
Software Requirements Specification

for

Smart Salon & Beauty Parlour Reservation & Management System

Prepared by

Riajul Haque Rafi (0242220005101467)

Samiul Hasan Sakib (0242220005101472)

Mimtaj Hossain Sami (0242220005101457)

Md. Rifat Hossain Shan (0242220005101477)

Anik Kumar Kuri (0242220005101077)

11th October, 2025

Table of Contents

Table of Contents	ii
1. Introduction	1-2
1.1 Purpose	1
1.2 Document Conventions	1
1.3 Intended Audience and Reading Suggestions	1
1.4 Project Scope	1-2
1.5 References	2
2. Overall Description	2-4
2.1 Product Perspective	2
2.2 Product Functions	3
2.3 User Classes and Characteristics	3
2.4 Operating Environment	3
2.5 Design and Implementation Constraints	3-4
2.6 Assumptions and Dependencies	4
3. System Features	4-5
3.1 User Module	4
3.2 Admin Module	4-5
3.3 Additional Features	5
4. External Interface Requirements	5-6
4.1 User Interfaces	5
4.2 Hardware Interfaces	5-6
4.3 Software Interfaces	6
4.4 Communications Interfaces	6
5. Other Nonfunctional Requirements	6-7
5.1 Performance Requirements	6
5.2 Security Requirements	7
5.3 Reliability & Availability	7
5.4 Scalability	7
5.5 Usability	7
6. Other Requirements	7-8
Appendix A: Glossary	8-9
Appendix B: Analysis Models	9-12
Appendix C: Issues List	13

Team & Task Distribution

Team Member Name	Team Member ID	Assigned Functional Requirements (FRs)
Riajul Haque Rafi	0242220005101467	FR-1, FR-2, FR-21, FR-7
Samiul Hasan Sakib	0242220005101472	FR-17, FR-18, FR-22, FR-3, FR-14
Md. Rifat Hossain Shan	0242220005101477	FR-3, FR-8, FR-19, FR-6
Mimtaj Hossain Sami	0242220005101457	FR-9, FR-10, FR-11, FR-12, FR-16
Anik Kumar Kuri	0242220005101077	FR-4, FR-5, FR-15, FR-20

1. Introduction

1.1 Purpose

The purpose of this Software Requirements Specification (SRS) is to define the requirements for the *Smart Salon & Beauty Parlour Reservation & Management System (SSBP-RMS)*. This document provides a detailed description of the system's objectives, scope, features, and constraints. It will serve as a reference for:

- **Developers:** to design and implement the system according to functional and non-functional requirements.
- **Testers:** to validate that the system meets the specified requirements.
- **Salon/Parlour Owners (Admins):** to understand how the system will support their business operations.
- **Customers (End Users):** to ensure their needs for convenience, transparency, and service quality are addressed.
- **Stakeholders/Investors:** to evaluate the business value, scalability, and alignment with Bangladesh's digital transformation goals.

The system aims to replace manual booking processes with a digital, AI-enhanced, SQL-backed platform that improves efficiency, customer satisfaction, and business insights.

1.2 Document Conventions

- Requirements are categorized as **Functional Requirements (FR)** and **Non-Functional Requirements (NFR)**.
- Each requirement is uniquely numbered (e.g., FR-1, FR-2, NFR-1).
- UML diagrams (Use Case, Sequence, ER diagrams) will be used where appropriate.
- Technical terms are explained in the **Glossary** section.
- Dates and times follow the **24-hour format** and **Bangladesh Standard Time (BST)**.

1.3 Intended Audience and Reading Suggestions

- **Salon/Parlour Owners (Admins):** Focus on the Admin Module, reports, and business insights.
- **Customers (End Users):** Focus on the User Module, booking process, and feedback features.
- **Developers:** Pay attention to functional requirements, database design, and AI API integration.
- **Testers:** Concentrate on acceptance criteria, performance requirements, and usability standards.
- **Stakeholders/Investors:** Review the scope, objectives, and contribution to Bangladesh's SME and digital ecosystem.

1.4 Project Scope

The *SSBP-RMS* is a web and mobile-based application designed to streamline salon and beauty parlour operations.

Key Features:

- **User Module (Customers):**
 - Online appointment booking (service, stylist, date, time).
 - View services, pricing, and available slots.

