HOTEL MANAGEMENT SYSTEM

Project Report

SUBMITTED IN PARTIAL FULFILLMENT REQUIREMENT FOR THE AWARD

OF DEGREE OF

Bachelor of Technology

(COMPUTER SCIENCE & ENGINEERING)

SUBMITTED BY:

AYUSH ARYAN (210477)

UNDER THE SUPERVISION OF
DR. SACHIN CHAUDHARY
SCHOOL OF ENGINEERING AND TECHNOLOGY

BML MUNJAL UNIVERSITY
Gurugram, Haryana - 122413
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Name: Ayush Aryan

Regn: 210477

Abstract

The purpose of this project, computerized hotel management system, as the case study is to understand and make use of the computer to solve some of the problems which are usually encountered during manual operations of the hotel management. Finding an accommodation or a hotel after having reached a particular destination is quite time consuming as well as expensive. Here comes the importance of online hotel booking facility.

Online hotel booking is one of the latest techniques in the arena of internet that allows Traveller to book a hotel located anywhere in the world and that too according to your tastes and preferences. In other words, online hotel booking is one of the awesome facilities of the internet. Booking a hotel online is not only fast as well as convenient but also very cheap. Nowadays, many of the hotel providers have their sites on the web, which in turn allows the users to visit these sites and view the facilities and amenities offered by each of them.

So, the proposed computerized of an online hotel management system is set to find a more convenient, well organized, faster, reliable and accurate means of processing the current manual system of the hotel for both near and far customer.

SWOT ANALYSIS

Strengths: Strengths of our system is:

- User-friendly online booking engine grows direct bookings.
- Anytime, anywhere access to software to manage hotel remotely.
- Control all aspects of the business from one dashboard to streamline operations.
- Real-time, mobile housekeeping report with checklists maximizes productivity.
- Online registration/check-in lightens the workload and is loved by guests.
- Online review of our best products available which will further strengthen the booking number.

Weaknesses:

- Is it cost prohibitive?
- Does it integrate with apps and software you're currently using?
- Will there be a learning curve with current staff?
- Do you have a strong Wi-Fi connection?
- Does the PMS provider offer sufficient support and training?

Opportunities: It's helpful here to identify external industry trends and how the software may be implemented to give us a leading edge. For example, personalization is increasingly important in both customer service and hotel marketing.

- Use guest data to identify guest segments for targeted marketing campaigns.
- SMS communication.
- Surprise and delight initiatives to build loyalty and repeat bookings.
- Automated email marketing for the full customer lifecycle.
- Sustainability efforts and smart room tech integration.
- Expand ancillary revenue opportunities.

Threats:

- Pandemic and natural disasters: investigate what challenges would arise under specific circumstances and question the ways a PMS may or may not support your hotel
- Economy: does the PMS support a framework for diversifying hotel revenues (i.e. vacation or activity packages) and rate management?

- Hackers: ask the PMS provider about preventative security measures and response plan for potential threats

Requirement Analysis

There are two types of stakeholders for a project.

i) **Internal** **ii)** **External.**

1) **Questionnaire for the Internal Stakeholder. Abhay (Client Manager of Hotel)**

Ayush Aryan: What operations do you want to automate?

Abhay: Front desk, housekeeping, reporting, booking, Payment, Refund etc.

Ayush: What features do you need beyond traditional hotel operations?

Abhay: These could be web booking engine, channel manager, guest loyalty, restaurant POS, revenue management, check-in, data API and so on.

Ayush: How much do you want to pay?

Abhay: I have a budget of Rs. 10,00000. I need the Must have features like Booking, Payment, Refund.

Ayush: What do you want to achieve?

Abhay: I want to automate most of the essential things so that we can provide the best facility to our customers and achieve increased booking in our hotel.

Ayush: What is the level of IT expertise in your Hotel and do you want to invest in it, too?

Abhay: We don't have currently any IT employee in our hotel so the interface and software should be created such that we can train our IT employee in a less time.

