HOTEL MANAGEMENT SYSTEM

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Table of Contents

1. Introduction

1.1 Purpose

The Software Requirements Specification (SRS) will provide a detailed description of the requirements for the Hotel Management System (HMS). This SRS will allow for a complete understanding of what is to be expected from the newly introduced system which is to be constructed. The clear understanding of the system and its' functionality will allow for the correct software to be developed for the end user and will be used for the development of the future stages of the project. This SRS will provide the foundation for the project. From this SRS, the Hotel Management System can be designed, constructed, and finally tested.

This SRS will be used by the system development team which is constructing the HMS and the hotel end users. The Project team will use the SRS to fully understand the expectations of this HMS to construct the appropriate software. The hotel end users will be able to use this SRS as a "test" to see if the constructing team will be constructing the system to their expectations. If it is not to their expectations the end users can specify how it is not to their liking and the team will change the SRS to fit the end users' needs.

1.2 Document Conventions

The document is prepared using Microsoft Word 2013 and has used the font type 'Times New Roman'. The fixed font size that has been used to type this document is 12pt with 1.5 line spacing. It has used the bold property to set the headings of the document. Use case scenario is written according to Alistair Cockburn's template. UML diagrams have been created according to UML 2.0 standards. Standard IEEE template is the template used to organize the appearance of the document and its flow.

1.3 Intended Audience and Reading Suggestions

The intended audience of this document would be owner and specific employees like Manager and Receptionist of Hotel Gayana, and project team with the objective to refer and analyze the information. The SRS document can be used in any case regarding the requirements of the project and the solutions that have been taken. The document would final provide a clear idea about the system that is building.

Brief outline of the document is,

1. Overall Description
2. System Features
3. External Interface Requirements
4. Non Functional Requirements

1.4 Product Scope

The introducing software, Hotel Management System which is going to be implemented for Hotel Gayana will automate the major operations of the hotel. The Reservation System is to keep track in room and hall reservation and check availability. The Room Management System is for manage all room types room services. The Inventory Control System will keep track in all inventories of the hotel and guest details will handled by guest management. Administration department will monitor the all .There is three End Users for HMS. The End Users are Owner, Manager and Receptionist. Owner can access to all system functionalities without any restrictions. Manager can access to all system functionalities with limited restrictions. Receptionist can only access to the Reservation management section. To keep restrictions for each End User levels HMS can create different Login functions.

The objectives of the automated Hotel Management System is to simplify the day to day processes of the hotel. The system will be able to handle many services to take care of all customers in a quick manner. As a solution to the large amount of file handling happening at the hotel, this software will be used to overcome those drawbacks. Safety, easiness of using and most importantly the efficiency of information retrieval are some benefits the development team going to present with this system. The system should be user appropriate, easy to use, provide easy recovery of errors and have an overall end user high subjective satisfaction.

2. Overall Description

2.1 Product Perspective

The Hotel Management System is a new self-contained software product which will be produced by the project team in order to overcome the problems that have occurred due to the current manual system. The newly introduced system will provide an easy access to the

system and it will contain user friendly functions with attractive interfaces. The system will give better options for the problem of handling large scale of physical file system, for the errors occurring in calculations and all the other required tasks that has been specified by the client. The final outcome of this project will increase the efficiency of almost all the tasks done at the Hotel in a much convenient manner.

2.2 Product Functions

- Make Reservations
- Search Rooms
- Add Payment
- Issue Bills
- Manage Guest (Add, Update Guest)
- Manage Room Details (Add, Update, Delete)
- Manage Staff (Add, Update, Delete, View)
- Manage Inventory (Add, Edit, Delete)
- Set Rates
- Retrieve Reports (Staff payment, Income)
- Manage Users (Add, Update, Delete)
- Taking Backups
- E-mail notifications

