
# American International University-Bangladesh (AIUB)

## Department of Computer Science

## Faculty of Science & Technology (FST)

# TRIMMER

A Software Requirement Engineering Project Submitted
By

| **Semester: Spring_22_23** | | **Section:** | **Group Number:** |
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The project will be Evaluated for the following Course Outcomes

| Evaluation Criteria | Total Marks (50) | |
|---|---|---|
| Introduction, Format, Submission, Defense | [10 Marks] | |
| System Overall Description & Functional Requirements | [10 Marks] | |
| System Quality Attributes and Project Requirements | [10 Marks] | |
| UML and E-R Diagram with Data Dictionary | [10 Marks] | |
| UI/UX Prototyping | [10 Marks] | |

# Software Requirements Specification

**for**

# TRIMMER

**Version 1.0 approved.**

**Prepared by**

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# Revision History

| Name | Date | Reason for Changes | Version |
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| | | | |

# 1. Introduction

## 1.1 Purpose

The software requirements specified in this document are for a software application that helps people find nearby barbershops, schedule appointments with barbers, and access information about the quality of service provided by different barbershops. The product shall help people to find and book appointments with barbershops and allow users to search for barbershops in their area and view information about each shop such as location, services offered, and ratings from other users. Users also be able to view information about individual barbers working at each shop including their availability.
The application aimed at providing a convenient and efficient platform for customers to book appointments with barbershops and individual barbers to access their services and rate their experiences. The purpose of the software is to address the challenges faced by customers and barbers in the current system, such as long wait times, poor service quality and low customer traffic by creating a more streamlined and accessible booking and rating system.

The software system described is a standalone product and does not describe a part of a larger system or a single subsystem. The product's scope includes all the features and functionalities necessary to provide a seamless booking experience for users and to improve the business process of barber salons.

The relevant benefits of the software include reducing wait times for customers, improving service quality by allowing barbers to focus on individual appointments, increasing customer traffic to barbershops and enhancing the overall customer experience. The objectives and goals of the software include providing an easy-to-use interface for customers to book appointments, creating system for customers to provide feedback on their experiences, and providing a secure platform for barbers to showcase their services and schedules.

The software aligns with corporate goals and business strategies by providing a solution that caters to the needs of the customers and the barbers, ultimately leading to increased customer satisfaction and loyalty. The software also aims to increase the visibility and accessibility of barbershops and individual barbers, contributing to the growth of the barber service industry.

There is no mention of a separate vision and scope document in the provided information. Therefore, it can be assumed that this SRS serves as the primary document outlining the software requirements and scope.

**The business requirements for the proposed product can be outlined as follows:**

**Online Booking System:** The booking system should allow users to select a preferred barber, date and time of the appointment and preferred services. Since it is meant for the public, many people will gather here that shall do benefit for future business.

**Online Payment System:** The payment system shall be easy to use and accept multiple payment methods including credit cards, debit cards, and mobile money. System owners can generate revenue through it.

**Barber and Shop Listings:** The system shall maintain a list of barbers and their respective shops in a particular area. Subscription models are generated every month.

**Marketing:** The system shall allow barbers to create and post promotions or offers to attract customers with an extra charge.

**Promotional advertisements:** The Cosmetics companies or other brands can advertise their products in exchange for money.

**Real data collection:** All the information of users shall be collected and managed by the software for future assumptions and business.

## 1.2 Document Conventions

In this document Bolding is used to highlight defined terms, Numeric labels used for making sequencing. The document uses a font size of 12pt and a line spacing of 1 for all normal text, while the "Times New Roman" front employed for all text, which justified aligned.
Additionally, priorities assigned to requirements indicate the order in which shall be implemented. It is important to note that priorities assigned to higher-level requirements are not assumed to be inherited by detailed requirements, and each requirement statement shall expect to have its own priority assigned. This approach helps to prioritize requirements and manage their implementation effectively.

## 1.3 Intended Audience and Reading Suggestions

This document is intended to be read by a range of stakeholders involved in the development and implementation of the software product. The stakeholders include project managers, developers, marketing staff, users, and testers.

**Project manager:** Project managers are responsible for overseeing the development of the product and shall need to have a comprehensive understanding of the software requirements outlined in this document. They will use this information to manage the project, allocate resources, and ensure that the software is delivered on time and within budget.

**Developer:** Developers are responsible for building the software product and shall use this document to understand the functional requirements of the software, as well as any technical specifications that need to be considered during development.

**Marketing staff:** Marketing staff shall use this document to understand the target audience for the software product, as well as any unique features or benefits that the software offers. This information will be used to develop marketing materials and strategies to promote the software to potential users.

**Users:** Users shall use this document to understand the functionality of the software product and how it can be used to meet their specific needs. They will also be able to provide feedback on the requirements outlined in the document, helping to ensure that the software is designed to meet their needs.

**Tester:** Tester shall use this document to understand the testing requirements for the software product. They will use this information to develop test plans and test cases, ensuring that the software meets the functional and technical requirements outlined in the document.

Throughout the document, there may be references to external links or resources that can provide additional information and context for the readers. The stakeholders are encouraged to follow these links and review the resources to gain a more comprehensive understanding of the software requirements outlined in this document.

Here's a suggested sequence for reading the document:

**Overview:** Start with the executive summary and introduction to get an overview of the product and its purpose.

**Business Requirements:** Read this section to understand the business goals, objectives, and benefits of the software.

**User Requirements:** This section describes the user's perspective and requirements for the software. It will be useful for project managers, developers, and testers.

**System Requirements:** Read this section to understand the technical requirements of the software. This section will be useful for developers, testers, and project managers.

**External Interface Requirements:** This section describes the requirements for interfacing with external systems or components. It will be useful for developers and testers.

**Functional Requirements:** This section describes the specific features and functionalities that the software must provide. This section will be useful for developers, testers, and project managers.

**Non-Functional Requirements:** This section describes the non-functional requirements, such as performance, scalability, and security. This section will be useful for developers and testers.

**Appendices:** The appendices provide additional information and references, such as a glossary of terms, acronyms, and external references. It may be useful for all stakeholders to have a glance through this section.

Overall, it is recommended to start with the overview sections and then proceed to the sections that are most pertinent to each reader type. This approach will help readers to get a better understanding of the software and its requirements from various perspectives.

## 1.4 References


1. https://www.barbarly.com/
2. https://www.appbarber.com.br/
3. https://www.andis.com/
4. https://inthechair.com/
5. https://barberworld.hu/
6. https://www.appointy.com/
7. https://www.salonbookingsystem.com/
8. https://simplybook.me/
9. https://www.setmore.com/
10. https://dribbble.com/

# 2. Overall Description

## 2.1 Product Perspective

The software solution shall be a comprehensive and user-friendly platform that shall connect barbers and clients, providing a seamless experience for both parties. The primary goal is to create a comprehensive system that simplifies the process of finding and booking barbers in the user's local area. By utilizing our software, clients will have an effortless experience when searching for barbers based on their ratings, location, and pricing. Additionally, they will have access to the barber's schedule, allowing them to easily book appointments with just a few clicks.

From the perspective of the product, our software shall aim to provide a convenient and efficient way for clients to find the best barber services while ensuring the safety and security of their personal information. We shall be committed to delivering a high-quality product that meets the needs of our clients and barbers.

The software apart is its all-inclusive nature, offering a wide range of barber services including haircuts, shaving, and other grooming services. To aid clients in their decision-making process, our platform incorporates a rating system that allows them to choose the best barbers in their area based on authentic customer feedback.

Furthermore, Continual improvement and staying up to date are central to our commitment. Understanding the dynamic nature of the barber industry, and as such, we are determined to regularly update and enhance the software's features to meet the evolving needs of clients and barbers. The aim is to provide an unparalleled user experience, establishing the software as the handy platform for anyone seeking exceptional barber services.

