

Software Requirements Specification Document

Hotel Management System

UCS503 Software Engineering Project SRS
Submitted by:

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TABLE OF CONTENTS

Chapter No.	Topic
1.	<u>Introduction</u>
1.1	<u>Purpose of this Document</u>
1.2	<u>Scope of the Development Project</u>
1.3	<u>References</u>
1.4	<u>Overview</u>
1.5	<u>Document Conventions</u>
2.	<u>Overall Description</u>
2.1	<u>Product Perspective</u>
2.2	<u>Product functions</u>
2.3	<u>User Characteristics</u>
2.4	<u>Operating environment</u>
2.5	<u>Design and implementation constraints</u>
2.6	<u>Project Documentation</u>
2.7	<u>User Documentation</u>
2.8	<u>Assumptions and Dependencies</u>
3.	<u>Specific Requirements</u>
3.1	<u>External Interface Requirements</u>
3.2	<u>Detailed Description of Functional Requirements</u>
3.3	<u>Detailed Description of Performance requirements</u>
3.4	<u>Design Constraints</u>
3.5	<u>Software Requirements</u>
3.6	<u>Software Quality Measures</u>
4.	<u>Feasibility</u>
5.	<u>Graphs</u>

1. Introduction

1.1 Purpose of this Document

The purpose of this SRS document is to provide a detailed overview of our software 'Hotel Management System', its parameters and goals. This SRS will allow for a complete understanding of what is to be expected from the newly introduced system which is to be developed as well as facilitate developers in understanding the target audience, user interface, software and hardware requirements that associate themselves with this project. This SRS will provide foundation for this project. From this SRS, the Hotel Management System (HMS) can be designed, constructed and finally tested.

1.2 Scope of the Development Project

We have all been in that situation wherein we are excited to get to our vacations but realize that our resort has double booked the rooms. So what exactly makes a hotel management system successful? This is something our team is excited to figure out. Using SQL and Python we plan to delve right into this project with the goal to find an optimal management system that can avoid such problems.

The system aims at the maintenance and management of the different Hotels that are available in the different parts of the world. It mainly takes care of the Hotel management at the core area of the database. The system provides the information regarding the different Hotels that are available and their status specific to availability. The guests can visit the site and register themselves with the required information that is expected by the system. Each registered guest can raise a request for the unit bookings. The Guests are scheduled with the information of the availability of the units for they have requested the time.

With this software we aim to facilitate the hotel booking process. The goal is to reduce the customer's as well as the Hotel's Staff's time. Online reservation system also reduces paperwork to a great deal. The human error reduces. It also helps the customer in terms of convenience as he may pre-book a trip based on time to time deals available on the website thus saving him money.

The software must be able to perform the following operations:

1. **Maintaining and managing information:** It must be able to record all information regarding hotel management, bookings and staff related queries. This includes information such as hotel name, address, contact information, room types, amenities, and availability. The system automates many of the tasks involved in booking a hotel room, such as checking availability, processing payments, and sending confirmations. This helps to reduce paperwork and human error.
2. **Allowing guests to register and create accounts:** This allows guests to save their personal information and preferences, making it easier to book rooms in the future.
3. **Allowing guests to search for and book rooms:** Guests can search by location, dates, room type, and other criteria. The system will then display a list of available rooms and rates. Guests can then select a room and book it directly through the system. Guests can view their upcoming bookings, make changes, or cancel them through the system. By streamlining the booking process, the system saves both guests and hotel staff time and hassle. Guests can book a hotel room at any time of day or night, from anywhere in the world. They can also pre-book rooms to take advantage of time-limited deals.
4. **Generate reports for hotel staff:** These reports can provide insights into occupancy rates, booking trends, and other important metrics.
5. **Integrate with other hotel management systems:** This allows hotels to use the system as part of their overall business operations. This makes the system accessible to guests from all over the world.

1.3 References

World Wide Web:

[1]" Hotel Management Case Study", September.1, 2023. [Online].