- Manage profile, booking history, and invoices.
- Provide feedback and reviews.
- **Admin Module (Salon Owners):**
 - Dashboard with appointments, sales, and customer data.
 - Manage services, staff schedules, and pricing.
 - Approve/reject bookings.
 - Generate invoices and reports.
- **Additional Features:**
- AI-powered recommendations and chatbot support.
- SMS/Email reminders for appointments.
- Loyalty points or membership system.
- Mobile-friendly interface for wider accessibility.
- Multi-branch support for chain salons.

Benefits:

- **Digital Transformation:** Replaces manual booking with automated, user-friendly system.
- **Time Efficiency:** Reduces waiting times and scheduling conflicts.
- **Customer Satisfaction:** Provides convenience, transparency, and personalized service.
- **Business Insights:** Enables owners to track revenue, customer trends, and staff performance.
- **Scalability:** Supports growth from single parlour to franchise-level operations.

1.5 References

- IEEE Standard 830-1998: Recommended Practice for Software Requirements Specifications.
- Government of Bangladesh's *Digital Bangladesh Vision 2021/2041*.
- Industry best practices for online booking and reservation systems.
- Documentation of AI APIs (for chatbot, recommendation engine, and notifications).
- SQL Database standards (MySQL/PostgreSQL).

2. Overall Description

2.1 Product Perspective

The *Smart Salon & Beauty Parlour Reservation & Management System (SSBP-RMS)* is a **web and mobile-based application** designed to replace manual booking and management processes with a digital, AI-enhanced solution.

- **Architecture:** Client-server model with a web/mobile front-end, a back-end application server, and an SQL database.
- **AI Integration:** External AI APIs will be used for personalized recommendations, chatbot-based customer support, and automated reminders.
- **Database:** SQL (MySQL/PostgreSQL/SQL Server) will store structured data such as appointments, services, staff schedules, invoices, and customer profiles.
- **Deployment:** Cloud-hosted for scalability, with support for multi-branch operations.

2.2 Product Functions

The system will provide the following high-level functions:

- **Customer Functions:**
 - Book appointments online (choose service, stylist, date, time).
 - Browse services, pricing, and available slots.
 - Manage profile, booking history, and invoices.
 - Provide feedback and reviews.
- **Admin Functions:**
 - Dashboard with appointments, sales, and customer data.
 - Manage services, staff schedules, and pricing.
 - Approve/reject bookings.
 - Generate invoices and reports.
- **Additional Functions:**
- AI-powered recommendations and chatbot support.
- SMS/Email reminders for appointments.
- Loyalty points or membership system.
- Multi-branch support for chain salons.

2.3 User Classes and Characteristics

- **End Users (Customers):**
 - Age range: 18–50, urban professionals, students, and general customers.
 - Characteristics: Smartphone users, prefer convenience, expect transparency in pricing and availability.
- **Salon Owners/Admins:**
 - Small-to-medium business owners, often non-technical.
 - Require a simple, intuitive dashboard to manage operations.
- **Staff/Employees (Stylists, Beauticians):**
- Need access to schedules and customer bookings.
- Limited interaction with the system, mainly for viewing appointments.

2.4 Operating Environment

- **Front-End:**
 - Web browsers: Chrome, Edge, Firefox.
 - Mobile apps: Android and iOS.
- **Back-End:**
 - Server-side application (Node.js/Java/Python/PHP).
 - SQL database (MySQL/PostgreSQL).
 - AI API integration via RESTful services.
- **Hosting:**
- Cloud-based (AWS, Azure, or local hosting depending on budget).
- **Framework**
 - Laravel

2.5 Design and Implementation Constraints

- Must support **multi-branch operations**.
- Must comply with **data privacy and security standards**.

- Internet connectivity required for AI API calls.
- Mobile-friendly responsive design.
- Budget constraints may limit advanced AI features.

2.6 Assumptions and Dependencies

- Users have access to smartphones or computers with internet.
- SMS/Email gateway services are available for reminders.
- AI API services remain available and affordable.
- SQL database is scalable to handle growing customer and transaction data.
- Payment gateway integration is supported by local banks and mobile financial services (e.g., bKash, Nagad).