2) Questionnaire for the Internal Stakeholder. Mr. Kishan (Client Owner of Hotel)

Ayush: Do you want weekly detailed reports or monthly
.   summary Reports?

Kishan: Yes, I need weekly analytics to analyse the hotel
.   performance.

Ayush: Are you planning to open more branches of your hotel?

Kishan: NO

Ayush: Do you expect immediate answers or are you the type to patiently await responses?

Kishan: I like quick responsiveness.

3) Questionnaires from external stakeholder:

Tejender Singh (End User)

1) **Ayush Aryan:** What are your expectations from the online hotel booking platform?
   Tejender: Some of my expectations from the online hotel booking platforms are:

- Easy navigation
- Superb site speed
- Intuitive booking process
- Professional, in-depth photos
- Enticing text that fully describes your property
- Trustworthy reviews and ratings
- Information about the area
- In-depth info on amenities
- Full cost info
- Available specials
- Fast booking confirmation

2) **Ayush Aryan:** How often do you book hotel?
   Tejender: Being a employee at the management position of a MNC, I
           usually have to travel for client meetings and book hotel 2-3

times a month.

3) **Ayush Aryan:** Which features do you consider while booking the Hotel?

   Tejender: While Booking Hotel, I look for basic facilities like cleanliness, Wi-Fi, Corridor and comfortable bed.

4) **Ayush Aryan:** How often do you eat in a hotel and What is your preferred meal at the hotel?

   Tejender: Whenever I have to stay at hotel for the whole night, I eat at hotel. I like to eat Indian food.

5) **Ayush Aryan:** Do you think this model meets the customer requirements?

   Tejender: Yes, this model meets most of the customer needs and will be effective in drawing customer.

System Requirements

HARDWARE REQUIREMENTS

The following are the necessary hardware requirements:-

Server Side
- Monitor Resolution: 1024 x 768
- Processor: Intel or AMD 2GHZ
- RAM: 4GB
- Disk Space: 10GB

Client Side
- Monitor Resolution: 1024x768
- Processor: Intel or AMD 1GHZ
- RAM: 512MB

- Disk Space: 2GB

Software Requirements

- **Reliability:** This system is able to satisfy the normal HMS operations to meet the end users' requirements.
- **Portability:** The system is available on all Windows based environments.
- **Security:** All data is protectively Marked. Payment process should use HTTP protocol to secure payment transactions.
- **Maintainability:** The system is Maintainable.
- **Flexibility:** System is flexible enough to provide enough space to add new features and to handle them efficiently.
- **Availability:** The Hotel Booking system is available on specific time and specific date as many customers are doing advance bookings.

Software Used	Logo	Description
XAMPP Server	XAMPP	XAMPP Server is used in the Microsoft Windows Operating System which consists of Apache web Server, MySQL database, PHP scripting Language. We used this to connect to the MySQL Server to connect the database to the system.
MySQL Database	MySQL	SQL is also known as structured query language which programmers use to create a database. In addition, it modifies and extract data from the database. It also controls the access of users to the database. To save the user records, product details, order details we have chosen MySQL and Database (PHP MyAdmin)
NetBeans IDE	NetBeans	NetBeans is an open-source IDE, where it allows any type of Java application to be created. And also, it has ANT project, Maven system, etc. We used NetBeans IDE to code our Java System.

Table 1 (Software Requirements Table)