## 2.2 Product Functions

**The software solution shall perform the following major functions:**

- **User Registration:** The software shall enable users to create an account by providing necessary personal information such as name, contact details, and payment details.
- **Barber Registration:** The software shall allow barbers to create an account by entering their personal information including name, location, services offered, prices, and availability.
- **Search Function:** Users shall be able to search for barbers using criteria such as location, services offered, prices, ratings, and availability.
- **Appointment Booking:** The software shall provide users with the ability to view a barber's schedule and book appointments based on the available slots.
- **Payment Processing:** Users shall be able to securely pay for services through the platform, ensuring the privacy and safety of their financial information.

- **Rating and Review System:** The software shall include a rating and review system that allows users to provide feedback on their experience with a barber. This feedback will assist other users in selecting the best barbers in their area.
- **Notification System:** The software shall send notifications to users and barbers regarding appointment confirmations, cancellations, and any necessary rescheduling.
- **Barber Profile Customization:** The software shall enable barbers to customize their profiles with photos, descriptions, and service details to attract more customers.
- **Booking Management**: The software shall allow barbers to manage their bookings, view upcoming appointments, reschedule, or cancel appointments, and send reminders to their customers.
- **Real-time Availability:** The software shall provide real-time availability of barbers, allowing customers to book appointments with the nearest barber available.
- **Service Packages:** The software shall enable barbers to create service packages with different pricing and service options to offer customers a variety of choices.
- **Social Media Integration:** The software shall enable barbers to integrate their social media profiles, enabling customers to follow and interact with them.
- **Reporting and Analytics:** The software shall provide barbers with the ability to generate reports and analytics on their performance, including appointment bookings, revenue, customer ratings, and reviews.
- **Customer Loyalty Program:** The software shall include a customer loyalty program to incentivize repeat bookings, referrals, and social media sharing. This program can offer discounts, free services, or exclusive deals to loyal customers.
- **Online Store:** The software shall allow barbers to sell products and grooming accessories through an online store, enabling them to generate additional revenue.
- **Multi-language Support:** The software shall support multiple languages, making it accessible to users from different parts of the world.

**Design:**

The following is a top-level data flow diagram depicting the main groups of related requirements and their interactions:

(User) --> (Registration) --> (Search Function) --> (Appointment Booking) --> (Payment Processing) --> (Rating and Review System) --> (Notification System) --> (Barber)

In the system, users and barbers are the primary actors. The registration function serves as the entry point for both users and barbers to create their respective accounts. Once registered, users can utilize the search function to find barbers based on location and services offered. They can proceed to book appointments with the desired barbers, and payment processing will facilitate secure transactions through the platform. The rating and review system will enable users to provide valuable feedback on their experiences, aiding other users in their search for reliable barbers. The notification system will ensure effective communication by sending timely notifications to both users and barbers regarding any changes or updates related to their appointments.

## 2.3 User Classes and Characteristics

The software shall cater to the following anticipated user classes:

**Customers:** Customers are individuals of diverse backgrounds and preferences who seek barber services. They can be male or female and belong to various age groups. Customers are expected to have basic knowledge and will access the software using smartphones. The user interface shall be designed to be intuitive and user-friendly, ensuring that customers can easily navigate and utilize the features to search for barbers, book appointments, and provide feedback.

**Barbers:** Barbers are the service providers who offer their expertise and skills to clients. They shall belong to any age group and possess varying levels of technical expertise. The software shall accommodate barbers with different technological proficiencies, ensuring that even those with limited technical skills can effectively use the platform. Barbers shall have access to their own accounts and profiles, enabling them to manage their schedules, update their services and prices, and accept client bookings. The software shall provide a seamless and efficient workflow for barbers, allowing them to focus on delivering high-quality services to their clients.

**Admin:** Admins are responsible for the overall management and smooth functioning of the software and its platform. They will possess advanced technical expertise and will have access to privileged functionalities to oversee the operations. Administrators shall have the necessary permissions to manage user accounts, handle system configurations, and ensure data security. Additionally, they may need access to sensitive client and barber information to address any technical issues, provide support, and maintain the integrity of the platform.

**Pertinent characteristics of each user class are as follows:**

**Customers:** Customers shall use the product frequently to search for and book barber services. They may have varying levels of technical expertise and require a user-friendly interface to navigate the software. They shall also prioritize privacy and security, so the product must ensure the safety of their personal information.

**Barbers:** Barbers shall require access to their schedules and client bookings. They shall have varying levels of technical expertise and require an intuitive interface to manage their appointments effectively. They will also prioritize privacy and security, so the product must ensure the safety of their personal information and client data.

**Admin:** Admin shall be responsible for managing the software and overseeing its operations. They shall require advanced technical expertise and access to sensitive client and barber information. They will prioritize security and privacy, so the product must ensure that their credentials and data are protected.

The most important user classes for this product are customers and barbers as they are the primary users who will interact with the software frequently. Admins are less important, but their role is critical to ensure the software's smooth operations.

## 2.4 Operating Environment

Our software solution shall operate within a client-server environment, ensuring efficient communication and data exchange between the client-side and server-side components. The client-side of the software shall be compatible with popular web browsers, including Google Chrome, Mozilla Firefox, and Safari. This compatibility shall allow users to access the software seamlessly through their preferred browser.

On the server-side, the software shall run on a Linux-based server utilizing the Apache web server software. This combination of Linux and Apache shall provide a stable and secure foundation for hosting the software and handling client requests.

In terms of hardware requirements, our software shall be adaptable to various devices with internet connectivity, such as laptops, desktops, tablets, and smartphones. This flexibility shall enable users to access the software from their preferred device, granting them convenience and accessibility.

The software shall be designed to operate on different operating systems, including Windows, macOS, and Linux. By ensuring compatibility with the latest versions of these operating systems, we shall maximize the reach of our software, catering to a wide range of users.

In consideration of the user's environment, our software shall coexist peacefully with other software components or applications that may be present on the client-side. This includes popular components such as anti-virus software, firewalls, and ad-blockers. We shall conduct compatibility testing to ensure that our software functions seamlessly alongside these components, delivering a smooth and uninterrupted user experience.

## 2.5 Design and Implementation Constraints

**Design and Implementation Constraints**:

The development of our software solution shall adhere to the following constraints, which have been identified to ensure the successful implementation and functionality of the product:

1) **Programming Language:** The software shall be developed using the Java programming language. This choice of language provides a robust and versatile platform for building scalable and secure applications.
2) **Operating System Compatibility:** The software shall be compatible with both Windows and Mac operating systems. This compatibility shall ensure a broad user base and maximize accessibility for clients and barbers using different platforms.

3) **Development Methodology:** The software shall be developed using the Agile methodology. This iterative and collaborative approach shall enable flexibility, adaptability, and effective project management throughout the development lifecycle.
4) **Secure Communication Protocol:** The software shall utilize a secure communication protocol to ensure the safety and security of user data. By implementing encryption and secure data transmission, the software shall protect sensitive information from unauthorized access or interception.
5) **Scalability:** The software shall be designed to be scalable, capable of accommodating a large number of users and transactions. This scalability shall enable the software to handle increased user demand and growth without compromising performance or user experience.
6) **Data Protection and Privacy:** The software shall comply with all applicable data protection and privacy regulations. It shall incorporate measures to secure user data, implement proper data handling practices, and obtain necessary user consents in accordance with privacy laws and regulations.
7) **Browser Compatibility:** The software shall be compatible with the latest versions of popular web browsers, including Google Chrome, Mozilla Firefox, and Safari. This compatibility shall ensure a consistent user experience across different browser platforms.
8) **Design Conventions and Programming Standards:** The software shall adhere to the standard design conventions and programming standards defined by the customer's organization. This adherence shall ensure consistency, code maintainability, and compatibility with the customer's existing systems.
9) **Security and Risk Mitigation:** The software shall be designed to minimize the risk of cyber-attacks and unauthorized access. Robust security measures, such as implementing authentication mechanisms, access controls, and encryption, shall be incorporated to protect the integrity and confidentiality of user and system data.
10) **Payment Gateway Integration:** The software shall integrate with the client's existing payment gateway system. This integration shall enable secure and seamless payment processing for clients, ensuring a smooth and convenient transaction experience.