Available: <http://www.scribd.com/doc/27927992/Hotel-Management-Case-Study>
[Accessed:September.1, 2023]

[2]" Hotel Receptionist Duties" [Online].

Available: <http://www.buzzle.com/articles/hotel-receptionist-duties.html>
[Accessed: September.1.2023]

[3]"Software Requirement Specification of Hotel Management System" [Online].

Available: <https://www.slideshare.net/UttamSinghChaudhary/software-requirement-specification-of-hotel-management-system>
[Accessed: September.1.2023]

1.4 Overview

This SRS document is organized into sections to provide a comprehensive understanding of the Hotel Management System. Section 2 provides an overview of the application's overall description, including its perspective, functions, and user classes. Section 3 presents specific requirements related to external interfaces, functionality, performance, design constraints, security, software quality attributes, and other requirements.

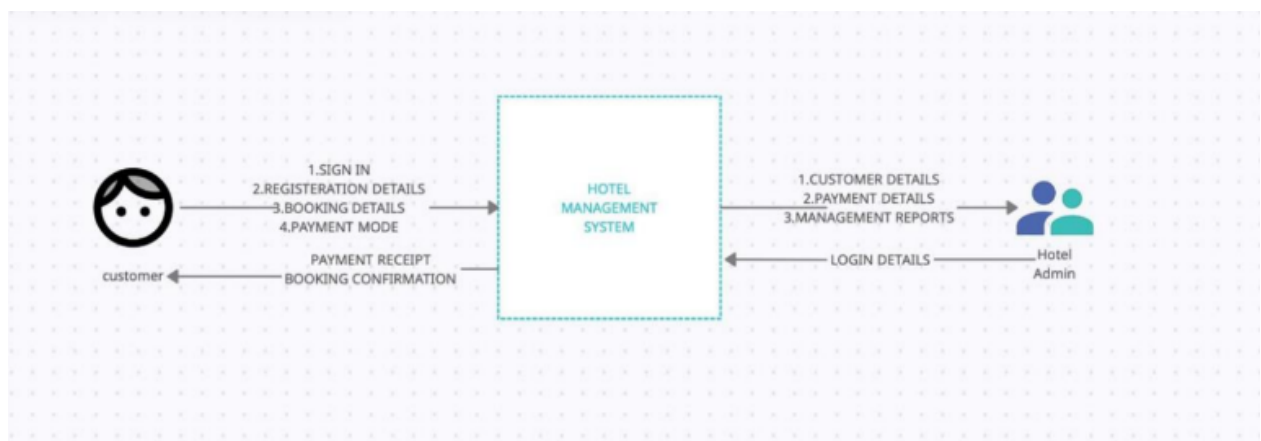
1.5 Document Conventions

The document is prepared using Microsoft Word 2013 and has used the font type 'Verdana'. The fixed font size that has been used to type this document is 10pt with 1.5 line spacing. It has used the bold property to set the headings of the document. Standard IEEE template is the template used to organize the appearance of the document and its flow.

2. Overall Description

2.1 Product Perspective

The Hotel Management System is a new self-contained software product which will be produced by the project team in order to overcome the problems that have occurred due to the current manual system. The newly introduced system will provide an easy access to the system and it will contain user friendly functions with attractive interfaces. The system will give better options for the problem of handling large scale of physical file system, for the errors occurring in calculations and all the other required tasks that has been specified by the client. The final outcome of this project will increase the efficiency of almost all the tasks done at the Hotel in a much convenient manner.



2.2 Product Functions

- **Make Reservations**

Input: Member Code, Number of children, Number of adults, check-in date, check-out date, status, Number of nights

Output: Database Record, Database successfully updated message

Processing: Validate the given details and record the information into the database.

- **Search Rooms**

Input: Period, Check-in, Check-out, Guest

Output: Display a message with available room details

Processing: Validate the given details and check for the available rooms in a given time

period and return its availability.