System Architecture

E-R Diagram

ER Diagram stands for Entity Relationship Diagram, also known as ERD is a diagram that displays the relationship of entity sets stored in a database. In other words, ER diagrams help to explain the logical structure of databases. ER diagrams are created based on three basic concepts: entities, attributes and relationships.
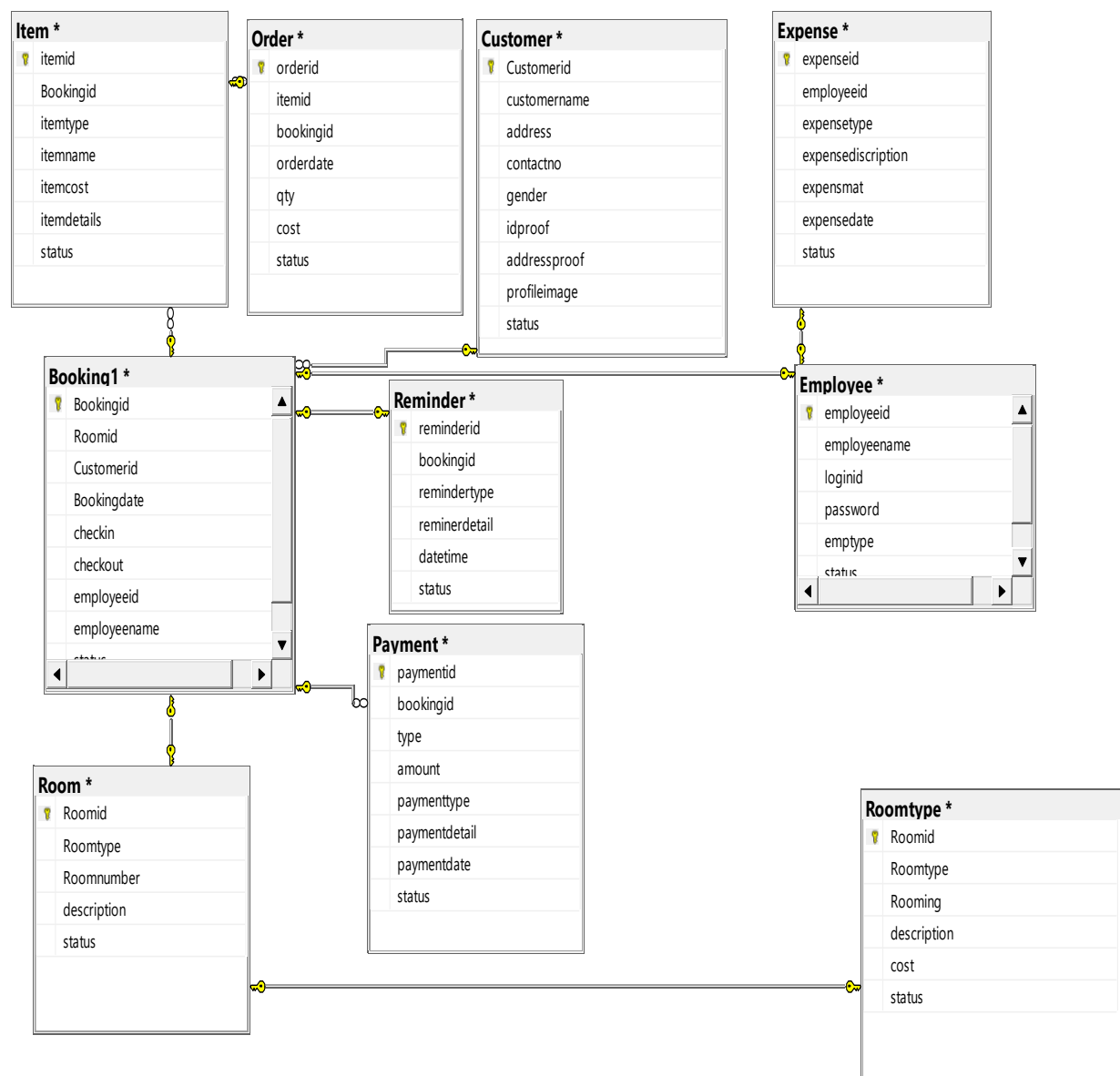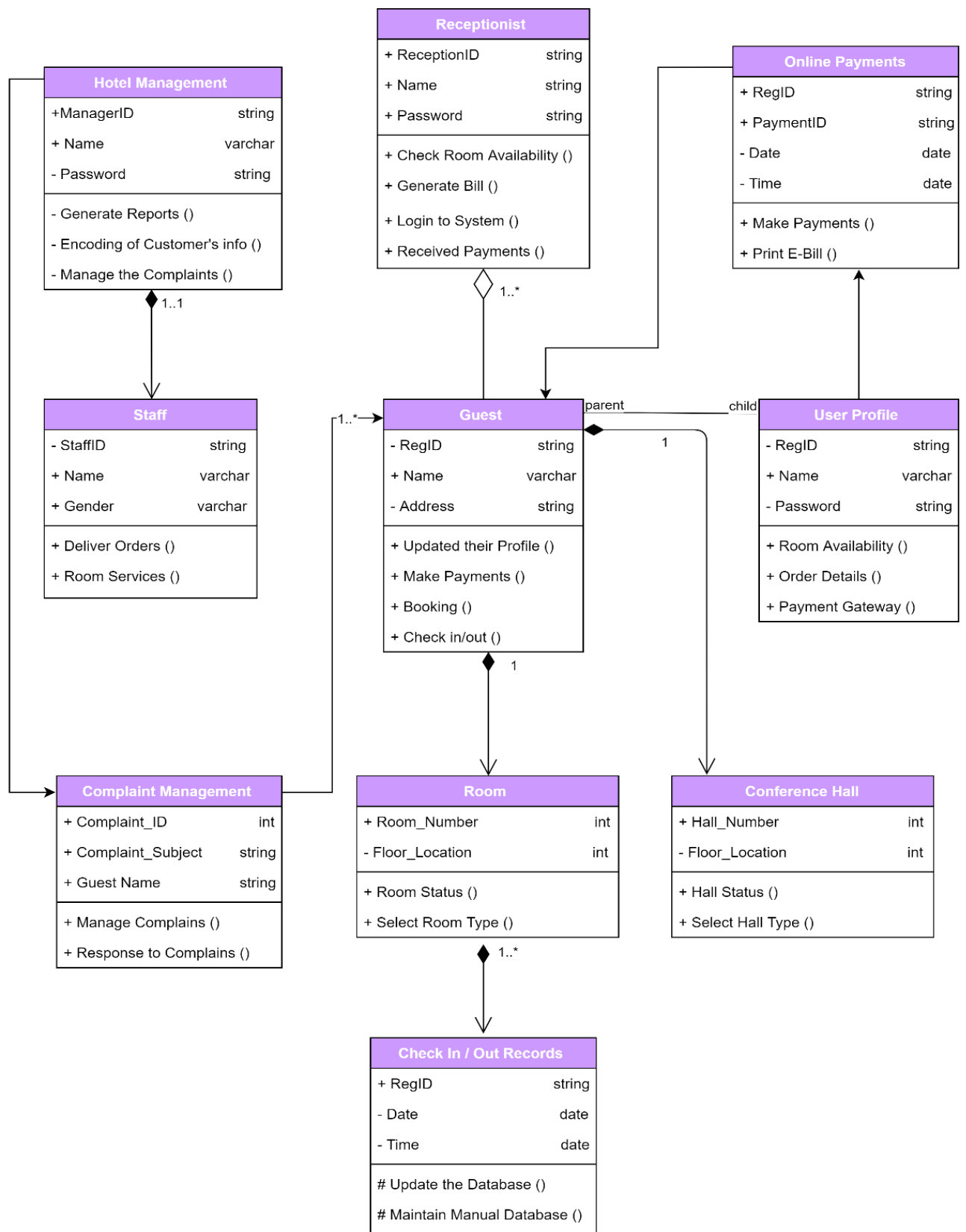