## 2.6 User Documentation

**User Documentation:**

To ensure a smooth and user-friendly experience with our software solution, we shall provide comprehensive user documentation. The user documentation components shall include:

1. **User Manual:** The user manual shall serve as a detailed guide, providing step-by-step instructions on how to use the software effectively. It shall cover essential tasks such as searching for barbers, booking appointments, and providing feedback. The manual shall be presented in a clear and concise manner, using plain language to facilitate understanding for users of varying technical expertise.

2. **Online Help:** The online help system shall be an interactive resource that users can access while using the software. It shall provide contextual information and guidance on the various features and functionalities of the software. Users shall be able to search for

specific topics and find relevant instructions, tips, and explanations to assist them in navigating the software seamlessly. The online help shall be easily accessible from within the software interface, enabling users to obtain immediate assistance when needed.

3. **Tutorials:** To enhance user understanding and facilitate the learning process, we shall provide short instructional videos or tutorials. These tutorials shall demonstrate how to use the software's key features, highlighting best practices and providing visual guidance. By offering a combination of written and visual materials, we aim to cater to different learning preferences and ensure a comprehensive understanding of the software's capabilities.

User documentation shall be delivered in digital format, including downloadable PDF documents and online help files. The documentation shall be designed in a user-friendly and visually appealing manner, with clear navigation and logical organization of information. We shall adhere to industry standards for usability, accessibility, and design, ensuring that users can easily find the information they need and comprehend it effectively.

In addition to the core documentation, we shall provide links to external resources and support services. These resources may include a Frequently Asked Questions (FAQ) section, a knowledge base, and a contact channel for customer support. By offering supplementary resources, we aim to empower users to troubleshoot common issues independently and provide a channel for personalized assistance when required.

# 3. System Requirements

## 3.1 Functional Requirements (System Features)

1. **User Profile**
   **Functional Requirements**

**1.1** After login into the user id can update his /her name, age, gender, and location.
**1.2** Users can set Phone number or email in case of some kind of network issue.
**1.3** The system will verify if the Phone number or Email is correct or not and send a message if invalid Phone number or Email.

**Priority level:** Medium
**Precondition:** User must register with Phone Number or Email.
**Cross-reference:** N/A

2. **Search Barber:**
   **Functional Requirements**

**2.1** This System will automatically provide user nearby barber shop.
**2.2** This system will allow customers to choose different kinds of barber.

**Priority level:** High.
**Precondition:** User need to be a registered member first.
**Cross-reference:**1

3. **Booking Barber**
   **Functional Requirements**

**3.1** Users can select their preferable time and barber shop.
**3.2** When the user does not select a specific barber system will automatically choose any barber on selected shop.
**3.3** The system will send a message to both customer and barber to confirm the service.

**Priority level:** High
**Precondition:** Customer need to be registered with the service location and valid phone number
**Cross-reference:** 2

4. **Barber Schedule:**
   **Functional Requirements**

   **4.1** Barber can set their time schedule.
   **4.2** The system automatically updates the barber's time schedule by selected time.
   **4.3** The barber can set offers.
   **4.4** The system will send a message to customers for offers.

   **Priority level:** High
   **Precondition:** Barber need to be registered with the service location and valid phone number
   **Cross-reference:** N/A

5. **Cancel Request:**
   **Functional Requirements**

   **5.1** User can cancel his booking at any time then system will automatically update barber time schedule.
   **5.2** If a customer didn't go to barber shop on time and didn't cancel his booking, then the system will automatically cancel the booking and make a red mark on that user.

   **Priority level:** High
   **Precondition:** User need to be booked a barber
   **Cross-reference:** 3

6. **Payment System:**
   **Functional Requirements**

   **6.1** The system must provide a secure and reliable payment method for customers to pay for services.
   **6.2** The system should accept multiple payment options such as credit/debit cards, Bikash, Nagad and other popular payment methods.
   **6.3** The system must generate and store payment receipts for customers to access and view.

   **Priority level:** High
   **Precondition:** User must have a registered account and be booking a service.
   **Cross-reference:** 3, 5

7. **Service Rating:**
   **Functional Requirements**

   **7.1** After the service is completed, the system will ask the user to rate the service on a scale of 1 to 5.
   **7.2** The rating will be stored in the system and used to calculate an average rating for each barber.

**Priority level:** Medium
**Precondition:** The service must be completed.
**Cross-reference:** 3

**8. Barber Login:**
**Functional Requirements**

**8.1** The software shall allow Barber to login with their given username and password.
**8.2** The login credentials (username and password) will be verified with database records.
**8.3** If the login successful, the home page of the Barber account will be displayed.
**8.4** If the username and/or password has been inserted wrong, the random verification code will be generated and sent to the user's email address by the system to retry login.

**Priority Level:** High
**Precondition:** Barber have valid user id and password
**Cross-references:** N/A

**9. Barber Profile:**
**Functional Requirements**

**9.1** Barbers must be able to provide detailed information about their services, prices, availability, and location.
**9.2** The system must allow barbers to upload pictures of their work and provide links to their social media profiles.
**9.3** The system must verify and approve barber profiles before they can be visible to customers.

**Priority level:** Medium
**Precondition:** Barber must have a registered account and be verified by the system.
**Cross-reference:** 2, 3

**10. Service Categories:**
**Functional Requirements**

**10.1** The system must allow barbers to categorize their services and prices into different categories.
**10.2** The system must allow customers to filter barbers based on the categories of services they offer.
**10.3** The system must allow barbers to add new service categories and update existing ones.

**Priority level:** Medium
**Precondition:** Barber must have a registered account and be verified by the system.
**Cross-reference:** N/A

**11. Availability Calendar:**

**Functional Requirements**

**11.1** This The system must display the availability of barbers in real-time.
**11.2** The system must allow barbers to set their availability in advance and adjust it as necessary.
**11.3** The system must update the availability calendar for customers and barbers in real-time.

**Priority level:** High
**Precondition:** Barbers must have a registered account and be verified by the system.
**Cross-reference**: N/A

**12. Waiting List:**

**Functional Requirements**

**12.1** The system must allow customers to join a waiting list for fully booked barbers.
**12.2** The system must notify customers when an opening becomes available due to a cancellation or rescheduling.
**12.3** The system must automatically book the appointment for the customer who joins the waiting list on a first-come, first-served basis.

**Priority level:** Medium
**Precondition:** User must have a registered account and be booking a service.
**Cross-reference:** N/A

## 3.2 Non-Functional/Quality Requirements

**QA 1. Availability**: The system shall be at least 98.5 percent available every seven days a week between 8.00 am to 8.00 pm local time.

**Priority level:** High
**Precondition:** Must have maintainability attribute
**Cross-reference:** N/A

**QA 2. Efficiency**: There are at least (2) percent of the processor capacity, disk space 1.7 MB/S, memory 88 MB and communication bandwidth 1024kbps shall be available to properly run this system.

**Priority level:** High
**Precondition:** N/A

**Cross-reference:** N/A

**QA 3. Flexibility**: A maintenance programmer who will be able to add new features and functions including code, modifications, and testing into the system in no more than two hours.

**Priority level:** Medium
**Precondition:** N/A
**Cross-reference:** N/A

**QA 4. Integrity**: When a user tries to login into the system, then they have to two step verification. One step is when user try to login into the system, the system will send a verification code to the user via mail and user get a verification code to login and the second step is user need to use own password when they create the password to sign up this system.