- **Add Guests**

Input: Member code, Phone number, Company, Name, E-mail, Gender, Address

Output: Database Record, Database successfully updated message

Processing: Validate the given details and record the information into the database.

- **Add Payment**

Input: Total, pay time, Credit card details

Output: Database Record, Database successfully updated message

Processing: Validate the given details and record the information into the database.

- **Issue Bills**

Input: Billing no, Quantity, Price, Taxes, Date, Services,

Unit Output: Printed version of the bill

Processing: Validate the given details and total cost is calculated

- **Manage Guest (Add, Update Guest)**

- **Manage Room Details (Add, Update, Delete)**

- **Account Management**

- **Login Management**

2.3 User Characteristics

2.3.1 User Classes

There are two user levels in Hotel Management System at Hotel Runtime Terror

1) Customer

2) Hotel admin

2.3.2 Characteristics of User Classes

Customer

The Customers of Hotel Runtime Terror use HMS to register and login to their website and then make reservations online to check into the rooms at the hotel.

They can access the room reservation database but only to query for room availability. Further, payment needs to be done through payment gateway and the information for the same for all these processes goes to Hostel Management in Management reports. The customer is then issued a payment as well booking .

Hotel Admin

He can access every function performed by the system. Admin of the company as well as the system can access to the administration panel which is consider the core of the system. As the main authorized person of the company owner gets the ability to manage the other users including their use levels and privileges. Taking backups of the system and restoring system can also be done. Meanwhile he will be able to take all the kinds of reports available in the system. As the admin of the system and the company he has the power to set room rates as well.

2.4 Operating Environment

Hardware and software requirements Hardware: -

1. Operating System: Supports all known operating systems, such as Windows, Linux
2. Computer: 512MB+ RAM, monitor with minimum resolution of 1024x768, keyboard, and mouse
3. Hard Drive should be in NTFS file-system formatted with minimum 10 GB of free space
4. A Laser printer will need to be used to print these reports and notes

Software: -

1. Software is designed to run on any platform above Microsoft Windows 10 (32bit).
2. Microsoft .NET Frameworks 3.5 or above.
3. Microsoft SQL Server Management Studio Express 2010.

2.5 Design and Implementation Constraints

Software development crew provides their best effort in developing the system. In order to maintain the reliability and durability of system, some design and implementation constraints are applied. Availability of an android app for hotel management system could make the system portable but due to time constraint it is not possible. System will need a minimum memory of 512MB. But it is recommended to have a memory of 1GB. When designing interfaces of system, we had the capability of work with new tools such as Dev Express. Considering the client's budget, we decided to create those interfaces in a simple realistic

manner using affordable technology.

2.6 Project Documentation

Project Documentation section reveals the all the details about documents created by the project team so far of this project. It includes project charter and project proposal.

Project charter: - This document provides the basic information about the team members their responsible in developing functions, the background of the client and the nature of the main problem identified

Project Proposal: - The proposal of the project consists with the problems that are identified with the client, and the solutions that are going to implement using the proposed system.

2.7 User Documentation

User manual provide to the client will give a clear idea in interacting with the system. It will be written in a simple understandable language concealing the inner complexity of the system. A hard copy of the user manual will be delivered to the client with the delivery of system.

2.8 Assumptions and Dependencies

Some software used in implementing the system is with high cost and the client has agreed to afford the amount of money needed to purchase them. It's assumed that client won't change that decision on the next phases of the software development. Although we assume that client is using windows 7 or windows 8. Otherwise, if client use an open-source operating system, there is a need of changing the SRS accordingly.

3 Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

Customer Portal

The customer portal is a web-based graphical user interface (GUI) accessible through the hotel's website. It allows customers to perform actions like registering, logging in, browsing available rooms, making bookings, and viewing payment receipts.

Admin Dashboard

Hotel staff, including administrators, use an admin dashboard with a GUI to manage bookings, room availability, customer data, and financial transactions.

3.1.2 Hardware Interfaces

Server Hardware

The system requires a robust server infrastructure to host the database and web services. This includes server machines, storage devices, and network equipment.

