



Hotel Management System

Deliverable-VIII

Final Report

PREPARED BY

| | | |
|-------------|----------|-----------|
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Deliverable 2**Project Proposal**

1. Problem Statement
2. Project Description
3. Project Objectives
4. Project Scope

Deliverable 3**Vision**

1. Introduction
2. Positioning
3. Goals
4. Product Features Summary

Deliverable 4**Use Case**

1. Introduction
2. High Level Use-Cases
3. Ranking Use-Cases
4. Fully-Dressed Use-Cases

Deliverable 5**SSD, Contracts and Domain Model**

1. System Sequence Diagrams
2. Contracts
3. Domain Model

Deliverable 6**Class and Communication Diagram**

1. Class Diagram
2. Communication Diagram

Deliverable 7**Deployment and Package Diagram**

1. Deployment Diagram
2. Package Diagram



Hotel Management System

Deliverable-II

Project Proposal

Project Title : Hotel Management System

Problem Statement :

The current system in place for hotel management is quite out-dated and not very customer oriented. In today's world people prefer fast and easy interfaces to order what they want e.g. the new digitalize ordering system being used in my cafes and restaurants. But the same convenience of fast and uninterrupted order placement service is not available in the hotel business. Many hotels provide the facility of online booking and room reservations but the same efficient and fast method isn't available in the hotel premises and there are also many problems with the allocations of service duties to staff and services provided to customers due to the traditional system.

Project Description

In this project we aim to automate the Hotel Management System to better the workings of hotel and provide a better experience to the customers. For this purpose we wish the digitalize reception rather than a person explaining the room details a UI interface on a screen will be provided to the customer from which he/she would be able to get the details and book a room and services they want along with it. Secondly the hotel MS can then allocate resources (services and staff) according to the customer choice.

Project Objectives

The objectives of the project are as follows:

1. To automate and digitalize the various hotel functions to be more customer oriented and less time consuming.
2. To create an attractive and easy to use user interface for both for online and on-premises room reservations.
3. To create a system for managing services requested.
4. Create a billing system.

Project Scope

The project covers the entire hotel business scenario from the booking for rooms to the services provided to customers. It covers the creation of three sub-systems namely billing system, service system, room reservation system and UI .Providing proper hardware for the deployment of UI (LED monitor and systems) is not in the scope of the project.



Hotel Management System

Deliverable-III

Project Vision

1. Introduction

1.1 Purpose

The purpose of this document is to collect, analyze, and define high-level needs and features of the **Hotel Management System**. It focuses on the capabilities needed by the stakeholders, and the target users, and why these needs exist. The details of how the **Hotel Management System** fulfils these needs are detailed in the use-case and supplementary specifications.

1.2 Scope

This Vision Document applies to the Hotel Management System (HMS), which will be developed by the Tempest Development team. The Tempest team will develop this management system to interface with the existing hotel management model. This new management system developed by the Tempest team will allow the hotel staff to skillfully assign responsibilities to employees to improve the provided services to rooms, make the reservation system more user-oriented i.e. Computerized and allow the hotel to make the entire management system efficient and more customer oriented.

1.3 Definitions, Acronyms, and Abbreviations

HMS ____ Hotel Management System

EULA ____ End User License Agreement

2. Positioning

2.1 Business Opportunity

Hotel Management can be quite a tedious task, depending on the work model being used in a hotel. It ranges from the assignment of room services, responsibilities of employees, transaction system, room reservations and building management. In order to provide consistent services to ensure a pleasant customer experience hotel management has to fulfil all the responsibilities mentioned above for every possible customer. This new system developed by Tempest will help to provide better services to the customer and simplify other tasks of management by digitizing them. It will handle tasks such as the reservation of rooms, the job assignment of employees, transaction system, services system in order to smoothen the Hotel Management scenario.

2.2 Problem Statement

| | |
|---------------------------------------|--|
| The problem of | Inefficiency of current HMS. |
| Affects | Time wastage. |
| the impact of which is | Waste of time of both customer and hotel staff and loss of resources of hotel. |
| a successful solution would be | Simplify the system to improve the hotel asset management, reduce customer room reservation time, improve services, improve employee management. |

3. Goals

3.1 Summary of Capabilities

| Customer Benefit | Supporting Features |
|---|---|
| New online and on-spot room reservation system will help to simplify and speed up the room booking process. | This new system will allow customers to book rooms online as per standard procedure but the on-spot room reservation system will present the customers with options of an LCD touch screen from where they can choose as available room according to their budget. This new system is designed to fully automate the room reservation system. |
| Customers can buy services and hotel offerings through the use of an LCD Terminal installed in every room. | This new system will able the customers to buy or order different hotel services through the use of monitors placed in their rooms. This new request will be sent directly to the related department and a log of it will be maintained eliminating the need of calling the reception for ordering |
| Allocation of staff duties of different departments/facilities will help simplify management team responsibilities. | The system will be capable to fully automate the assignment of jobs to employees i.e. each employee will be assigned jobs whenever a customer request arrives in a department (order). |
| A New Payment System. | This new system aims to change the current payment system in place. |

3.2 User-Level Goals

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 have 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. Given Below are the **Actors** and their **Goals** that they will perform w.r.t to the system.

Actor: Manager

Goal: manages employees, generates reports to see and manage finances.

Actor: Employee

Goal: completes the job assigned, provides services requested by the customer.

Actor: Customer

Goal: can Book rooms online/ on-premise, can avail different services provided by the hotel.

3.3 Assumptions and Dependencies

1. All the hardware equipment required for installing the system in the hotel is already present and ready for deployment.
2. The employees at the hotel are able to use and understand the system.

3.4 Cost and Pricing

Due to funding constraints, the costs for developing the system must not exceed **\$50000**. It will include the payment of extra hours put in by employees of Tempest. The development of the system does not require any other additional costs or hardware equipment. The estimated cost is around \$25000.

The price of the software will be **\$1500** per Hotel.

3.5 Licensing and Installation

The product requires professional installation. It must be installed by licensed personnel only. The product also has an activation and licensing requirements that will be handled by the employee sent for installation after the purchase of this software solution. **HMS** is a proprietary software of **Tempest Inc.** and hence an intellectual property of Tempest. All rights of HMS belong to Tempest and customers are allowed to use the software under the given terms and conditions in the **EULA** licensing agreement.

4. Product Features Summary

4.1 Make Reservations

A Simple interface that allows the customer to book room/rooms either online or on-premise.

4.2 Search Rooms

A functionality that allows the customers to search rooms according to their budget.

4.3 Add Payment

A method add the cost of services and room reservations to customer bill.

4.4 Issue Bills

A method that generates bill for a customer. It includes charges for services,tax and room reservation.

4.5 Manage Rooms

A method to check the availability of rooms,their condition and if booked it allows the hotel to track customer activities i.e. the services he brought and the time the customer is staying in the room and the no. of occupants of the room.

4.6 Manage Staff

A method to add,remove,update employees and employee status in the system.It allows management to assign jobs to employees, update their salary and check their working status.

