HOTEL MANAGEMENT SYSTEM

Table of the Concepts:

1.Executive Summary

1.1 Project Overview

The Hotel Management System (HMS) project has a goal to create an all-inclusive software program that will automate and streamline a variety of hotel functions, hence boosting guest satisfaction, staff productivity, and overall efficiency. The system would combine important features including housekeeping, billing, reservations, front desk operations, and reporting onto a single platform, giving hotels an effective management tool. Hotels nowadays are focusing on maximizing their revenues as all other businesses do and the main reason for that is the ever-increasing competition. The online world has made it difficult for hotels and resorts to compete by providing guests a plenty of choices including Homestay, Hostel with bunk beds or even a modular option. Therefore, there is an increasing demand for best hotel management system to facilitate the management of hotel operations and functions. Operating a successful hotel business today is a challenge. A hotelier must manage various of proposals such as operations, staff and maintenance, meanwhile keeping costs under control and balances as it is one of the most important and critical issues for a hotel business to increase their revenues and to compete with other hotels. To improve the efficiency of this process, a good hotel management system which uses the modernizing techniques must be provided. The key to reaping the benefits of an effective hotel management software system is to select the right one for your property. It's critical that you know exactly what this hotel management technology is, and why it is important for you to implement it at your hotel. These days every person can find different options of the hotel reservation software free on the internet, however one must judge the solution with the quantum of features and quality that it is providing. There should be a complete functionality as a hotel management system can be both basic and advanced based on the pricing options that are available as well. Also, we can say that the developers are making such software as per the pocket of the business and this is one of the main reasons why we have so many different options in the online world. Hotel management is a key element for a very important branch of economy, which is tourism. Knowing this, two members of our group were familiar with different types of management software, and they had analysed the deficiencies that they have and decided to make this project based on the improvement of these deficiencies. Our software aims to have all the features that a hotel needs to adapt to the management structure of the business, and by making practical and effective use of these features every hotelier's work life will be much easier than they have ever imagined by using this product.

2.Product/Service Description

Hotels nowadays differ in size, culture and management structure. So, the perfect Software provided, needs to be adapted to specific business which will implement and use it. Hotel

Management System is a web application which aims to facilitate the management system of a hotel. It will keep track of hotel reservations, rooms to be cleaned and so much more.

2.1 Product Context

With the use of this technology, hotel owners and operators may increase both short- and long-term bookings while streamlining administrative work with the help of the Hotel Management System (HMS). HMS is a crucial component of the entire visitor experience, not only for daily operations. The hotel management system must improve the customer experience with the brand from the start of the guests' online booking process to the end of their stay and their feedback after they return home. The goal of this solution is to unite all potential Hotel stakeholders while providing flexibility and streamlining the management process. The primary goals of the product are reliability and ease of use.

2.2 User Characteristics and their Goals

User	Characteristics	Goals
Admin	Administrator of the HMS (Hotel Management System).	- See booked rooms. - Add/Remove users. - Observe statistics and inventory.
Front Desk	Handles guest check-ins, check-outs, and phone calls.	- View rooms to be cleaned. - View available rooms for customers. - Handle check-ins/check-outs. - Make and view reservations. - Access notifications.
Guest	Users interested in making reservations at the hotel.	- Make bookings. - View if room is ready for stay. - Modify booking details (dates, times). - Edit credentials.
Housekeeping	Employees responsible for cleaning rooms.	- See rooms to be cleaned. - Update room cleaning status (e.g., ready or not).
Manager	Person responsible for operational aspects of the hotel.	- View performance metrics and reports.

		- Integrate marketing channels.
Accounting	Responsible for invoicing and billing.	- Manage invoicing and billing processes.
Facilitators	Provide required inventory for the hotel.	- Receive messages or send messages about inventory needs.
Staff Sponsored	Users with special privileges and access rights for administrative actions.	- Perform administrative tasks. - Approve certain transactions.
Suppliers	Third-party vendors providing goods/services	- Interact with the system for procurement, stock management, and service delivery.

2.3 Assumptions

1. All users' needs to have basic knowledge in English language and can know other language;

2. All users have basic knowledge in computer and smartphone usage;

3. Stakeholders of the hotel have basic knowledge on how to use the system due to previous experiences with other systems;

4. Hotel is equipped with PC/Laptop/Tablet, printer, mobile phone;

5. Hotel must have internet connection all the time;

6. It is assumed that the Hotel provides Credit Card and Cash payments.

2.4 Constraints and Dependencies

1.All users must be logged in to use the product and to access the information

2. The system must follow all Albanian and international legal restrictions, regarding aviation regulations set by certain institutions.

3.Requirements

Requirements are the conditions or capabilities that a software system must have to satisfy the needs of its users, stakeholders, and the business. They define what the system should do and how it should perform, providing a clear framework for design, development, and testing. Requirements are essential for guiding the entire development process and ensuring the software meets its intended purpose.

3.1 Functional Requirements

Req#	Requirement	Comments	Priority	Date	SME Approved
BR_LR_01	Login Constraint. Different Views for different controllers	All users have to be logged in depending on the user level	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
	Different Views for different controllers	Depending on the user level	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_LR_03	Add/Remove users	The admin can add or remove users	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_LR_04	View booked rooms and check-in/check-out date	The admin and front desk have the ability to view booked rooms and check- in/check-out date	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_LR_05	The system should provide email notifications and assinged it with room and booking of room	The client will be notified with an email for each successful booking. Assigning rooms based on preference of the guest.	2	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli

BR_LR_06	Provide statistics	The admin can view a statistics tab	3	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_LR_0		Assigning rooms based on preference	2	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_LR_08	Notification Handling	E-mail system integrated and notifications regarding check-in/check-out or guest requests are accessible	2	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_LR_09	Reporting	Managers can access reports	2	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_LR_10	Performance Metrics	Manager can see their employee performances in a graphical manner	2	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_LR_11	Room Availability	Front Desk can see if room is available or not	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli

BR_ LR_ 12	View Payment	Accounting can view payment	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 13	Print Invoice	System prints daily, monthly, Or yearly invoices	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 14	Monitor Occupancy and Revenue	Manager can see occupancy rates and revenue/revenue projections	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 15	Market Segmentation	Manager can apply market segmentation based on guest preferences	2	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 16	Notify Housekeeping	Notify housekeeping staff based on required rooms to be cleaned	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 17	Notify Guest on room status	Guest gets notified on if room is cleaned	2	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli

BR_ LR_ 18	User Account Creation	User creates account based on credentials	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 19	Reservation Modification	Guest can modify reservation date or specific reservation request	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 20	Feedback Submission	Guest submits feedback after stay. Feedback provided by the client is successfully recorded and stored in the system for analysis	3	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 21	Cancellation Request	Guest can request cancellation before due date	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 22	Schedule Maintenance	Facilitators can schedule maintenance for inventory	2	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 2 3	Block dates for specific rooms	Some rooms may need to be renovated thus guests should not be	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli

		able to book those rooms			
BR_ LR_ 24	Room Service Ordering	Guests should be able to order room service from their account.	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 25	Loyalty Program Managment	The system should track loyalty points and apply discounts for frequent guests	2	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 26	Lost and Found Management	Staff should be able to log and manage lost and found items reported by guests	3	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 27	Social Media Integration	Guests should be able to share reviews and experiences directly from the system	3	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 28	Mobile Check-in and Check-out	Guests should be able to check in and check out via mobile without visiting the front desk	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 29	Guest Profile Management	The system should store guest preferences for future visits	2	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli

BR_ LR_ 30	Emergency Alerts	The system should notify all guests and staff in case of emergencies	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 31	Digital Key Access	The system should have the option to use a digital key through their mobile device	2	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli
BR_ LR_ 32	Secure Guest Verification	The system should implement identity verification for secure check-in	1	5/2/2025	Erta Llenga,Esta Cekrezi,Artemisa Hasalami,Ester Pashtranjaku,Megi Almadhi,,Arsildo Veliu,Brikena Papadhopuli

3.2 Non-Functional Requirements

3.2.1 Product Requirements

Category	Requirement
User Interface Requirements	A simple and responsive system in a short time.
	Web app, consistent in all interfacing screens or devices.

	Details of any user (Client, Admin, Receptionist) will be activated in the displayed mode and in the database really quick.
	The system shall also provide dedicated interfaces for additional user roles:
	- Staff: Including various categories (e.g., front desk, housekeeping, management) with dashboards and navigation tailored to their daily tasks.
	- Suppliers: With access to modules for inventory updates, order tracking, and supply chain data.
	- Sponsors: With specialized interfaces for managing sponsorship content, viewing performance reports, and handling advertisement details.
	Flexible navigation to and from displayed panels or pages.
Usability	Every user of this Web application will be able to interact with it easily from any device using an internet connection, regardless of the browser or platform.
	Each user will have a unique interface, complete with features and functions, to use.
	To make the software easily accessible, the most crucial commands for each kind of interface will be visible at first view.
	The design will facilitate future modifications, as it will need to be updated frequently to meet hotel management requirements and handle potential error occurrences.
Learnability	Our product is user-friendly – everyone can easily learn the commands following the guidelines provided by us.
	Even though the software is in English, it can be understood by someone with basic knowledge of English since every functionality will be graphically shown.
	Training materials and tutorials will be provided for all user types—including staff, suppliers, and sponsors—to ensure they understand their specific functionalities.
Efficiency Performance Requirements/ Transaction Processing Time	95% of the booking transactions shall be processed in less than 2 seconds during normal workload conditions.
	90% of the booking transactions shall be processed in less than 3 seconds during peak workload conditions.

Task Handling Capacity	The system shall handle up to 1,000 check-in and check-out tasks per hour during normal workload conditions.
	The system shall handle up to 500 check-in and check-out tasks per hour during peak workload conditions.
Data processing Volume	The system shall process up to 5 GB of data per day under normal workload conditions.
	The system shall process up to 10 GB of data per day under peak workload conditions.
Response Time for Report	95% of the standard reports (e.g., daily occupancy report) shall be generated in less than 5 seconds.
	90% of the complex reports (e.g., annual financial report) shall be generated in less than 30 seconds.
Dependability Availability	The website will ensure to be available all the time, every day 24/7. It will have a high availability to achieve the highest possible percentage of time the system is functioning.
	Even though it is in English, the system can be used worldwide as it is a web application, the same for the Android application.
	Our product will have downtime as minimal as possible as long as the software will be used with reliable web browsers.
Monitoring	The software will be evaluated often. In case of errors, the administrator will be able to follow specific validations because everything will be well documented in files.
Maintenance	The system is maintainable and usable, made in a form that later on if required it can be improved by adding more functionalities.
	The system will be updated continuously with different and extra features based on guest reviews and business requirements.
	Moreover, the software will be observed and maintained by the administrator of the system. In case there is any error in the system, a message will appear informing users to be patient while the system is being maintained.
Integrity	The system will implement strong data validation and security measures to protect guest information and ensure data accuracy.
	Regular audits and security checks will be conducted to maintain data integrity and compliance with privacy standards.
Security	Our web application ensures that users and client applications are identified and that their identities are properly verified.
	Ensures that users and client applications can only access data and services for which they have been properly authorized.

	Detects attempted intrusions by unauthorized persons and client applications.
	Ensures that unauthorized malicious programs do not infect the application or component.
	Ensures that parties to interactions with the application or component cannot later repudiate those interactions.
	Ensures that confidential communications and data are kept private.
	Enables security personnel to audit the status and usage of the security mechanisms.
	Ensures that applications and centres survive attack, possibly in degraded mode.
	Ensures that centres and their components and personnel are protected against destruction, damage, theft, or surreptitious replacement.

3.2.1.2 Additional Product Non-Functional Requirements

Category	Requirement
Scalability	The system shall be designed to support growth in the number of users, transactions, and data volume over time.
	It should support horizontal scaling (adding more servers) and vertical scaling (upgrading existing hardware), along with effective load balancing strategies.
Extensibility	The architecture shall be modular to allow easy integration of new features or modules (such as additional supplier interfaces or third-party integrations) with minimal rework.
	The use of plug-in architectures or microservices is encouraged.
Maintainability (Detailed)	Beyond general maintenance, the system should adhere to coding standards, automated testing protocols, version control best practices,

	and continuous integration/continuous deployment (CI/CD) pipelines to facilitate smooth updates, bug fixes, and enhancements.
Disaster Recovery	A disaster recovery plan must be in place with clearly defined Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO).
	Regular automated backups (with off-site storage) and procedures for rapid restoration after catastrophic failures must be documented and tested periodically.
Interoperability	The system shall support standard APIs (e.g., REST, SOAP) and common data exchange formats (such as JSON and XML) to facilitate seamless integration with external systems like payment gateways, supplier databases, and third-party applications.
Accessibility	In addition to overall usability, the system must comply with recognized accessibility standards (such as WCAG 2.1) to ensure that it is fully usable by individuals with disabilities.
	This includes support for screen readers, keyboard navigation, and appropriate colour contrasts.
Reliability and Fault Tolerance	The system must incorporate fault-tolerant mechanisms and redundant components to ensure continuous operation even in the event of component failures.
	Error handling routines and self-healing processes should be implemented to minimize service disruption.
Energy Efficiency	The system should be optimized for energy efficiency by utilizing resource optimization strategies and efficient algorithms.
	This not only minimizes operational costs but also supports the organization’s sustainability goals.

3.2.2 Organizational Requirements

Category	Requirement
Environmental Requirements/ Hardware Compatibility	The system must be compatible with the organization's existing hardware infrastructure, including servers, workstations, and mobile devices.
Operating Environment:	The system should operate efficiently in the organization's current network environment, including LAN, WAN, and wireless networks.
	Sustainability: The system must adhere to the organization's environmental sustainability policies, including energy-efficient operations and electronic waste reduction.

Operational Requirements/ Process Standarts	Process Standards: The system must align with the organization's standard operating procedures and business processes, including guest check-in/check-out, booking management, and billing.
User Training	User Training: Training programs must be provided to ensure that staff can effectively use the system. Training should also extend to suppliers and sponsors if they have direct interaction with the system, ensuring that each user group understands their specific processes.
Support and Maintenace	Support and Maintenance: The system should include provisions for ongoing support and maintenance, with defined SLAs for issue resolution.
Development Requirements/ Coding Standarts	Coding Standards: Developers must adhere to the organization's coding standards and best practices to ensure code quality and maintainability.
Documentation	Documentation: Comprehensive documentation must be provided, including user manuals, technical documentation, and API references. Documentation should include role-specific guides for staff, suppliers, and sponsors, detailing how each group interacts with the system.

3.2.3 External Requirements

Category	Requirement
Regulatory Requirements/ Compliance	Compliance: The system must comply with all relevant industry regulations, such as PCI DSS for payment processing and GDPR for data protection.
Audit Trails	The system must maintain detailed audit trails for all transactions, including user actions, changes to guest information, and financial transactions.
Ethical Requirements	Data Privacy: The system must ensure the privacy and confidentiality of guest data, in accordance with the organization’s data privacy policy.
Transparency	The system must provide transparent processes for data handling, allowing guests to understand how their data is used and stored.
Non-discrimination	The system must ensure fair and equal access for all users, without discrimination based on race, gender, or other factors.

Legislative Requirements/ Data Protection	Data Protection: The system must adhere to data protection laws, such as GDPR or CCPA, ensuring guest data is stored securely and used appropriately.
Taxation Compliance	Taxation Compliance: The system must correctly calculate and apply local taxes and fees in accordance with regional tax laws.
Health and Safety	Health and Safety: The system must support compliance with health and safety regulations, including any requirements for guest health data collection in response to pandemics.