Personal computers

Mobile devices

such as smartphones and tablets running iOS or Android

Internet Connectivity

Reliable internet connectivity is essential for online reservations and communication

3.1.3 Software Interfaces

Database Interfaces

The system needs to interact with a relational database management system (e.g. MySQL, PostgreSQL) to store and retrieve data. Database interfaces include SQL queries and database management libraries.

Payment Gateway APIs

To process online payments, the system should integrate with payment gateway APIs (e.g., PayPal, Stripe). These APIs facilitate secure transactions.

Third-Party APIs

If the system provides features like weather updates, local attractions, or transportation services, it might integrate with external APIs to fetch relevant information.

Operating System Interfaces

The software should be compatible with the operating system(s) it's deployed on, which could be Windows, Linux, or others. Operating system APIs are used for tasks like file management and system resource allocation.

3.1.4 Communication Interfaces

Web Services

The Hotel Management System uses HTTP/HTTPS to communicate between the customer portal, admin dashboard, and the server. RESTful APIs could be employed to facilitate these interactions.

Email Notifications

Communication interfaces with SMTP (Simple Mail Transfer Protocol) are used to send automated email notifications to customers, including booking confirmations and receipts.

Payment Processing

Secure communication with payment gateways is vital for processing credit card transactions. This involves encryption protocols and APIs provided by payment service providers.

3.2 Detailed Description of Functional Requirements

User Registration and Authentication

Allow users to create accounts and log in securely.

Room Booking

Allow Registered users to browse available rooms, specifying check-in and check-out dates, the number of adults, and the number of children.

Payment Processing

Allow users to make payments via different methods.

Admin Dashboard

Hotel administrators have access to a secure admin dashboard.

3.3 Detailed Description of Performance Requirements

The application shall respond to user interactions within 2 seconds on average under standard load conditions.

Scalability

The application shall be designed to handle a scalable number of concurrent users.

System Reliability

The application shall aim for a minimum uptime of 99.5% during standard operating hours.

3.4 Design Constraints

The design of the Hotel Management Application is influenced by specific constraints that impact its architecture and implementation:

Browser Compatibility

The application's user interface is designed to be compatible with modern web browsers (e.g., Google Chrome, Mozilla Firefox, Apple Safari, Microsoft Edge). Compatibility with older or less commonly used browsers may be limited.

Google API Limitations

The integration with the Google API for accessing company career portals is subject to Google's API usage policies and rate limits. The application will adhere to these policies,

which may affect the frequency and volume of API requests.

These design constraints are essential considerations during the development and operation of the application.

3.5 Security Requirements

User data shall be securely stored and transmitted.

User authentication and authorization mechanisms shall be implemented to protect user accounts.

3.6 Software Quality Attributes

The application shall provide a responsive and intuitive user interface.

It shall ensure data integrity and accuracy.

It shall support concurrent user access.

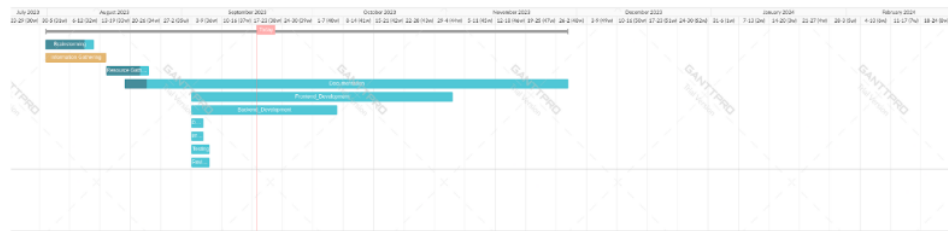
Conclusion:

The Hotel Management Application is technically feasible, offering a well-defined technology stack and integration possibilities with Google API and external company portals. Operationally, it presents a user-friendly solution with robust data security measures. Economic feasibility depends on careful budgeting, revenue models, and ROI projections. Scheduling feasibility necessitates realistic planning and resource management.