**Priority level:** High
**Precondition:** N/A
**Cross-reference:** QA-2

**QA 5. Reliability**: The system shall no more than three experimental runs out of 700 can be lost.

**Priority level:** High
**Precondition:** N/A
**Cross-reference:** QA-1, QA-2, QA-3

**QA 6. Usability**: The system shall be easy to use and navigate for users with little to no technical expertise. User interfaces and interactions shall be intuitive and require minimal user training.

**Priority level:** High

**Precondition:** N/A

**Cross-reference:** N/A

**QA 7. Security:** The system shall have robust security features to protect user data and prevent unauthorized access. This includes encryption of sensitive information, secure login processes, and regular security updates.

**Priority level:** High

**Precondition:** N/A

**Cross-reference:** N/A

**QA 8. Scalability:** The system shall be able to handle an increasing number of users and transactions without compromising on performance or functionality. This includes the ability to add new servers or hardware as needed.

**Priority level:** Medium

**Precondition:** N/A

**Cross-reference:** N/A

**QA 9. Compatibility:** The system shall be compatible with various operating systems, browsers, and devices to ensure a wide user base. Compatibility testing shall be performed regularly to ensure seamless user experience.

**Priority level:** Medium

**Precondition:** N/A

**Cross-reference:** N/A

**There are some important primary quality attributes to developer perspective:**

**i) Maintainability**: Suppose there is a problem that arises in the system that user can't book a barber. A maintenance programmer who has experience can solve this problem within 2 hours without any extra helping hand.

**Priority level:** High
**Precondition:** N/A
**Cross-reference:** QA-3

**ii) Portability**: The system was able to run any platform or any operating system.Like Windows, Android, Apple.

**Priority level:** High
**Precondition:** N/A
**Cross-reference:** QA-2.

**iii) Reusability**: The system functions app is free for everyone.

**Priority level:** Low
**Precondition:** N/A
**Cross-reference:** QA-1, QA-2, QA-3.

**iv) Testability:** The system should have test cases for all the functions and features, and the tests should be easily executable and maintainable.

**Priority level:** High

**Precondition:** N/A

**Cross-reference:** N/A

**v) Scalability**: The system should be able to handle a growing number of users and data without affecting performance.

**Priority level**: High

**Precondition**: N/A

**Cross-reference**: QA-2

**vi) Extensibility:** The system should be designed in a way that allows for easy integration with other systems and the addition of new features and functionality in the future.

**Priority level:** Medium

**Precondition:** N/A

**Cross-reference**: QA-3, QA-4.

## 3.3 Project Requirements

- **Environment**: We need a workspace where 4 people can work together.
- **Resources**: We use a total of 4 human resources to build this software.
- **Equipment**: To build this software we need equipment. Like, 4 Computer
- **Bandwidth**: We need high bandwidth support. Which is around 50 to 80 Mbps.
- **Tools:**
  IDE: Eclipse or NetBeans
  Database: MySQL or Oracle
  Framework: Spring Boot
  Front-end: HTML/CSS, JavaScript, React
  Testing: Selenium WebDriver, JUnit, Mockito
- **Time:** Using the COCOMO (Constructive Cost Model) for SCRUM:

Our software project type: Organic
That means P=1.05, T=0.38
Effort Factor (E)=2.4
We know,
Effort = PM
Here,
SLOC = 17000 Lines
PM = Effort Factor (E) * (SLOC / 1000) P = 2.4 * (17000/1000)^1.05 = 47.00
Development time, DM = 2.5 * (PM) ^T
= 2.5 * (47) ^0.38 = 11 months
Required number of people, ST = PM/DM
= 47/12 = 4 people

- **Budget:** Developer/Tester salary for 11 months:
  Per employee salary per month = 45000 Taka = 450 Taka per hour
  Total salary = 450 * 1760 = 7, 92,000 Taka

- **Requirement analysis:** Required time = 1 month = 25 working days = 200 working hours
  Requirement analysis people per hour salary = 300 Taka
  Total requirement analysis salary = 300 * 200 = 60,000 Taka

- **Transportation cost:** 15,000 Taka (Approximate)
- **Hardware expense:** 1, 20, 000 Taka (Approximate)
- **Rent expenses:** Total in 11 months = 1, 65, 000 Taka [Per month = 15,000 Taka]
  Total utilities in 11 months: 15,000 Taka (Approximate)
- **Maintenance (Till 4 months after delivery):**
  Cost per hour = 1,500 Taka
  Total estimated time needed for maintenance = 40 hours
  Total estimated maintenance cost = 1,500 * 40 = 60,000 Taka
  Project manager's salary for 11 months:
  Per month salary = 45,000 Taka
  Total salary = 45,000 * 11 = 4, 95, 000 Taka
  Scrum master's salary for 11 months:
  Per month salary = 40,000 Taka
  Total salary = 40,000 * 11 = 4, 40, 000 Taka
- **Total expense:** 7, 92,000 + 60,000 + 15,000 + 1, 20, 000 + 1, 65, 000 + 15,000 + 60,000 + 4, 95, 000 + 4, 40, 000 = 20, 02, 000 Taka
- **Profit:** 30% of total expense = 20, 02, 000 * 30% = 6, 00, 600 Taka

## 3.4 Product Requirements

1) **Branding:** The Trimer apps should reflect our brand values and aesthetics.

2) **User Experience**: The system should be easy to use and intuitive for the target user.

3) **Technical Compatibility**: The Trimer apps should be compatible with the latest versions of popular operating systems, browsers, and devices.

4) **Performance:** The system should be fast and responsive with minimal loading times and no lag.

5) **Security:** The system should be secure and protected against hacking, data breaches, and other security threats.

6) **Scalability**: The Trimer apps should be able to handle increased user traffic and usage over time without experiencing performance issues.

7) **Accessibility**: The Trimer apps should be accessible to users with disabilities and comply with accessibility standards.

8) **Localization**: The Trimer apps should be designed to support multiple languages like Bangla, English and cultural preferences.