3.2.3.3.1 Accounting Requirements

Category	Requirement
Financial Reporting	The system must generate financial reports that comply with accounting standards and regulations.
Transaction Logging	All financial transactions must be logged with before and after values to facilitate auditing and ensure accuracy.

3.2.3.3.2 Security Requirements

Category	Requirement
Access Control	The system must implement robust access control mechanisms to ensure only authorized personnel can access sensitive information.
Data Encryption	All sensitive data must be encrypted both in transit and at rest to protect against unauthorized access.
Incident Response	The system must include procedures for incident detection, response, and reporting to handle potential security breaches effectively.

3.2.4 Domain Requirements

Category	Requirement
General Domain Requirements	Only admin can create, update, and delete employees.

	If the sign-up option is clicked in the web application, the user will be of type “Guest” of the hotel.
	In addition to the above, the system must support dedicated user roles for:
	- Staff: Who will perform day-to-day operations such as guest management and housekeeping updates.
	- Suppliers: Who will be able to update and track inventory and supply deliveries.
	- Sponsors: Who, if granted access, can manage sponsor-related content and view associated performance data.
	Rooms to be cleaned are automatically assigned to the worker by the system; if the worker is absent on a specific day, its work will be distributed to its coworkers.
	The user interface will be standard for all types of users. However, role-specific dashboards and functionalities will be implemented where necessary to accommodate the operational needs of staff, suppliers, and sponsors.
	The system should take into account the exact time of check-out of the leaving guest and check-in of the new guest in order to avoid collisions between bookings.
	The system should also take into account that there will be different currencies for online payments.

4.User Scenarios

Number	User Scenario	Description
1.	**Admin logins into the system**	**Admin users insert his/her own credentials (username/email and password) to login into the system**
2.	**Admin fails to login into the system**	**Admin provides wrong username/email or password thus the login will fail**
3.	**Receptionist replies to guest messages.**	**Receptionist gets messages of the guests in the system and replies in the real time.**

4.	**Guest clicks Book Now**	**Guest will have to fill out its credentials to make the request valid**
5.	**Guest clicks Send Message**	**Guest can Contact in real time with the receptionist or manager of the hotel**
6.	**Cleaner clicks tick or cross button in the rooms to be cleaned section**	**Cleaner changes the state of the room as clean or unclean due to certain reasons**

4.1 User Scenarios Extended:

1. Admin logins into the system

o Admin opens the login page of the system
o Admin is asked to enter his/her credentials (username/password)
o Admin proves that he/she is not a robot by checking the Captcha
o Admin clicks Login button
o If his/her credentials match with any of the data in the current database, the admin is successfully logged in f. Admin gets redirected to the main view (dashboard) of the web page

2. Admin fails to login into the system

o Admin opens the login page of the system
o Admin is asked to enter his/her credentials (username/password)
o Admin proves that he/she is not a robot by checking the Captcha
o Admin clicks Login button
o Admin types one of his/her credentials wrong therefore these data are not found on the database.
o Admin will get e message error telling him/her that he has typed wrong credentials thus, he will have to try to login again

3. Receptionist replies to guest messages

o Receptionist is logged in
o Receptionist sees that he/she has received a new message and clicks on the messages panel in the dashboard page
o Receptionist sees all the messages and clicks on the guest that he/she wants to reply
o Receptionist writes a reply message for the guest and clicks Send Message button

4. Guest books one or several rooms

o Guest is logged in
o Guest performs scenario 40 to view rooms availability for the period that he/she wants to stay on the hotel
o Guest clicks book room within the dates that he/she has chosen
o Guest will be notified that the room is successfully booked

5. Guest sends message

o Guest is logged in
o Guest clicks on send message button to open a text area where he/she can write his/her message
o Guest types of the message with any issue or need that he/she has and clicks on the send button to send the message to the receptionist

6. Cleaner sets room status to cleaned

o Cleaner is logged in
o cleaner check for the rooms that he/she must clean
o After cleaning one of the assigned rooms, he/she sets the status of the room to cleaned

4.2 USE CASES

UC01: Efficient Check-in

UC Name	UC01: Efficient Check-in
Summary	Allows Front Desk staff to quickly check in guests (with or without pre-existing reservations).
Dependency	Valid reservation records (if any), room availability, user authentication.
Actors	Front Desk, Guest, System
Preconditions	1. Front Desk user is logged in. 2. Rooms and reservation data are up to date.
Description of the Main Sequence	1. Front Desk selects “Check-in.” 2. Searches for guest reservation or creates new one (walk-in). 3. System verifies room availability and guest details. 4. Front Desk confirms check-in; system updates room status to “Occupied.”
Description of the Alternative Sequence	- If reservation is not found, system prompts to create new booking or reject check-in. - If no rooms are available, staff offers alternatives or denies check-in.
Non-functional requirements	- **Performance**: Check-in completes in under 2 seconds. - **Security**: Data transmission is encrypted.
Postconditions	1. Guest is marked as “Checked in.” 2. Room is set to “Occupied.” 3. System logs the check-in transaction.

UC 02: Room Assignment

UC Name	UC02 Room Assignment
Summary	This use case outlines the process of assigning rooms to guests based on several factors, including room availability, guest preferences, and any specific requirements that may be part of their booking. It ensures that guests are provided with accommodations that suit their needs, thereby enhancing their overall experience. The room assignment process is crucial in the context of managing a hotel, resort, or any similar accommodation service
Dependency	Efficient Check-in
Actors	Front desk staff, guests.
Preconditions	Guest has a reservation; available rooms are listed in the system.
Description of the Main Sequence	1)Front desk staff selects the room assignment option in the system. 2)System displays available rooms based on guest preferences and reservation details. 3)Front desk staff selects a room and assigns it to the guest.
Description of the Alternative Sequence	-If preferred room type is not available, system suggests alternative options or prompts staff to check with the guest for their preference.
Non-functional requirements	Room assignment process should not exceed 1 minute per guest. System should prioritize room assignments based on guest preferences and special requests. The non-functional requirements for the room assignment process ensure that the system not only meets functional goals but also operates in an efficient, reliable, and secure manner.
Postconditions	Room is assigned to the guest, and room availability is updated in the system.

UC03: Notification Handling

UC Name	UC03: Notification Handling
Summary	Automates sending and receiving notifications (e.g., booking confirmations, room status updates).
Dependency	Valid email/SMS gateway, user profiles with contact details.
Actors	System, Guest, Front Desk, Housekeeping, Manager
Preconditions	1. Notification service is integrated and functional. 2. Relevant events trigger notifications (e.g., new booking, room ready).
Description of the Main Sequence	1. Event occurs (e.g., new booking, check-in). 2. System composes notification message. 3. System sends notification to the intended recipient (guest or staff).
Description of the Alternative Sequence	- If notification fails, system logs an error and retries or alerts admin. - If user unsubscribed from marketing messages, system skips sending those.
Non-functional requirements	- **Reliability**: High success rate for delivery. - **Security**: Data is transmitted securely.
Postconditions	1. Notifications are delivered (or flagged if failed). 2. System records notification logs.

UC04: Guest Complaint Management

UC Name	UC04: Guest Complaint Management

Summary	Allows guests to submit complaints, which staff then track and resolve.
Dependency	Guest account or booking record; complaint logging module.
Actors	Guest, Front Desk, Manager, System
Preconditions	1. Guest is registered or has an active booking. 2. Complaint management system is available.
Description of the Main Sequence	1. Guest submits complaint (online or in person). 2. System logs complaint with details (date, description). 3. Staff reviews complaint assigns to relevant department. 4. Status tracked until resolved.
Description of the Alternative Sequence	- Duplicate complaint found system merges or flags it. - Escalation: if unresolved within time, manager is notified.
Non-functional requirements	- **Security**: Complaints stored securely, respecting guest privacy. - **Usability**: Simple interface for complaint submission.
Postconditions	1. Complaint is recorded with status (open, resolved). 2. Guest is notified upon resolution.

UC05: Reporting

UC Name	UC05: Monitor Occupancy, Revenue and Reporting
Summary	Provides real-time visibility into current occupancy rates, associated revenue streams, and the ability to generate

	various operational and financial reports for analysis and decision-making.
Dependency	Reservation, billing, and operational data integrated; manager/accounting privileges required.
Actors	Manager, Admin, Accounting, System
Preconditions	1)Up-to-date check-in/check-out, financial, and operational data. 2)User is authorized to view revenue and reporting data.
Description of the Main Sequence	1)User opens the "Occupancy, Revenue & Reporting" dashboard. 2)System aggregates occupancy rates, average daily rates, total revenue, and relevant metrics. 3)Data is displayed in graphs/tables. 4)User selects desired report type from available options: A) Occupancy Report: Shows room occupancy trends, average stay duration, and peak periods. B) Revenue Report: Displays revenue breakdown by room type, service, and time frame. C) Billing Report: Includes invoices, pending payments, and completed transactions. D) Operational Report: Highlights key operational data, task completions, and service performance. 5)User applies relevant parameters and generates the report. 6)System compiles and displays the report for analysis. 7)User exports the report (Excel/PDF) if needed.
Description of the Alternative Sequence	- If parameters are invalid or no data found, system prompts user to adjust filters or displays “No data.” - If generation fails, system logs error and notifies user. -If data delay or mismatch occurs, the system displays the last update time and may prompt a refresh.
Non-functional requirements	- **Performance**: Most reports in <5 seconds, complex ones <30 seconds.

	- **Accuracy**: Data must be consistent. - **Security:** Only authorized roles can access financial and operational metrics.
Postconditions	1. Reports are generated for viewing or export. 2. System logs reporting activity and exports or custom views for auditing. 3)Occupancy, revenue, and operational data are available for decision-making.

UC06: Performance Metrics

UC Name	UC06: Performance Metrics
Summary	Allows managers to view and analyze staff performance, response times, and other operational KPIs.
Dependency	Employee activity logs; performance module; manager privileges.
Actors	Manager, System

Preconditions	1. Manager is logged in. 2. System tracks relevant staff metrics.
Description of the Main Sequence	1. Manager opens “Performance Metrics.” 2. System retrieves staff performance data (e.g., housekeeping turnaround, check-in speed). 3. Metrics displayed in charts or tables.
Description of the Alternative Sequence	- If data is incomplete, system highlights missing info or suggests further data collection.
Non -functional requirements	- **Scalability**: Handles large data sets efficiently - **Accuracy**: The data must reflect real operational data.
Postconditions	1. Manager reviews performance and identifies protentional improvements.

UC07: Monitor Occupancy and Revenue

UC Name	UC07: Custom KPI Creation
Summary	Managers can define and track new Key Performance Indicator (KPIs)
Dependency	Performance module and manager privileges
Actors	Manager, System
Preconditions	Manager is logged in. System provides an interface for KPI customization.
Description of the Main Sequence	-Manager accesses the “Custom KPI” section. -Manager defines new metrics (e.g., specific service response time targets).

	-System validates and saves the new KPI.
Description of the Alternative Sequence	- If the KPI definition is invalid, the system provides feedback for correction.
Non-functional requirements	-Scalability: Must support an increasing number of KPIs. -Accuracy: New KPIs must align with actual performance data. .
Postconditions	-System stores the new KPI definitions for future tracking. -The new KPI is integrated into performance reports.

UC 08: Market Segmentation

UC Name	**UC08 Market Segmentation**
Summary	This use case focuses on enabling guest segmentation based on their preferences, booking history, and demographic information within the hotel management system.
Dependency	This use case relies on the availability and accuracy of guest data within the hotel management system. Successful market segmentation depends on having current information about guest preferences, booking history, and demographics. To ensure effective implementation, integrating segmentation tools into the system and collaborating with relevant departments is essential.
Actors	Primary actor: Hotel Management
Preconditions	1. The user must be verified and granted the necessary permissions for access. 2. Guest information, such as preferences, booking history, and demographics, must be current and accessible within the system.

Description of the main sequence	1. Hotel management chooses the market segmentation option from the system's main menu. 2. The system offers tools for segmenting guests by analyzing booking history, guest feedback, and demographic data based on various factors like preferences, booking history, and demographics. 3. Hotel management selects the desired segmentation criteria and defines the segments accordingly. 4. The system processes guest data based on the defined criteria and organized guests into different segments. 5. Hotel management can view and manage the segmented guest lists, allowing for targeted marketing strategies and personalized guest experiences.
Description of the alternative sequence	If the guest data is missing or outdated, the system notifies hotel management and requests them to update the information to ensure effective segmentation.
Non-functional requirements	1. **Accuracy**: The system must analyse guest data with precision to ensure accurate segmentation. 2. **Performance**: The process of segmenting guest data should be swift to enable prompt execution of marketing strategies. 3. **Usability**: The segmentation tools should be intuitive and easy to use, allowing hotel management to configure and manage them with ease.
Postconditions	The hotel management system effectively enables guest segmentation based on preferences, booking history, and demographics, allowing hotel management to execute targeted marketing campaigns and improve guest satisfaction.

UC09: Admin User Management and Configuration

UC Name	UC09: Admin User Management and Configuration
Summary	Admin can create, update, or remove user accounts and manage system-wide settings.
Dependency	User authentication/authorization module; user database.
Actors	Admin, System
Preconditions	1. Admin is logged in with proper privileges. 2. User management module is active.
Description of the Main Sequence	1. Admin accesses “User Management.” 2. Selects add/update/remove user. 3. Enters details (username, role). 4. System validates input and saves changes. 5. Admin can configure system settings (e.g., default parameters).
Description of the Alternative Sequence	- If username is duplicate or invalid, system rejects and prompts correction. - If role is invalid, admin must create or select an existing valid role.
Non-functional requirements	- **Security**: Only admin can manage users; changes are audited.

	- **Data Integrity**: System validates inputs.
Postconditions	1. User accounts are updated in the database. 2. System configuration changes take effect. 3. Audit logs capture all changes.

UC10: System Configuration Management

UC Name	UC10: System Configuration Management
Summary	Allows Admin to configure advanced system settings, such as external integrations, backup schedules, or default policies.
Dependency	Admin privileges; configuration module; integration points (APIs).
Actors	Admin, System
Preconditions	1. Admin is logged in with system-config privileges. 2. Configuration modules are active.
Description of the Main Sequence	1. Admin opens “System Configuration.” 2. Chooses an area to configure (e.g., Payment Gateway). 3. Enters or updates settings (API keys, intervals). 4. System validates and applies changes.
Description of the Alternative Sequence	- Invalid configuration: system rejects and reverts to last known good settings. - Partial update: admin can save partially or discard.
Non-functional requirements	- **Reliability**: Changes must not crash the system. - **Auditability**: All config changes are logged.
Postconditions	1. New settings are applied. 2. Configuration log is updated for audit.

UC11: Statistic Dashboard Access

UC Name	UC11: Statistic Dashboard Access
Summary	Provides a graphical dashboard with key metrics (occupancy, revenue, feedback) for authorized users.
Dependency	Analytics module; sufficient data stored; user permissions.
Actors	Manager, Admin, System
Preconditions	1. Manager/Admin is logged in. 2. Data integration for real-time statistics.
Description of the Main Sequence	1. User navigates to “Statistics Dashboard.” 2. System loads relevant metrics (charts, KPIs). 3. User applies filters or drill-down for details.
Description of the Alternative Sequence	- No data found: system displays placeholders or “No data available.” - Export to PDF/Excel: system generates a file for download.
Non-functional requirements	- **Performance**: Dashboard loads within 5 seconds. - **Usability**: Graphical interface with intuitive filters.
Postconditions	1. User gains insight from the statistics. 2. System logs user’s filtering and export actions.

