
Software Requirements Specification

for

Smart Salon & Beauty Parlour

Reservation & Management System

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Team & Task Distribution

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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

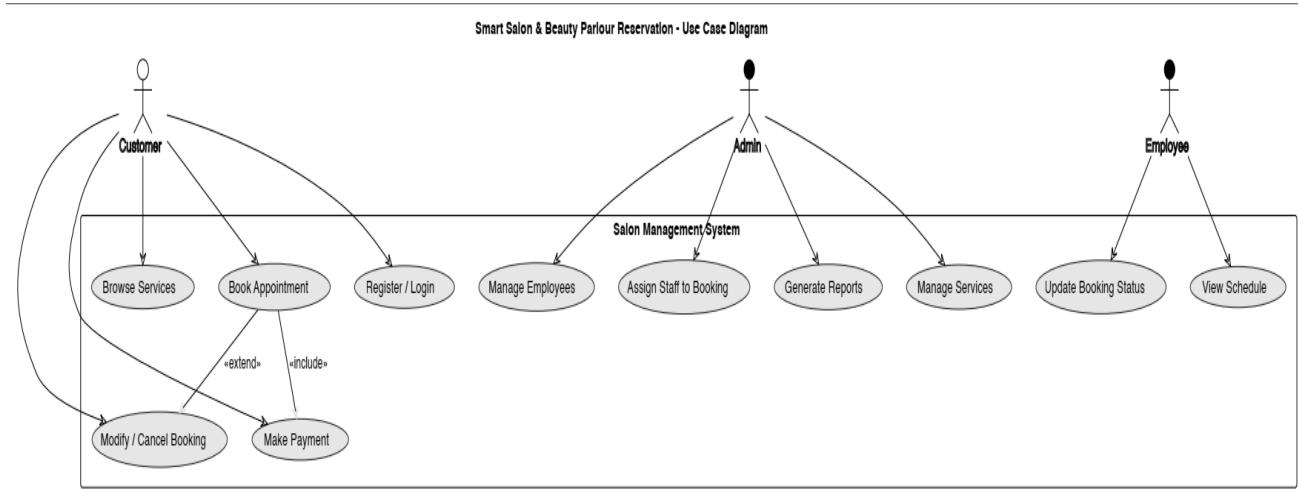
7.1 Glossary

- **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.

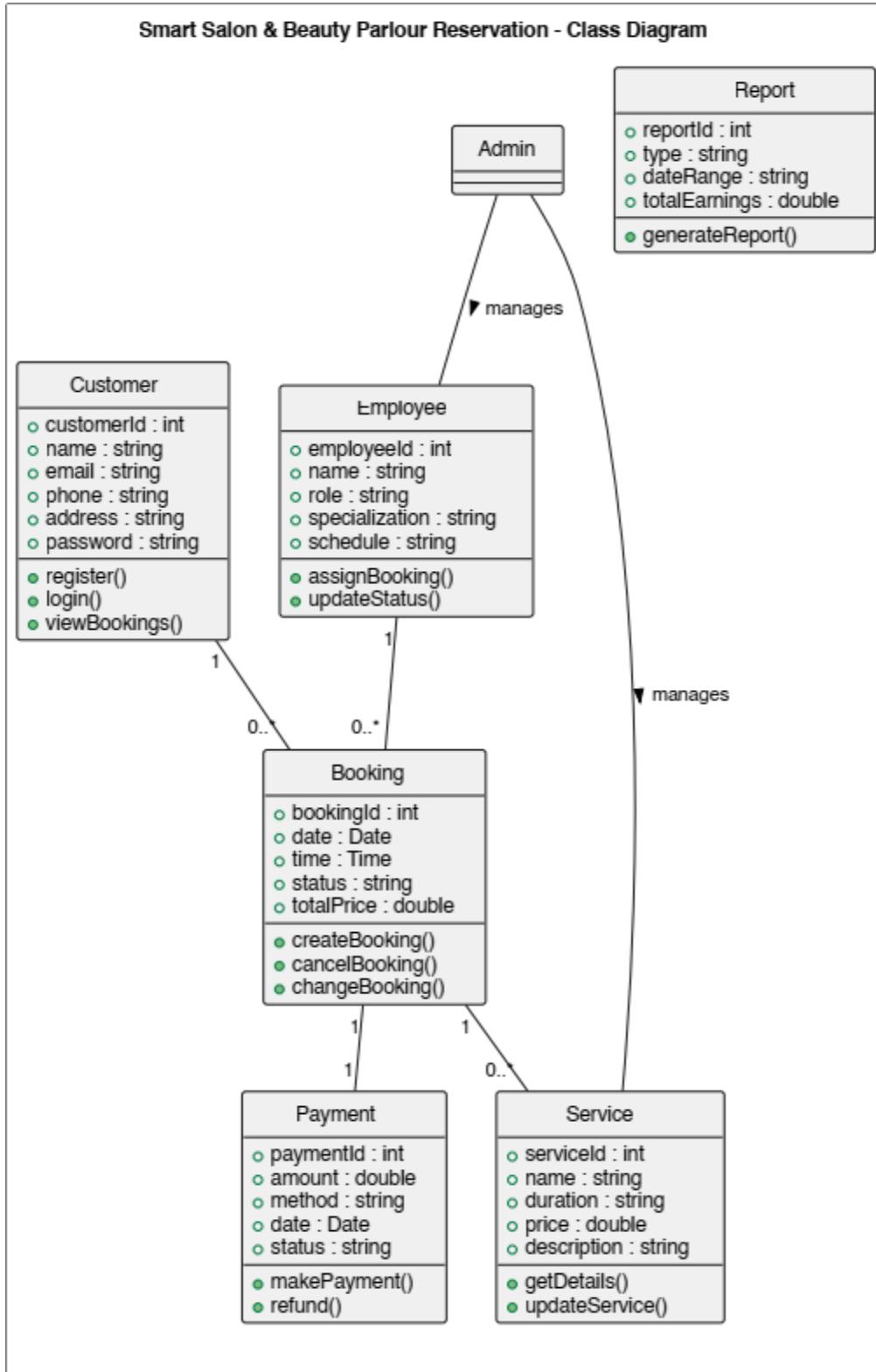
- **UML (Unified Modeling Language):** A standardized modeling language used to visualize system design.
- **BST (Bangladesh Standard Time):** Time zone used for all bookings and reminders.