# 4. Design and Interface Requirements

## 4.1 UML Diagram

**Use case Diagram.**

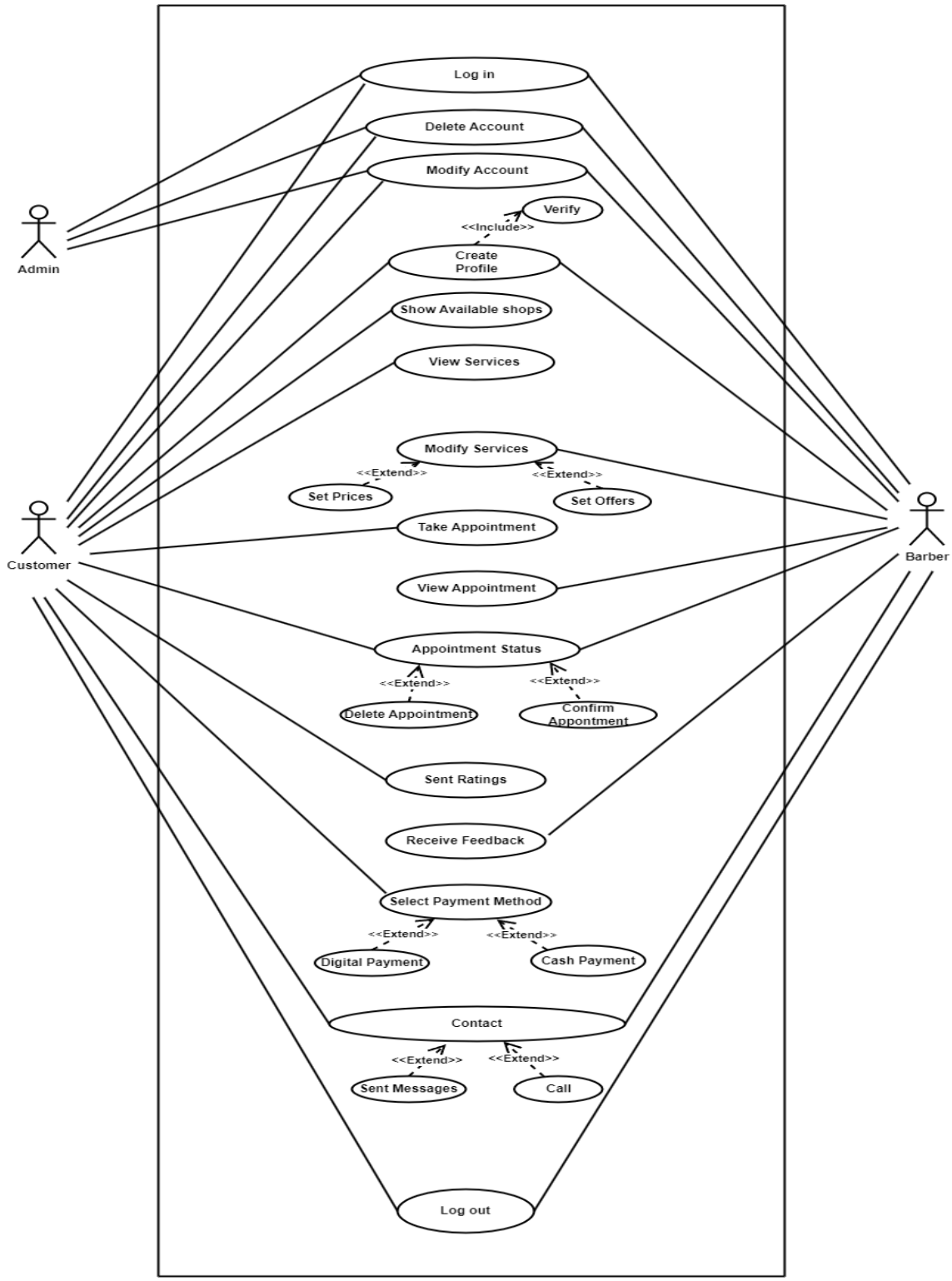
In this use case diagram, there are four actors. Here is a short description of every actor.

**Admin:** The admin is responsible for managing the system and can perform various actions to keep the system running smoothly. They can log in to the system using their credentials. Admin can modify any user id and can delete customer or barber accounts if necessary.

**Customer:** The customer is the user who is seeking the services of a barber and can perform various actions. They can log in to the system using their username and password and then view the list of available shops and the services offered by each shop. For login customer have to create a account first with verify. To book an appointment, the customer can select a shop and a service and then view the available time slots. They can then select a suitable time slot and confirm the appointment. The customer can also view the list of appointments they have made and delay or confirm appointments as needed.
The customer can make payments for the services they have received, either in digital or cash form. They can also provide feedback about their experience with the system or with a particular barber. The customer can contact the barber using the messaging or calling feature if they have any queries or concerns.
Finally, when the customer is done using the system, they can log out.

**Barber:** Barber: The barber shall provide services to customers and can perform various actions to manage their profile and appointments. The barber can create their own profile in the system, which must be verified before it becomes active. They can also modify their account information such as their name or contact details, and can modify the services they offer, such as setting prices or creating offers. Barber can log in to the system using their unique username and password and then view the list of appointments made by customers. The barber can then delay or confirm appointments as needed.
Finally, the barber can receive feedback from customers about their experience with the system and can log out of the system when they are done.

# USE CASE DIAGRAM

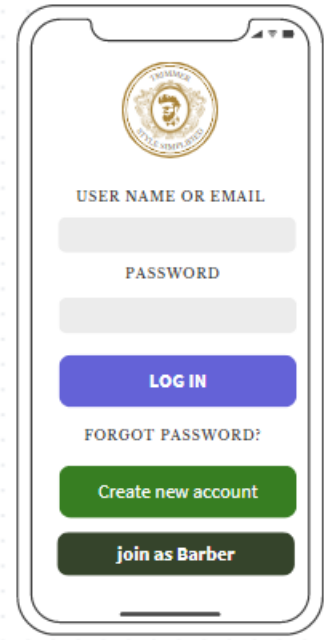


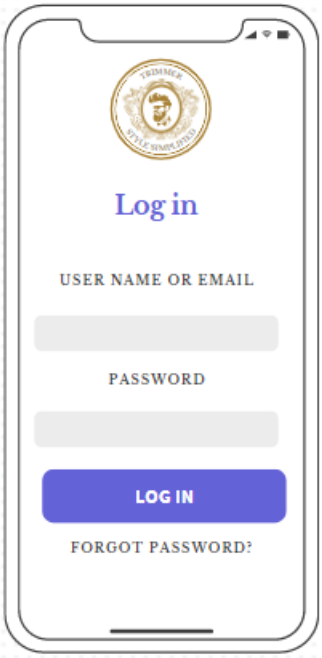
## 4.2 Data Dictionary

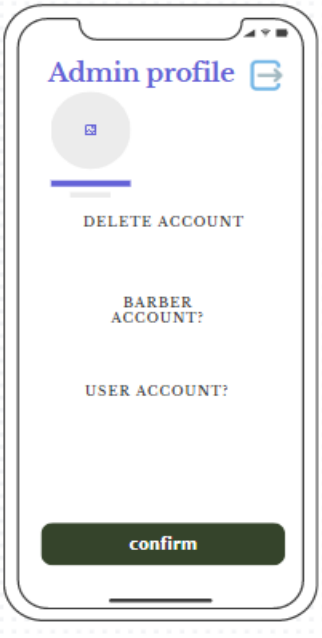
| Entity | Attribute | Type/Size | Validation | Key |
|---|---|---|---|---|
| Admin | AdminID | Number | 10000-99999 | Primary |
| Admin | Admin_Password | Varchar | Required | |
| Customer | User_name | Varchar | Required | Primary |
| Customer | User_Password | Varchar | Required | |
| Customer | First_Name | Text (20) | Required | |
| Customer | Middle_Name | Text (20) | Required | |
| Customer | Last_Name | Text (20) | Required | |
| Customer | Email | Varchar | Required | |
| Customer | Phone | Number | Required | |
| Barber | BarberID | Number | 10000-99999 | Primary |
| Barber | Barber_Password | Varchar | Required | |
| Barber | First_Name | Text (20) | Required | |
| Barber | Middle_Name | Text (20) | Required | |
| Barber | Last_Name | Text (20) | Required | |
| Barber | Shop_Name | Varchar | Required | |
| Barber | Shop_Adress | Varchar | Required | |
| Barber | Email | Varchar | Required | |
| Barber | Phone | Number | Required | |

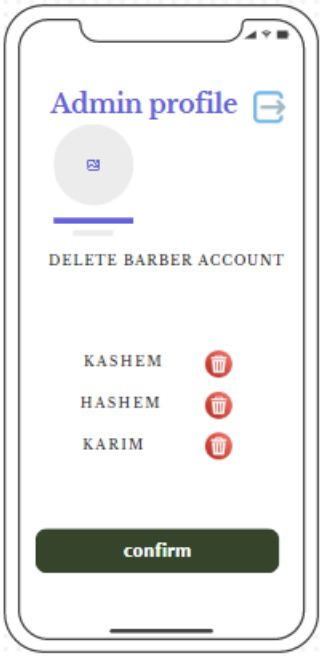
## 4.3 UI/UX Design Specification

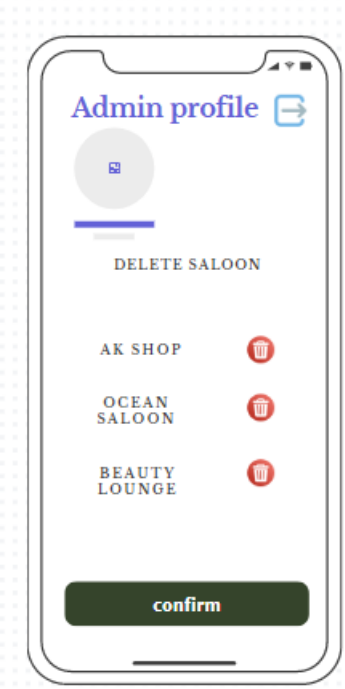
Canva website is used for prototyping the ui/ux design.

