maximum efficiency in services with minimum safety risks.

Index Terms—Android App, Booking, Smartphone, Safety

ment pack called Software Development Kit (SDK) that causes you compose unique code and amass programming modules to make applications for Android clients [1], [2]. When customers book appointments through the android application it would be easy for salon owners to manage and schedule appointments. The paper mainly deals with the study of the system that contains details about the proposed salon booking system as well as existing systems and their features.

Application makes use of the pattern matching AI technique to remind the user to get an appointment based on the previous history of bookings. The application notifies the user to book an appointment when it's nearing the date based on the previous bookings. If required, the application itself books an appointment on behalf of the user in the salon which is frequently booked and the notification of booking confirmation is sent to the user.

Details about the environmental specification which includes hardware and software requirements as well as platform and IDE which describes the various platforms and IDE used in the project are included in Section III. The system design including database design and description of the tables used are detailed in Section IV. Section V elaborates the implementation of the system.

II. SYSTEM STUDY

A. Existing system

The currently existing system [3], [4] mainly deals with a particular salon and is personalized for them. There exist only few applications that provide a platform for multiple salons to set up their own business in the application. Most of the system only deals with the customer module. Even though there are few applications that provide the features for owners, the systems are not effectively implemented and most of them are restricted to a particular area.

B. Proposed system

The salon booking application is mainly divided into two modules, one for the customer and the other for owner or

salon. The system starts with registration where the user has to register himself and then allows the user to log in into the application [5]. The application provides location services that indicate the salons near the location of the user. The application is designed in a simple format so that even a fresher can locate the nearby salons and book appointments in just a few taps. Customers can select the salon they prefer and can select services from the services list provided in the application. The proposed application offers the full featured management functionality. The application uses First Come First Serve (FCFS) fashion for the scheduling of booking.

The application allows users to manage and control bookings easily. Customers can book their appointments according to the date and slot available [4]. Slots available for a week will be given and once a slot is booked, the slot will not be available for another customer. The salon owner can view the slots which a customer had booked and once the service is finished, the owner can mark the service as finished and if time is available the slot can be used by another customer.

III. SYSTEM SPECIFICATIONS

A. Technological specifications

Android is the mobile operating system on which the application runs [2]. For the QVID application room database [6] is being used. Room database maps the data object into java object and gives deliberation layer over SQLite to permit familiar data set admittance while saddling the full intensity of SQLite. It shapes a database layer on top of SQLite data set that deals with commonplace assignments that you used to deal with an aide class. It likewise gives simpler nearby information stockpiling. The Room database uses the Data Access Object to give inquiries to the SQLite information base.

B. Software specifications

- Android studio is the platform used in making and running this android application.
- Front-end tool used to design the layout for the mobile application is XML.
- JAVA is used as the back-end tool for maintaining the database of all the information of users.

C. Hardware specifications

The application was developed on Windows operating system with 8 GB RAM Intel core i5 generation PC with x64 based processor.

IV. SYSTEM DESIGN

A. Database design

A database is an assortment of data that is coordinated so it very well may be handily gotten to, oversaw and refreshed. Admittance to this information is typically given by a DBMS that permits clients to collaborate with at least one database and give admittance to the entirety of the information contained in the database. Database design is the association of information as indicated by a data set model. Database design

includes grouping information and recognizing interrelationships.

The application make use of database tables such as “SalonServices” to store data such as service name and service rate provided by the salons, “Salon” table to store salonid and salonname where salonid is the primary key, “User” table with user details that includes attributes like email id, first name, last name, password, gender and age and have email id as primary key, “Day” table that includes day id and day name where day id is the primary key, “Slot” table that includes slot id and slot name where slot id is the primary key, “BookingDetails” table contains details like booking id, user id, salon id, salon name, service name, service rate, day name, slot name, username, and status of booking where booking id is the primary key and “Intermediate” table that takes the primary keys salon id, day id and slot id and together form a composite primary key. Working of the “Intermediate” table is explained in detail in the implementation of booking services.

B. Data flow diagram

Data flow diagram (DFD), is the graphical portrayal of stream of information in a data framework. It can portray a stream of information in the framework at different levels.

- Level 0: Level 0 is the highest abstraction level DFD which portrays the whole data framework as one diagram containing all the basic subtleties as shown in Fig. 1
- Level 1: Level 1 must balance with level 0 that it describes the input which is being provided into the process is different from the output which is leaving the process. As depicted in Fig. 2, it separates the main process into sub processes that would then be able to be investigated and enhanced to a cozier level.
- Level 2: Level 2 offers a more detailed look at the cycle that makes up a data framework than a level 1 does. More significant level information stream charts can be changed into more specific lower-level outlines with more profound degree of understanding. Fig. 3 shows the booking scenario of QVID.

V. IMPLEMENTATION

The various UI of QVID Application is shown in Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5 and Fig. 6.

A. User registration and login

To permit just registered users to the QVID, the system needs to execute login and registration screens to request that the users register first, at that point login to the application to get an entrance for the substance in an application. Since the application is not personalized for any salon in particular, the system provides two options for signing in, as owner and as customer. By signing in as owner the service providers can register and set business for themselves in the application so that customers can book appointments based on the services and slots available.