3. System Features

3.1 User Module (Customers)

The User Module provides customers with a seamless way to interact with the salon/parlour digitally.

Functional Requirements:

- **FR-1:** The system shall allow users to create and manage personal profiles (name, contact, preferences).
- **FR-2:** The system shall allow users to browse services, pricing, and available time slots.
- **FR-3:** The system shall allow users to book appointments by selecting service, stylist, date, and time.
- **FR-4:** The system shall display booking confirmation and generate a digital invoice.
- **FR-5:** The system shall allow users to view and manage booking history.
- **FR-6:** The system shall allow users to cancel or reschedule appointments (subject to salon policy).
- **FR-7:** The system shall allow users to provide feedback and reviews for services and staff.
- **FR-8:** The system shall notify users via SMS/Email about booking confirmations, reminders, and cancellations.

3.2 Admin Module (Salon/Parlour Owners)

The Admin Module enables salon owners to manage services, staff, and customer interactions efficiently.

Functional Requirements:

- **FR-9:** The system shall provide an admin dashboard showing appointments, sales, and customer data.
- **FR-10:** The system shall allow admins to add, update, or remove services and pricing.
- **FR-11:** The system shall allow admins to manage staff schedules and availability.
- **FR-12:** The system shall allow admins to approve or reject customer bookings.
- **FR-13:** The system shall generate invoices for completed services.
- **FR-14:** The system shall generate reports (daily, weekly, monthly) on revenue, customer trends, and staff performance.

- **FR-15:** The system shall allow admins to manage loyalty points or membership programs.
- **FR-16:** The system shall support multi-branch management, enabling centralized control of multiple salons.

3.3 Additional Features (AI & Enhancements)

To enhance user experience and business intelligence, the system integrates AI and modern digital tools.

Functional Requirements:

- **FR-17:** The system shall integrate with AI APIs to provide personalized service recommendations based on customer history.
- **FR-18:** The system shall provide an AI-powered chatbot for customer queries and support.
- **FR-19:** The system shall send automated SMS/Email reminders for upcoming appointments.
- **FR-20:** The system shall allow customers to earn and redeem loyalty points.
- **FR-21:** The system shall provide a mobile-friendly interface for both customers and admins.
- **FR-22:** The system shall support secure online payment integration (local gateways such as bKash, Nagad, Rocket, and credit/debit cards).

4. External Interface Requirements

4.1 User Interfaces

The system will provide intuitive, responsive, and user-friendly interfaces for both customers and admins.

- **Customer Interface:**
 - Web and mobile app with clean navigation.
 - Service catalog with images, descriptions, and pricing.
 - Appointment booking form (service, stylist, date, time).
 - Profile management (personal details, booking history, invoices).
 - Feedback/review submission page.
 - Notifications panel for reminders and updates.
- **Admin Interface:**
 - Dashboard with KPIs (appointments, revenue, customer count).
 - Service management panel (add/update/remove services).
 - Staff scheduling and availability management.
 - Booking approval/rejection interface.
 - Report generation (sales, performance, customer trends).
 - Multi-branch management panel.

4.2 Hardware Interfaces

- **Customer Devices:** Smartphones (Android/iOS), tablets, and PCs with internet access.

- **Admin Devices:** Desktop PCs, laptops, or tablets with internet access.
- **Server Requirements:**
- Cloud-hosted or on-premise server with minimum 8 GB RAM, quad-core processor, and 100 GB storage.
- Backup server for redundancy.

4.3 Software Interfaces

- **Database:** SQL (MySQL/PostgreSQL/SQL Server) for structured data storage.
- **AI APIs:**
 - Recommendation engine for personalized services.
 - Chatbot for customer support.
 - Automated reminder system (SMS/Email).
- **Payment Gateway:** Integration with local services (bKash, Nagad, Rocket) and international cards (Visa, MasterCard).
- **SMS/Email Gateway:** For sending booking confirmations, reminders, and promotional offers.
- **Operating Systems:**
 - Mobile: Android 10+ and iOS 13+.
 - Web: Compatible with Chrome, Edge, Firefox.
- **Cloud Hosting:** AWS/Azure/Google Cloud for scalability and reliability.