4.7 Set Rates

A method to set rates for different rooms depending on the number of occupants staying and the time they will be staying.

4.8 Retrieve Reports

A method to retrieve the financial condition of hotel i.e. salary paid to employees, track profits and costs associated with buying inventory for the hotel.

4.9 Taking Backups

A method that takes daily backups of system activities on a database.

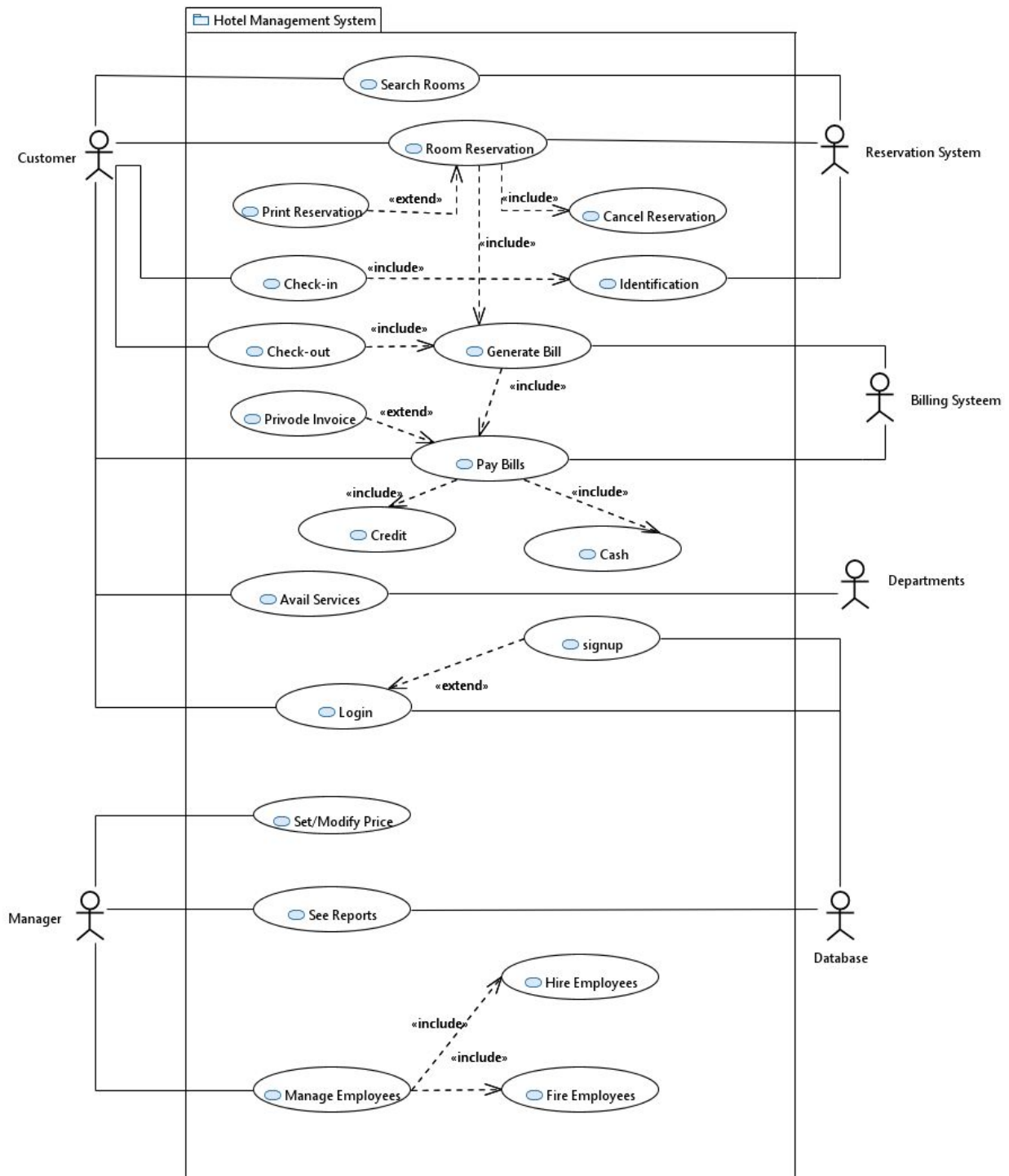


Hotel Management System

Deliverable-IV

Use Case

Use-Case Diagram



1. Introduction

This document provides high-level definition and explanation of use-cases that are present in the **Hotel Management System** use-case diagram and provides fully dressed use-cases for the five most important use-cases.

2. High Level Use-Cases

Use-Case : Search Rooms

Actor : Customer

Type : Primary

Description:

The Customer can search Different rooms that are available for booking at the hotel. They can view the type,pricing and cost per occupant of the room.This allows the customer to select a room that fits the budget.

Use-Case : Room Reservation/Booking

Actor : Customer

Type : Primary

Description:

The Customer can book room/rooms according to their budget.This case provide them will the total cost of booking (services excluded) and generate a reservation bill that is used at the reception to validate **check-in**.This service is provided online and on hotel premises.

Use-Case : Print Reservation

Actor : Customer

Type : Primary

Description:

The Customer is provided will a generated bill containing the details of room reservation that can be printed. The customer provides this information at the reception to validate the check-in process.

Use-Case : Cancel Reservation

Actor : Customer

Type : Sub-Function

Description:

The Customer can cancel reservation at the hotel by using this case. The information needed to cancel is provided on the reservation bill.

Use-Case : Check-in

Actor : Customer

Type : Primary

Description:

The Customer can check-in at hotel after performing the reservation. The bill generated during reservation is used to perform user-identification.If the identification is successful the customer pays for the reserved room and gets the room keys.

Use-Case : Identification

Actor : Customer

Type : Sub-Function

Description:

During the check-in process the Reservation system handles the identification of the customer.It takes the reservation details of the customer that he provides at the reception and searches for it in the records to validate the check-in process.

Use-Case : Check-out

Actor : Customer

Type : Primary

Description:

During the check-out process the total bill of the services availed by the customer is calculated and customers. Customer only needs to pay for services as the bill for reservation is already paid during check-in process.

Use-Case : Generate Bill

Actor : Customer

Type : Sub-Function

Description:

During the check-out process the Payment system handles the calculation and generation of the total bill of the customer. It adds at cost of all the services availed by the customer.

Use-Case : Pay Bills

Actor : Customer

Type : Primary

Description:

The Customer Pays the bill that is generated during the check-out process either by cash or credit.

Use-Case : Provide Invoice

Actor : Customer

Type : Sub-Function

Description:

The Payment system generates an invoice for the bill which is given to the customer of their request.

Use-Case : Cash

Actor : Customer

Type : Sub-Function

Description:

The Customer can pay the bills using cash.

Use-Case : Credit

Actor : Customer

Type : Sub-Function

Description:

The Customer can pay the bills using credit card.

Use-Case : Avail Services

Actor : Customer

Type : Primary

Description:

The Customer can avail different services provided by the services provided by the hotel during their stay at the hotel. An LCD screen with avail services is installed in every room through which the customer can avail these services. The purchase record of each service availed is saved in the database that is used to generate bill during check-out process.