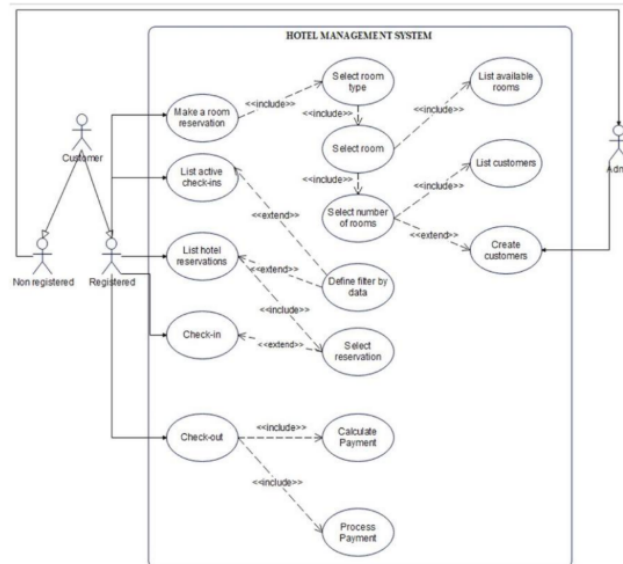
Overall, the Hotel Management system holds strong potential to revolutionize career management. Proper execution and adherence to feasibility factors are essential for its success.

Gantt chart

	Task name	Start date	End date	Duration	Progress
		01/08/2023 0	28/11/2023 0	86d	0%
1	Brainstorming	01/08/2023 0	10/08/2023 0	8d	80%
2	Information Gathe...	01/08/2023 0	14/08/2023 0	10d	100%
3	Resource Gathering	15/08/2023 0	23/08/2023 0	7d	80%
4	Documentation	18/08/2023 0	28/11/2023 0	73d	5%
5	Frontend_Develop...	04/09/2023 0	01/11/2023 0	43d	0%
6	Backend_Develop...	04/09/2023 0	05/10/2023 0	24d	0%
7	Deployment	04/09/2023 0	05/09/2023 0	2d	0%
8	Implementation	04/09/2023 0	05/09/2023 0	2d	0%
9	Testing	04/09/2023 0	06/09/2023 0	3d	0%
10	Review Gathering ...	04/09/2023 0	06/09/2023 0	3d	0%



Use Case Diagram



Use Case Template:

1. Use Case Title	Hotel Management System
2. Abbreviated Title	HMS
3. Actors	Customer, Admin
4. Datastores	Customer Database
5. Description	<p>With this online facility, the customer will have to first register with the hotel (if he is a new customer). After registration, a portal will open up where he can book rooms or avail other facilities as per his requirement.</p>

6. Pre-Conditions: Customer must have a valid id proof.

7. Task Sequence:

- i. Once the customer checks into the hotel he will required to register with the hotel database.
- ii. Once the registration part is complete the website leads directly to main page of hotel.
- iii. On that page the customer can see and select all the facilities he would like to have.