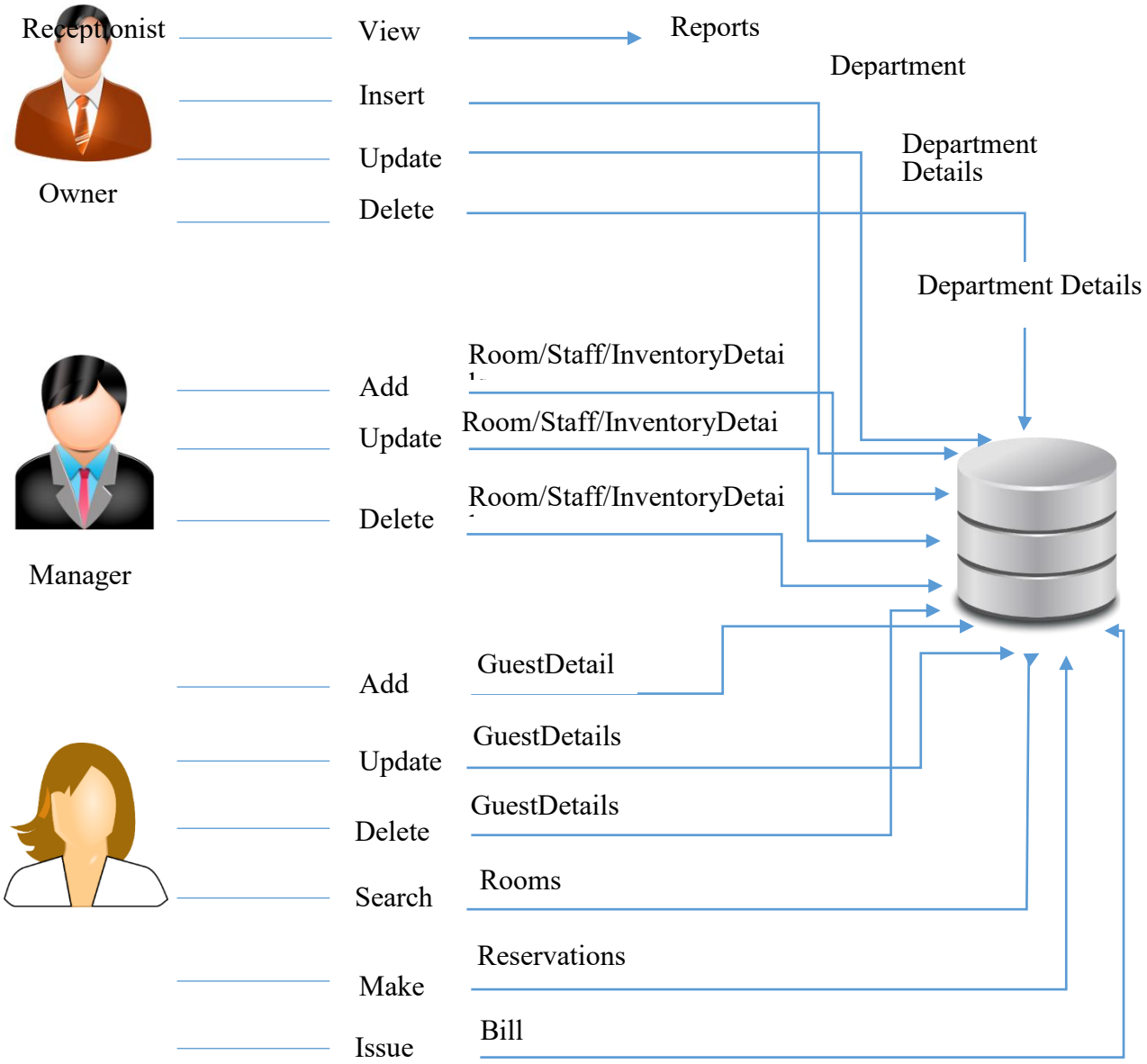


Figure 2.1.1 High Level Architecture

Functional Requirements

Function 1	**Make Reservations**
Input	Code, Number of children, Number of adults, check-in date, check out date, status, Number of nights
Output	Database Record, Database successfully updated message
Processing	Validate the given details and record the information in to the database.

Function 2	**Add Guest**
Input	Member code, Phone number, Company, Name, E-mail, Gender, Address
Output	Database Record, Database successfully updated message
Processing	Validate the given details and record the information in to the database.

Function 3	**Add staff member**
Input	Code, Employee Name, Employee Address, NIC, Salary, Name Age, Occupation, E-mail
Output	Database Record, Database successfully updated message
Processing	Validate the given details and record the information in to the database.

Function 4	**Search Rooms**
Input	Period, Check-in, Check-out, Guest
Output	Display a message with available room details
Processing	Validate the given details and check for the available rooms in a given time period and return it’s availability.

Function 5	**Add Payments**
Input	Total, pay time, Credit card details
Output	Database Record, Database successfully updated message
Processing	Validate the given details and record the information in to the database.