Use-Case : Set/Modify Prices

Actor : Manager

Type : Primary

Description:

The Manager can set and change the prices of services and the cost of stay at the hotel according to the interest of the hotel.

Use-Case : See Reports

Actor : Manager

Type : Primary

Description:

The Manager can generate and see reports about the financial condition of the hotel during the specific period that he provides to the system, the system then generates a report of financial condition by using the records saved in the database.

Use-Case : Manage Employees

Actor : Manager

Type : Primary

Description:

The Manager can manage and see employees work stats using this system.

Use-Case : Hire Employees

Actor : Manager

Type : Primary

Description:

The Manager can hire new employees and add their records to the system.

Use-Case : Fire Employees

Actor : Manager

Type : Primary

Description:

The Manager can fire employees and delete their records/modify from the system.

Use-Case : Login

Actor : Customer

Type : Primary

Description:

The Customer needs to login in order to book rooms using the online reservation system. During this process Database system provides the user credential authentication.

Use-Case : Signup

Actor : Customer

Type : Primary

Description:

The Customer need to create an account in order to use the online reservation system. Web interface provides the user with the necessary steps for creating an account. User information is stored in database.

3. Ranking Use-Cases

Following use-cases are the most important in the hotel management use-case diagram.

1. Room Reservation
2. Check-in
3. Check-out
4. Avail Services
5. See Reports

The above listed use-cases are the most important task of the system that it must perform from the perspective of the customers. High level definition of these uses-cases has also been provided in the previous section.

Room Reservation is the most important use-case from customer perspective because the entire functionality of the system is dependent on the booking. Every other system and use-case becomes active only after this case has been triggered or done by the customer.

4. Fully-Dressed Use-Cases

Use-Case : Room Reservation

Primary Actor : Customer

Scope : Help user to book a room.

Level : User Goal.

Pre-condition :

The customer knows how to reserve a room.

Post-condition :

The customer is successful able to reserve a room and the reservation bill is generated.

Success Scenario :

| User Action | System Responsibility |
|--|---|
| The Customer opens the reservation tab after searching for the best option for them according to their budget. | The System lists down the available rooms. |
| The Customer select the room of his choice and fills the booking details and books the room. | The System saves the booking details in the database and generate a reservation bill. |

Stakeholders and Interests:

Customer : The Customer wants to book a room using the reservation system.

Extensions :

- The details provided by the user are faulty.
 - The system generates an error message detailing the mistake and how to fix it
 - The Customer fixes the error and books the room again
 - The system check the details and repeat the process until the provided information is correct.

Special Requirements :

- System should provide multi-language support to help foreign customers to also book a room.
- System response time should be less than 1s.

Technology and Data variation list :

- The System should be able to handle multiple requests at the same time.

Frequency of Occurrence : Many times a day

Open Issue :

- How the system will handle requests for the same room done at the same time.

Use-Case : Check-in

Primary Actor : Customer

Scope : Reservation System

Level : User-Goal

Pre-condition :

- The Customer has completed the room reservation process.
- The records of reservation are present in the system.
- The Customer hasn't cancel the reservation.

Post-condition :

- Provide the customer with the room keys after validating the room reservation and receiving the payment for room reservation.

Success Scenario :

| User Action | System Responsibility |
|--|---|
| Customer provides the reservation bill at the reception. | The system after receiving the bill checks the details in the system. |
| Customer pays for the room reservation. | The system finalizes the room reservation process. |
| Customer get the room keys. | |

Stakeholders and Interests:

Customer : The Customer wants to check-in and get the keys of booked room.

Extensions :

- The provided reservation bill doesn't exist in the system.
 - The system generates an error message details the reason.
- The provide reservation bill has already been cancelled.
 - The system generates an error message details the reason.

Special Requirements :

- System response time should be less than 1s.
- The database must be connected with the reservation system.

Technology and Data variation list :

- The System should be able to search multiple records at the same time.
- The System must be able to handle multiple requests at the same time.

Frequency of Occurrence : Many times a day

Open Issue :

- What happens when there is a problem with the database.

Use-Case : Check-out

Primary Actor : Customer

Scope : Billing System

Level : User-Goal

Pre-condition :

- The customer time of stay has been completed.
- The customer wants to leave due to an urgent situation.

Post-condition :

- The Billing system generates the bill and the customer pays the bill.

Success Scenario :

| User Action | System Responsibility |
|----------------------------------|---|
| Customer requests for check-out. | The system searches the database for customer services purchase history and generates bill. |
| Customer pays the bill. | System saves and verifies the total budget after usage of services. |

Stakeholders and Interests:

Customer: The customer wants to leave the hotel.

Extensions :

- The bank declines the credit card.
 - System generates an error message notifying the customer.

Special Requirements :

- System response time should be less than 1s.
- The database must be connected with the billing system.
- The records for customer purchase should be entered to the database by employees.

Technology and Data variation list :

- The System should be able to handle multiple requests at the same time.

Frequency of Occurrence : Many times a day

Open Issue :

- What happens when there is a problem with the database.
- What to do when a customer doesn't have the necessary amount to pay the bill.

Use-Case : Avail Services

Primary Actor : Customer

Scope : Hotel Departments

Level : User-Goal

Pre-condition :

- Customer is notified about how to use services

Post-condition :

- Customer is provided the service they brought
- Record of transaction is added to the database.

Success Scenario :

| User Action | System Responsibility |
|-------------------------------------|--|
| Customer requests for the services. | System pass the request to departments. |
| Customer uses the service. | System saves the service request to database after it is provided to customer. |

Stakeholders and Interests:

Customer : The Customer avails the services provided by the hotel management.

Extensions :

- System displays the error message that current service can not be provided.
- Delivery of wrong service or item.
- We can send emails/text message to customers in order to keep them updated with the current bill.

Special Requirements :

- System response time should be less than 1s.
- The records for customer purchase should be entered to the database by employees.

Technology and Data variation list :

- The System should be able to handle multiple requests at the same time.

Frequency of Occurrence : Many times a day

Open Issue :

- What happens when there is a problem with the database.
- How the system will handle requests for the same room services done at the same time.

Use-Case : See Reports

Primary Actor : Manager

Scope : Helps the manager to see reports.

Level : User-Goal

Pre-condition :

- Login into the system to view the report.
- Manager requests the financial records for a specific time period.

Post-condition :

- System provides the reports for the time period entered by the manager.

Success Scenario :

| User Action | System Responsibility |
|---------------------------------|--|
| Manager Log's in to the system. | System verifies credentials. |
| Manager requests for report | System generates a report for the manager. |
| Manager Logs out. | System records the session details |

Stakeholders and Interests:

Manager: Manager see the reports of the financial condition of hotel.

Extensions :

- System displays the error message that current record can not be provided.

Special Requirements :

- System response time should be less than 1s.
- Database of records of hotel activities.

Technology and Data variation list :

- The System should be able to handle multiple requests at the same time.
- The System should be able to search multiple records at the same time.