**ER Model**

Use Case Diagram
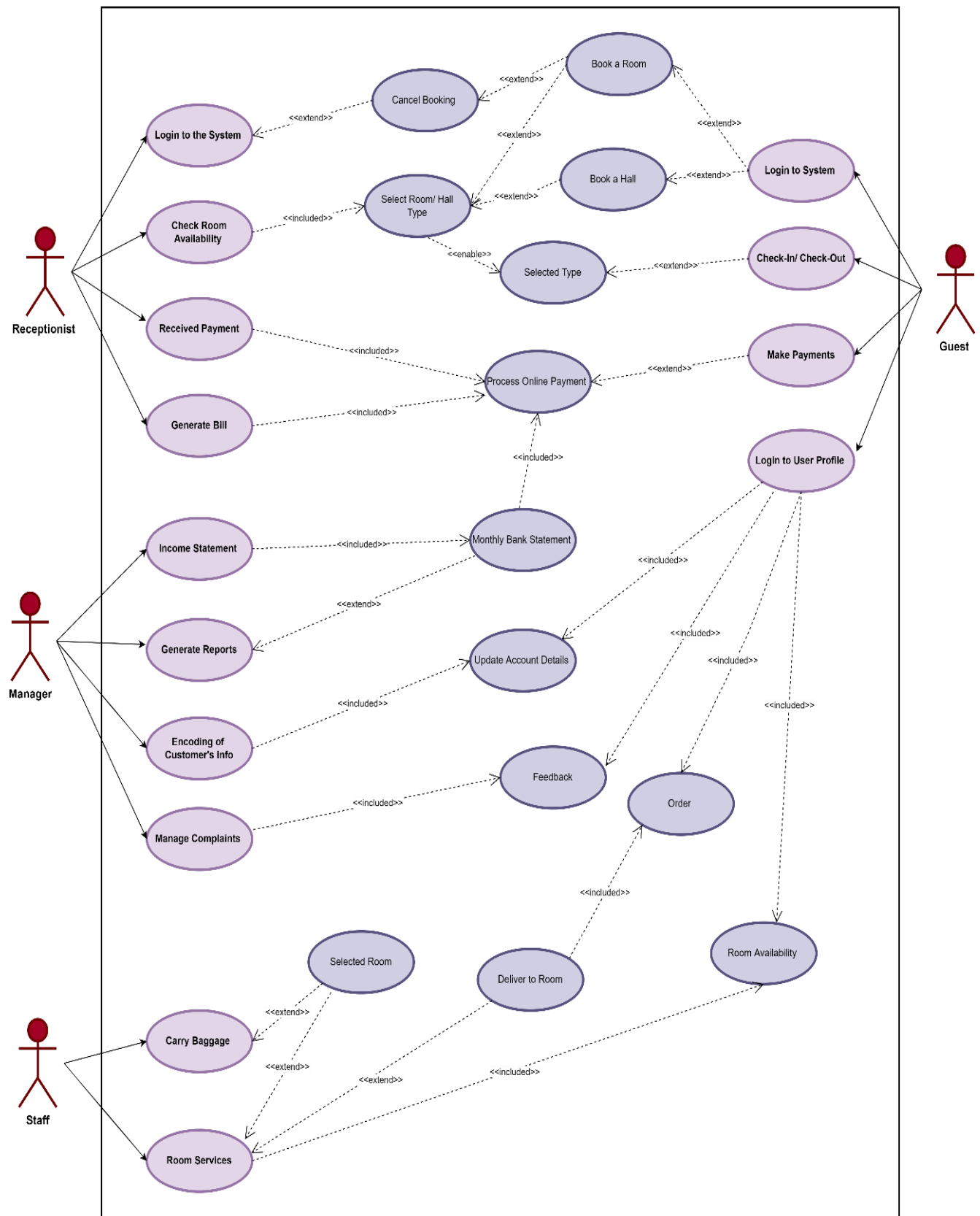
(User Case Diagram)

Class Diagram

It is used in USE CASE driven software design to organise classes comprising a program according to their roles in the implementation of the use case.