4.4 Communication Interfaces

- **Internet Connectivity:** Required for all customer and admin interactions.
- **Protocols:**
 - HTTPS for secure communication.
 - RESTful APIs for AI and third-party service integration.
- **Notifications:**
 - Push notifications for mobile apps.
 - SMS/Email for reminders and confirmations.
- **Multi-Branch Synchronization:** Real-time data sync across branches via cloud database.

5. Non-Functional Requirements

5.1 Performance Requirements

- **NFR-1:** The system shall support at least **500 concurrent users** without performance degradation.
- **NFR-2:** Average page load time shall not exceed **3 seconds** under normal network conditions.
- **NFR-3:** Appointment booking transactions shall be processed within **2 seconds**.
- **NFR-4:** The system shall handle up to **100,000 records** in the SQL database without affecting query performance.
- **NFR-5:** The system shall scale horizontally (via cloud hosting) to support additional branches and users.

5.2 Security Requirements

- **NFR-6:** All communication between client and server shall use **HTTPS with SSL/TLS encryption**.
- **NFR-7:** User authentication shall be implemented using **secure login (username/password, OTP, or OAuth)**.
- **NFR-8:** Sensitive data (passwords, payment details) shall be stored using **encryption and hashing algorithms** (e.g., AES, SHA-256).
- **NFR-9:** The system shall implement **role-based access control (RBAC)** to separate customer, staff, and admin privileges.
- **NFR-10:** The system shall comply with **Bangladesh ICT Act** and international data protection standards.

5.3 Reliability and Availability

- **NFR-11:** The system shall maintain **99.5% uptime** annually.
- **NFR-12:** Automated daily backups of the SQL database shall be performed.
- **NFR-13:** The system shall recover from server failure within **30 minutes** using backup servers.
- **NFR-14:** The system shall ensure data consistency across multiple branches in real time.

5.4 Scalability

- **NFR-15:** The system shall support expansion from a **single salon to a franchise model** with multiple branches.
- **NFR-16:** The SQL database shall be optimized for partitioning and indexing to handle large datasets.
- **NFR-17:** The system shall allow integration with additional AI APIs or third-party services in the future.

5.5 Usability

- **NFR-18:** The system shall provide a **mobile-friendly, responsive interface** for customers and admins.
- **NFR-19:** The system shall support **Bangla and English languages** for localization.
- **NFR-20:** The system shall be intuitive enough that a new user can complete a booking within **3 minutes** without training.
- **NFR-21:** The admin dashboard shall use **visual charts and reports** for easy interpretation of business data.

6. Other Requirements

6.1 Legal and Regulatory Compliance

- **OR-1:** The system shall comply with the **Bangladesh ICT Act** and relevant data protection regulations.

- **OR-2:** The system shall ensure compliance with **consumer protection laws**, particularly regarding transparent pricing and refund policies.
- **OR-3:** The system shall comply with **financial regulations** for online payments, including integration with licensed payment gateways (bKash, Nagad, Rocket, Visa/MasterCard).
- **OR-4:** The system shall maintain **audit logs** of transactions and booking activities for accountability.

6.2 Localization and Cultural Adaptation

- **OR-5:** The system shall support **Bangla and English languages** to cater to local and international customers.
- **OR-6:** The system shall display prices in **Bangladeshi Taka (BDT)** by default, with optional currency conversion for international users.
- **OR-7:** The system shall follow **Bangladesh Standard Time (BST)** for all bookings and reminders.
- **OR-8:** The system shall adapt to **local business practices**, such as festival promotions (e.g., Eid, Pohela Boishakh) and seasonal offers.

6.3 Business Rules

- **OR-9:** Customers must register with a valid phone number or email before booking.
- **OR-10:** Bookings can be canceled or rescheduled only within a defined time window (e.g., 24 hours before appointment).
- **OR-11:** Loyalty points shall expire after a fixed period (e.g., 12 months) if not redeemed.
- **OR-12:** Admins shall have the authority to override bookings in case of emergencies or staff unavailability.

6.4 Future Enhancements (Optional)

- **OR-13:** Integration with **social media platforms** (Facebook, Instagram) for promotions and bookings.
- **OR-14:** AI-driven **demand forecasting** to optimize staff scheduling.
- **OR-15:** Integration with **IoT devices** (e.g., smart queue displays in salons).
- **OR-16:** Support for **franchise-level analytics** across multiple branches.