Frequency of Occurrence : Many times a day when needed.

Open Issue :

- What happens when there is a problem with the database.



Hotel Management System

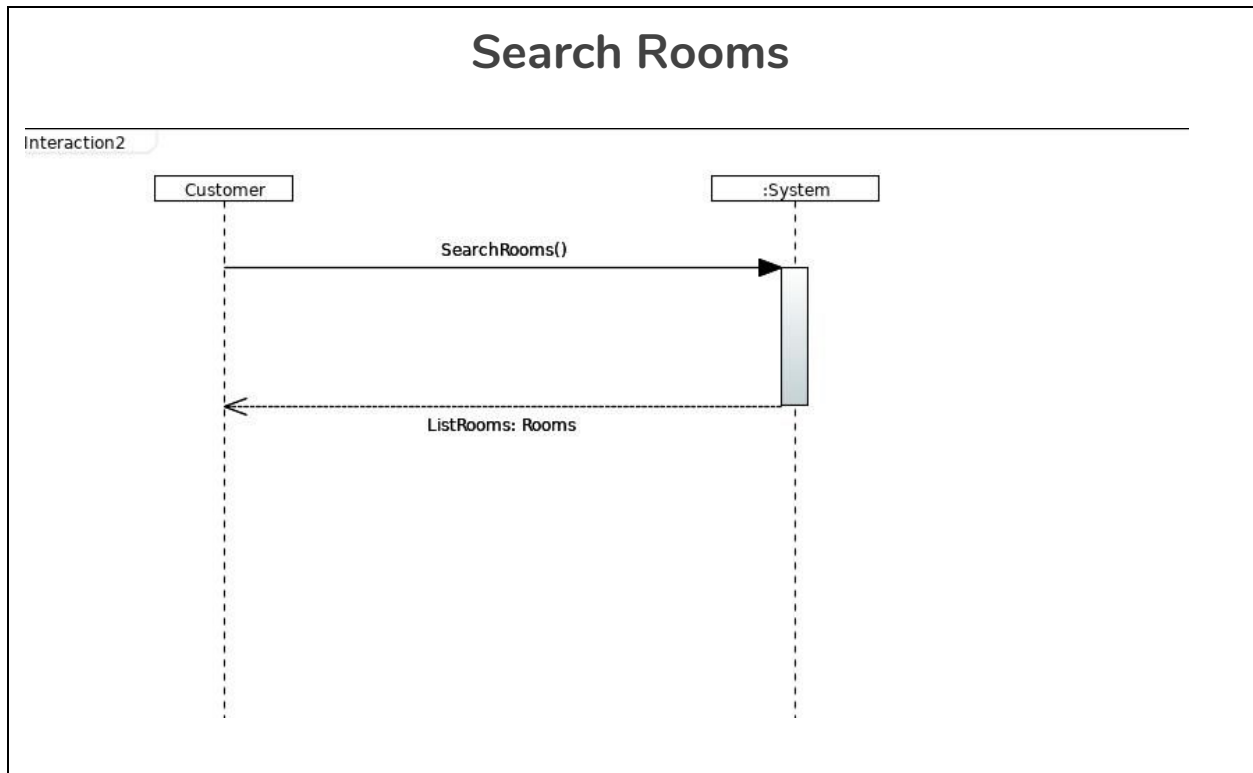
Deliverable-V

Domain Model

System Sequence Diagram

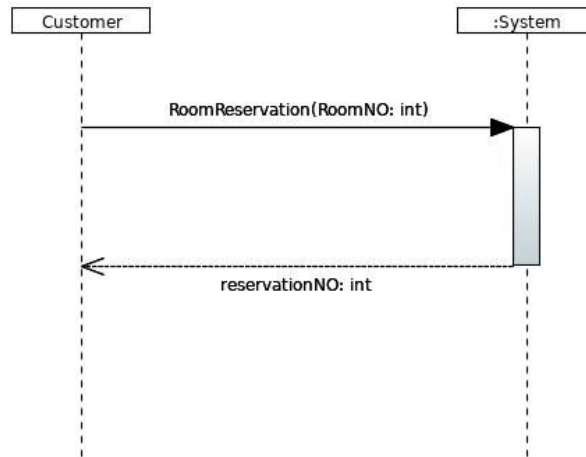
Contracts

1. System Sequence Diagrams



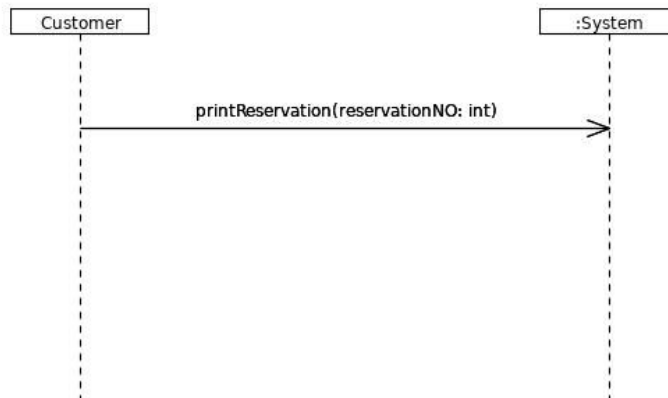
Room Reservation/Booking

Interaction3



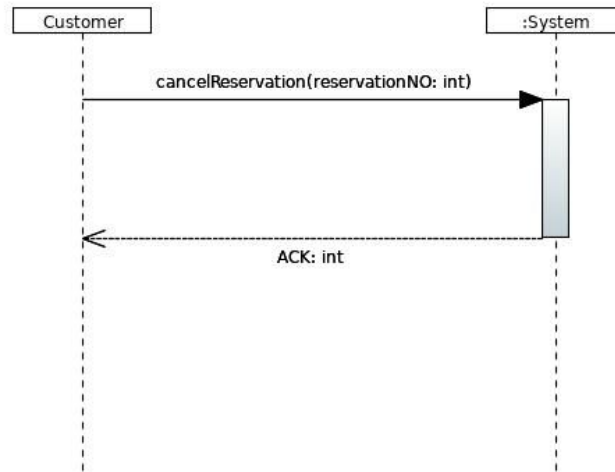
Print Reservation

Interaction9



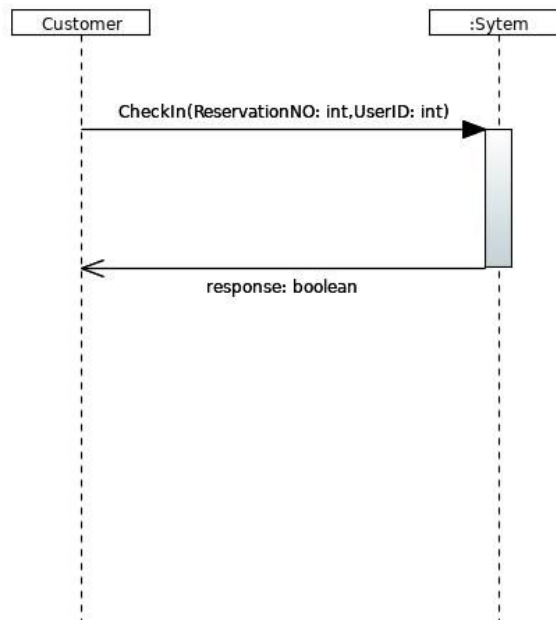
Cancel Reservation

Interaction8



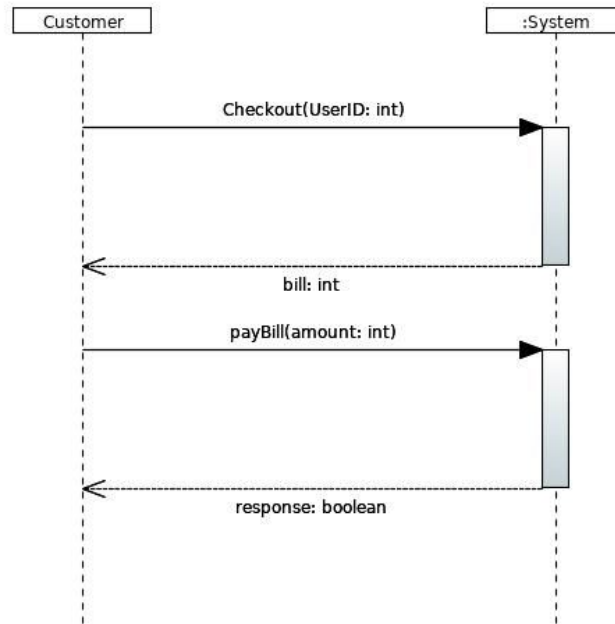
Check-in

Interaction4



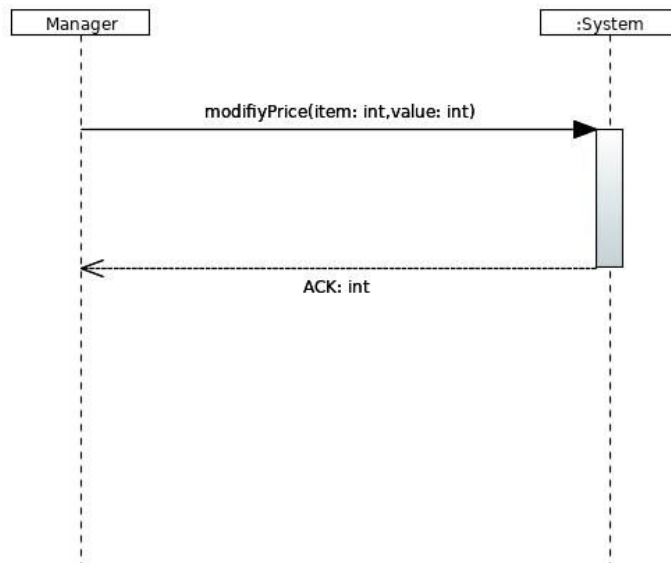
Check-out

Interaction5



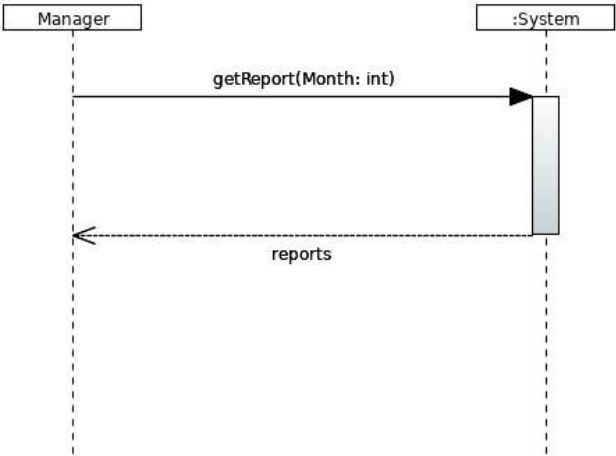
Set/Modify Prices

Interaction7



See Reports

Interaction6



2. Contracts

Search Room

Name : SearchRooms()

Responsibility : provide user with a list of available rooms.

Use-Case : Search Room

Pre-Condition : Customer wants a list of available rooms.

Post-Condition :

1. Customer is provided with a list of available rooms.

Room Reservation

Name : RoomReservation(RoomNO: int)

Responsibility : check if the room selected by customer is available and provide a unique number in case that it is available.

Use-Case : Room Reservation

Pre-Condition : Room reservation user-case is underway.

Post-Condition :

1. The room is booked.
2. Customer is provided with the reservationNo.
3. Record is saved in Database

Print Reservation

Name : printReservation(reservationNO: int)

Responsibility : print the reservation details for the given reservationNO.