Function 6	**Issue Bill**
Input	Billing no, Quantity, Price, Taxes, Date, Services, Unit
Output	Printed version of the bill
Processing	Validate the given details and total cost is calculated according to the Services gain by the customer.

Function 7	**Set Rates**
Input	Check-in, Check-out, Day, No.of guests, First night price, Extension price
Output	Database Record, Database successfully updated message
Processing	Validate the given details and record the information in to the database.

Function 8	**Taking Backups**
Input	Location to save the backup file
Output	Display a message showing backup successfully created
Processing	Validate the user given location to save the backup file. Save the backup file to the user specified location

2.3 User Classes and Characteristics

2.3.1 User Classes

There are three user levels in Hotel Management System of Hotel Gayana.

I. Owner
II. Manager
III. Receptionist

2.3.2 Characteristics of User Classes

Owner:-

Hotel owner has the privilege of Monitoring and authorization of all the tasks handle by the system. He can access every function performed by the system. Owner of the company as well as the system can access to the administration panel which is consider the core of the system. As the main authorized person of the company owner gets the ability to manage the other users including their user levels and privileges. Taking backups of the system and restoring system can also be done by the Owner. Meanwhile he will be able to take all the kinds of reports available in the system. As the owner of the system and the company he has the power to set room rates as well. Hotel owner has the sole right of deleting a staff member from the system database.

Manager:

Manager is responsible for managing resources available in hotel management system. Manager also has most of the privileges mentioned above except the things regarding the payment handling. The reason for using a Manager is to reduce the work load done by the owner that cannot be assigned to the receptionist, as those tasks seem much responsible. The user level, Manager has the authority to take all the reports available in the system but here also except the reports related to financial stuff, hotel income. Manager has other abilities that receptionist, user level has. Such as, adding new staff member to the system, Modifying them or removing them, Adding new guests to the system, Modifying them and removing them from the system, Adding new inventory to the system, Modifying them and removing them. Adding new room types to the system, modifying them and removing them

Receptionist:

As a hotel receptionist, he or her role will be to attain the goals of bookings and to ensure that all guests are treated with a high standard of customer service. Hierarchically receptionist role has the least accessibility to the system functions. Receptionist plays the boundary role of the system .He or she can perform limited functions such as registering new guest to the system, make reservations, Sending e-mail reminders to clients for booking confirmation.
Management of hotel will prefer to hire receptionist who have a good standard of general education and possibly in subjects such as English, math and IT.

2.4 Design and Implementation Constraints

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

2.5 Project Documentation

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

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

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

2.6 User Documentation

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

2.7 Assumptions and Dependencies

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

2.8 Hardware Interfaces

Section 2.4 includes the requirements of the desktop computer where the system going to be installed. A specific computer must match with the above mentioned requirements in order to gain the maximum benefits from the system in an efficient manner.

Reservation alerts will be sent to the one of the member of hotel staff as an e-mail notification. So there is a need of broadband internet connection. Client should able to keep a stable internet connection.

A laser printer will be needed when printing bills and several reports

2.9 Software Interfaces

The computer this software going to be install need to have Windows Operating System equal or above, Windows 7. On that Windows platform .Net 4.0 will be installed and that will be the platform the particular software will be run. There will be an ADO.NET data transmission with the Microsoft SQL Server Management Studio Express 2010 R2 edition that will be installed in the same computer.

2.10 Communications Interfaces

When a specific reservation reserved at the same time an e-mail notification will be sent to both relevant staff member's e-mail account and guest's account. Guest will be notified in the check-out date. To achieve that functionality, it requires having a stable internet connection. Mostly a broadband connection with the client's computer will provide the efficient service.

1.2 Use Case Scenarios

1)

Use case Name	Make Reservation	
Goal	Add a new reservation	
Primary Actors	Receptionist	
Secondary Actors	None	
Precondition	Guest shouldn't already be exist	
Post condition	Hotel Guest Details updated to include current Guest	
Triggers		
Main flow	Step	Action
	1	Receptionist enter guest details
	2	System searches for room details
	3	System presents room types and tariffs
	4	Customer selects room and confirms tariff
	5	System records customer's name and address
	6	receptionist confirms booking on system
	7	System generates confirmation receipt
Extensions		

2)

Use case Name	Check Availability
Goal	To check whether a room available or not

Primary Actors	Receptionist	
Secondary Actors	None	
Precondition	Login to the system.	
Post condition		
Triggers		
Main flow	Step	Action
	1	Display User interface
	2	Select Availability Tab
	3	Enter room type, duration, number of adults and children
	4	System check room availability relevant to each requirements
	5	Display available room details
Extensions	4.1	No room available for entered details and display “No Room Available”