7. Appendices

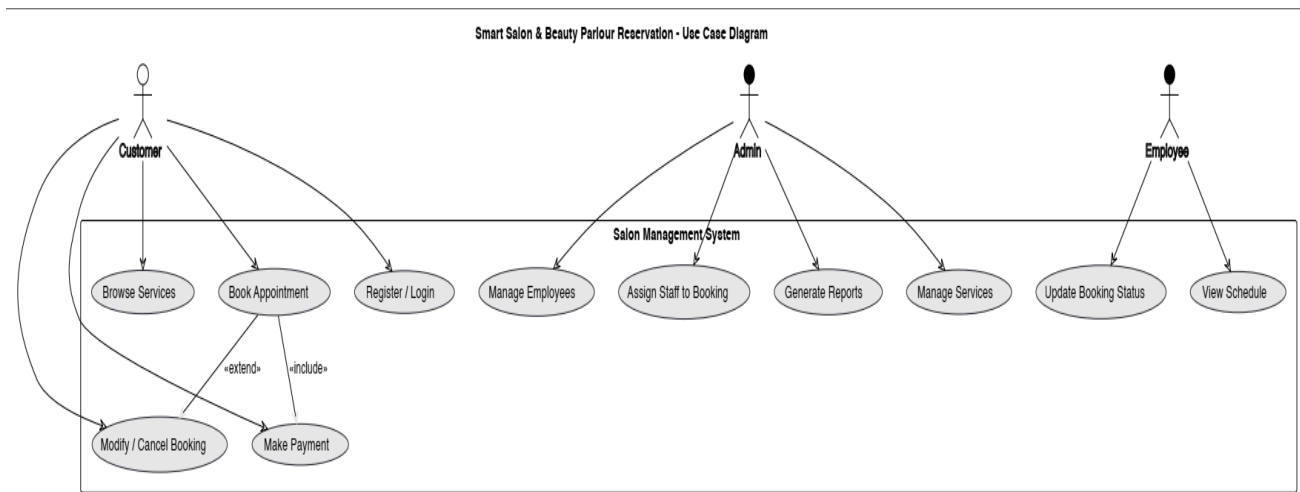
7.1 Glossary

- **AI API:** Application Programming Interface that provides artificial intelligence services such as recommendations, chatbots, and automated reminders.
- **SQL Database:** Structured Query Language database used for storing and managing structured data (appointments, services, invoices, etc.).
- **RBAC (Role-Based Access Control):** A method of restricting system access based on user roles (customer, staff, admin).
- **SME (Small and Medium Enterprise):** Businesses with limited scale, common in Bangladesh's salon and parlour industry.