UC 12: Notify staff when rooms require cleaning

UC Name	**UC 12: Notify staff when rooms require cleaning**
Summary	Notifies housekeeping staff when a room requires cleaning, ensuring timely maintenance and efficient operations. Automatically alerts staff when rooms need cleaning, ensuring timely housekeeping and maintaining cleanliness standards.
Dependency	None
Actors	Housekeeping staff, Front-Desk Staff
Preconditions	None
Description of the Main Sequence	1. System receives notification of room vacancy 2. System updates room status to “Requires Cleaning” 3. System notifies housekeeping staff about the room requiring cleaning 4. Housekeeping staff confirm receipt of notification
Description of the Alternative Sequence	None
Non-functional requirements	Real-time notification delivery
Postconditions	Room status updated to “Requires Cleaning”

UC13: Promptly that handle guests' cleaning or repair requests

UC Name	**UC13: Promptly that handle guests 'cleaning or repair requests**
Summary	This tells how the hotel management system handles guest requests for cleaning or repair services. The process ensures that guest requests are efficiently logged, assigned, and addressed by the appropriate hotel staff. The system tracks requests from submission to completion, ensuring timely service and guest satisfaction.
Dependecy	None
Actors	Housekeeping Staff, Front-Desk Staff
Preconditions	1)Guest Has an Active Booking – The system must have a record of the guest's stay based on their preferences. 2)Guest Is Authenticated – The guest must be logged in to the system or identified via the front desk. 3)Request Submission System Is Available – The hotel management system must support request logging by all the guest 4) Housekeeping/Maintenance Staff Are Available – The system must have active staff to handle requests. 5)Room Assignment Exists – The system must have assigned the guest a valid room for request tracking. 6)Staff Have System Access – Relevant personnel must have the necessary permissions to view, manage, and respond to all the requests.
Description of the Main Sequence	1)Guest submits a cleaning or repair request through the system 2)System will notify housekeeping about the request 3)Housekeeping staff acknowledge receipt of the request by guest
Description of Alternative Sequence	**N**one
Non-functional Requirements	1)Timely response to request

	2)Secure handling to guests' information
Postconditions	None

UC14: Communication between housekeeping and Front-Desk

UC Name	**UC14 Communication between housekeeping and Front-Desk**
Summary	This use case describes how the hotel management system enables efficient communication between the housekeeping staff and the front desk. The system allows real-time updates regarding room status, guest service requests, and maintenance needs to ensure smooth hotel operations.
Dependency	None
Actors	Housekeeping Staff, Font-Desk Staff
Preconditions	1)The hotel management system must be operational and accessible. 2)Housekeeping and front desk staff must have valid login credentials based on user level. 3)A communication module (e.g., chat, notification system) must be integrated into the system. 4)Room status information must be up to date in the system and see by the front desk. 5)Guest requests, cleaning schedules, and maintenance tasks must be logged in the system.
Description of the Main Sequence	1)Housekeeping staff sends all room status updates to the front-desk staff 2)Front-desk staff receive and acknowledge receipt of the updates 3)Housekeeping staff responds to any inquiries or requests raised by the front-desk staff
Description of the Alternative Sequence	**Housekeeping staff directly update the room status to the front-desk.** 1)Housekeeping staff log into the system. 2)They update the status of a cleaned or maintained room. 3)The front desk is notified of the status update. **Scenario: Maintenance Issue Detected**

	1)Housekeeping detects a maintenance issue while cleaning a room. If a room is marked as cleaned, the system automatically updates its status and sends a notification to the front desk. 2)They report the issue through the system. 3)The system notifies the maintenance team and the front desk. 4) The maintenance team resolves the issue and updates the status.
Non-functional Requirements	1)Secure communication channels 2)Real time updates based on the room updates
Postconditions	Front-desk informed of status room updates.

UC 15: Room Cleanup

UC Name	UC 15 Room cleanup
Summary	Perform tidying and to organize individual rooms and update status online
Dependency	Availability of the cleaning suppliers
Actors	Housekeeper, Clients or guests
Preconditions	Room must be accessible and occupants that are not present
Description of the Main Sequence	1)Housekeeper enter the rooms 2)Housekeeper picks up and puts away items in designed places Housekeeper dusts surfaces and vacuums of sweeps floors. 3)Housekeeper dusts surface and vacuums or sweeps floors. 4)Housekeeper checks for any items needing repairer replacement 5)Housekeeper will change the room status as cleaned to the online system 6)System notifies the client about the room status
Description of the Alternative Sequence	If the occupants are present, housekeeper asks for permission to enter and clean all the rooms and change it to the room status as a pending.
Non-functional requirements	The system should display all the room status at real-time
Postconditions	Room is clean and arranged based on the guest referenced and according to the predefined standarts.

UC16 Client Account Creation

Uc Name	UC16 Client Account Creation
Summary	Involves the process of creating a client account in the hotel system to manage their reservation and credentials
Dependency	None
Actors	Clients or Guests
Preconditions	Clients must agree to the terms and conditions
Description of the Main Sequence	1)Clients enters sign up page 2)Clients can select to create a new account. 3)Clients enters their personal details. 4)The system will validate the system that proceeds to create client account. 5)After the information is made valid the system will proceed to create the client account 6)The system will send to the clients a confirmation email with their account details
Description of the Alternative Sequence	The entered email is associated with an existing account. Also, the system will redirect the client to log in or reset the password
Non-functional requirements	The system should prevent unauthorized access to accounts information, by encrypting their information
Postconditions	The guest 'account is successfully created, allowing the guests to log in and manage their reservations and information.

UC 17 Check Availability

UC Name	UC17 Check availability
Summary	The client verifies the room availability for specific dates within the hotel system.

Dependency	None
Actors	Primary actors: Customer
Preconditions	None
Description of the main sequence	**Step 1:** The client navigates to the room availability check feature in the system. **Step 2:** The client chooses the preferred dates for their stay. **Step 3:** The system searches the database for rooms available on the selected dates. **Step 4:** The system presents the available rooms to the client.
Description of the alternative sequence	No rooms are available for the selected dates. The system informs the client of the unavailability and may suggest alternative dates.
Non-functional requirements	The system must provide real-time room availability to avoid overbooking.
Postconditions	The client checks the availability of rooms.

UC 18: Booking Access

UC Name	**UC18 Booking Access**
Summary	Involves guests viewing their reservation information, including check-in/check-out dates, rate, and room type.
Dependency	Customer profile registration
Actors	Primary actor: Customer

Preconditions	-The customer must have an active account in the system. -The customer must be signed into their account.
Description of the main sequence	**Step 1:** The client logs into the system using their credentials. **Step 2:** The client goes to the reservation section of their account. **Step 3:** The system displays the client's reservation details
Description of the alternative sequence	The client does not have any active reservations. The system shows a message indicating that no reservations were found.
Nonfunctional requirements	The system should quickly access and present reservation details.
Postconditons	The customer successfully accesses their reservation information.

UC 19: Special Request Submission

UC Name	**UC19 Special Request Submission**
Summary	The client submits special requests related to their reservation, such as room preferences or addition amenities. These requests can be made during the booking process or after confirming the reservation, either through an online platform, app, or directly with hotel staff. The hotel system processes and communicates these requests to the relevant departments, ensuring guest needs are met. By accommodating special requests, the hotel enhances guest satisfaction, improves operational efficiency, and builds a positive reputation.
Dependency	Reservation Access

Actors	Primary Actor: Client
Preconditions	The client must have logged in into their accounts
Description of the Main Sequence	Step 1: The client accesses their reservation details through their account. Step 2: The client selects the option to submit special requests. Step 3: The client enters the details of their special requests. Step 4: The system records the special requests associated with the reservation. Step 5: The system provides the client with a confirmation of submission
Description of the Alternative Sequence	In the **Alternative Sequence** where clients **choose not to submit any special requests**, the reservation process proceeds without any customization or additional accommodations. During the booking, the guest is given the option to submit preferences or requests but decides not to. At check-in, they are offered the opportunity for special requests again but choose not to make any.
Non-functional requirements	**Special requests submitted by clients** must be handled securely to maintain privacy emphasizes the importance of safeguarding sensitive guest data throughout its lifecycle.
Postconditions	Special requests submitted by the client are successfully recorded.

UC 20: Modification of Booking

UC Name	UC20 Modification of booking
Summary	The customer updates their current booking in the system,
Dependency	Booking access
Actors	Primary actor: Customer
Preconditions	The client must be signed into their account.The client must have viewed their reservation details.
Description of the main sequence	**Step 1:** The client retrieves their reservation details from their account. **Step 2:** The client chooses the option to modify their booking. **Step 3:** The system presents available modification options, such as

	changing dates or room types. **Step 4:** The client selects their preferred modification option. **Step 5:** The system verifies the availability of the requested changes. **Step 6:** The system updates the reservation based on the selected modifications. **Step 7:** The client receives confirmation of the updated reservation.
Description of the alternative sequence	The clients choose not to make any requests.
Nonfunctional requirements	Any special requests made by clients must be managed securely to ensure privacy is maintained.
Postconditions	The special requests submitted by the client are successfully logged.

UC 21: Special Request Submission

UC Name	**UC21 Special Request Submission**
Summary	The client submits special requests related to their reservation, such as room preferences or addition amenities. These requests can be made during the booking process or after confirming the reservation, either through an online platform, app, or directly with hotel staff. The hotel system processes and communicates these requests to the relevant departments, ensuring guest needs are met. By accommodating special requests, the hotel enhances guest satisfaction, improves operational efficiency, and builds a positive reputation.
Dependency	Reservation Access
Actors	Primary Actor: Client

Preconditions	The client must have logged in into their accounts
Description of the Main Sequence	Step 1: The client accesses their reservation details through their account. Step 2: The client selects the option to submit special requests. Step 3: The client enters the details of their special requests. Step 4: The system records the special requests associated with the reservation. Step 5: The system provides the client with a confirmation of submission
Description of the Alternative Sequence	In the **Alternative Sequence** where clients **choose not to submit any special requests**, the reservation process proceeds without any customization or additional accommodations. During the booking, the guest is given the option to submit preferences or requests but decides not to. At check-in, they are offered the opportunity for special requests again but choose not to make any.
Nonfunctional requirements	**Special requests submitted by clients** must be handled securely to maintain privacy emphasizes the importance of safeguarding sensitive guest data throughout its lifecycle.
Postconditions	Special requests submitted by the client are successfully recorded.

UC 22: Feedback Submission

UC Name	**UC22 Feedback Submission**
Summary	Client provides feedback on their stay. This feedback can include comments on various aspects of the service, such as room quality, staff behavior, amenities, and overall satisfaction. Guests can submit their feedback through different channels, such as surveys, online forms, or direct communication with hotel staff. The feedback collected helps the hotel assess its performance, identify areas for improvement, and enhance future guest experiences.
Dependency	This optional section describes whether the UC depends on other UCs.(such as Reservation**,** Room Assignment**,** etc)

Actors	Primary Actor: Client
Preconditions	The client must have completed their stay and have an active reservation history in the system.The client must be logged in their account
Description of the Main Sequence	Step 1: The client accesses their reservation history through their account. Step 2: The client selects the reservation for which they want to provide feedback. Step 3: The client enters their feedback regarding their stay. Step 4: The system records the feedback provided by the client.
Description of the Alternative Sequence	In the **Alternative Sequence** where the client decides **not to provide feedback**, the hotel does not receive additional insights into the guest's experience. This has minimal impact on the hotel's operations but limits the ability to measure satisfaction or identify areas for improvement based on the guest's perspective.
Nonfunctional requirements	Analysis: The system **should store feedback data for analysis** ensures that the system is designed to handle large volumes of data securely and efficiently. By offering fast, reliable data storage, analysis capabilities, and compliance with privacy regulations, the hotel can use feedback to enhance guest satisfaction and improve service quality.
Postconditions	Feedback provided by the guest is successfully recorded and stored in the system for analysis.

UC 23: Cancellation of Reservation

UC Name	**UC23 Cancellation of Reservation**
Summary	The **Cancellation of Reservation** use case allows clients to cancel their existing reservation for various reasons, such as changes in travel plans, personal circumstances, or other unforeseen events. The client can initiate the cancellation process through various channels, including the hotel's website, mobile app, or by contacting the front desk or customer service. Once the cancellation request is submitted, the system checks the reservation details, applies any cancellation policies and updates the reservation status accordingly.

Dependency	Reservation Access
Actors	Primary Actor: Client
Preconditions	The client must be logged into their account.
Description of the Main Sequence	Step 1: The client accesses their reservation details through their account. Step 2: The client selects the option to cancel the reservation. Step 3: The system checks the cancellation request if it is against the policy time constraints. Step 4: If the cancellation requests is within policy time constraints, the system cancels the reservation.
Description of the Alternative Sequence	If the cancellation requests is outside the policy time constraints. The system notifies the client that the reservation cannot be canceled. The notification may also include details about any applicable penalties or non-refundable charges, depending on the terms and conditions of the reservation.
Nonfunctional requirements	The system **must enforce policy time constraints** by ensuring that cancellation requests are processed only within the allowed time frame specified by the hotel's policy. If a request falls outside this window, **the system should notify clients of the outcome**, clearly informing them whether the cancellation is successful or not and communicating any applicable penalties or non-refundable charges based on the policy terms.
Postconditions	The client's reservation is successfully cancelled within the policy time constraints, and the room becomes available for booking.

UC24: Update Reservation Calendar

UC Name	UC24: Update Reservation Calendar
Summary	Allows staff to modify reservation dates, block rooms for maintenance, and manage the booking calendar.
Dependency	Existing reservation records; calendar module; user privileges.
Actors	Front Desk, Manager, System
Preconditions	1. User is logged in with privileges. 2. Relevant reservation or room exists.

Description of the Main Sequence	1. User opens “Reservation Calendar.” 2. Selects a reservation/room to update (date change, block). 3. System validates changes (conflicts, maintenance). 4. Updates are saved, and calendar is refreshed.
Description of the Alternative Sequence	- Overlapping dates: system alerts user to confirm or pick another date. - Insufficient privileges: system denies access.
Non-functional requirements	- **Usability**: Clear visual calendar display. - **Scalability**: Handles many reservations without lag.
Postconditions	1. Reservation calendar is updated. 2. System notifies affected guests/staff if needed.

UC 25: Manage Billing and Invoicing

UC Name	**UC 25 Manage Billing and Invoicing**
Summary	The manage Billing and Invoicing use case enables authorized users to generate, manage, and process billing and invoicing transactions within the Hotel Management System (HMS)
Dependency	None
Actors	Accountant
Preconditions	The authorized user is logged into the HMS. Access privileges are granted to the authorized user to manage billing and invoicing transactions
Description of the Main Sequence	1)The authorized user navigates to the Billing and Invoicing section within the HMS.

	2)The HMS will present various billing and invoicing options, such as generate invoices, updating the billing details and processing payments. 3)The authorized user selects all the specific billing or invoicing task what they wish to perform. 4)For invoice generation the user selects the relevant booking for transaction data and specifies the billing details such as payment methods and due dates. 5)The HMS validates the entered billing data to ensure accuracy and compliance with billing policies 6)If the entered data is valid, the HMS generates the invoice and updates the billing records accordingly 7)For payment processing the user selects the payment type if it is with cash or by card, enters the payment details, and confirms the payment transaction. 8)The HMS verifies the payment information and updates the payment records to reflect the completed transaction 9) The authorized user confirms the successful completion of the billing or invoicing task and exits the billing and invoicing section.
Description of the Alternative Sequence	If there are any issues with data validation or payment processing during billing and invoicing tasks, the authorized user may encounter error messages or delays. In such cases, technical support may be contacted for assistance.
Non-functional requirements	1)The billing and Invoicing interface should be user-friendly and intuitive to facilitate easy navigation and transaction processing. 2)Billing and invoicing tasks should be completed accurately and efficiently to maintain financial integrity and customer satisfaction. 3)The system should maintain an audit trail of billing and invoicing transactions for accountability and reconciliation purposes...
Postconditions	The authorized user successfully that manages billing and invoicing transactions within the HMS, ensuring accurate

	invoicing, timely payments and financial transparency.