Use-Case : Print Reservation

Pre-Condition : Print Reservation user-case is underway.

Post-Condition :

1. A detailed copy of reservation is provided to customer as a printable file.

Cancel Reservation

Name : cancelReservation(reservationNO: int)

Responsibility : remove the record of reservation details against a given reservationNO.

Use-Case : Cancel Reservation

Pre-Condition : Cancel Reservation user-case is underway.

Post-Condition :

1. Reservation records are removed from the system.
2. An acknowledgement is provided to the customer.

Check-in

Name : CheckIn(ReservationNO: int,UserID: int)

Responsibility : check if the reservation details for the reservationNO provided are saved in the database against the provided userID.

Use-Case : Check-in

Pre-Condition : Check-in is underway.

Post-Condition :

1. System tells if the provided details are valid or not.
2. If valid, Customer check-in is successful.
3. If not valid, Customer is informed of the issue.

Check-out

Name : Checkout(userID: int) , payBill(amount: int)

Responsibility : check the billing details against the userID and generate bill for the customer and then save the record to database after the customer has paid the bill.

Use-Case : Check-out

Pre-Condition : Check-out user-case is underway.

Post-Condition :

1. The bill is generated.
2. The record of bill payment is saved to Database.

Set/Modify Prices

Name : modifyPrice(item: int,value: int)

Responsibility : change/set the price of the provided item in database.

Use-Case : Set/Modify prices

Pre-Condition : Set/Modify user-case is underway.

