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Napitiyana: Innovating Your Barbershop Journey

1. Abstract

Through the integration of technology into every facet of the customer and barber experience, Napitiyana is a unique platform that has the potential to completely transform the traditional barbershop industry. The app's centralized system makes it simple for users to look for barbershops in their area based on services and location, schedule appointments, and get real-time notifications—all of which save time and prevent waiting in line. To suit their particular needs, consumers can also look for barbers with certain skills. The platform has features that promote skill growth and service enhancement, like a training hub for new barbers, a feedback and ratings mechanism, and an intelligent scheduling system. "Napitiyana" transforms the conventional barbershop into a cutting-edge, tech-driven experience by fusing convenience, customization, and quality assurance.

2. Introduction

In the era of digital transformation, various sectors are adopting technology to improve their services and simplify client interactions. The traditional barbershop industry is one such sector that is ready for transformation. Introducing "Napitiyana" – a groundbreaking solution set to revolutionize the traditional barbershop experience. "Napitiyana" is more than simply a smartphone app. Through a sophisticated serial system, individuals can effortlessly schedule their visits and receive timely notifications, eliminating long waiting times. The days of waiting a long time or blindly looking for a local barbershop are long gone.

3. Literature Review

Table 1: Literature Review

Ref	Implemented Features	Limitations
[1]	User-friendly online reservation system prototype, Platform for barbers to market and offer their service, Service for customers considering their budget and convenience.	Limited access to affordable and reliable barbers persists, especially among the B40 (bottom 40% of income earners) community, despite their high unemployment rates and demand for quality services. Closing this gap is crucial to enhance business opportunities for both barbers and clients.
[2]	Online reservation process, Appointment management.	The paper addresses the inefficiencies and limitations of traditional appointment booking methods in barbershops and salons by proposing the development of an innovative online reservation system. Through this system, it aims to streamline the booking process, enhance customer convenience, and optimize business operations in the industry.
[3]	Manage customer billing within barbershops, Managing customer data and potentially appointment or service details.	The research addresses the potential inefficiencies and limitations of traditional billing methods in barbershops. Developing a mobile application, it aims to reduce manual work and streamline billing processes, improve data organization and accessibility, and offer a more efficient and user-friendly billing management system for barbershops.

[4]	<p>This app features user profiles for barbers and clients, a portfolio for haircut designs, real-time appointment booking, community forums, and educational content. It includes a marketplace, rating and review system, customization options, geo-location services, and secure payment integration.</p>	<p>The app faces potential limitations such as slow initial user adoption and challenges in ensuring data privacy and compliance with regulations. Technical issues, particularly during the launch phase, may affect user experience.</p>
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4. Project Objectives

- To modernize the barber shop experience by centralizing the shops.
- To enable online search of the barbershop based on location.
- To assist the clients in finding the desired barber for the service.
- To develop smart appointment scheduling for users.
- To provide a training ground for the new Barbars.
- To provide feedback and ratings for the barbershop.

5. Methodology

The development of the “Napitiyana” app involves a systematic methodology encompassing various stages from conceptualization to deployment. Here's an overview of the approach and techniques used:

Table-2: Methodology

Stage	Approach	Techniques/Tools
Prototyping	Design user interface and app flow	Figma
Frontend	Build responsive, cross-platform user interfaces	Flutter framework
Backend	Design and implement server-side logic and data management	Firebase and MongoDB
Location Based Search	Implement location-based services to find nearby barber shops	Google Maps API

6. Project Implementations

Table-2: Features Explanations

Objective	Features	Description
To modernize the barber shop experience by centralizing the shops.	Online-based booking system for getting services.	Users can book a time online to get services.
	Bringing almost every saloon of an area into one platform	This app brings all the saloons of an area into a single platform for the users.