7.2 UML Diagrams

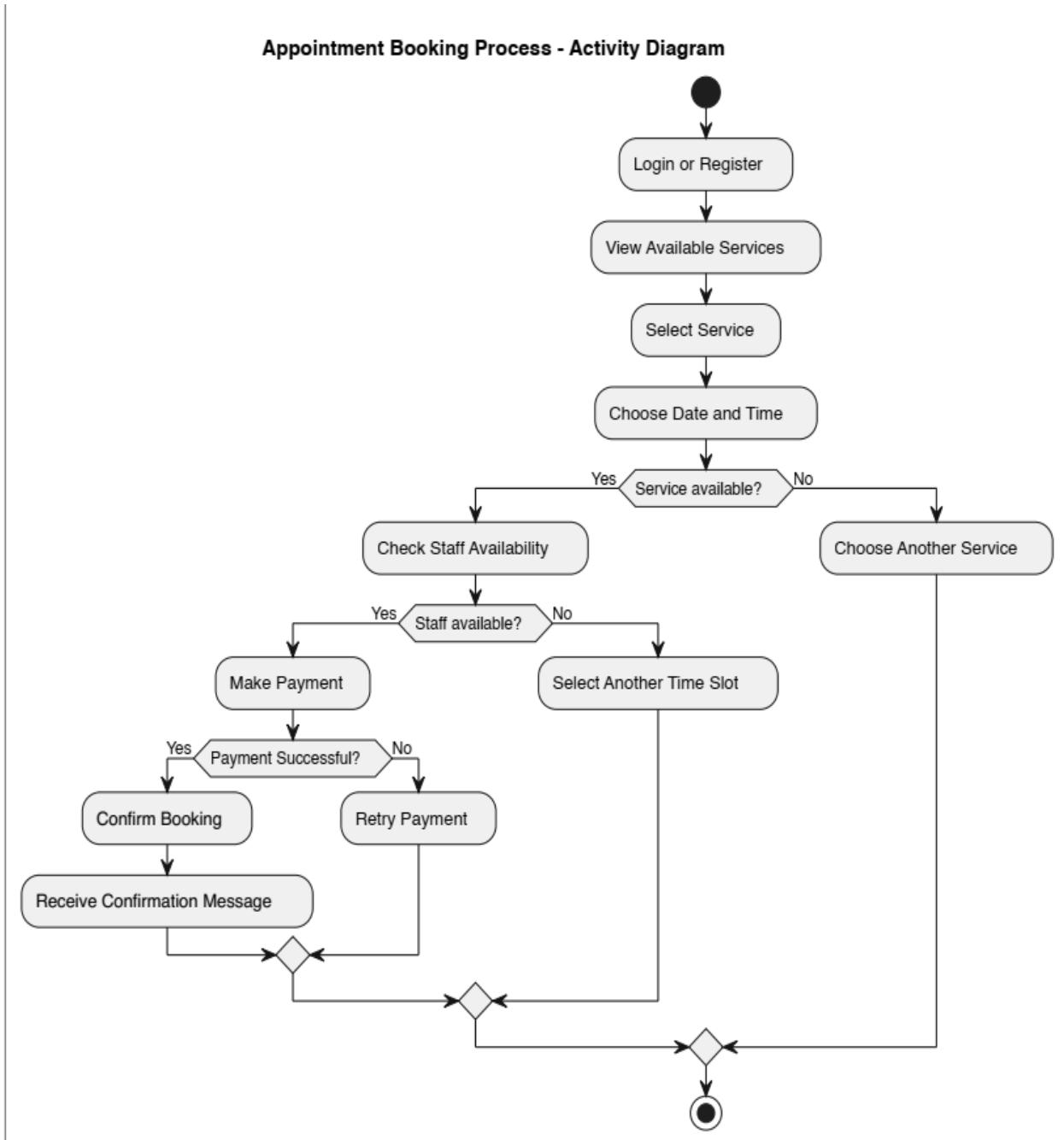
Use Case Diagram



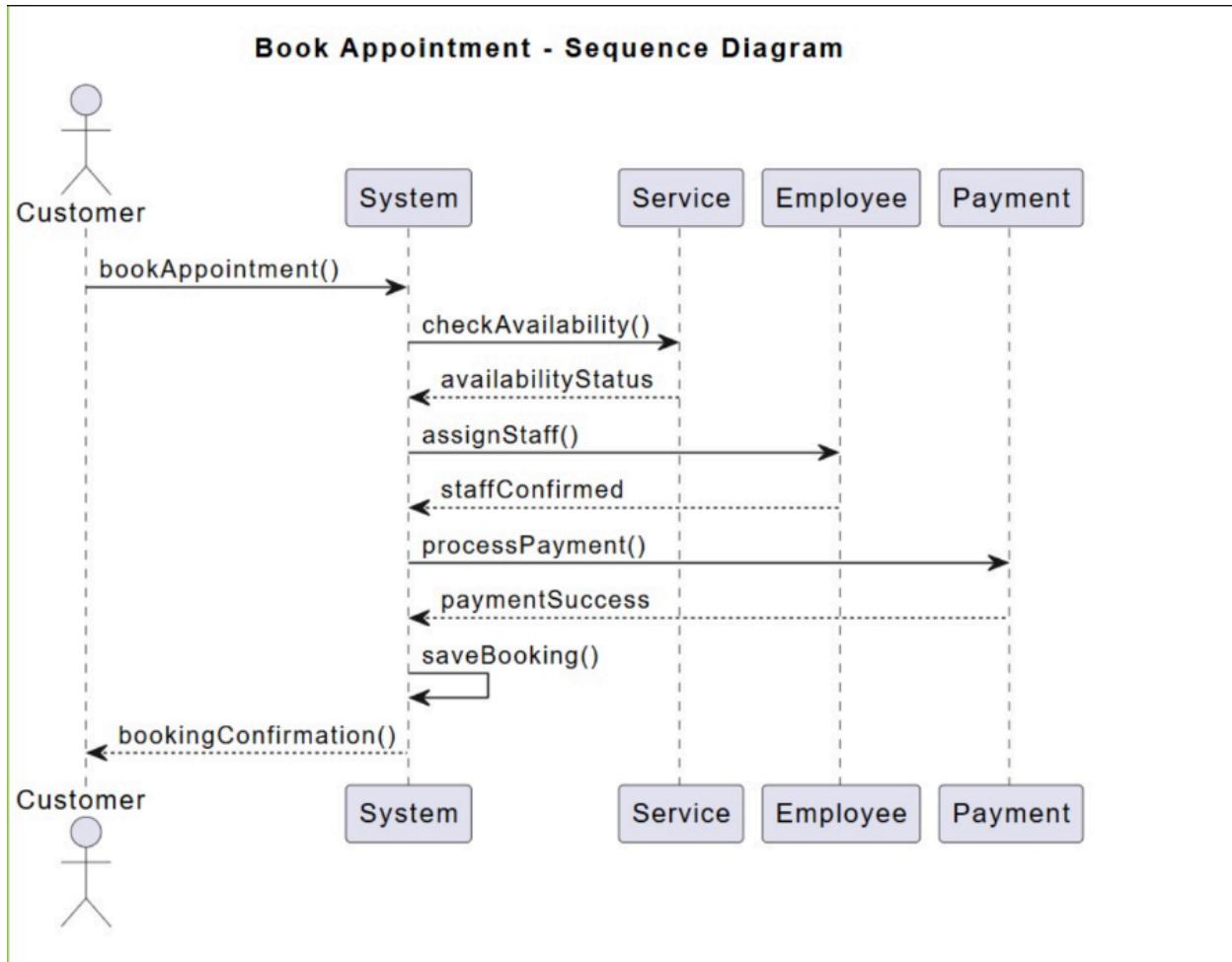
Class Diagram



Activity Diagram



Sequence Diagram



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