Receptionist

+ ReceptionID	string
+ Name	string
+ Password	string
+ Check Room Availability ()	
+ Generate Bill ()	
+ Login to System ()	
+ Received Payments ()	

Hotel Management

+ManagerID	string
+ Name	varchar
- Password	string
- Generate Reports ()	
- Encoding of Customer's info ()	
- Manage the Complaints ()	

1..1

Online Payments

+ RegID	string
+ PaymentID	string
- Date	date
- Time	date
+ Make Payments ()	
+ Print E-Bill ()	

Staff

- StaffID	string
+ Name	varchar
+ Gender	varchar
+ Deliver Orders ()	
+ Room Services ()	

Guest

1..*

parent   child

- RegID	string
+ Name	varchar
- Address	string
+ Updated their Profile ()	
+ Make Payments ()	
+ Booking ()	
+ Check in/out ()	

1

User Profile

- RegID	string
+ Name	varchar
- Password	string
+ Room Availability ()	
+ Order Details ()	
+ Payment Gateway ()	

1

Complaint Management

+ Complaint_ID	int
+ Complaint_Subject	string
+ Guest Name	string
+ Manage Complains ()	
+ Response to Complains ()	

Room

+ Room_Number	int
- Floor_Location	int
+ Room Status ()	
+ Select Room Type ()	

1..*

Conference Hall

+ Hall_Number	int
- Floor_Location	int
+ Hall Status ()	
+ Select Hall Type ()	

Check In / Out Records

+ RegID	string
- Date	date
- Time	date
# Update the Database ()	
# Maintain Manual Database ()	

Sequence Diagram

A sequence diagram, also known as a system sequence
diagram, depicts how items interact with one another
through time. This diagram is used in software engineering. It
shows the things that are in the scenario and how they
communicate with each other to make the scenario work.
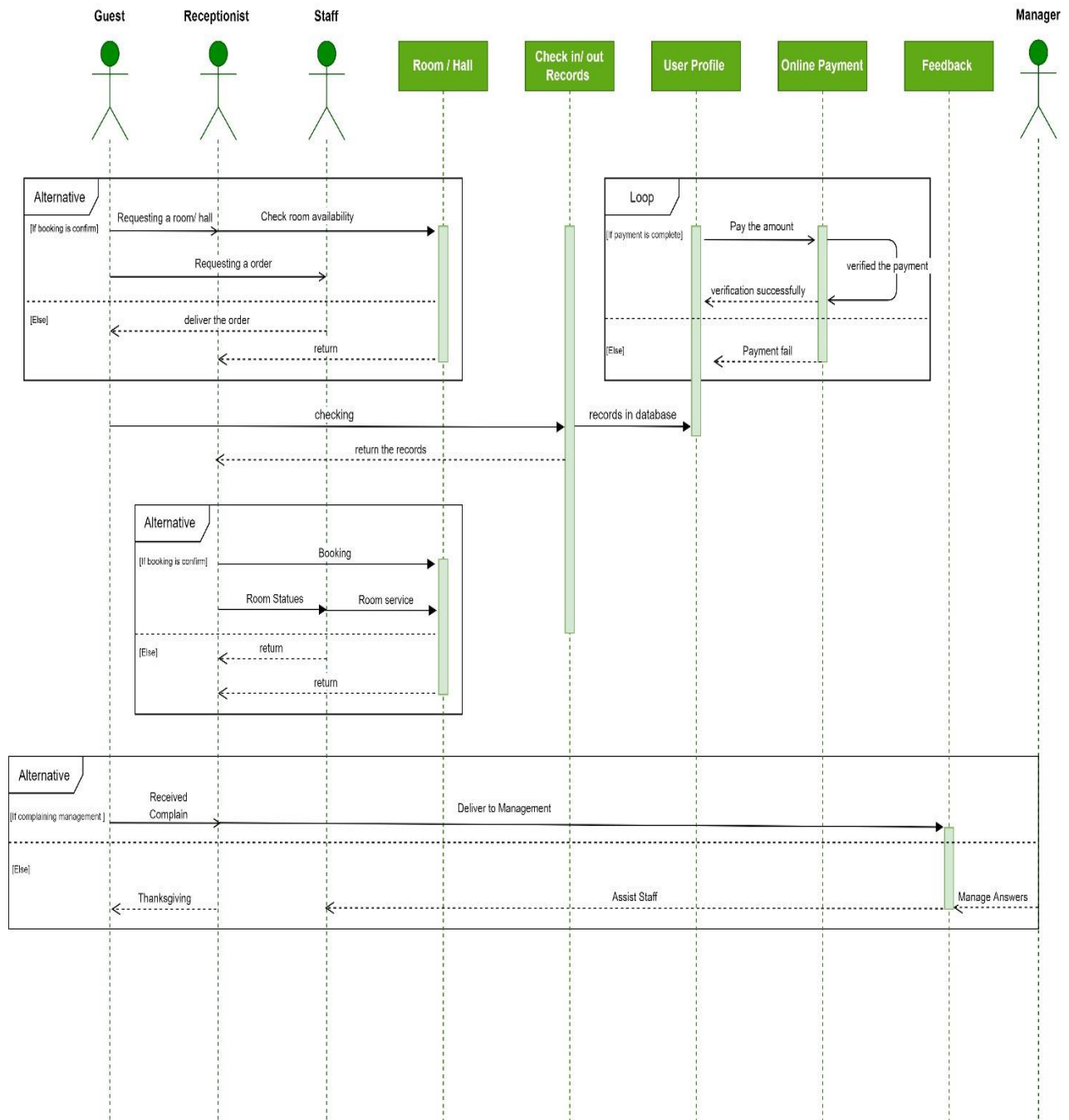
(Sequence Diagram)