To enable online search of the barbershop based on location.	Users can search salons in any desired location.	Users or trainees both can search for a salon online in their preferred location.
To help the user to find the desired barber for the service.	Users can find their desired barber to get the services.	Users select the desired design to be applied from their preferred barber.
To develop smart appointment scheduling for users.	Users can select specific dates and specific times for having services.	Users can select specific dates and times for getting services. If the preferred barber isn't free at that time, then the user can select another barber for the service.
To provide a training ground for the new Barbers.	A newbie barber can get training from the desired or preferred barber.	A newbie barber can get both the time and the salon online for him/her to get training to become an expert barber.
	A newbie barber can schedule a training hour.	
To provide feedback and ratings for the barbershop.	Users and trainees can give feedback and ratings.	Users and trainees would have the opportunity to provide feedback and ratings after getting the services which will create an impression about the barber, is he/she good or not at his/her job.

7. Result and Evaluations

1. Modernize the barber shop experience by centralizing the shops:

- **Result:** The app successfully integrates various barber shops into a single platform, providing a streamlined experience for users to browse multiple options in one place.
- **Evaluation:** This objective is well met if shops are easily accessible, and users can quickly navigate between them. Performance metrics like user retention and session times will indicate whether users appreciate the centralized experience.

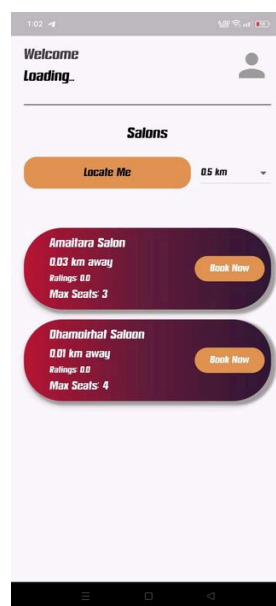


Fig : All Salon in area

2. Enable online search of barber shops based on location:

- **Result:** The app allows users to search for barber shops using geolocation data, displaying results according to proximity.
- **Evaluation:** The effectiveness of this feature can be measured by the accuracy of search results and user feedback regarding the relevance of location-based suggestions. A rating system for search ease could enhance evaluation.

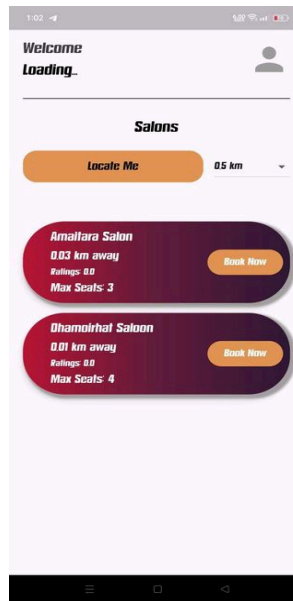


Fig: Location Based Salon

3. Develop smart appointment scheduling for users:

- **Result:** A calendar-based scheduling system allows clients to book time slots, with reminders and notifications integrated into the app.
- **Evaluation:** The success of this feature can be evaluated through usage rates and user feedback on the appointment process. Reducing no-shows and maximizing time slots for barbers will also be a key performance indicator.



Fig: Selection of Date and Time

4. Provide a training ground for new barbers:

- **Result:** A section in the app is dedicated to training material or virtual space where new barbers can practice appointments or receive mentorship.
- **Evaluation:** The effectiveness can be measured by the number of new barbers using the platform and any subsequent improvements in their skills based on reviews or ratings from clients.


A screenshot of a mobile application interface for a trainee form. The screen has a light purple background. At the top, there's a status bar with the time '1:04' and battery level '58%'. Below the status bar, the text 'Hello uu' is displayed. A horizontal line separates this from the main heading 'Please fill up the form to become a trainee'. Below the heading, there are eight orange input fields with rounded corners, each containing a label: 'Phone number', 'Father's Name', 'Father's Phone number', 'Mother's Name', 'Mother's Phone number', 'Present Address', 'Permanent Address', and 'Field of Interest'. At the bottom of the form, there is a small, partially visible orange button labeled 'Save & Continue'. The bottom of the screen shows a black navigation bar with three white icons: a hamburger menu, a square, and a back arrow.

Fig : Trainee Form

5. Provide feedback and ratings for the barbershop:

- **Result:** The app allows users to leave reviews and rate their experience after each appointment.
- **Evaluation:** The volume and quality of feedback will be a key success measure. Positive reviews and high ratings will indicate customer satisfaction, while constructive criticism will help improve services.