UC 26: Plain Maintenance

UC Name	**UC26 Plan maintenance**
Summary	The Plan Maintenance use case allows authorized users to plan and oversee maintenance tasks for hotel facilities and equipment within the Hotel Management System (HMS).
Dependency	None
Actors	Managers, Housekeepers, Facilitators
Preconditions	-The authorized user is logged into the Hotel Management System (HMS). -The authorized user is granted the necessary privileges to schedule and manage maintenance tasks. -Maintenance staff members are informed and available to carry out the scheduled tasks.
Description of the main sequence	-The authorized user navigates to the Maintenance Management section of the Hotel Management System (HMS).

	-The HMS displays options for scheduling and managing maintenance tasks, such as creating new schedules and assigning tasks to maintenance staff. -The authorized user selects the option to create a new maintenance task. -The user inputs the details of the maintenance task, including the type of maintenance, location, equipment involved, and the scheduled date and time. -The HMS verifies the entered task details for accuracy and feasibility. -If the details are valid, the HMS schedules the maintenance task and notifies the assigned maintenance staff members. -Maintenance staff members receive the task notification and confirm their availability to perform the maintenance. -On the scheduled date and time, maintenance staff members carry out the task as per the instructions provided within the HMS. -The HMS logs the completion of the maintenance task and updates the maintenance records accordingly.
Description of the alternative sequence	- If there are issues with scheduling the maintenance task, such as conflicting schedules or unavailable staff, the authorized user may need to reschedule the task or assign it to different staff members. - If maintenance staff face unexpected problems or delays during the task, they may need to contact the authorized user for additional instructions or support.
Non-functional requirements	1. The Maintenance Management interface should be simple and intuitive, ensuring easy scheduling and management of maintenance tasks. 2. Maintenance tasks should be organized and performed efficiently to reduce downtime and minimize disruptions to hotel operations. 3. The system should deliver real-time notifications and updates to authorized users and maintenance staff about scheduled maintenance tasks and their progress.
Postconditions	The authorized user effectively schedules and oversees maintenance tasks within the HMS, ensuring the timely upkeep of hotel facilities and equipment, while preserving the overall operational efficiency of the hotel.

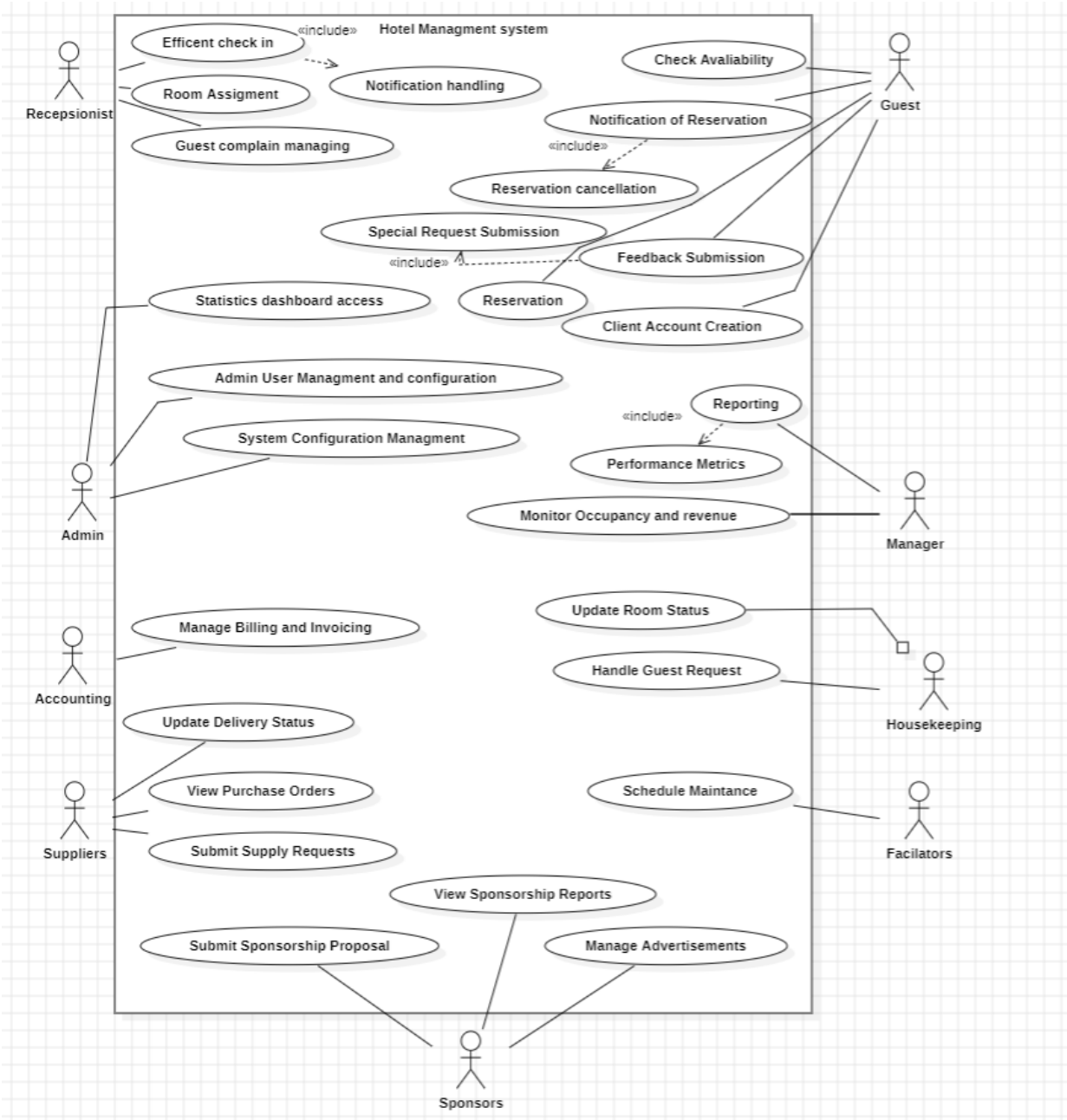
UC27: Suppliers

UC Name	UC27: Suppliers
Summary	Manages supplier interactions: updating supply orders, confirming shipments, and tracking deliveries.
Dependency	Supplier database; inventory management; procurement staff privileges.
Actors	Suppliers, Facilitators/Procurement Staff, Manager, System
Preconditions	1. Supplier accounts exist and are authenticated. 2. Inventory and order modules are active.
Description of the Main Sequence	1. Supplier logs in and views pending orders. 2. Updates order details (quantities, delivery dates). 3. Confirms or adjusts shipment data. 4. System notifies procurement staff of updates.
Description of the Alternative Sequence	- Network or data error: system logs failure and prompts supplier to retry. - Supplier removal: manager can deactivate or blacklist a non-compliant supplier.
Non-functional requirements	- **Performance**: Order updates processed in <2 seconds. - **Security**: Supplier communication is encrypted.
Postconditions	1. Updated supply orders and inventory statuses are stored. 2. Notifications are sent to procurement staff.

UC28: Sponsors

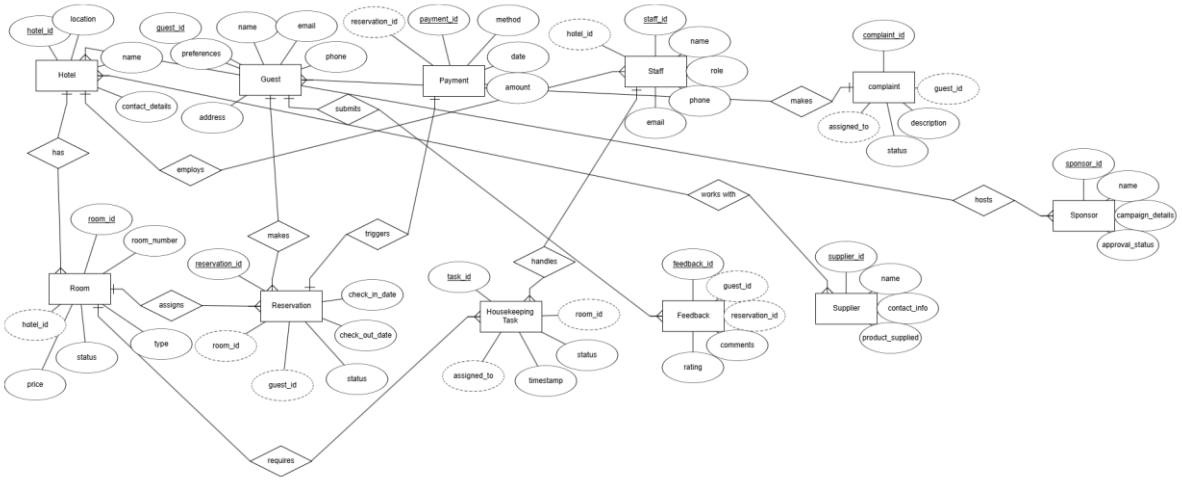
UC Name	UC28: Sponsors
Summary	Allows sponsors to manage promotional content, upload ads, and track sponsorship campaigns.
Dependency	Sponsorship module; sponsor accounts; marketing or admin approval.
Actors	Sponsors, Admin, Marketing Manager, System
Preconditions	1. Sponsor accounts are approved. 2. Sponsorship features are enabled.
Description of the Main Sequence	1. Sponsor logs into portal. 2. Uploads promotional materials and sets campaign parameters. 3. Submits for admin/marketing approval. 4. Upon approval, campaign is published in the system.
Description of the Alternative Sequence	- Rejected content: sponsor receives feedback and can revise materials. - Expired sponsorship: system automatically ends campaign or prompts sponsor for renewal.
Non -Functional requirements	- **Usability**: Sponsor portal is intuitive and responsive. - **Security**: Only authorized roles can publish sponsor content. - **Real-Time**: Performance metrics updated promptly.
Postconditions	1. Sponsor campaign goes live. 2. Sponsor can monitor campaign performance via system metrics.