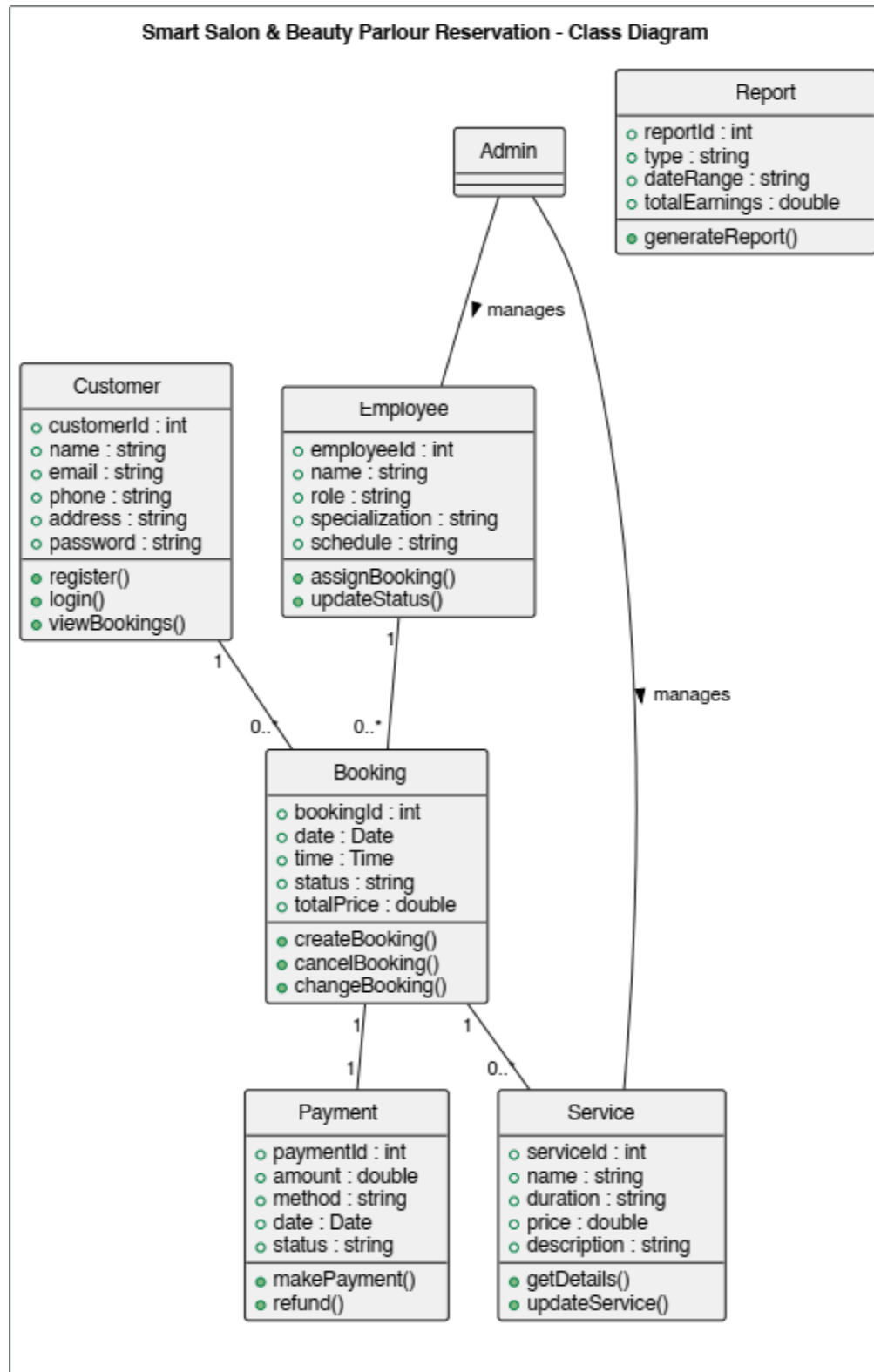
- **UML (Unified Modeling Language):** A standardized modeling language used to visualize system design.
- **BST (Bangladesh Standard Time):** Time zone used for all bookings and reminders.