Post-Condition :

2. Item price is changed to the given price.

See Reports

Name : getReport(Month: int)

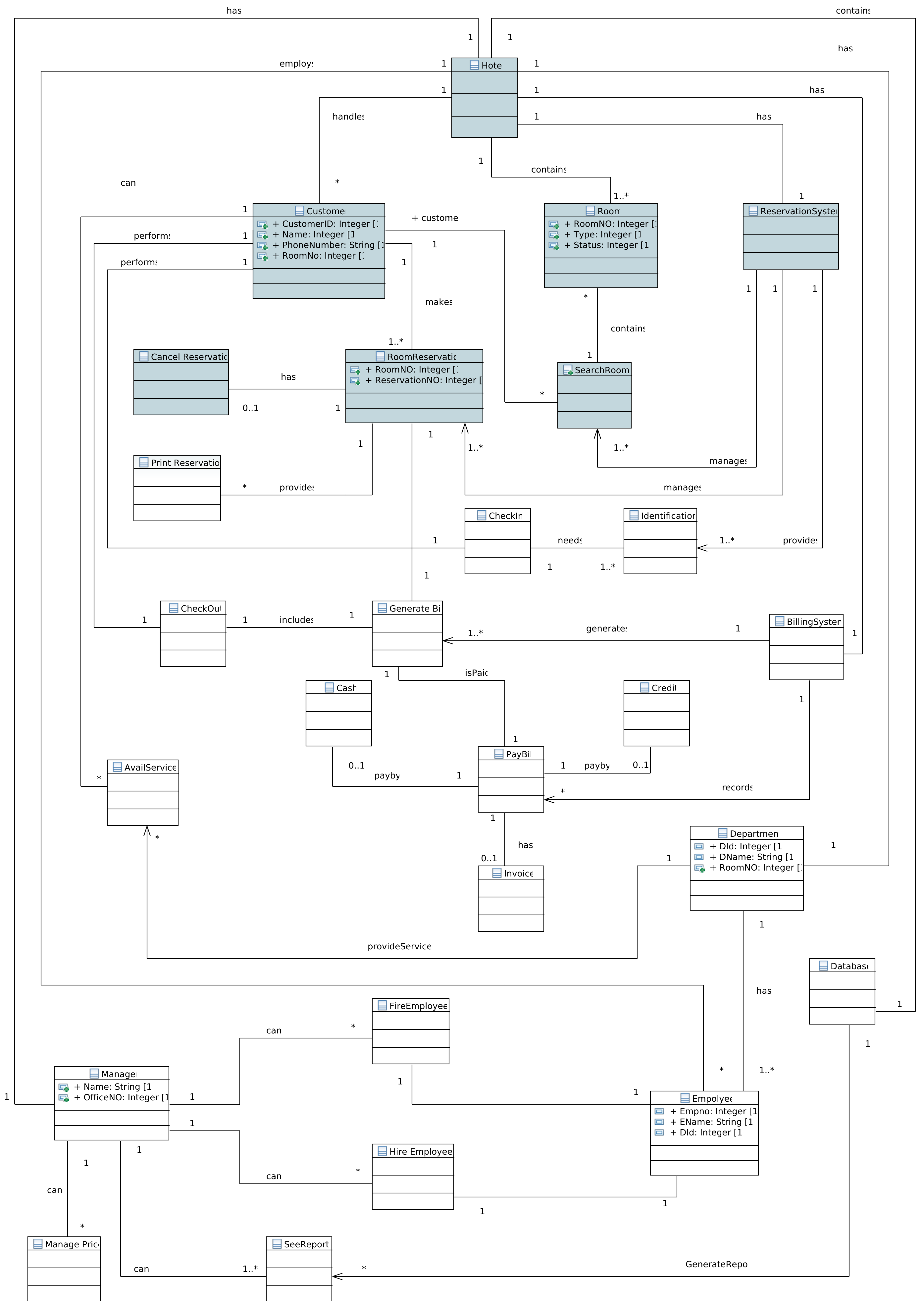
Responsibility : provide manager the hotel details for the given month.

Use-Case : See Reports.

Pre-Condition : See reports user-case is underway.

Post-Condition :