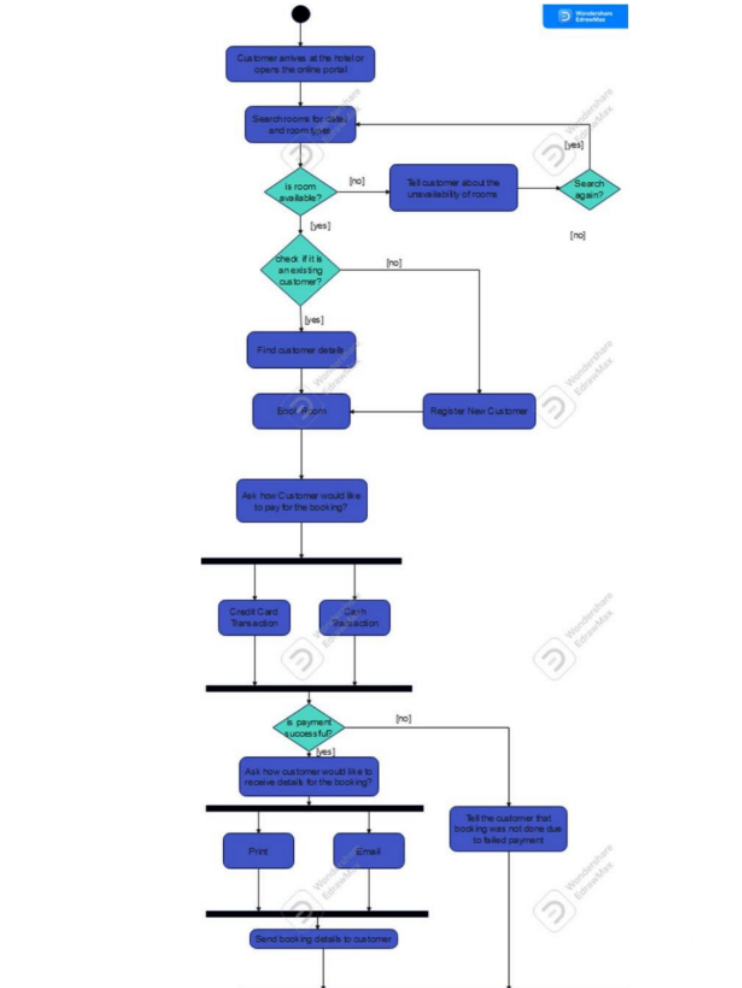
After selection the payment portal will open upon completion of which the user will be granted key to his rooms.

8. Post Conditions

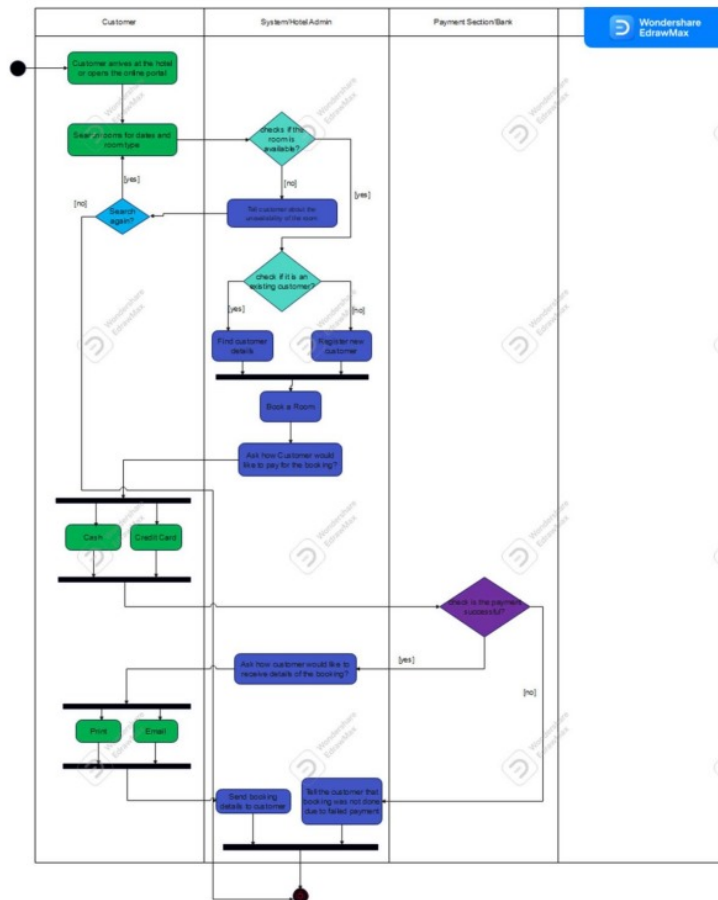
- i. Customer can search for available rooms and book them.

Customer can avail other facilities (like laundry service, pick up Cabs etc.)