3)

Use case Name	Add Guest
Goal	Add a new Guest
Primary Actors	Receptionist
Secondary Actors	None
Precondition	Log in to the system

Post condition		
Triggers		
Main flow	Step	Action
	1	Receptionist selects “add guest” button
	2	System prompts to fill out guest details
	3	System validates details
	4	Update database
	5	Display “Successful message”
Extensions	3.1	Guest details are incorrect, Display the message "Unsuccessful" and display Add guest option.

4)

Use case Name	Add Room	
Goal	Add a new room to the system	
Primary Actors	Manager	
Secondary Actors	None	
Precondition	Log in to the system	
Post condition		
Triggers		
Main flow	Step	Action
	1	Manager clicks “add room” button
	2	System prompts the manager to fill out room details
	3	System validates new room information
	4	System creates a new room
	5	Update database

	6	Display “successful ” message
Extensions	3.1	Room details are incorrect, Display the message "Unsuccessful" and display room management option.

5)

Use case Name	Delete room	
Goal	Delete a room from the system	
Primary Actors	Owner	
Secondary Actors	Manager	
Precondition	Log in to the system	
Post condition		
Triggers		
Main flow	Step	Action
	1	User select “delete room” option
	2	Display delete room option
	3	User select the room
	4	System display confirm message
	5	User select confirmation
	6	Update database
	7	Display “successful message’
Extensions	4.1	If user select “Yes” details are remove from the database. Else

		cancel the process

6)

Use case Name	Edit room properties	
Goal	Alter properties such as view or type of room	
Primary Actors	Manager	
Secondary Actors	Owner	
Precondition	Log in to the system	
Post condition		
Triggers		
Main flow	Step	Action
	1	Manager selects “change room properties”
	2	System prompts manager to select room
	3	Manager select the room
	4	System display room properties
	5	Manager edit room properties
	6	System alters room properties
	7	Update database
	8	Display “successful” message
Extensions		

7)

Use case Name	Guest search	
Goal	Modify or delete guest information	
Primary Actors	Manager	
Secondary Actors		
Precondition	Log in to the system	
Post condition		
Triggers	Receptionist searches for customer	
Main flow	Step	Action
	1	User select search option
	2	System displays search interface
	3	User enters details
	4	System validates user inputs
	5	Display search results
Extensions	4.1	User inputs are invalid and prompt Display unsuccessful message

8)

Use case Name	Create system restore point	
Goal	Create a system restore point to the system	
Primary Actors	Manager	
Secondary Actors	None	
Precondition	Log in to the system	
Post condition		
Triggers		
Main flow	Step	Action
	1	User Select security option
	2	System display security option interface
	3	User select system restore
	4	User select system restore point
	5	System validates details
	6	Create system restore point
	7	Update database
	8	Display “successful message”
Extensions	4.1	If system restores point invalid display “invalid selection” user redirected to security option.

9)

Use case Name	Set rom rate	
Goal	Set room rate to hotel room in system	
Primary Actors	Manager	
Secondary Actors	None	
Precondition	Log in to the system	
Post condition		
Triggers		
Main flow	Step	Action
	1	User select room properties
	2	Display room management window
	3	User selects set room rates
	4	Display enter room rate
	5	User enter room rates
	6	Validate details
	7	Update database
	8	Display “successful” message
Extensions	4.1	If room rates set previously clear them and redirect to set room rates

10)

Use case Name	Add Property	
Goal	Add a new property to the system inventory	
Primary Actors	Manager	
Secondary Actors	None	
Precondition	Log in to the system	
Post condition		
Triggers		
Main flow	Step	Action
	1	User Select inventory section
	2	System displays inventory handling section
	3	User Select add property
	4	User enter product details
	5	Validate product details
	6	Update database
	7	Display successful message
Extensions	4.1	If data invalid display “Invalid selections” redirect to inventory section window

11)

Use case Name	View financial reports	
Goal	View a financial report for specific time	
Primary Actors	owner	
Secondary Actors	None	
Precondition	Log in to the system	
Post condition		
Triggers	owner clicks button “view reports”	
Main flow	Step	Action
	1	System prompts the owner to select two dates
	2	Enter dates
	3	System will display the revenue for that specific time
Extensions	2.1	If invalid details entered Display “unsuccessful” message and reenter interface.