1. Manager is provided with the reports for the given month.



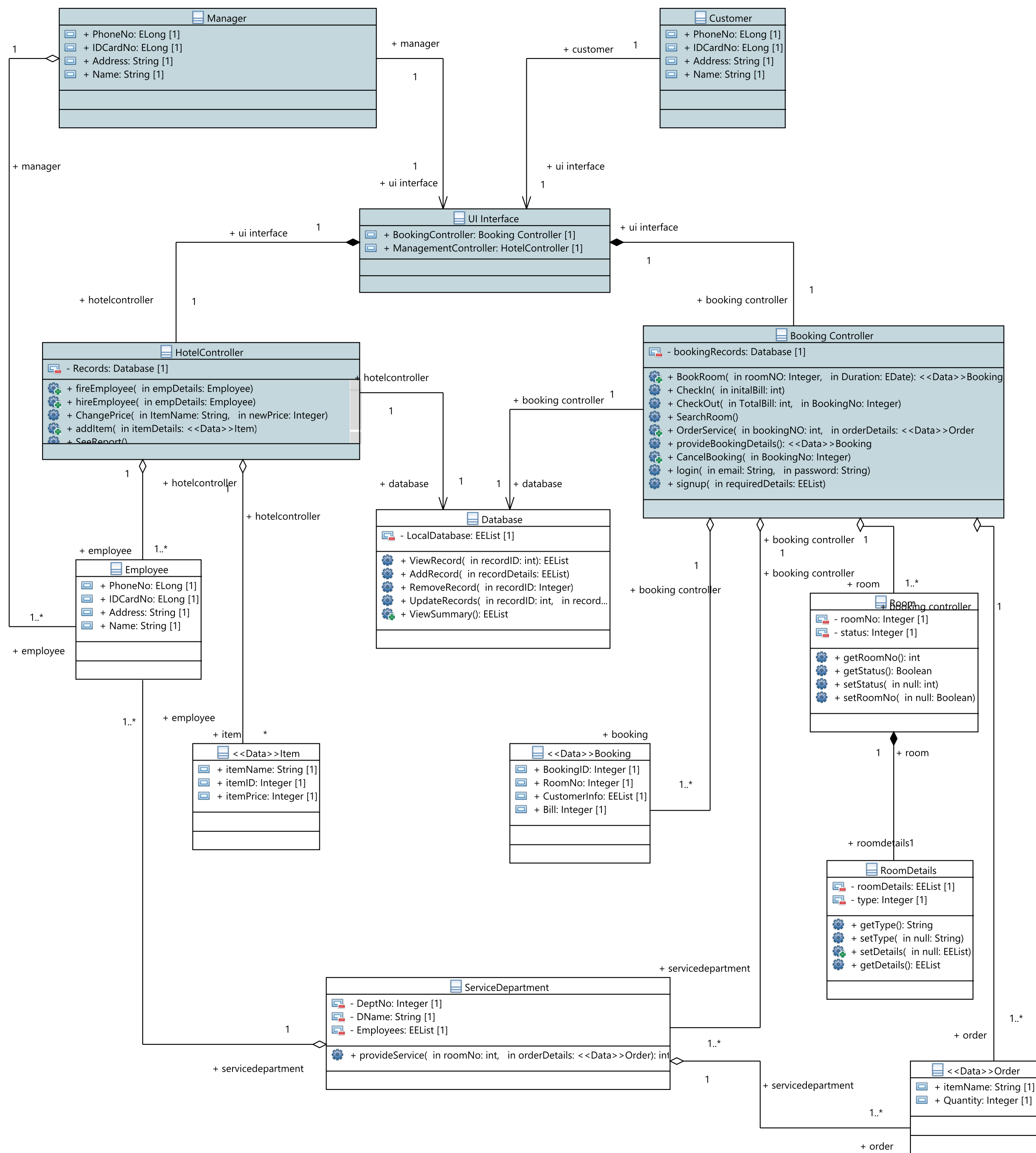


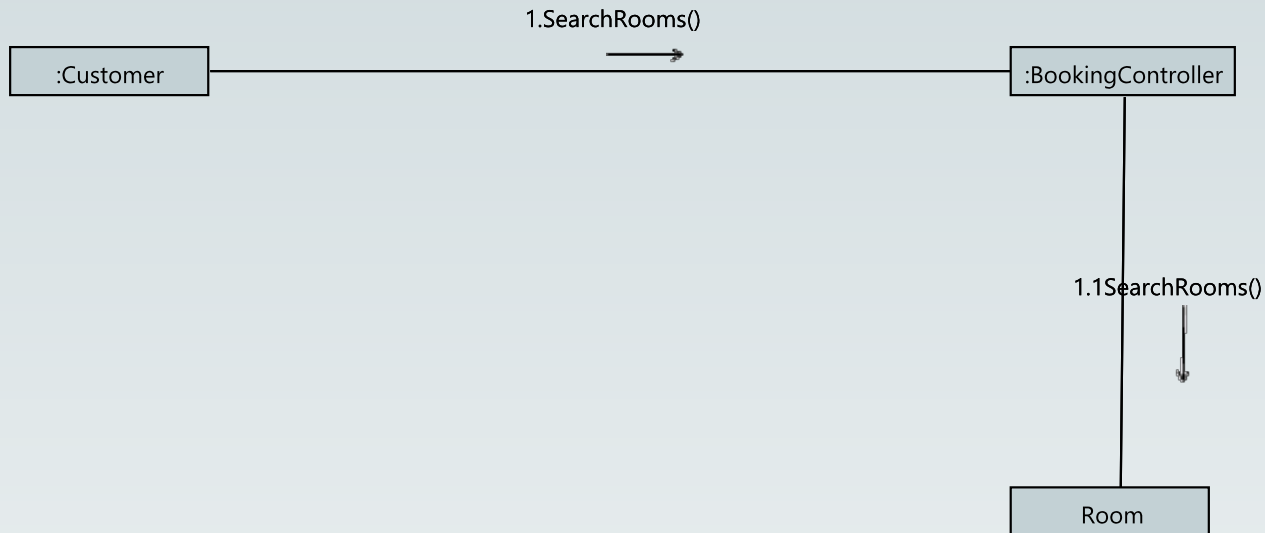
Hotel Management System

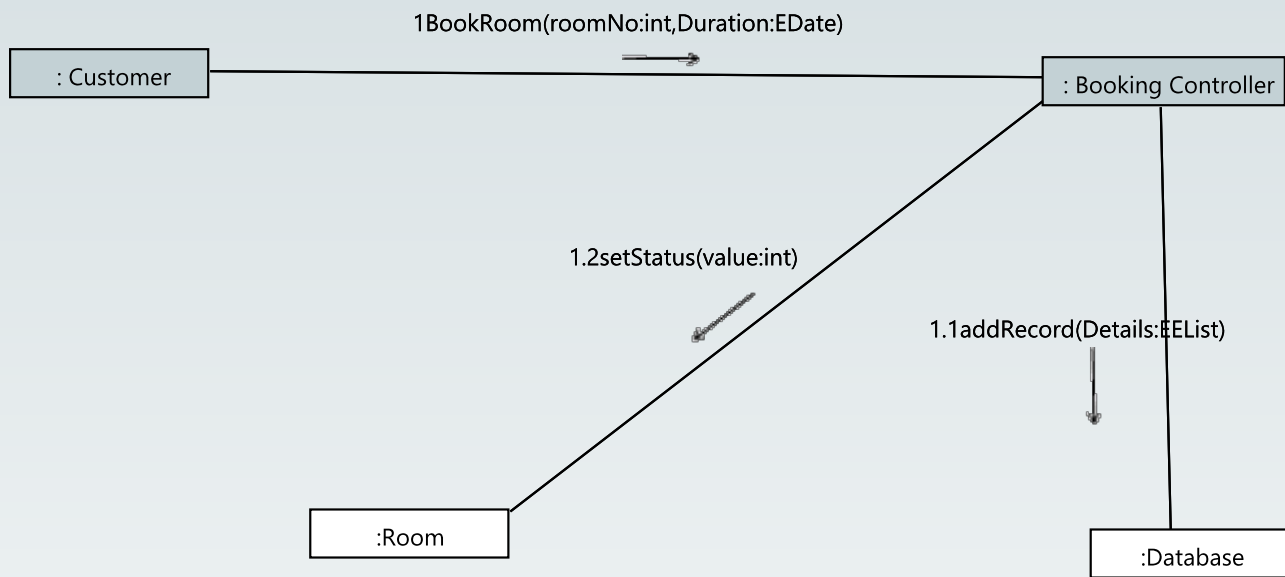
Deliverable-VI

Class Diagram

Communication Diagram



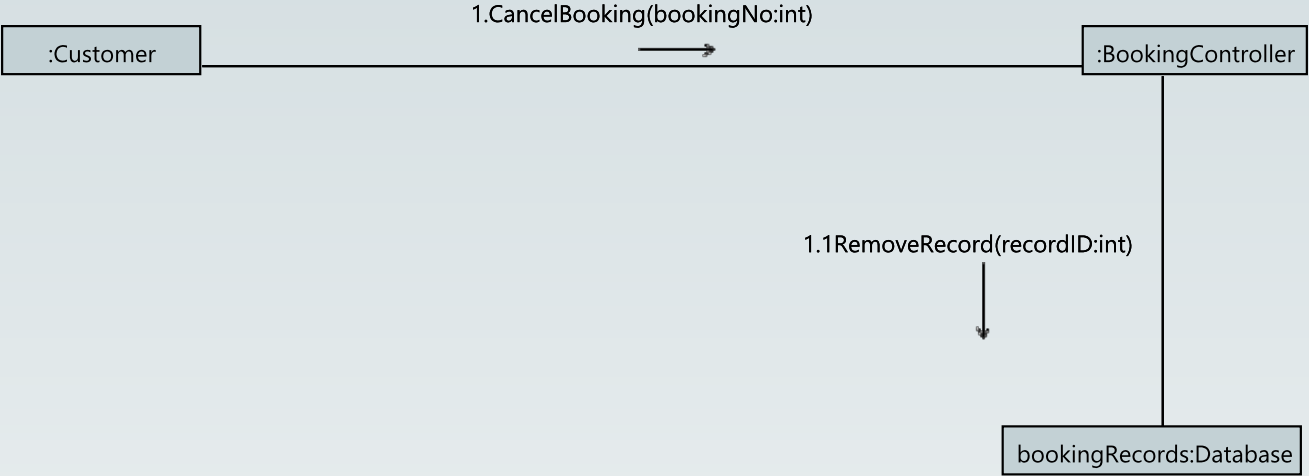






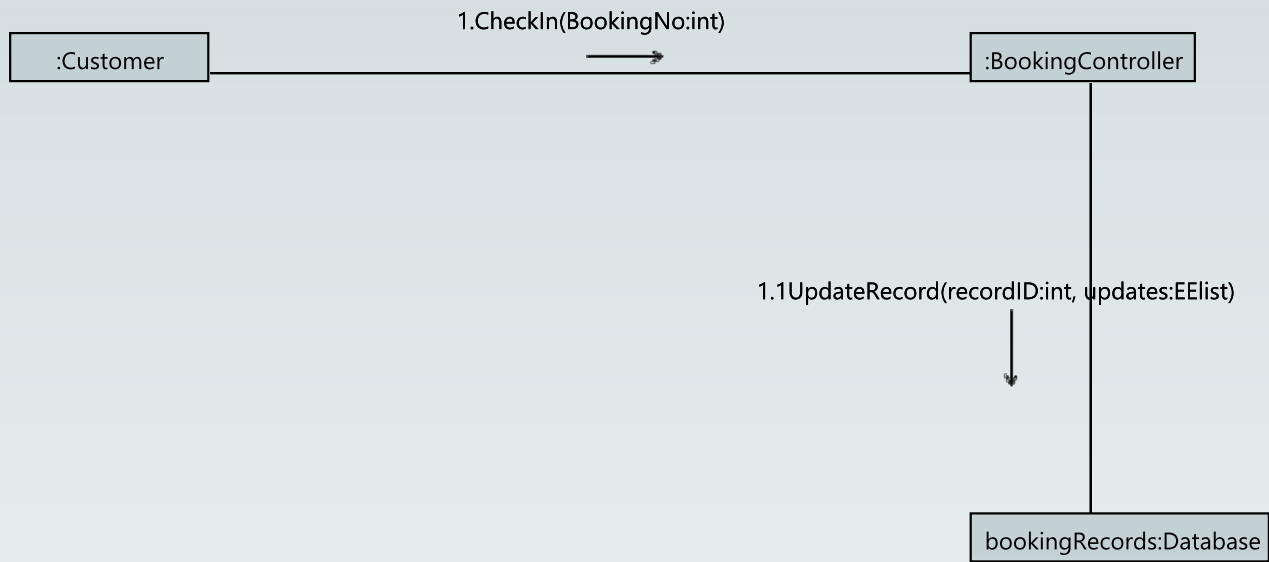
Interaction4



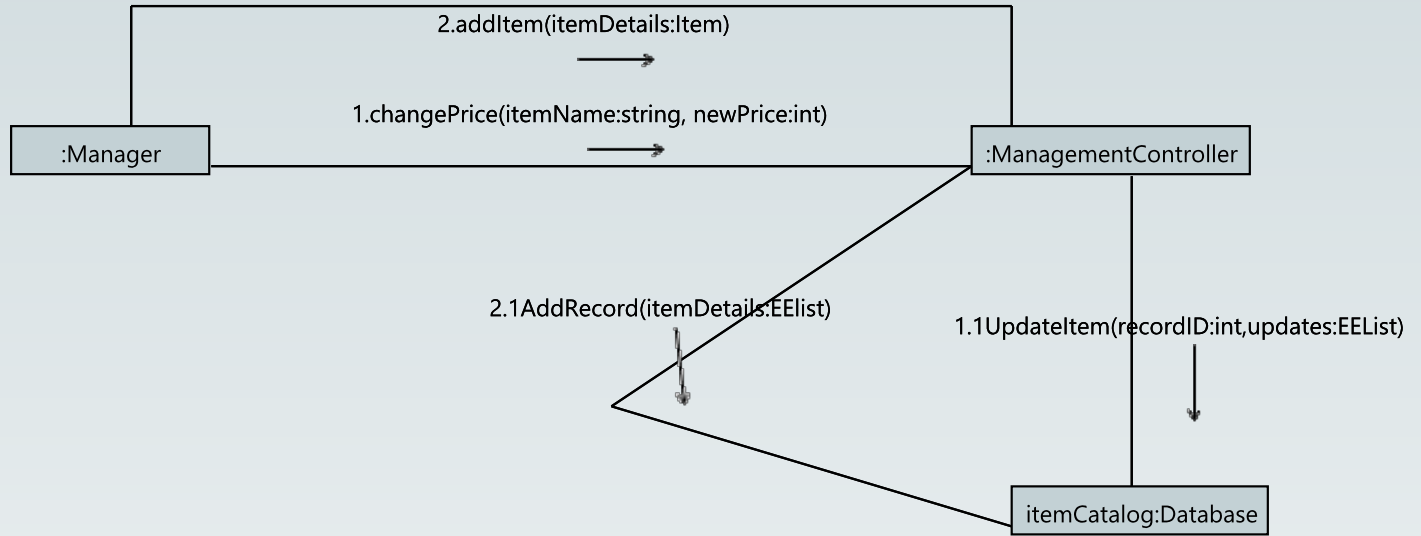




CheckIn











Hotel Management System

Deliverable-VII

Deployment Diagram

Package Diagram

«executionEnvironment»
ClientWorkstation

«executionEnvironment»
Windows OS

«executionEnvironment»
HotelManagementSystem

Customers

ServiceDepartments

Rooms

Manager

Employees

«device»
WebServer

CancelBooking

Book Room

Search Rooms

Login

SignUp

«device»
DataBase Server

Bookings

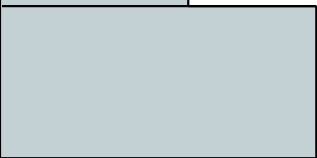