1. Activity Diagram

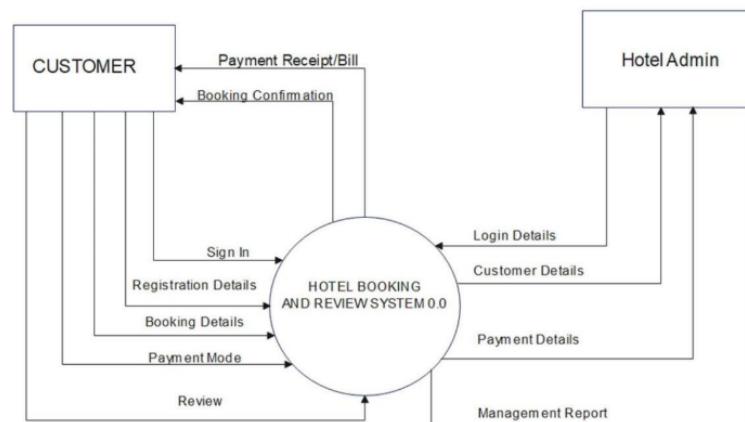


2. SwimLane Diagram

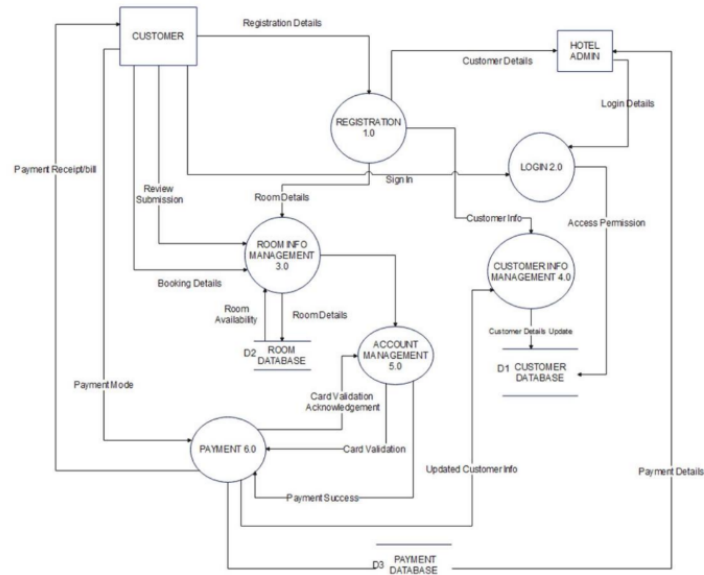


Data Flow Diagrams

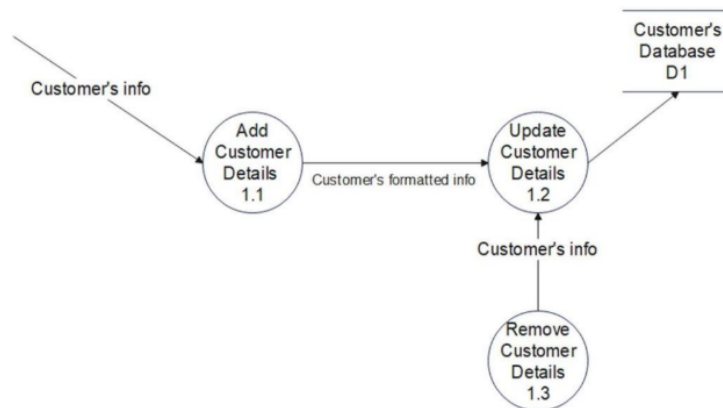
DFD Level 0:



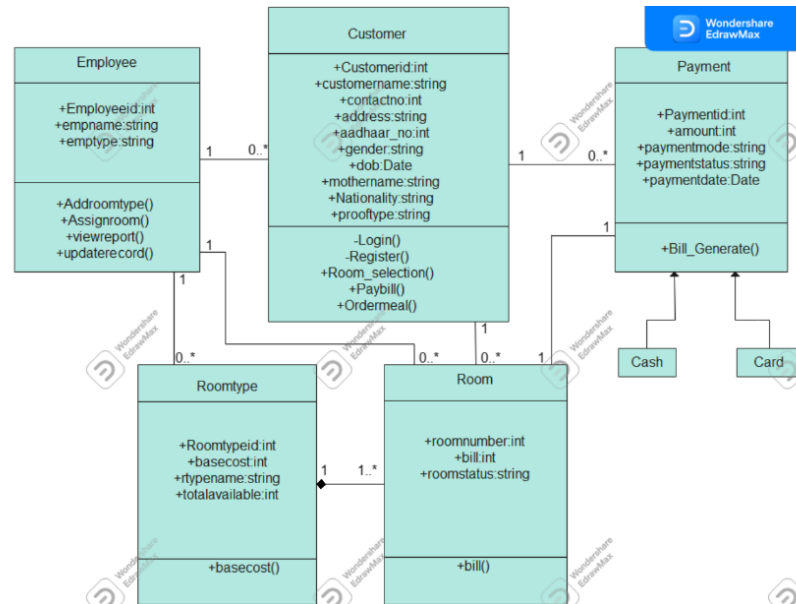
DFD Level 1:



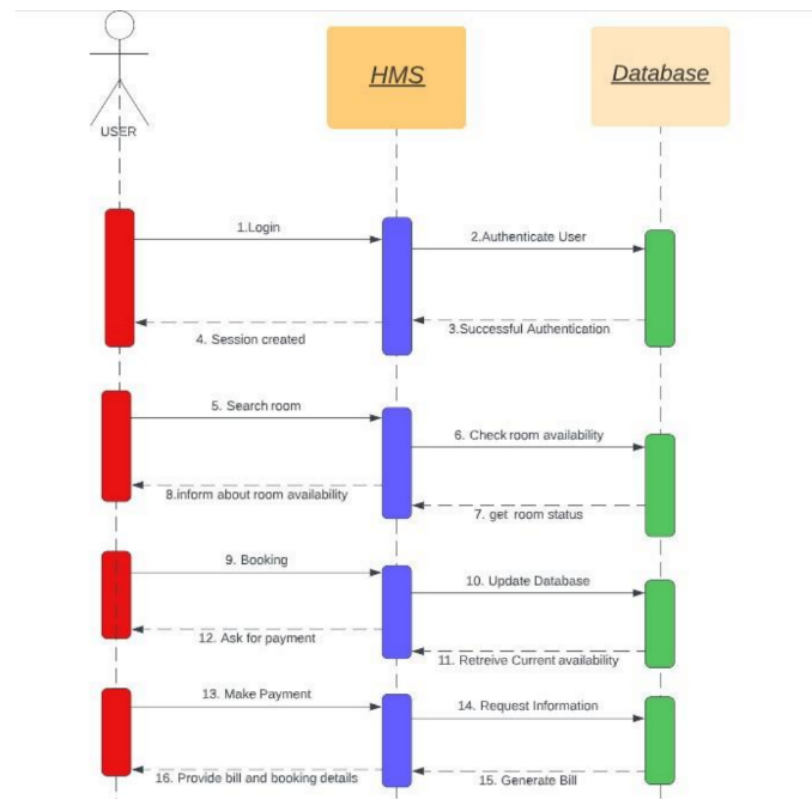
DFD Level 2:



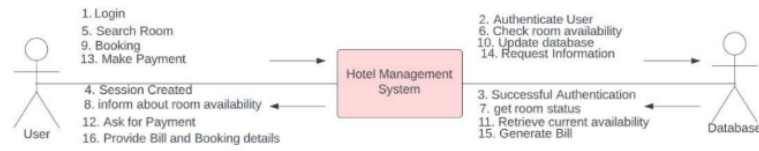
3.1 CLASS DIAGRAM



3.2 SEQUENCE DIAGRAM



3.3 COLLABORATION DIAGRAM



STATE CHART DIAGRAM