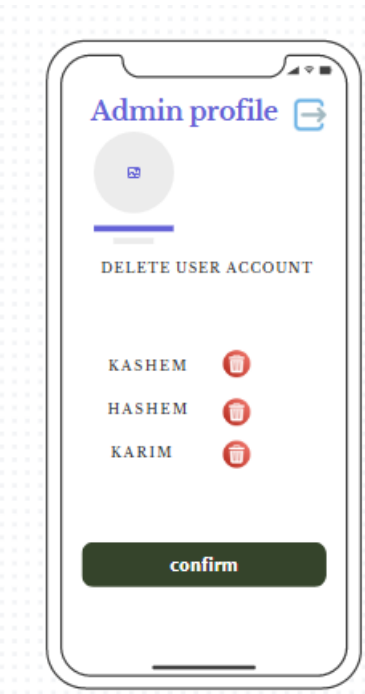


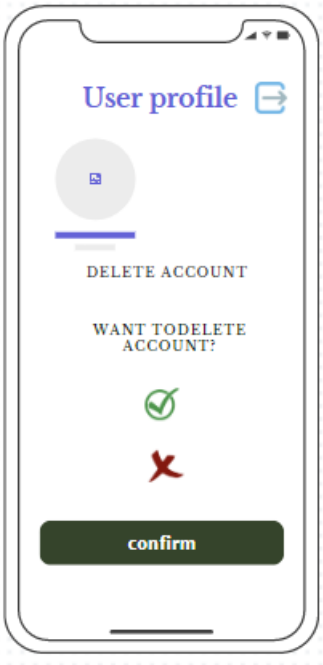



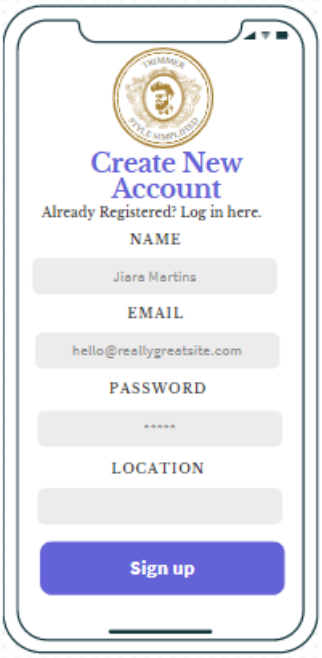



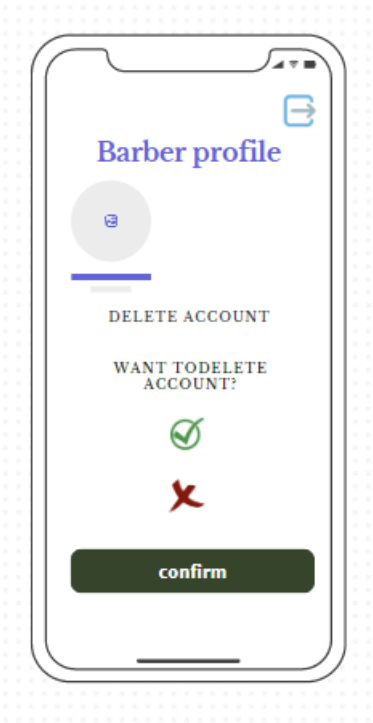



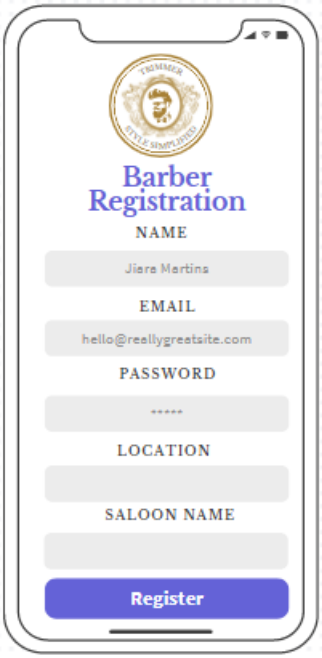

Admin profile
DELETE SALOON
AK SHOP
OCEAN SALOON
BEAUTY LOUNGE
confirm

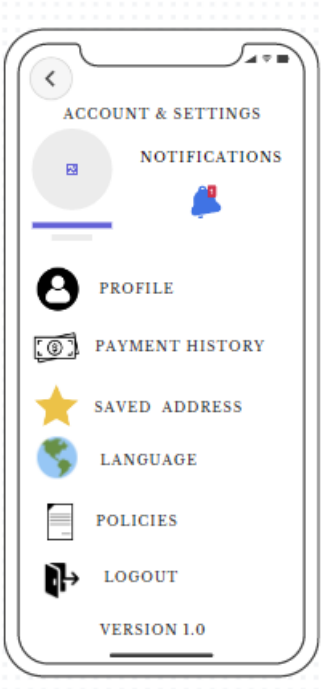

Admin profile
DELETE USER ACCOUNT
KASHEM
HASHEM
KARIM
confirm

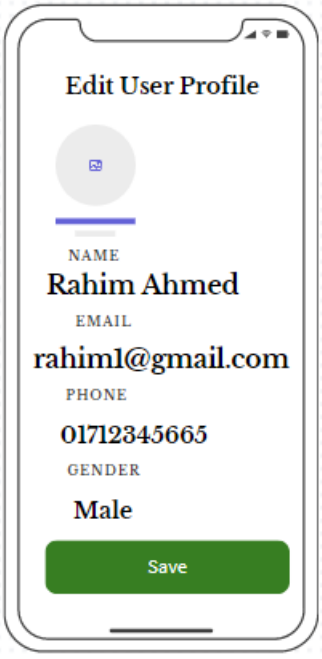

User profile
DELETE ACCOUNT
WANT TODELETE ACCOUNT?
confirm

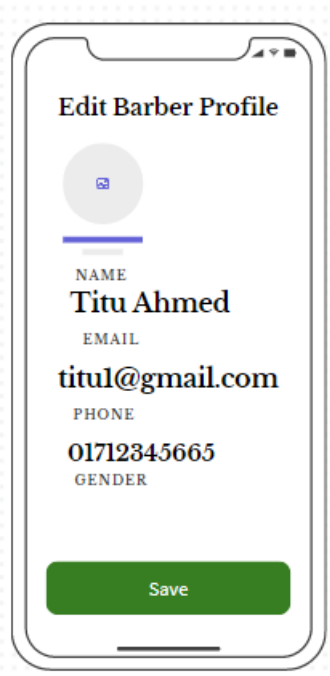

Create New Account
Already Registered? Log in here.
NAME
Jiara Martins
EMAIL
hello@reallygreatsite.com
PASSWORD
LOCATION
Sign up