4.3 USE CASE DIAGRAM



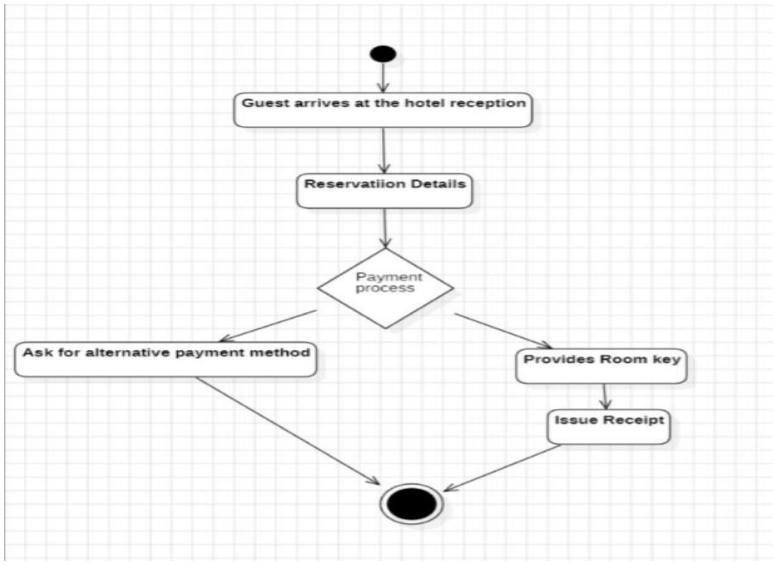
5. Diagram

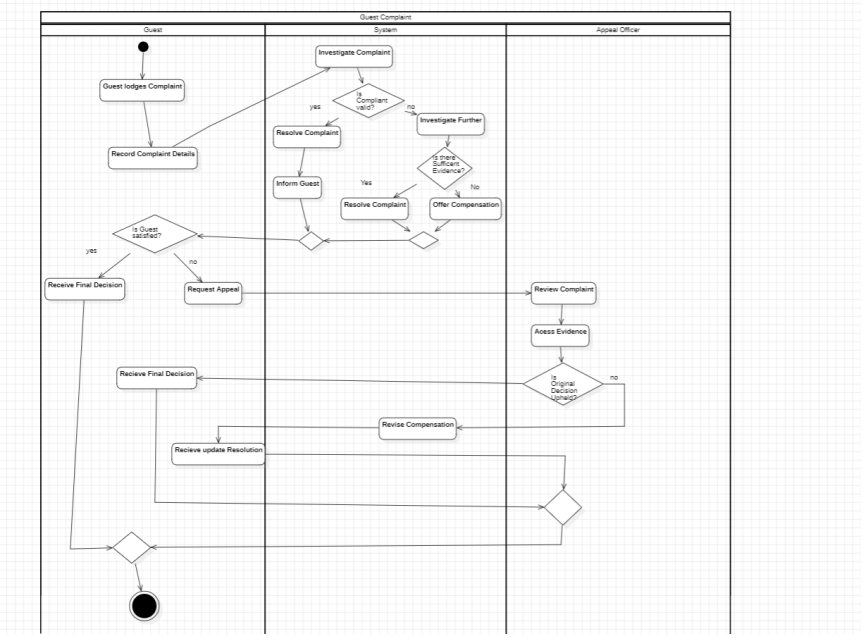
5.1 ERD Diagram

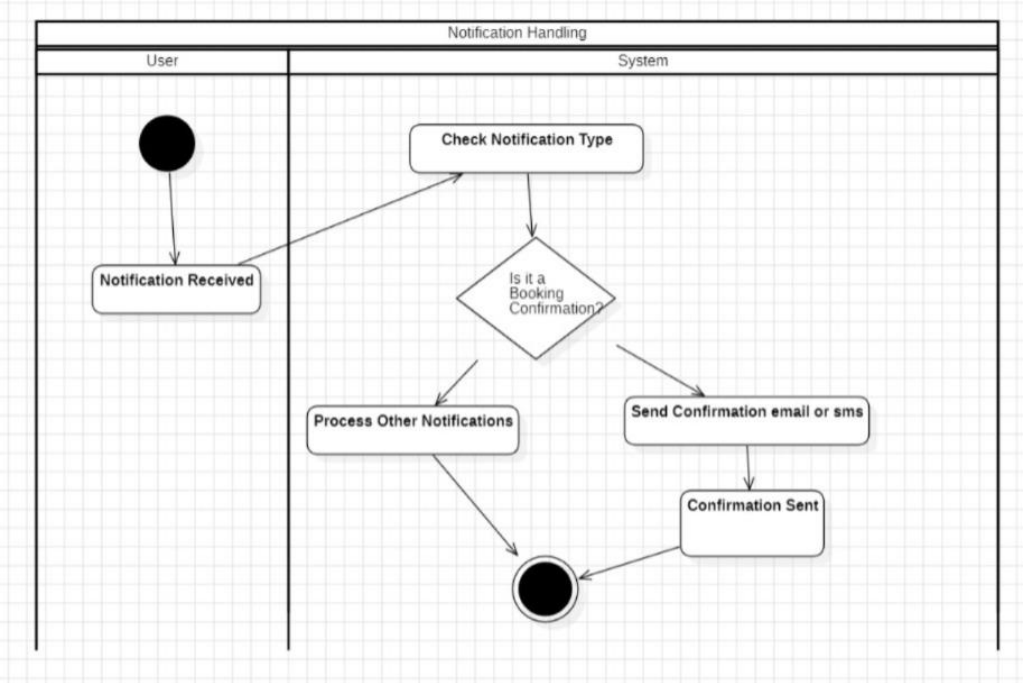


5.2 Activity Diagram

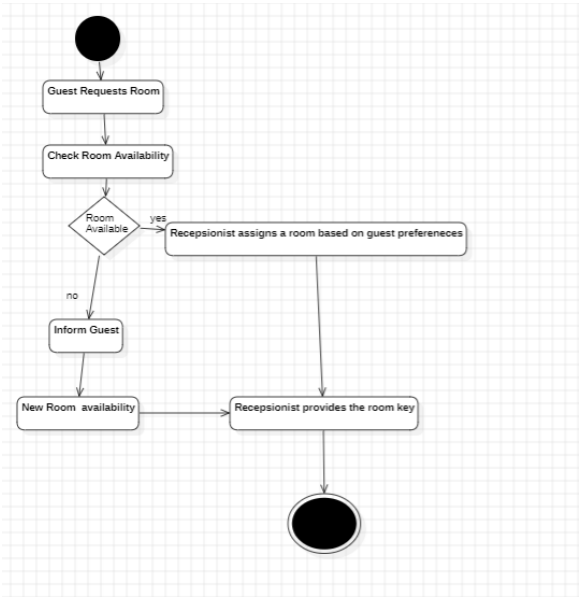
Check-In

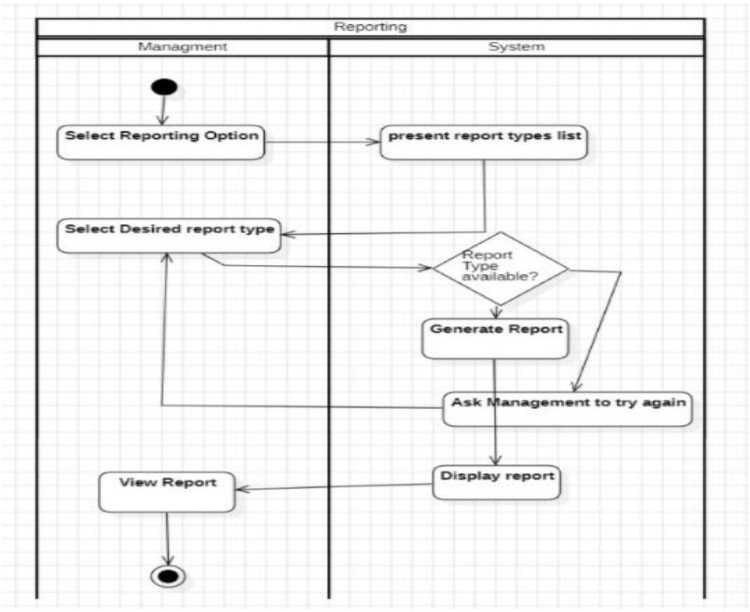


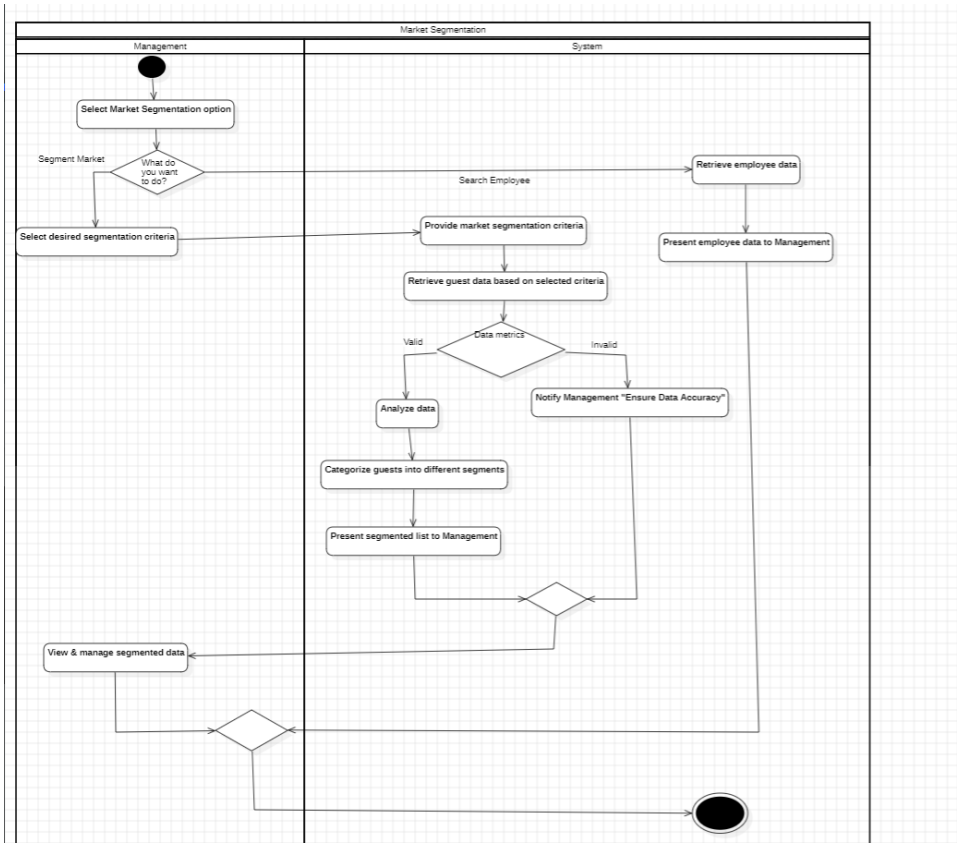

Guest Complaint
Guest
System
Appeal Officer
Guest lodges Complaint
Record Complaint Details
Investigate Complaint
Is Complaint valid?
yes
no
Resolve Complaint
Investigate Further
Is there Sufficient Evidence?
Yes
No
Inform Guest
Resolve Complaint
Offer Compensation
Is Guest satisfied?
yes
no
Receive Final Decision
Request Appeal
Review Complaint
Acess Evidence
Is Original Decision Upheld?
no
Recieve Final Decision
Revise Compensation
Recieve update Resolution

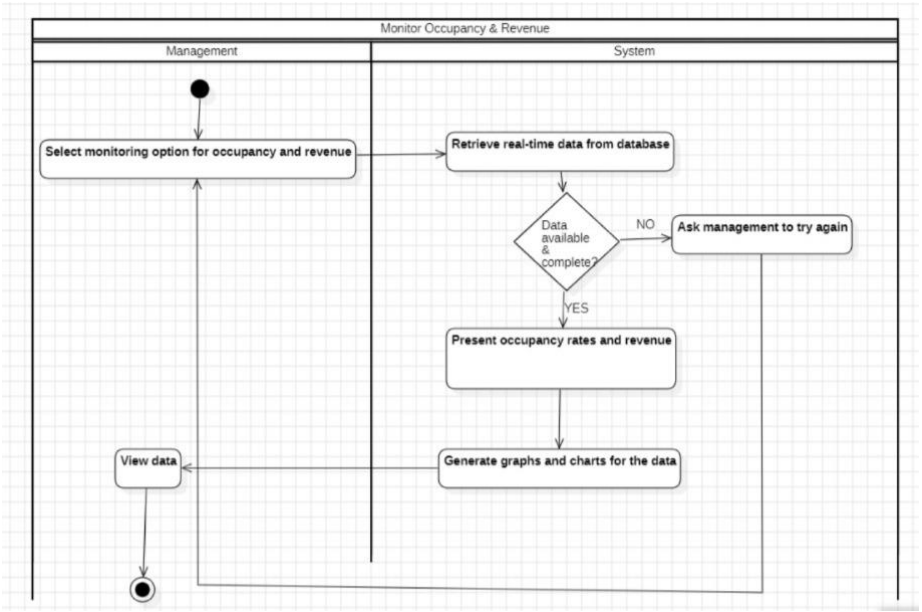

Notification Handling
User
System
Check Notification Type
Notification Received
Is it a Booking Confirmation?
Process Other Notifications
Send Confirmation email or sms
Confirmation Sent

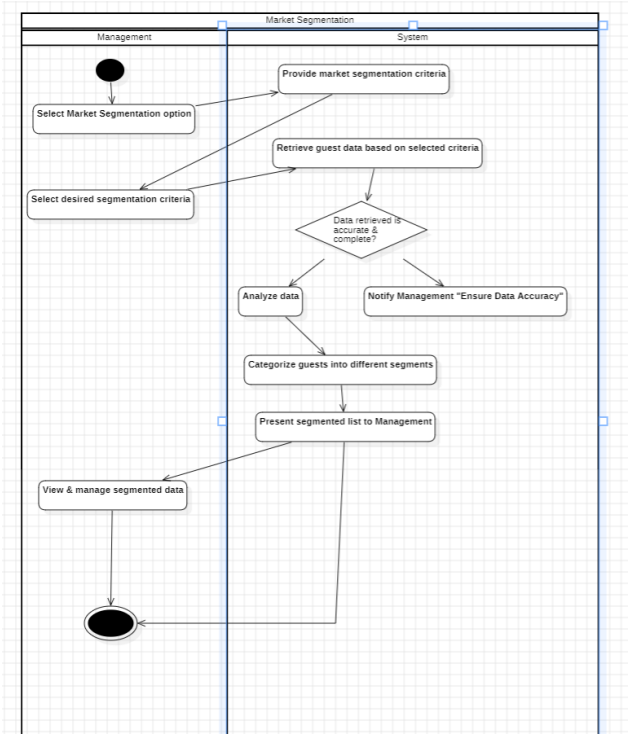
Room Assignment

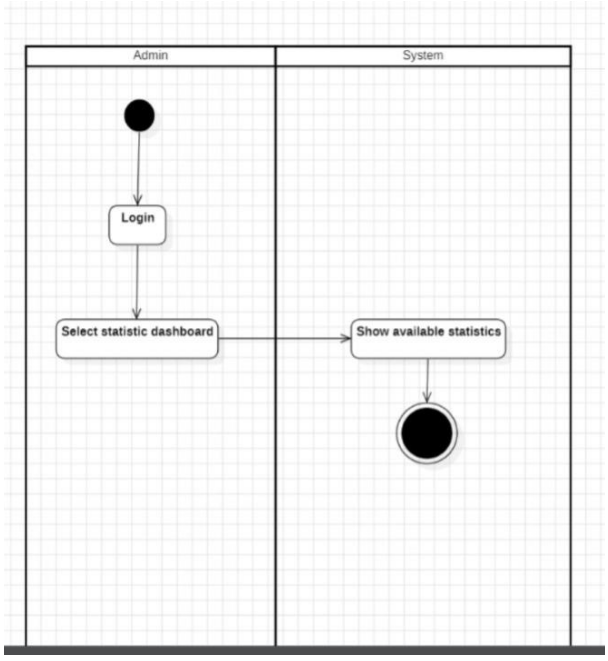


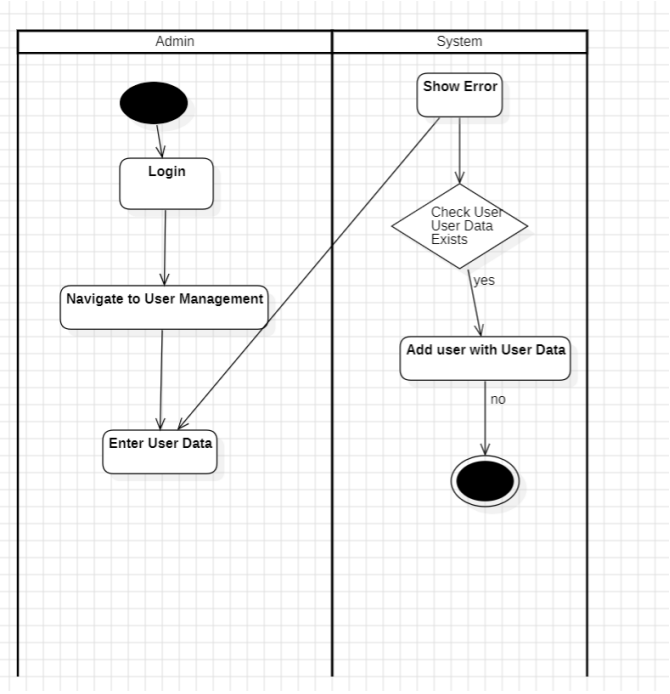


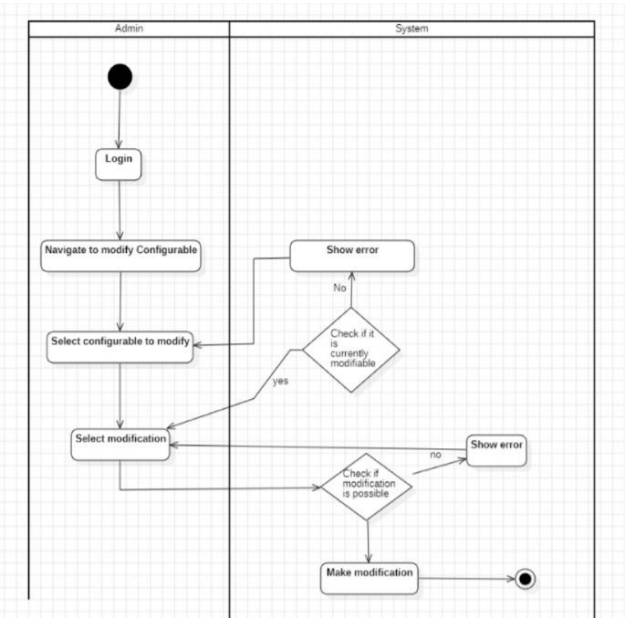

Market Segmentation
Management
System
Select Market Segmentation option
What do you want to do?
Segment Market
Search Employee
Retrieve employee data
Present employee data to Management
Select desired segmentation criteria
Provide market segmentation criteria
Retrieve guest data based on selected criteria
Data metrics
Valid
Invalid
Notify Management "Ensure Data Accuracy"
Analyze data
Categorize guests into different segments
Present segmented list to Management
View & manage segmented data

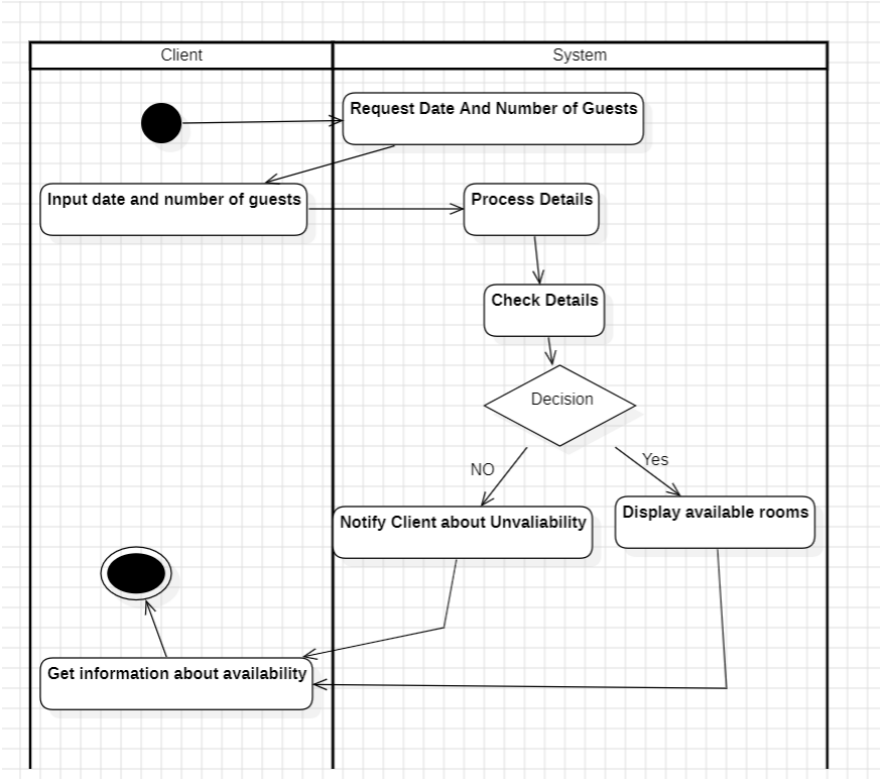

Monitor Occupancy & Revenue
Management
System
Select monitoring option for occupancy and revenue
Retrieve real-time data from database
Data available & complete?
NO
Ask management to try again
YES
Present occupancy rates and revenue
Generate graphs and charts for the data
View data