By registering as a customer, the user can receive the services provided by the salons and book the appointment for



Fig. 1. Sign Up Page



Fig. 3. Finding
Nearby Salon

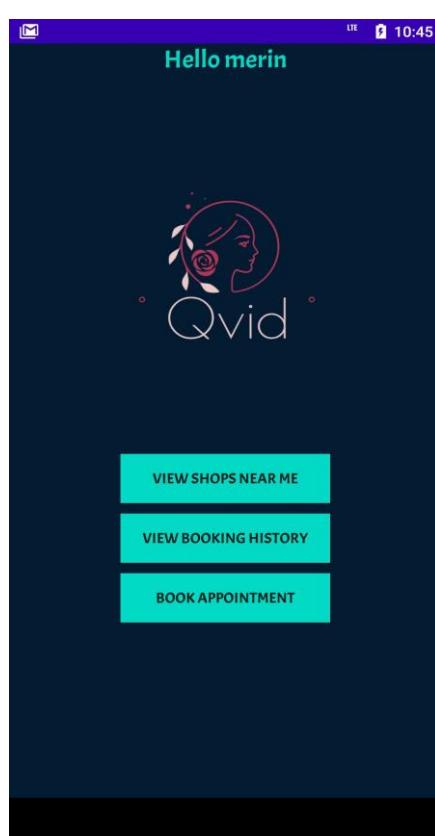


Fig. 2. Customer Options



Fig. 4. Salon Listing
Page



Fig. 5. List of Services offered by the Selected Salon

the service for the preferred time slot. "User" table is used for storing the data provided by the user during registration. For logging in the user has to provide the email id and password that was used while registering to get logged in successfully. After logging in, users can avail the services provided by the application.

B. Location services

A location service which enables the user with information of available salons is paramount [3]. The data given by these services can differ from data of closest services or stores, to alarms on gridlocks and area-based publicizing. The proposed application looks to implement the sleek and minimalistic map-based UI. Through such service the customer will be able to easily find out the nearby salons in just one click.

The user has to provide permission for the application to access the device location so that the application can provide users with the information of nearby salons that are available to provide services through the application. We make use of map and location services that locates the current position of the device. After locating the current location, users are provided with the option to find nearby salons which will display all the salons found in the nearby location. Users can then identify the salon nearby and can make an appointment through the appointment booking module.

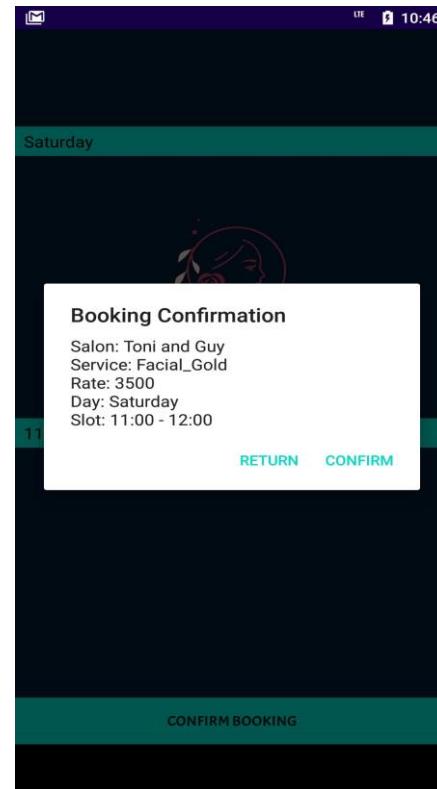


Fig. 6. The Booking Confirmation Page

C. Booking services

The team developed a unique algorithm to handle the appointment management module of the app (Both from user and admin point of view) which plays a pivotal role in functioning of our android application. The challenge was to not display an already booked slot for a given week, if it is already booked by a customer, until the admin finishes up the appointment and declares the status to "Finished". Hence, we created a "Booking Details" table which holds details of all the appointments that have been made through the application, since its inception.

The application also has tables for Days in a week and slots to identify them uniquely. The primary keys of these 3 tables form a database table with a composite primary key and the table is called the "Intermediate" table. As the name suggests it works as a bridge between confirmation of a slot by a user and termination of the slot by the admin. The intermediate table holds the primary keys of tables "Salon", "Day" and "Slot". Hence every entry in this table is a unique entry. The entry is made when a user confirms a slot. Hence the next time when the user checks for the available slots, the system moves to the Intermediate table and checks for any existing slots booked for the respective salon and day, and proceeds to show only the available slots.

The values in the Intermediate table stays in the table until the Admin removes them, which happens at the end of the appointment where he changes the status of slot from “Booked” to “Finished”. Thus, the intermediate table acts as a table which only values for a certain period of time, but holds keys to major functioning of the system, from checking availability of slots to deeming the slots back to availability.

D. AI System

The expandability of the application through AI assisted systems brings forth a new dimension to the application. The involvement of AI to the current work mechanics can generate an output to improve user experience and personalization. Through the implementation of an AI system the application can work as a normal app and it can also single-handedly take care of the salon management system. It assists the customer in various aspects such as selecting the best salon in the location, best service and employee by studying the ratings and feedback from other customers. In a situation where the customer is unable to finish an appointment, the AI assistant shall do it for them. The customer can instruct the assistant with proper specifications and the AI system can work in the background, book the appointment and can provide a notification back to the user. This system can help the owners to grow their business as well as improve the user friendly experience of our app.

VI. CONCLUSION

The application is yet to be delivered and a lot of improvements are as of now considered which propositions are to be actualized in the last form of the versatile application. The framework is an exceptionally adaptable one and is well productive to make simple connections with the customer. The speed and accuracy will be kept up in a legitimate manner. The framework will be an adaptable one and changes at whatever point can be made simple. This will be a user-friendly one and can successfully overcome strict and serve validation checks. Using the facility and flexibility in Java and room databases, the application can be developed in a neat and simple manner there as a front-end and room database server as a back-end, it can be modified easily and used for a long period. The software developed was implemented and tested and was found to be error free. QVID will be very useful during the current situation and later in future. It is very user friendly and any user with basic knowledge can book the appointment just in a few taps. The data will be handled securely and anyone can use this without getting worried about their data. All necessary specifications are carried out in the developed system.

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