Testing

We are going to perform testing on these Classes.

- Test Case for Gmail Login Screen Page
- Test Case for Payments
- Test Case for Google Search
- Test Case for GST Number Field
- Test Case for Login Attempts
- Test Case for Login Page

⇨ Test Cases for Home page

- Check if the user is able to access the landing page of the Hotel Booking System.
- Check is the complete page is rendered properly and displayed properly on the desktop as per the design specifications.
- Check is the complete page is rendered properly and displayed properly on the tablet as per the design specifications.
- Check is the complete page is rendered properly and displayed properly on mobile as per the design specifications.
- Check whether the hotel search field is visible on the screen properly or not.
- Check the number of people allowed per room.

⇨ Test Cases on Booking Page

- Check by entering a valid "From" date in the date picker field
- Check by entering an invalid "From" date in the date picker field – Eg from date is greater than to date.
- Check by entering a valid "To" date in the date picker field
- Check by entering an invalid "To" date in the date picker field
- Check by entering valid data "Room Type" field
- Check by entering invalid "Room Type"
- Check by entering the valid "number of guests"
- Check by entering the invalid "number of guests"

- Check by entering a valid "number of adults"
- Check by entering the invalid "number of adults"
- Check by entering a valid "number of children"
- Check by entering the invalid "number of children"
- Check by entering the valid "number of infants"
- Check by entering invalid data in the "number of infants" field
- Check by entering valid "credit card details"
- Check by entering invalid "credit card details"

⇨ **Test cases on Payment Page:**
- Check if user is able to get successful booking confirmation after payment confirmation.
- Check if user is able to Print the Payment Details.
- Check if user is able to get Room allocated after successful payment confirmation.
- Check if user is able to print the Booking details.
- Check if user is able to cancel the Booking.
- Check if user is able to get the Refund after the Booking cancellation.