12)

Use case Name	Delete Guest	
Goal	Delete a Guest	
Primary Actors	Receptionist	
Secondary Actors	None	
Precondition	Log in to the system	
Post condition	A new guest is added to the system	
Triggers	Receptionist clicks button “Delete guest”	
Main flow	Step	Action
	1	User interface displayed
	2	Select “delete Guest” option
	3	Enter guest details
	4	Valid guest details
	5	System display guest details
	6	System confirms deletion of selected guest
	7	Update database
Extensions	4.1	If invalid details entered Display “not found” message and redirect to main interface
	5.1	Database is not updated, Display the message "Unsuccessful"

13)

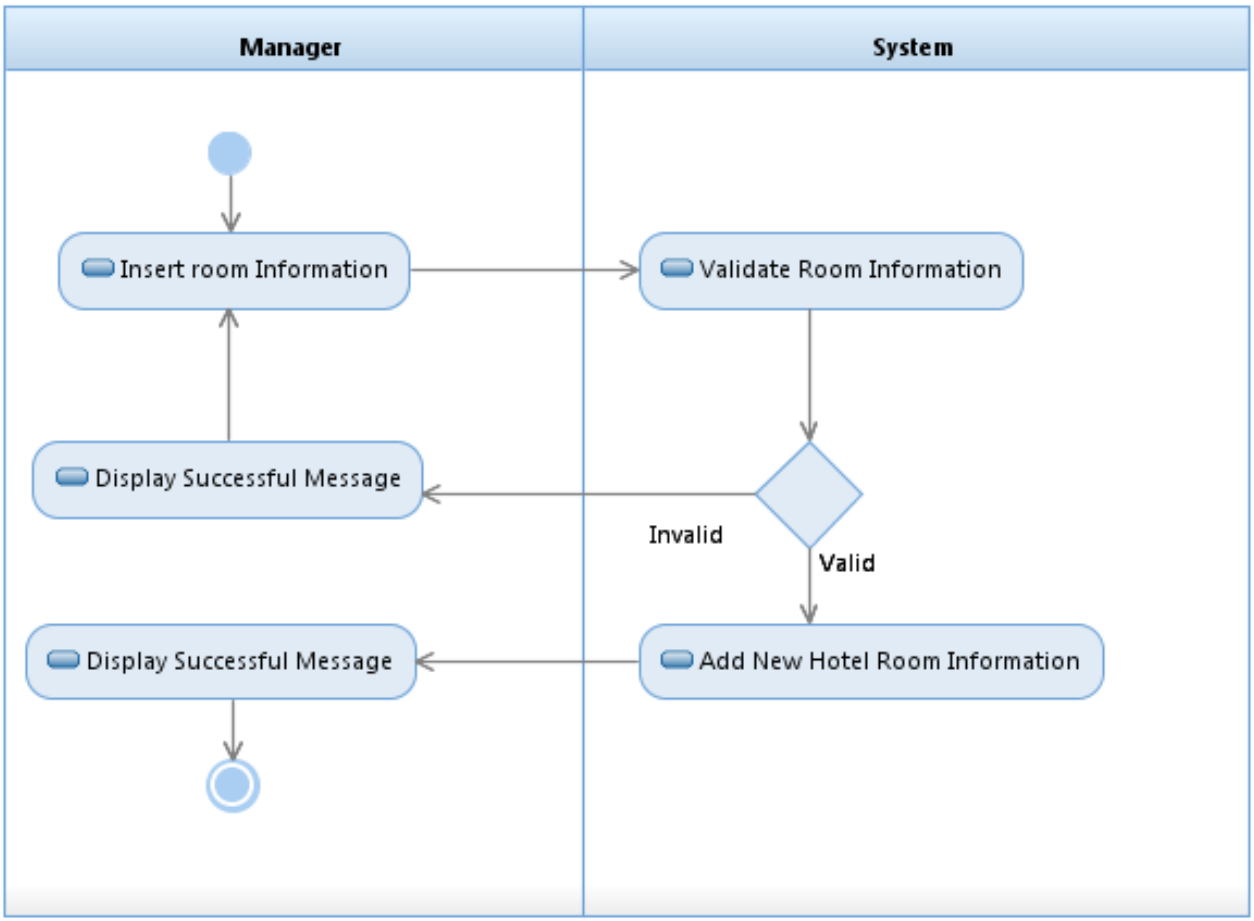
Use case Name	Change Guest information	
Goal	Alter properties such as telephone number or email of guest	
Primary Actors	Receptionist	
Secondary Actors	None	
Precondition	Log in to the system	
Post condition	Guest details edited	
Triggers	Receptionist clicks button “Edit guest”	
Main flow	Step	Action
	1	User interface displayed
	2	Select “Edit Guest” option
	3	Enter guest details
	4	Valid guest details
	5	System displays guest properties
	6	System alters the guest properties
	7	Update database
	8	Display “Successful” message
	9	Database updated
Extensions	4.1	If invalid details entered Display “unsuccessful” message and redirect to main interface
	5.1	Database is not updated, Display the message "Unsuccessful"