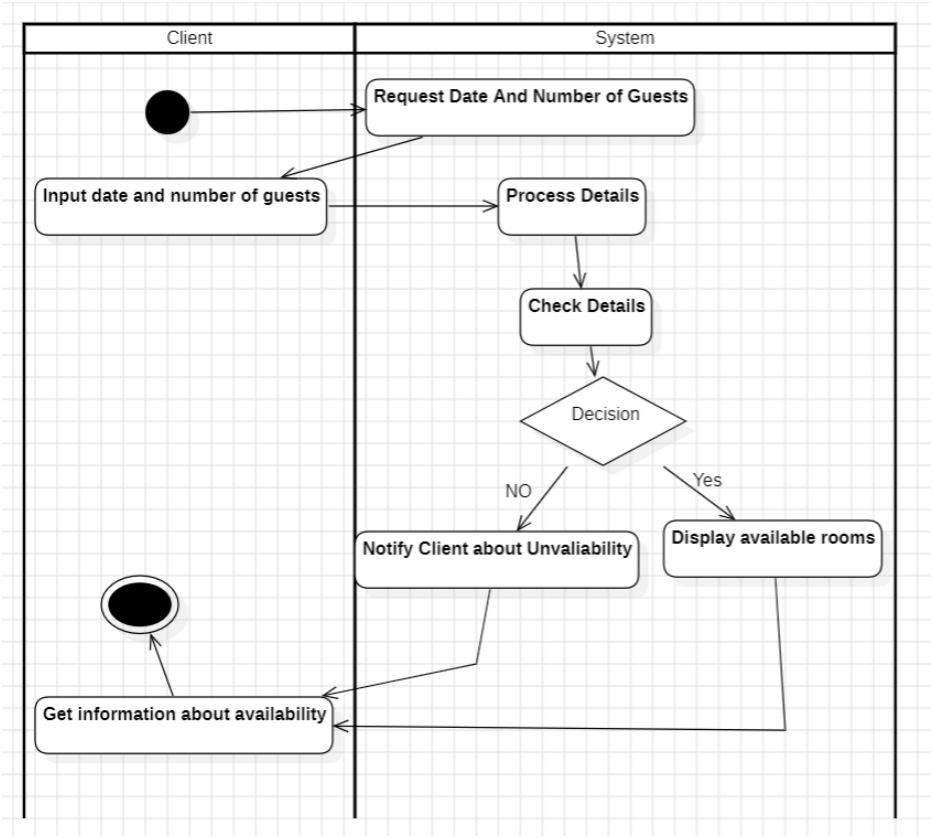

Market Segmentation
Management
System
Provide market segmentation criteria
Select Market Segmentation option
Retrieve guest data based on selected criteria
Select desired segmentation criteria
Data retrieved is accurate & complete?
Analyze data
Notify Management "Ensure Data Accuracy"
Categorize guests into different segments
Present segmented list to Management
View & manage segmented data


Admin
System
Login
Select statistic dashboard
Show available statistics

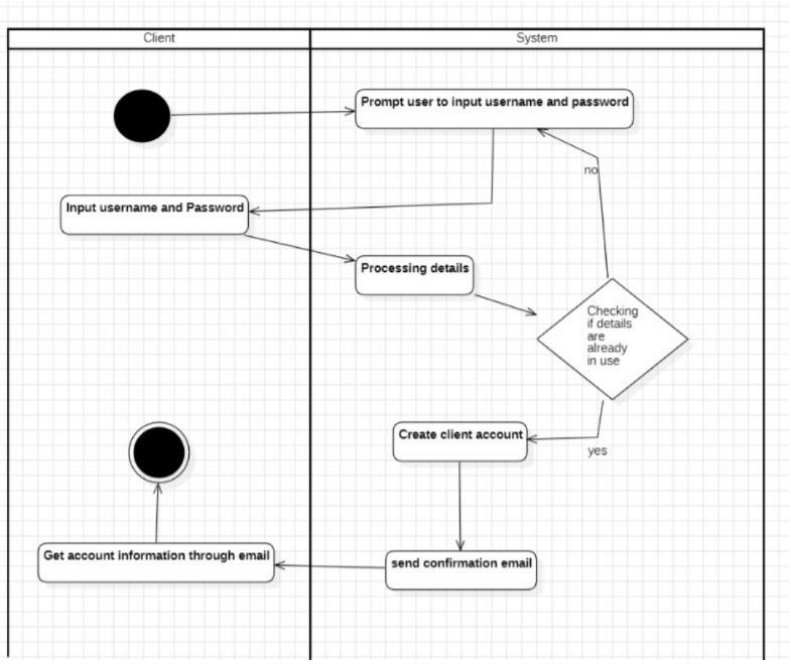

Admin
System
Login
Navigate to User Management
Enter User Data
Show Error
Check User
User Data
Exists
yes
Add user with User Data
no

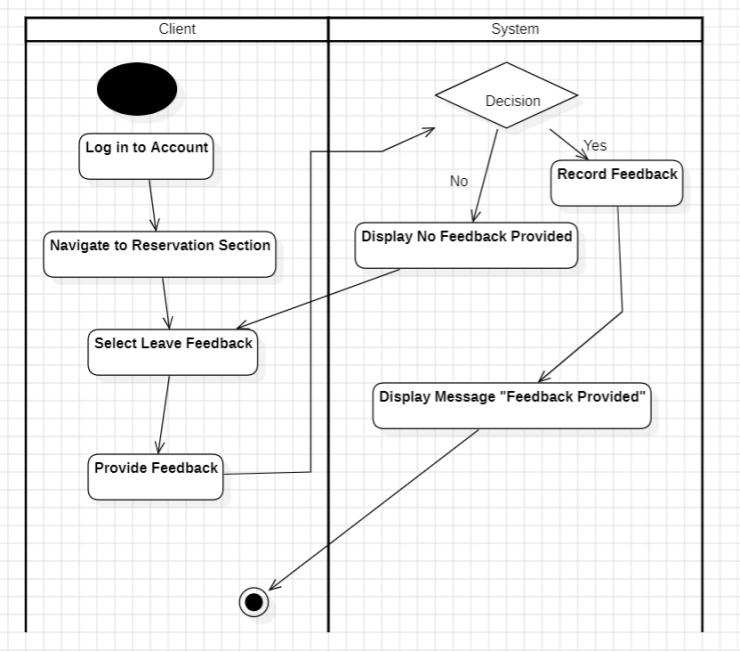

Admin
System
Login
Navigate to modify Configurable
Select configurable to modify
Select modification
Show error
No
Check if it is currently modifiable
yes
Show error
no
Check if modification is possible
Make modification

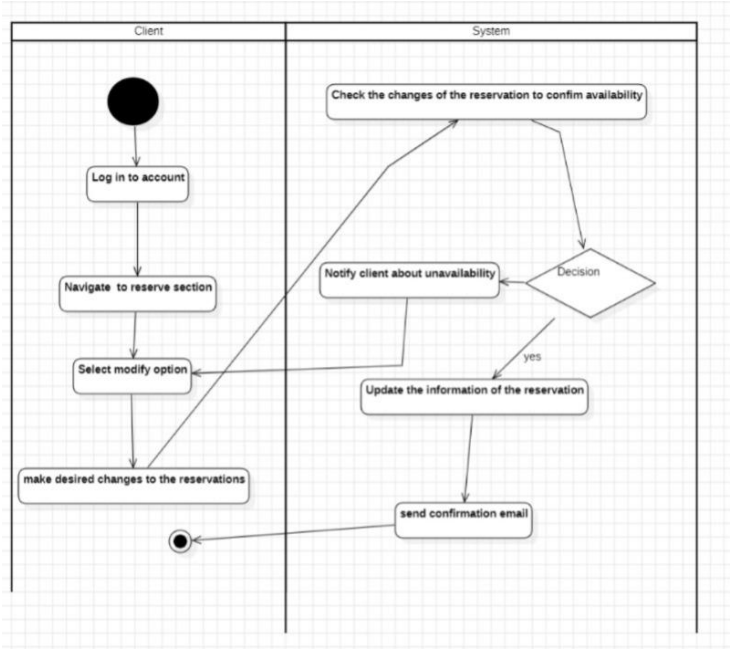

Client
System
Request Date And Number of Guests
Input date and number of guests
Process Details
Check Details
Decision
NO
Yes
Notify Client about Unvaliability
Display available rooms
Get information about availability

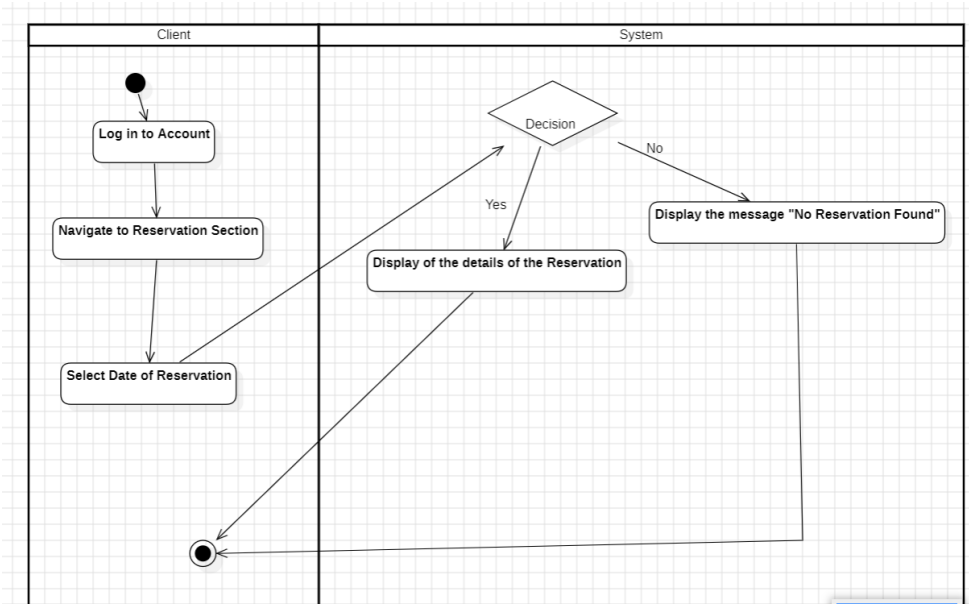

Client
System
Request Date And Number of Guests
Input date and number of guests
Process Details
Check Details
Decision
NO
Yes
Notify Client about Unvaliability
Display available rooms
Get information about availability

Hotel Management System

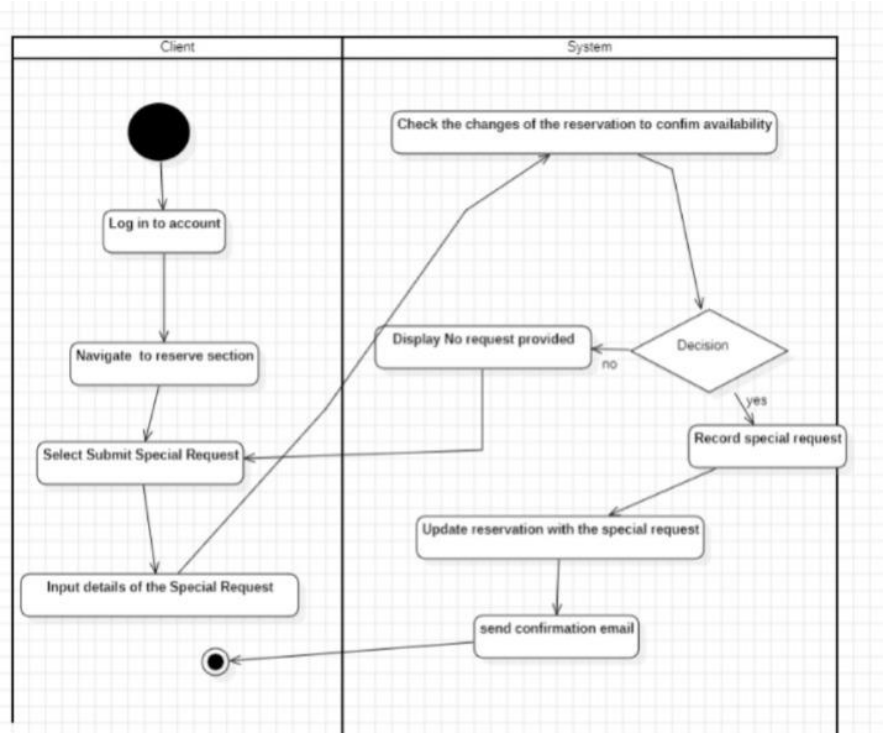


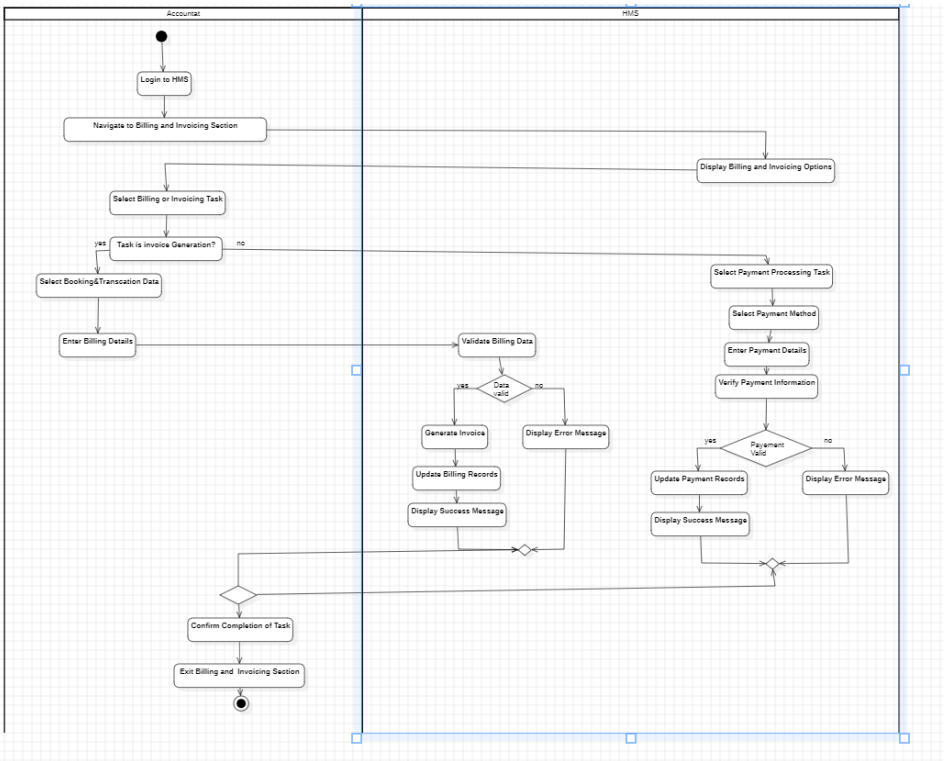



Client
System
Check the changes of the reservation to confim availability
Log in to account
Navigate to reserve section
Notify client about unavailability
Decision
Select modify option
yes
Update the information of the reservation
make desired changes to the reservations
send confirmation email