Deployment

We divided our project in to steps and then this is how we broke our project:

Task ID	Task Category	Task Manager	Duration (Days)	Dependency
1	**Project Proposal**	**Group Members**	**12**	
1.1	Identification	Group Members	6	1
1.2	UML Modeling	Ayush Aryan	11	1
1.3	Feasibility Analysis	Tejender	3	1.1
2	**Project System**	**Group Members**	**31**	
2.1	Implementation of the Website with JSP and Servlets adhering to MVC	Abhay	25	1
2.2	User Interface Development	Utkarsh	14	1.3
2.3	Implement and Justify Design Pattern	SreeJan	13	1.3
2.4	Session Handling Implementation	Vaibhav Jain	9	2.1
3	**Project Demonstration**	**Group Members**	**8**	
3.1	Project Analysis & Design	Chandan	8	2.4
3.2	Software Specification	Agnit	2	2.2
3.3	System Test Run	Pranav	6	3.1
3.4	Demonstration & Presenting	Group Members	4	3.3
	Total Days to Complete		**51**	

Table 2 (Tasks Management)

Deployment Diagram

HOTELMANAGEMENTSYSTEM
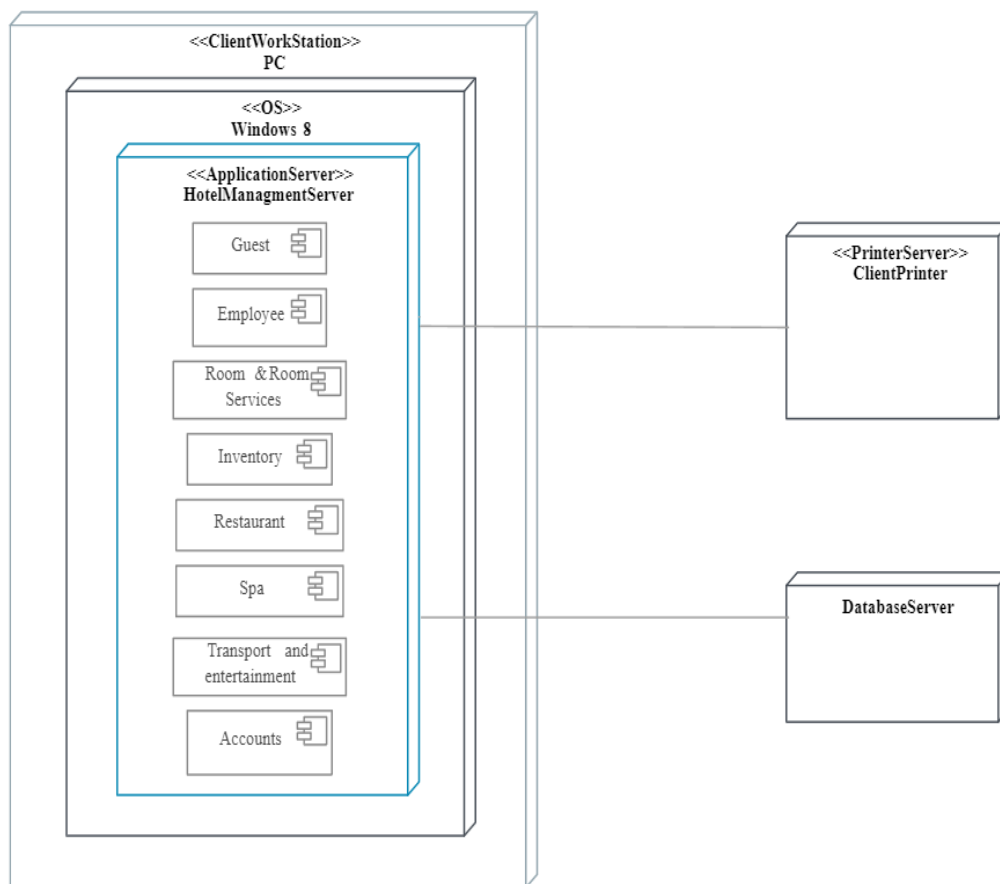
Deployment Diagram

Deployment Steps:

1) The three general scenarios of Web-App deployment is:

   i)   The client has nothing. (this is their first web)
   ii) The client already hosting and we will be deploying web on their server.
   iii) The client already has hosting but you will be moving to new server.

In our case, the client has nothing.

2) Setting Up DNS Server
3) Setting up a Live Testing Site

4) Set Up Email Accounts
5) Backup and Go Live

--------------------- **Thanks** ---