Items

RoomDetails

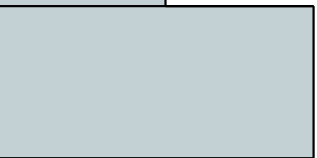
Order

WebInterface

UI_Interface



Customer



BookingController



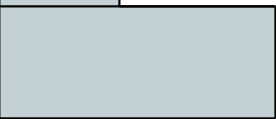
uses

DataBase

Item



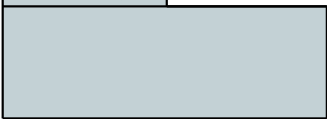
Order



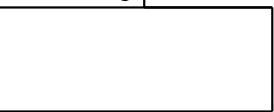
ServiceDepartments



Employee



Booking



Rooms



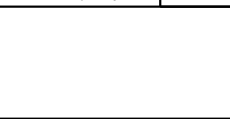
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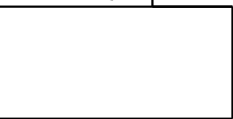
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Hotel

Employee



Manager



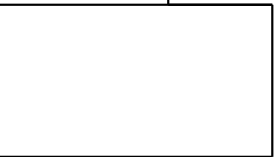
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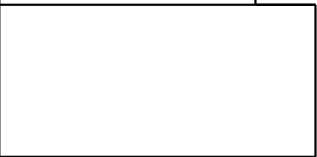
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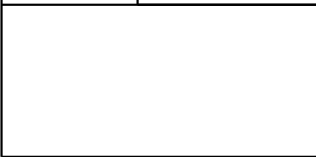
UI_Iterface



BookingController



Rooms



RoomDetails