7.2 UML Diagrams

Use Case Diagram

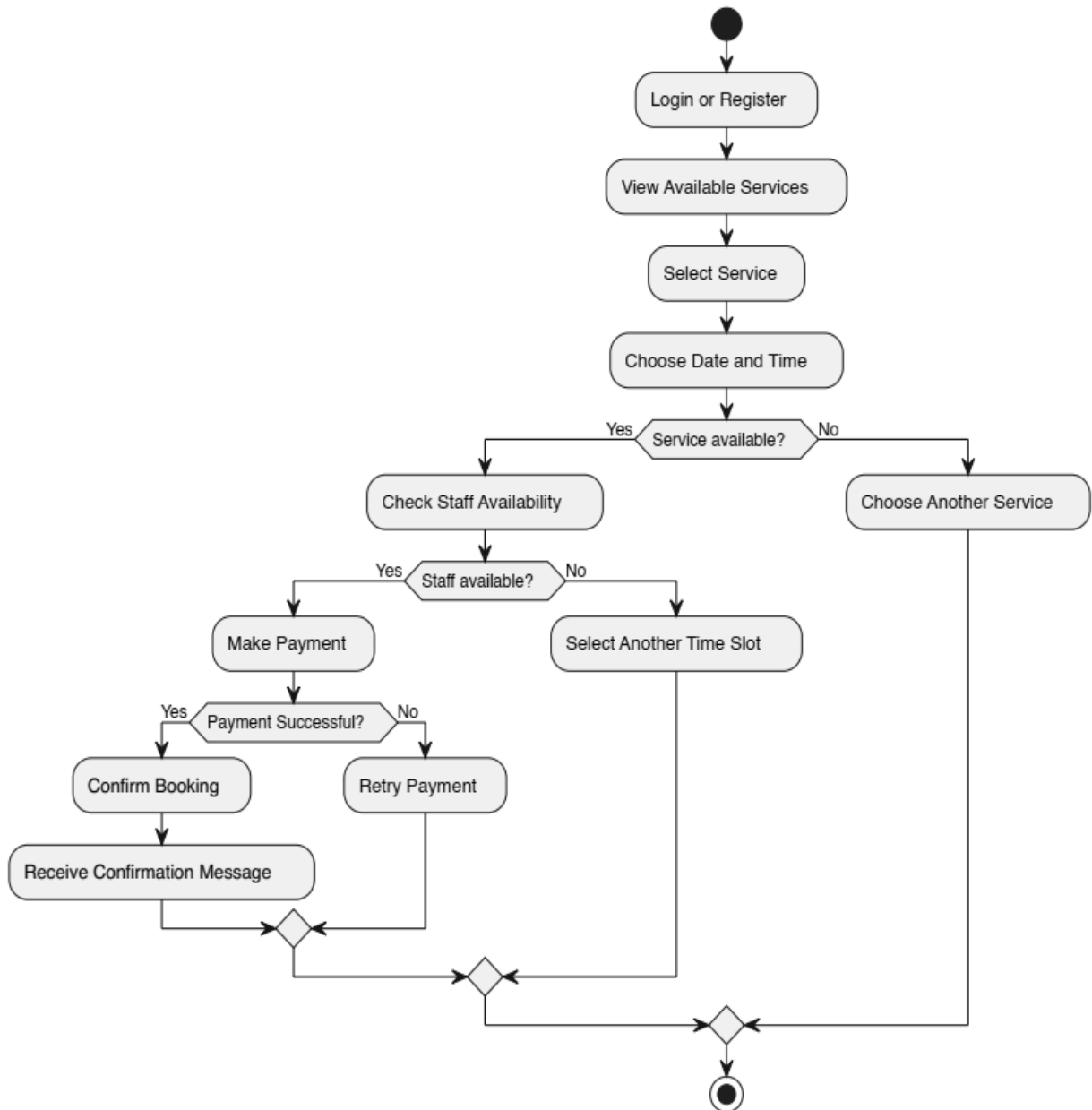


Class Diagram

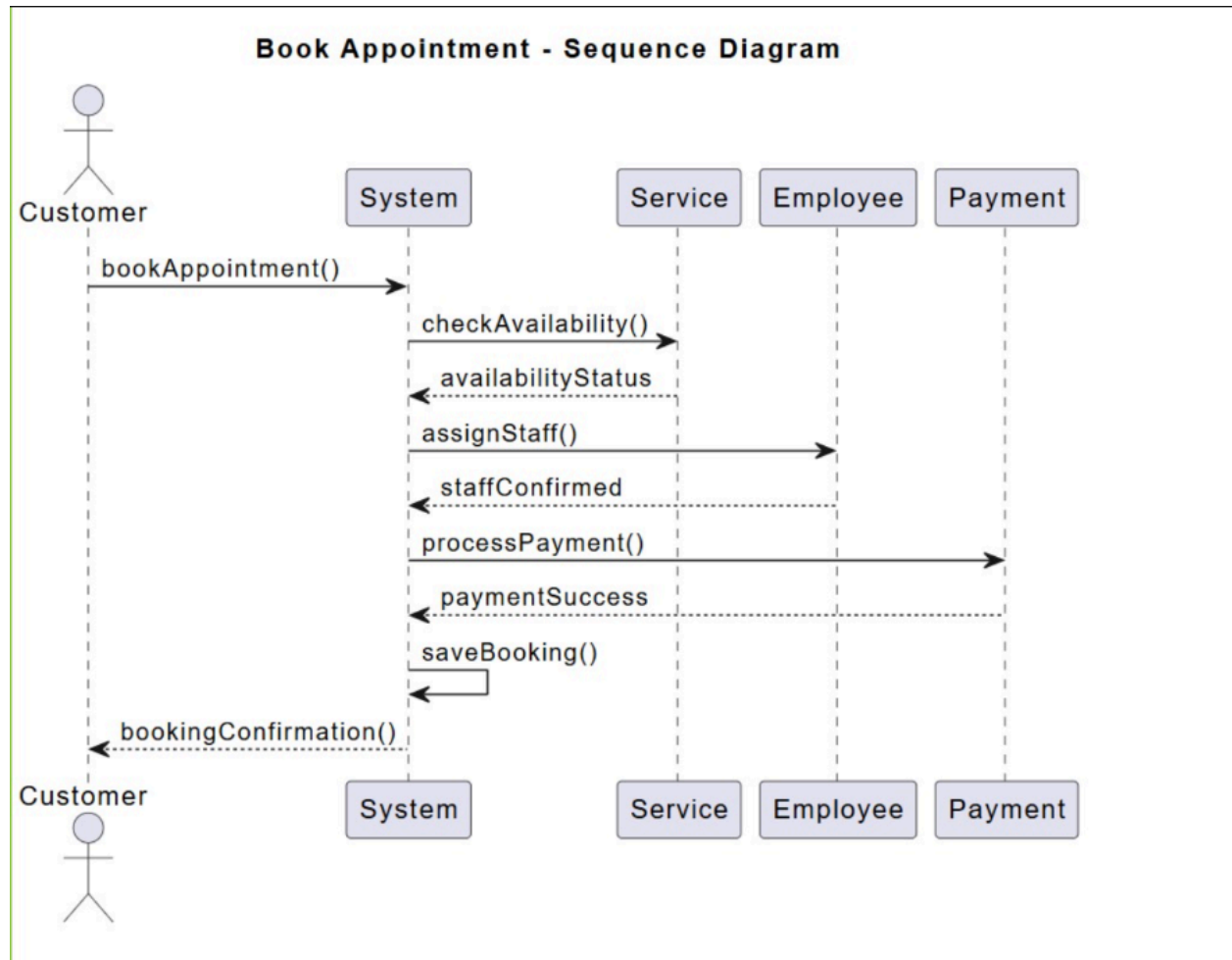


Activity Diagram

Appointment Booking Process - Activity Diagram



Sequence Diagram



7.3 References

1. **IEEE Standard 830-1998:**
IEEE, *IEEE Recommended Practice for Software Requirements Specifications*, IEEE Std 830-1998, 1998.
2. **Government of Bangladesh – Vision 2021/2041:**
General Economics Division, Planning Commission, Government of the People's Republic of Bangladesh, *Making Vision 2041 a Reality: Perspective Plan of Bangladesh 2021–2041*, Dhaka, Bangladesh, Mar. 2020.
3. **Industry Best Practices for Online Booking Systems:**
 1. Alexis, “5 Best Practices for an Efficient Booking and Reservations System in Your Business,” *Datelist.io*, Apr. 11, 2021. [Online]. Available: <https://datelist.io/en/posts/5-best-practices-for-an-efficient-booking-system>
4. **AI API Documentation (Chatbot, Recommendation, Notification Services):**