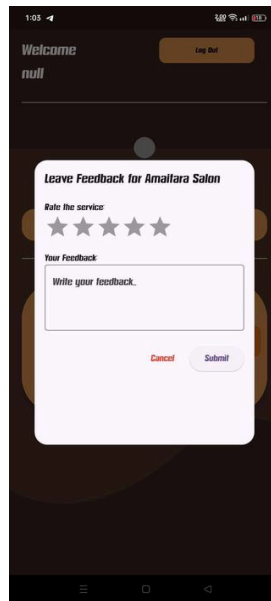


Fig : Feedback and Ratings

8. Conclusion

Our "Napitiyana" app can be a game-changer for barbershops and their customers! With this app, scheduling haircuts, finding barbershops, and leaving reviews will all be easier than ever. People will be happier with their haircuts because they can find the perfect barber and book appointments in advance. Barber Shops will be busier and run smoother because they can manage appointments online and get valuable feedback from customers. This app could even inspire similar apps in other businesses.

9. Future Work

- Further improvement of UI.
- Adding online payment options.
- Allow users to buy hair products via the app.

10. Questionnaires

A. Engineering Knowledge:

To solve the challenges faced during the “Napitiyana” project, we integrated engineering knowledge in the following ways:

- 1. System Design and Architecture:** We utilized principles of software engineering to design a scalable, maintainable, and efficient system architecture. This included choosing appropriate technologies (Flutter for the mobile app, and Firebase for the backend) and designing APIs for seamless communication between the frontend and backend.
- 2. Software Development Lifecycle (SDLC):** We followed a structured SDLC approach, including planning, design, development, testing, and deployment phases. This Systematic approach helped in managing the project effectively and ensured timely delivery of functionalities.
- 3. Data Management and Security:** We implemented secure authentication mechanisms using Firebase Authentication and ensured data integrity and security through encrypted communication and secure data storage practices.

B. Design/Development of Solutions:

- 1. User Feedback:** We conducted usability testing with potential users to gather feedback on the app's interface and functionalities. This feedback was used to make iterative improvements to enhance user satisfaction.
- 2. Prototyping and Testing:** Initial designs and functionalities were prototyped using Figma and Flutter. We conducted internal testing to identify and resolve issues early in the development cycle.
- 3. Agile Methodology:** We adopted an Agile development approach, working in sprints to deliver incremental updates. Regular sprint reviews and retrospectives helped in assessing progress and making necessary adjustments.
- 4. Performance Monitoring:** Post-deployment, we monitored the app's performance using analytics tools. This allowed us to identify bottlenecks and optimize the app for better performance and efficiency.

C. Modern Tool Usage:

- 1. Flutter:** For developing a cross-platform mobile application, enabling us to target both Android and IOS users efficiently.
- 2. Firebase:** Utilized for backend services including authentication, real-time database, and cloud functions. Firebase provided a reliable and scalable backend solution.
- 3. Figma:** Used for designing the user interface, allowing collaborative design and quick iteration based on feedback.

D. Ethics:

- 1. Data Privacy:** We ensured that user data was handled with the utmost confidentiality and security. Personal information and payment details were encrypted and stored securely.
- 2. Transparency:** We maintained transparency in our pricing and service offerings, providing users with clear and upfront information about costs and services.
- 3. User Consent:** Users were informed about data collection practices, and explicit consent was obtained for accessing personal information and location data.
- 4. Equal Access:** We designed the app to be accessible to users with different abilities, following accessibility guidelines to ensure inclusivity.

E. Lifelong Learning:

- 1. Continuous Education:** I plan to stay updated with the latest trends and advancements in mobile app development and backend technologies through online courses, webinars, and workshops.
- 2. Community Engagement:** Participating in developer communities, and forums and attending tech conferences to learn from peers and industry experts.
- 3. Experimentation and Projects:** Engaging in side projects and experimentation with new tools and frameworks to enhance practical knowledge and skills.
- 4. Reading and Research:** Keeping abreast of the latest research papers, articles, and books in the field of software engineering and technology innovation to broaden my knowledge base.

11. References

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