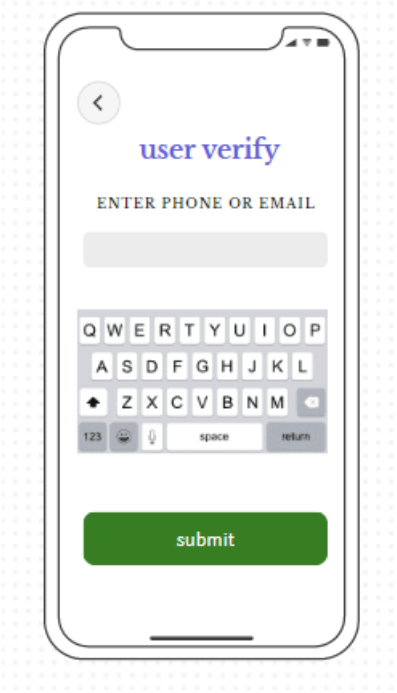

Barber profile
DELETE ACCOUNT
WANT TODELETE ACCOUNT?
confirm

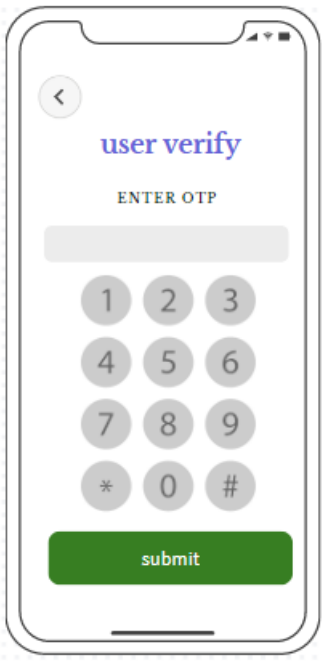

Barber Registration
NAME
Jiara Martins
EMAIL
hello@reallygreatsite.com
PASSWORD
LOCATION
SALOON NAME
Register


ACCOUNT & SETTINGS
NOTIFICATIONS
PROFILE
PAYMENT HISTORY
SAVED ADDRESS
LANGUAGE
POLICIES
LOGOUT
VERSION 1.0


Edit User Profile
NAME
Rahim Ahmed
EMAIL
rahim1@gmail.com
PHONE
01712345665
GENDER
Male
Save

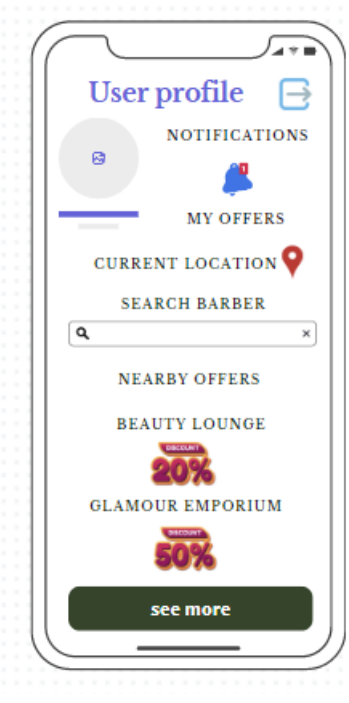

Edit Barber Profile
NAME
Titu Ahmed
EMAIL
titul@gmail.com
PHONE
01712345665
GENDER
Save

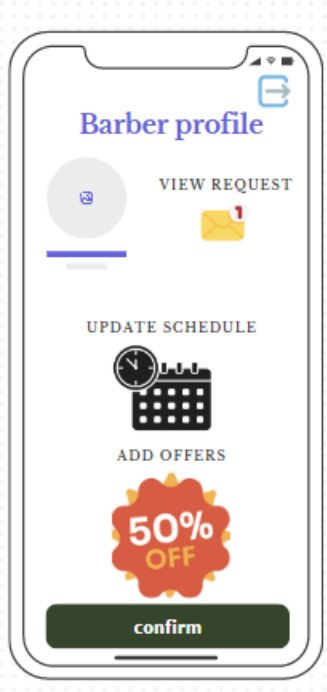

user verify
ENTER PHONE OR EMAIL
submit

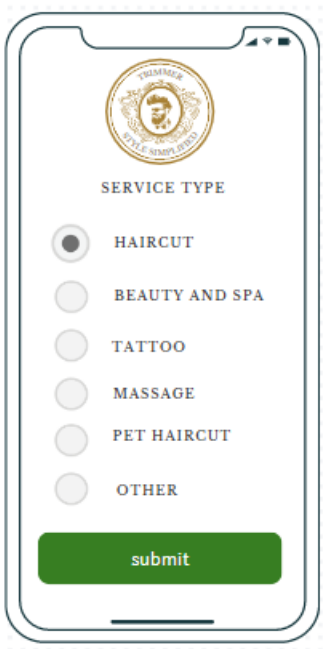

user verify
ENTER OTP
1 2 3
4 5 6
7 8 9
* 0 #
submit

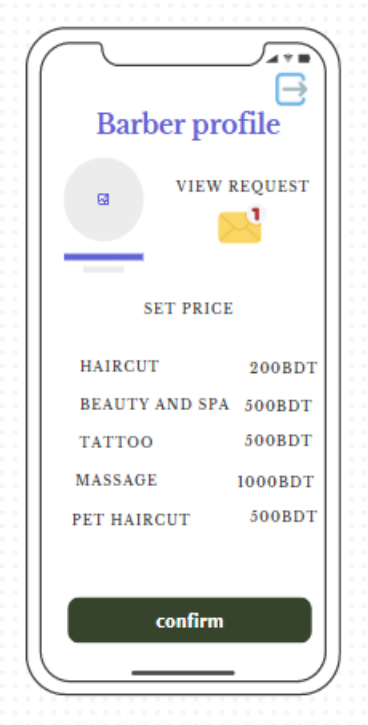

Barber verify
ENTER PHONE OR EMAIL
submit

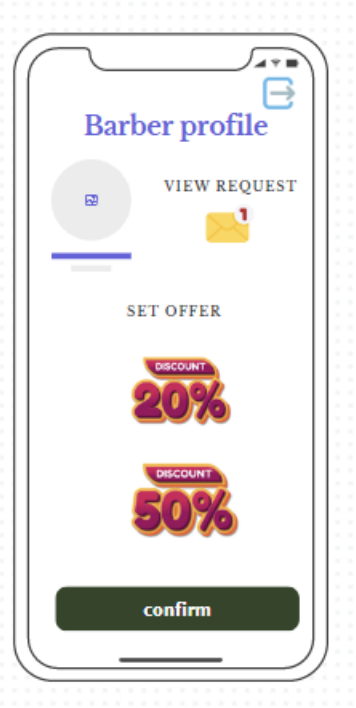

Barber verify
ENTER OTP
1 2 3
4 5 6
7 8 9
* 0 #
submit

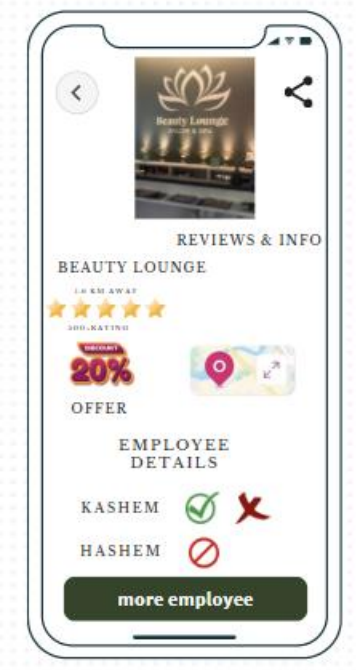

User profile
NOTIFICATIONS
MY OFFERS
CURRENT LOCATION
SEARCH BARBER
NEARBY OFFERS
BEAUTY LOUNGE
20%
GLAMOUR EMPORIUM
50%
see more