Microsoft, *Azure AI Services REST API Reference*, Microsoft Learn, 2025. [Online]. Available: <https://learn.microsoft.com/en-us/azure/ai-services/reference/rest-api-resources>
Google Cloud, *Conversational AI Documentation (Dialogflow, CCAI)*, Google Cloud, 2025. [Online]. Available: <https://cloud.google.com/conversational-ai/docs>
OpenAI, *Chat API Reference*, OpenAI Platform, 2025. [Online]. Available: <https://platform.openai.com/docs/api-reference/chat>
5. **SQL Database Documentation (MySQL, PostgreSQL):**
PostgreSQL Global Development Group, *PostgreSQL 18.0 Documentation: Reference Manual*, 2025. [Online]. Available: <https://www.postgresql.org/docs/current/reference.html>
Oracle Corporation, *MySQL 8.0 Reference Manual*, 2025. [Online]. Available: <https://dev.mysql.com/doc/refman/8.0/en/>
6. **Payment Gateway Integration Guidelines (bKash, Nagad, Rocket, Visa/MasterCard):**
Alpha Net, *Payment Gateway Integration in Bangladesh: bKash, Nagad, Rocket, Visa, MasterCard*, Alpha Net, 2025. [Online]. Available: <https://www.alpha.net.bd/e-Commerce/Payment-Gateway/>