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Section: V20

Software Engineering

**User Requirements:**

User requirements focus on what the end users need or expect from the system. These can be divided into functional and non-functional requirements.

1. **Functional Requirements:**

**User Registration & Authentication**:

* + - Users (both guests and hotel staff) should be able to create accounts, log in, and manage their profiles securely.

**Search & Filter**:

* + - Customers should be able to search available rooms based on different criteria like dates, room types, price, amenities, etc.

**Room Booking**:

* + - Users should be able to view room availability, book rooms, and select services (e.g., spa, meals).

**Payment Processing**:

* + - A secure system to handle payment for bookings, including support for multiple payment methods (credit/debit cards, PayPal, etc.).

**Booking Confirmation**:

* + - After booking, the user receives a confirmation email or SMS with booking details.

**Booking Management**:

* + - Users (guests and hotel staff) can modify, cancel, or reschedule bookings within allowed timeframes.

**Non-Functional Requirements:**

* **Usability**:

The system should be user-friendly, with an intuitive UI/UX design.

* **Performance**:

The system should load quickly and handle high volumes of traffic (especially during peak booking times).

* **Security**:

The system must protect user data, including personal and payment information.

* **Scalability**:

As the hotel expands, the system should be able to accommodate more rooms, customers, and traffic without performance degradation.

**System Requirements:**

System requirements are technical specifications that describe the environment in which the system will operate, the hardware and software needed, and its interactions with other systems.

1. **Hardware Requirements:**

**Server**: A robust server to host the system, with sufficient CPU, RAM, and storage space to handle the expected traffic and data load.

**Database Server**: A reliable database system (e.g., MySQL, PostgreSQL) to store guest information, booking records, payments, room availability, etc.

1. **Software Requirements:**

**Operating System**: Server OS (e.g., Linux, Windows Server) and client-side OS (Windows, macOS, iOS, Android).

**Database Management System (DBMS)**: For storing customer and booking data.

1. **Network Requirements:**

**Internet Access**: A stable internet connection for cloud-based systems or data communication.

**Security Protocols**: Use of SSL/TLS encryption for secure online payments and customer data

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1. **Backup and Recovery:**

**Data Backup**: Regular backups of customer data and booking information.

**Disaster Recovery**: Plans in case of system failure or data loss.

1. **Integration Requirements:**

**Payment Gateway Integration**: For processing payments (e.g., PayPal, Stripe, credit/debit cards).

**Third-Party APIs**: For checking availability, integrating with travel agents, or even providing reviews.