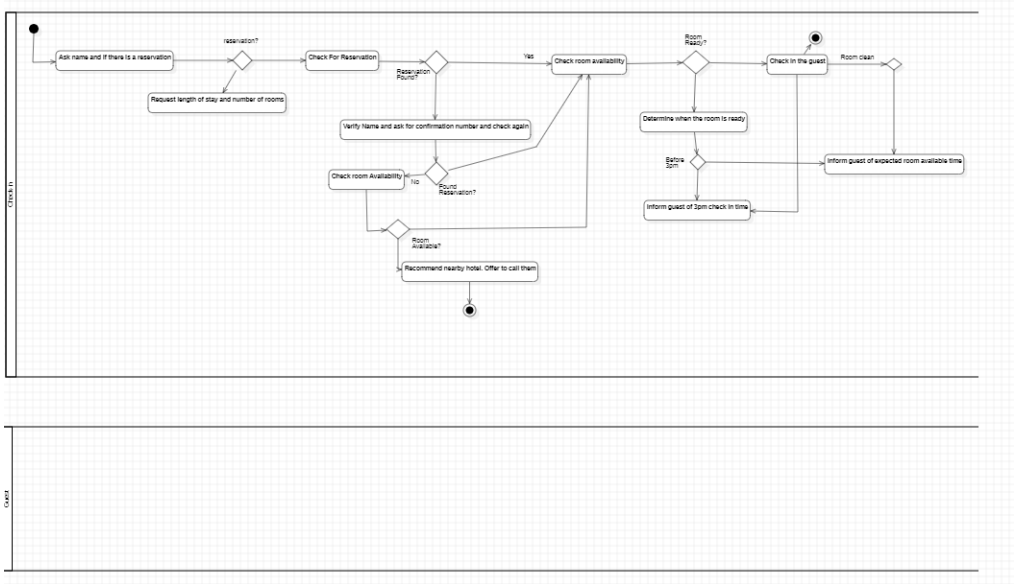

Client
System
Log in to Account
Decision
No
Yes
Navigate to Reservation Section
Display the message "No Reservation Found"
Display of the details of the Reservation
Select Date of Reservation