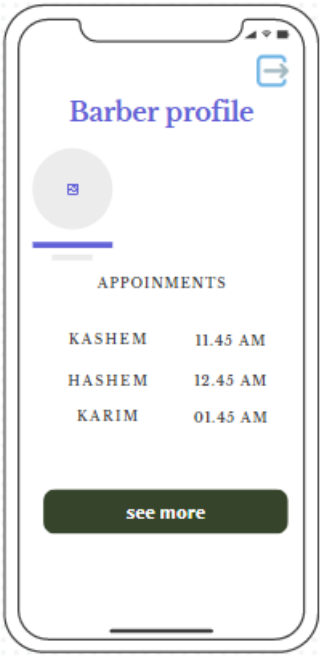

Barber profile
VIEW REQUEST
UPDATE SCHEDULE
ADD OFFERS
50% OFF
confirm

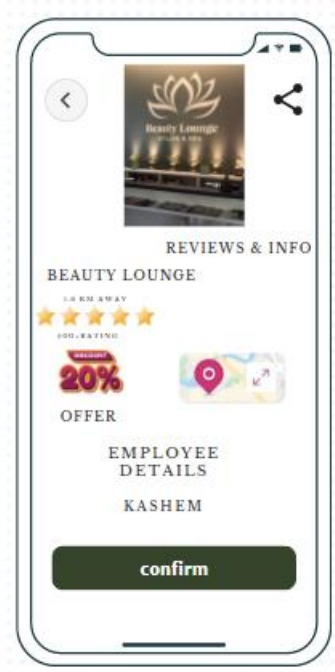

SERVICE TYPE
HAIRCUT
BEAUTY AND SPA
TATTOO
MASSAGE
PET HAIRCUT
OTHER
submit

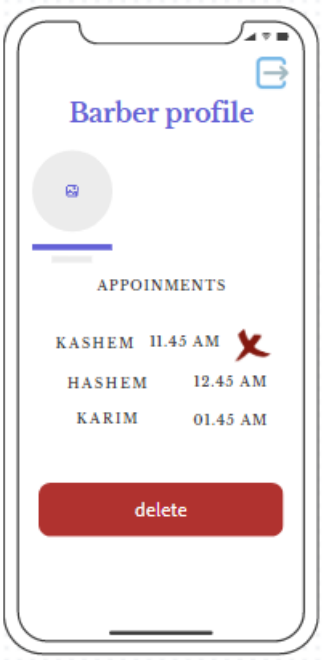

Barber profile
VIEW REQUEST
SET PRICE
HAIRCUT 200BDT
BEAUTY AND SPA 500BDT
TATTOO 500BDT
MASSAGE 1000BDT
PET HAIRCUT 500BDT
confirm


Barber profile
VIEW REQUEST
SET OFFER
DISCOUNT
20%
DISCOUNT
50%
confirm


REVIEWS & INFO
BEAUTY LOUNGE
20%
OFFER
EMPLOYEE DETAILS
KASHEM
HASHEM
more employee

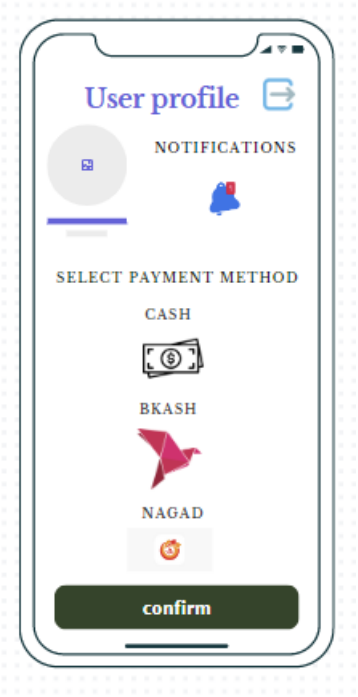

Barber profile
APPOINMENTS
KASHEM 11.45 AM
HASHEM 12.45 AM
KARIM 01.45 AM
see more

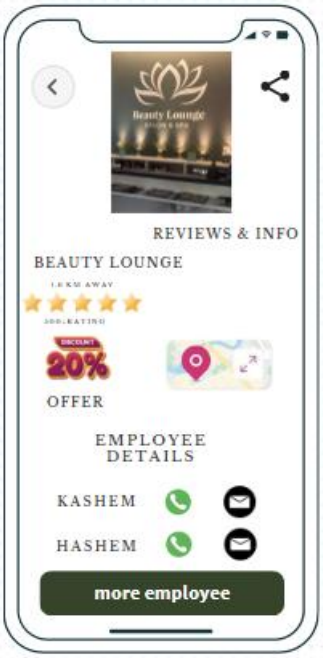

REVIEWS & INFO
BEAUTY LOUNGE
20%
OFFER
EMPLOYEE DETAILS
KASHEM
confirm

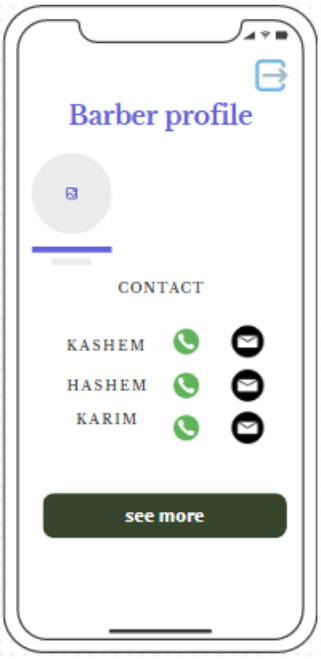

Barber profile
APPOINMENTS
KASHEM 11.45 AM
HASHEM 12.45 AM
KARIM 01.45 AM
delete

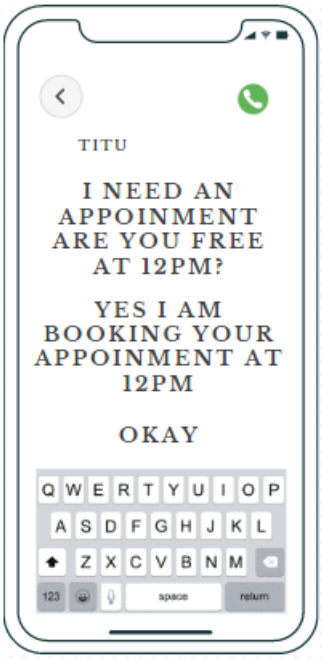

BEAUTY LOUNGE
BARBER REVIEW
KASHEM
submit


BEAUTY LOUNGE
KASHEM
KARIM GAVE REVIEW


User profile
NOTIFICATIONS
SELECT PAYMENT METHOD
CASH
BKASH
NAGAD
confirm


REVIEWS & INFO
BEAUTY LOUNGE
20%
OFFER
EMPLOYEE DETAILS
KASHEM
HASHEM
more employee

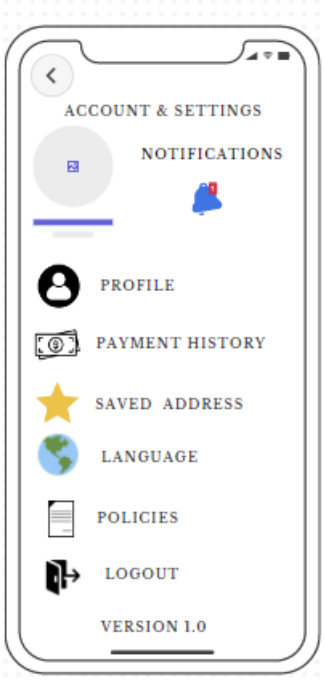

Barber profile
CONTACT
KASHEM
HASHEM
KARIM
see more


TITU
I NEED AN APPOINMENT ARE YOU FREE AT 12PM?
YES I AM BOOKING YOUR APPOINMENT AT 12PM
OKAY


RAHIM
I NEED AN APPOINMENT ARE YOU FREE AT 12PM?
I AM BUSY TILL 1PM YOU CAN CONTACT IN 1PM
OKAY I'LL CONTACT


calling via barber
Titu
REPLY


calling via barber
Titu


ACCOUNT & SETTINGS
NOTIFICATIONS
PROFILE
PAYMENT HISTORY
SAVED ADDRESS
LANGUAGE
POLICIES
LOGOUT
VERSION 1.0