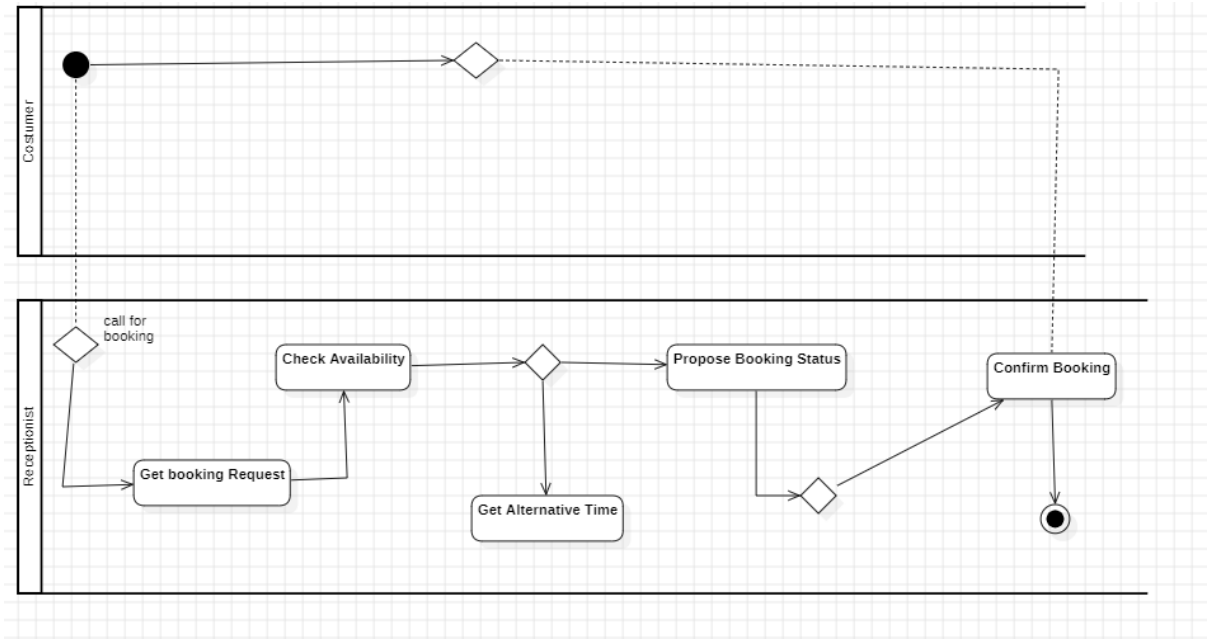
Hotel Management System

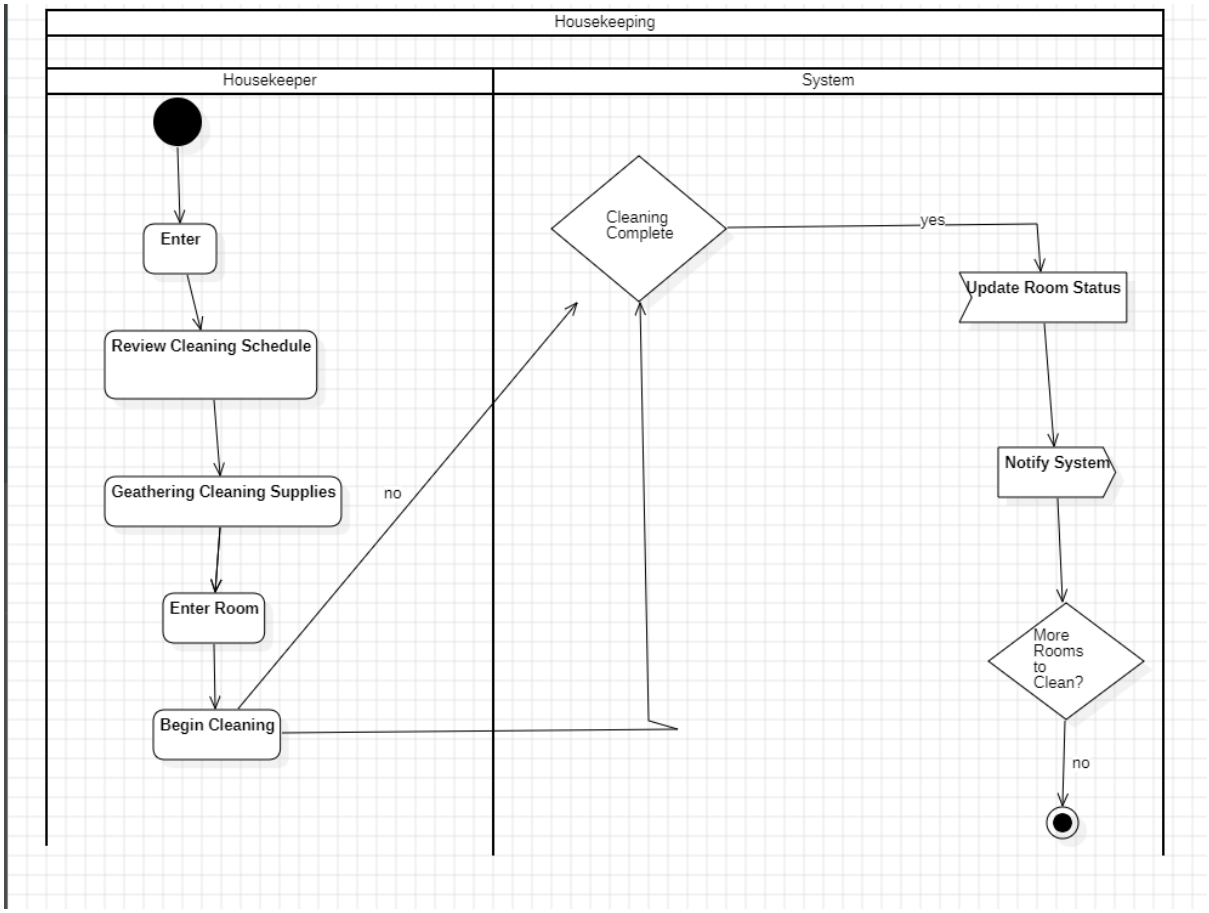


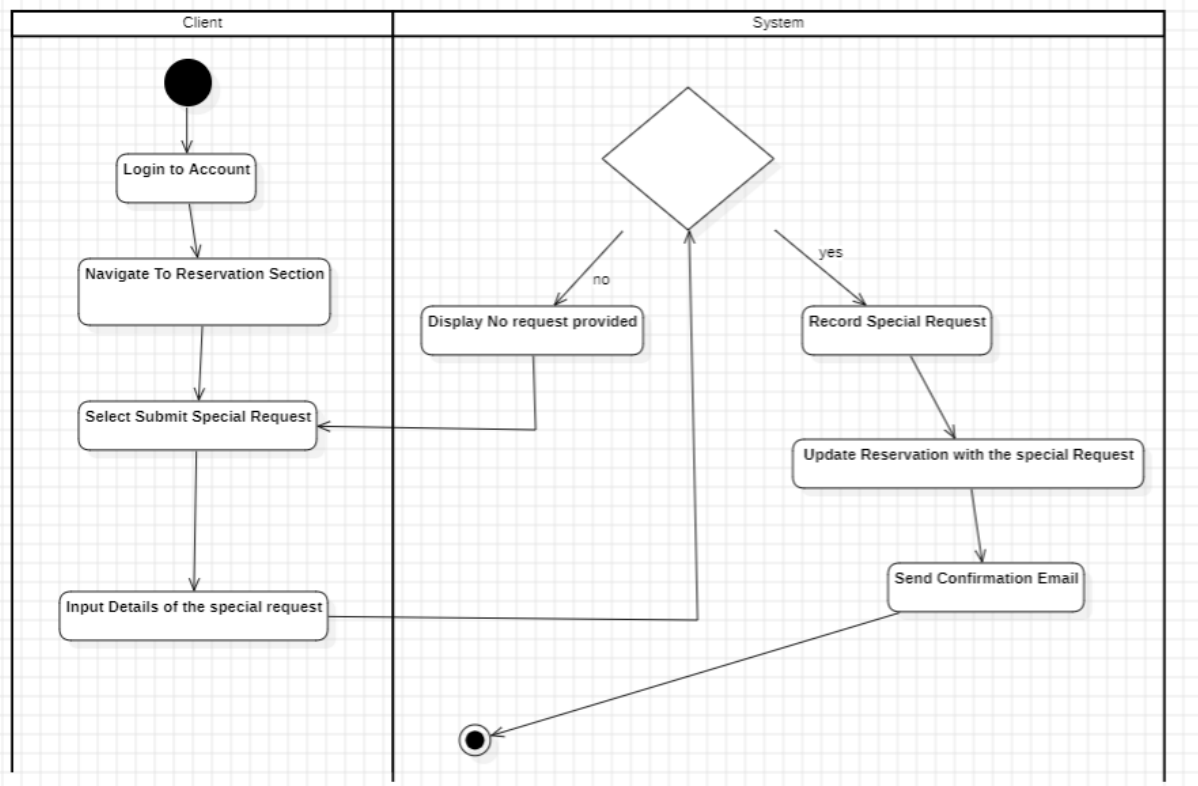


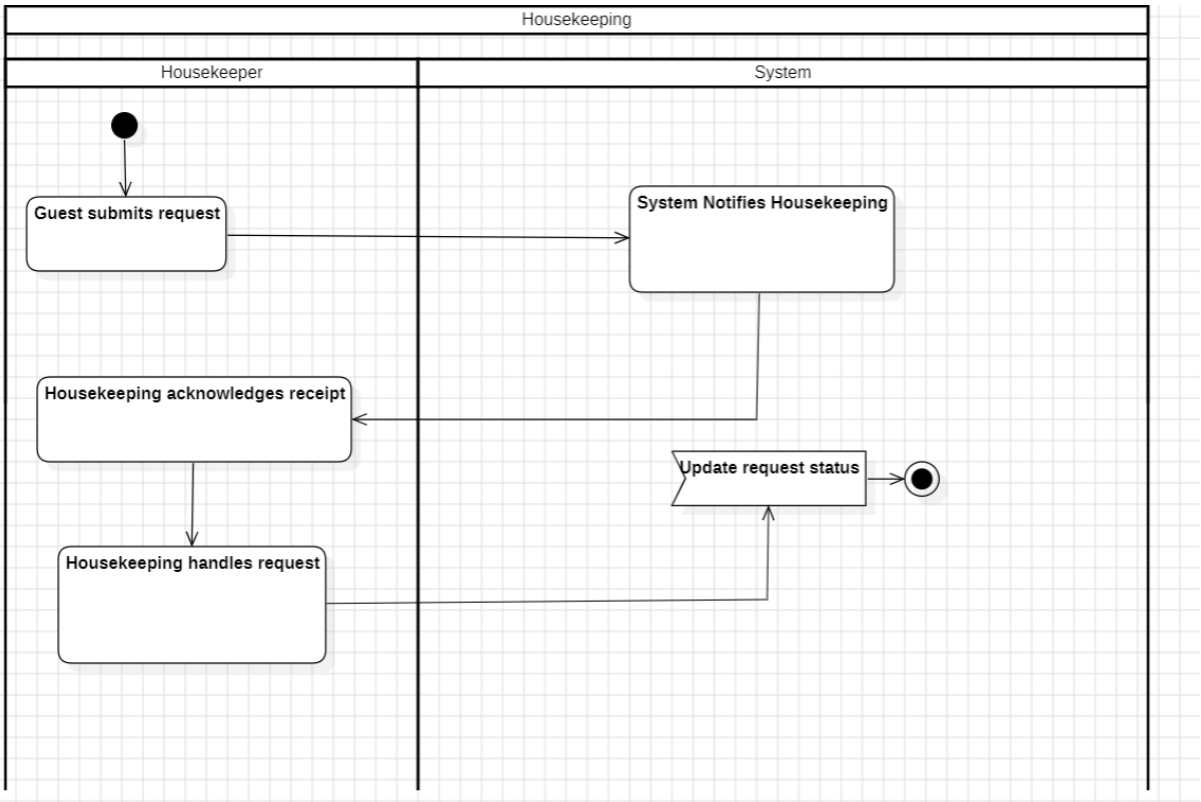
Hotel Management System



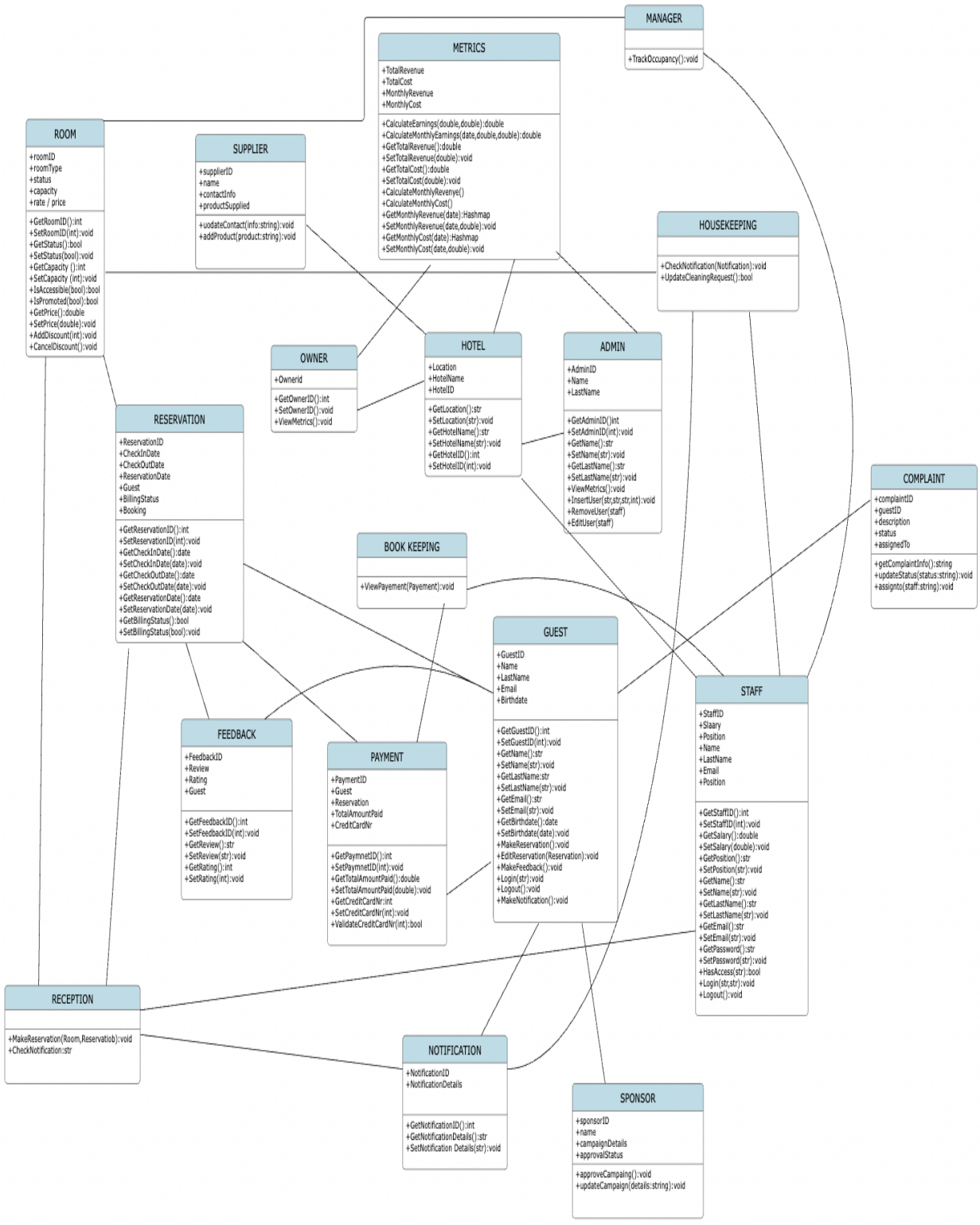



Housekeeping
Housekeeper
System
Enter
Review Cleaning Schedule
Geathering Cleaning Supplies
Enter Room
Begin Cleaning
no
Cleaning Complete
yes
Update Room Status
Notify System
More Rooms to Clean?
no


Client
System
Login to Account
Navigate To Reservation Section
Select Submit Special Request
Input Details of the special request
no
yes
Display No request provided
Record Special Request
Update Reservation with the special Request
Send Confirmation Email

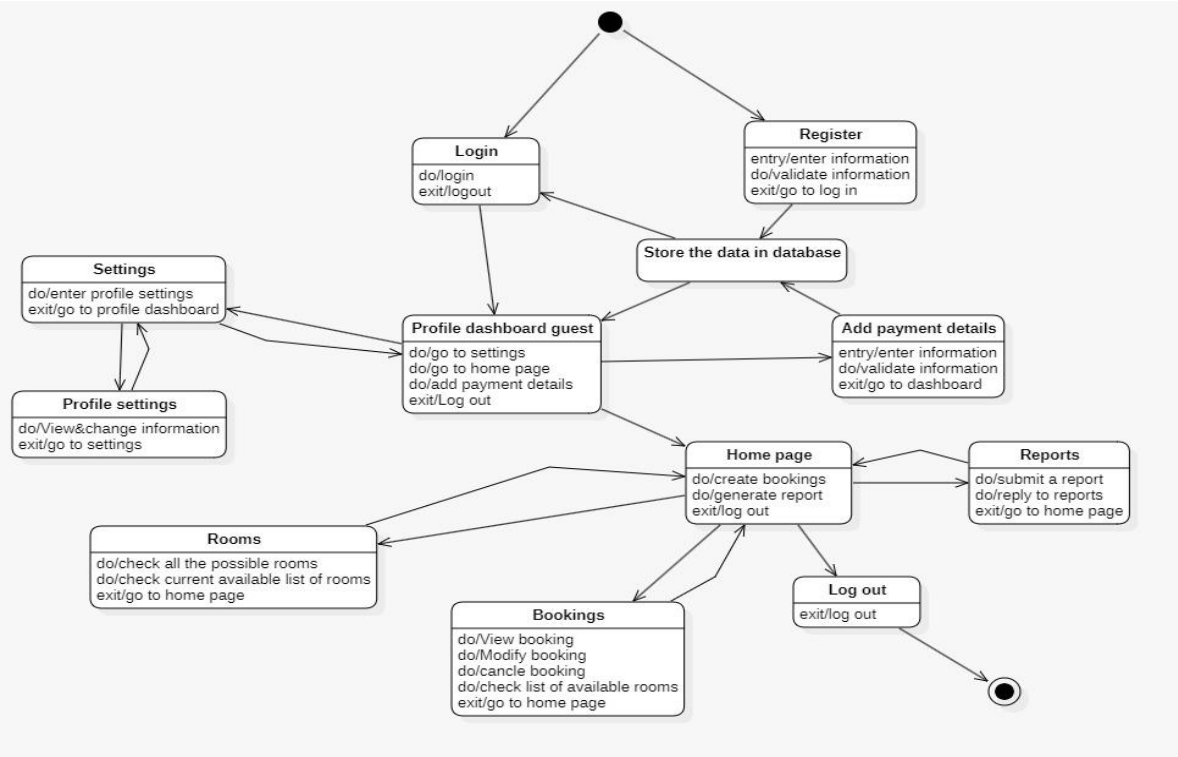

Housekeeping
Housekeeper
System
Guest submits request
System Notifies Housekeeping
Housekeeping acknowledges receipt
Update request status
Housekeeping handles request

5.3 Class Diagram

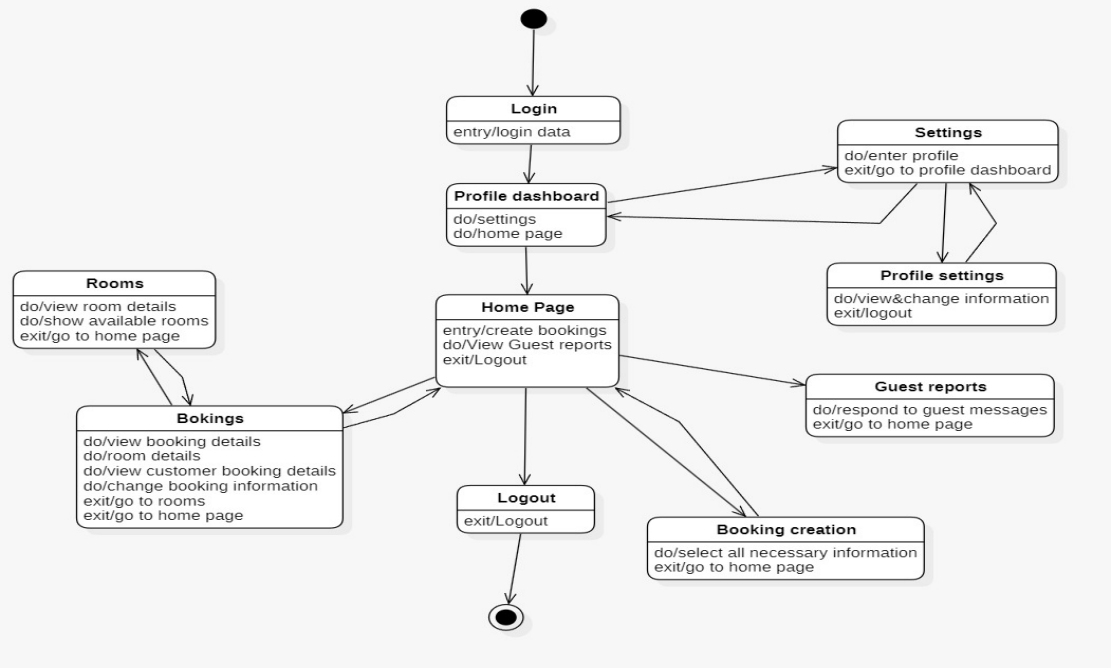


5.4 State Diagram

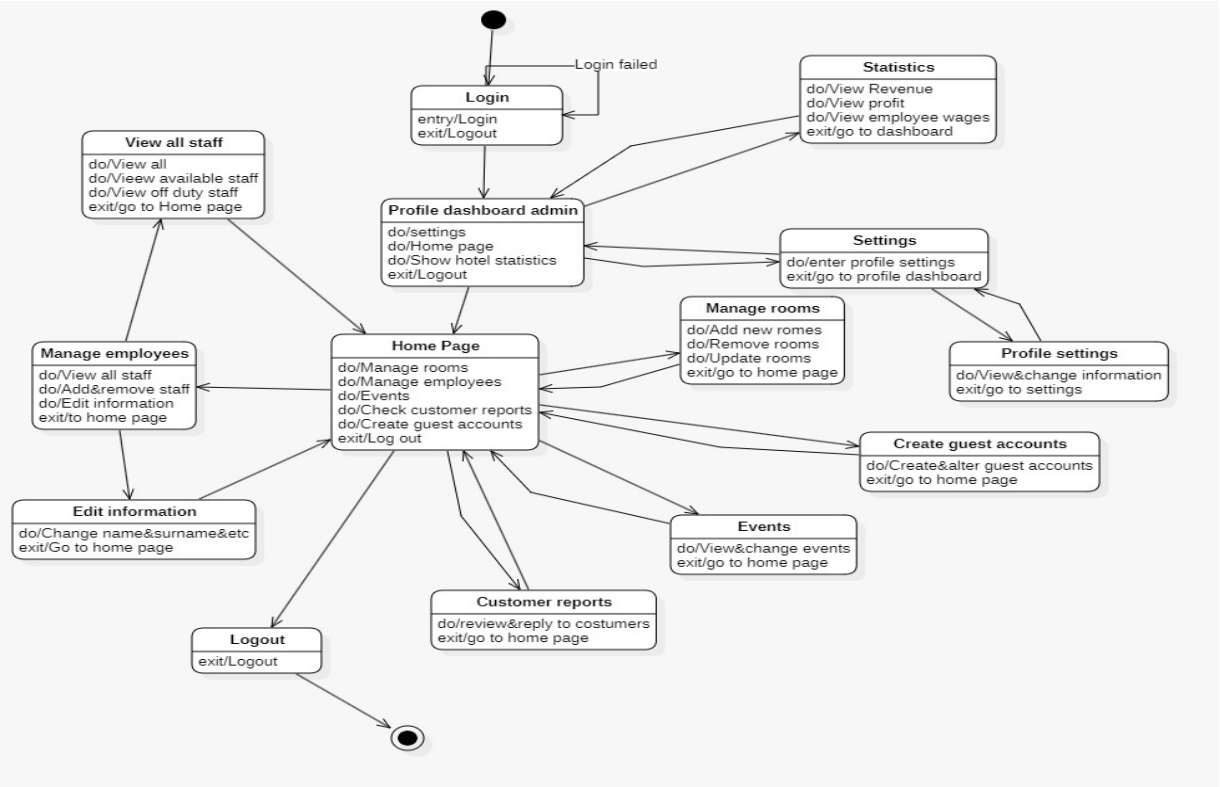
Guest



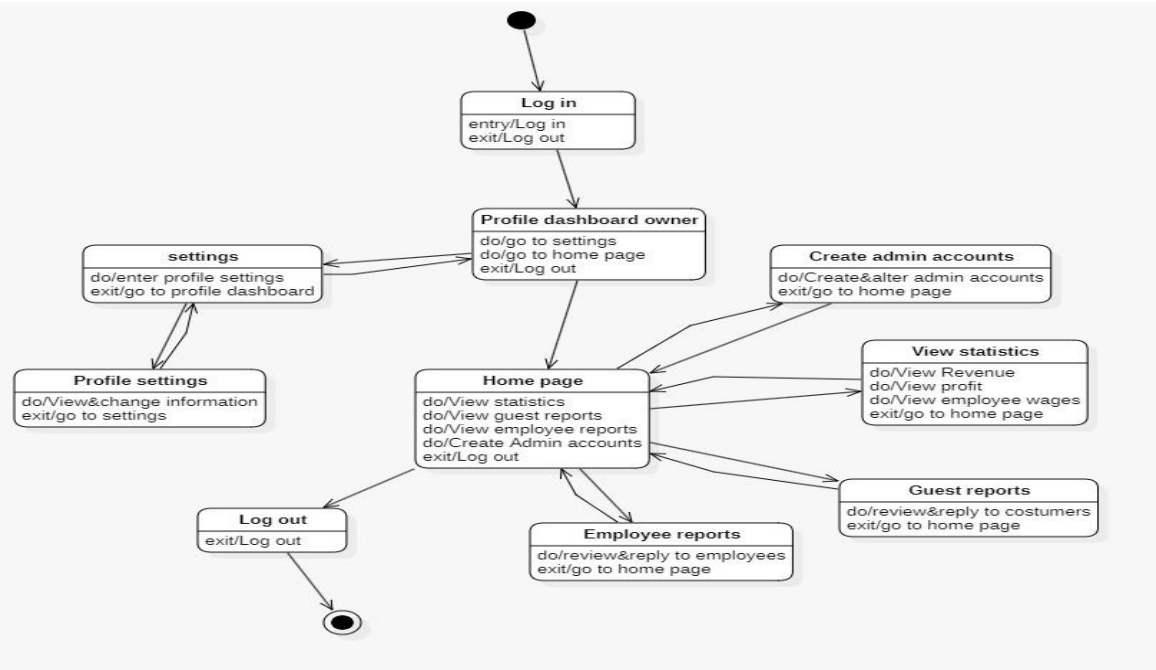
Front Desk



Admin


Login failed
Login
entry/Login
exit/Logout
Statistics
do/View Revenue
do/View profit
do/View employee wages
exit/go to dashboard
View all staff
do/View all
do/Vieew available staff
do/View off duty staff
exit/go to Home page
Profile dashboard admin
do/settings
do/Home page
do/Show hotel statistics
exit/Logout
Settings
do/enter profile settings
exit/go to profile dashboard
Manage rooms
do/Add new romes
do/Remove rooms
do/Update rooms
exit/go to home page
Manage employees
do/View all staff
do/Add&remove staff
do/Edit information
exit/to home page
Home Page
do/Manage rooms
do/Manage employees
do/Events
do/Check customer reports
do/Create guest accounts
exit/Log out
Profile settings
do/View&change information
exit/go to settings
Create guest accounts
do/Create&alter guest accounts
exit/go to home page
Edit information
do/Change name&surname&etc
exit/Go to home page
Events
do/View&change events
exit/go to home page
Customer reports
do/review&reply to costumers
exit/go to home page
Logout
exit/Logout

Owner


Log in
entry/Log in
exit/Log out
Profile dashboard owner
do/go to settings
do/go to home page
exit/Log out
settings
do/enter profile settings
exit/go to profile dashboard
Create admin accounts
do/Create&alter admin accounts
exit/go to home page
View statistics
do/View Revenue
do/View profit
do/View employee wages
exit/go to home page
Profile settings
do/View&change information
exit/go to settings
Home page
do/View statistics
do/View guest reports
do/View employee reports
do/Create Admin accounts
exit/Log out
Guest reports
do/review&reply to costumers
exit/go to home page
Log out
exit/Log out
Employee reports
do/review&reply to employees
exit/go to home page