14)

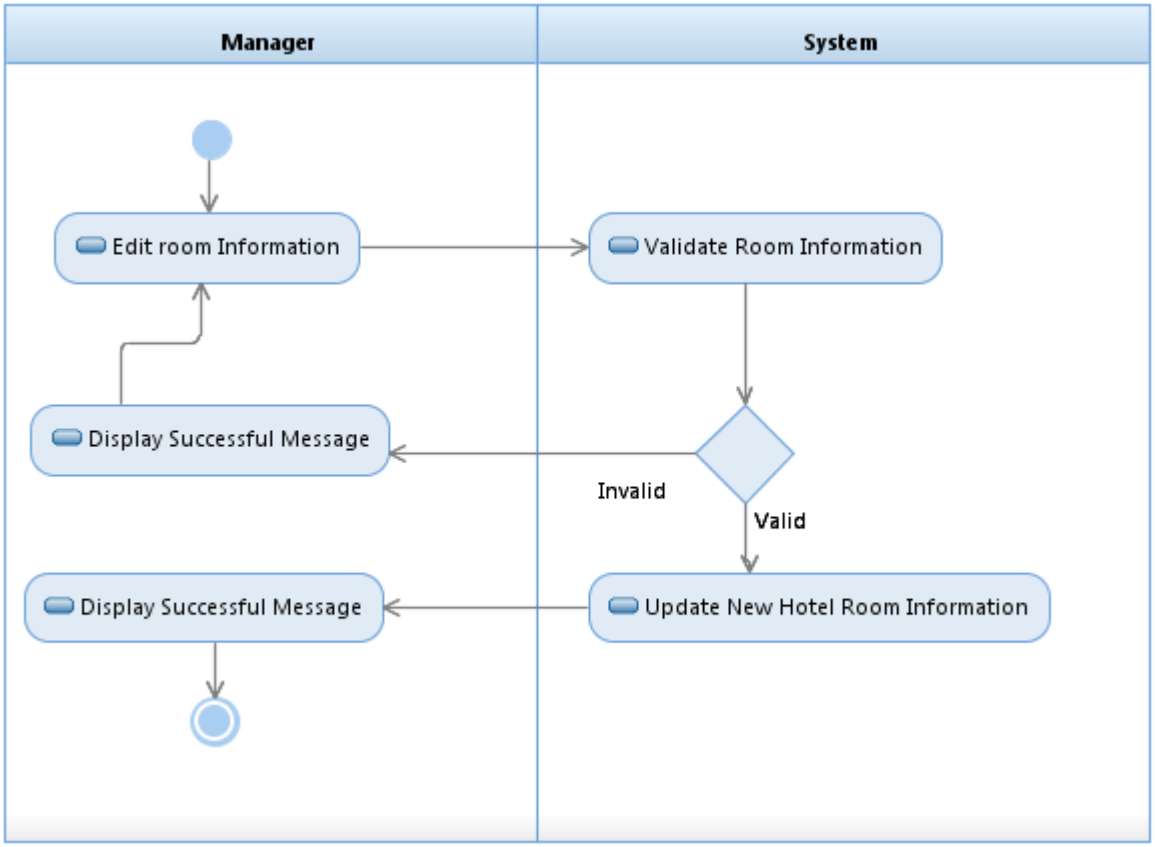
Use Case	Take Backup	
Goal	Take a backup of the system	
Primary Actor	Owner	
Secondary Actor	Name	
Pre-condition	User should login to the system	
Main Flow	Step	Action
	1	Display user interface
	2	Select backup option
	3	Display backup interface
	4	Select create backup option
	5	Create backup
	6	Creating backup process is not successful, display "Unsuccessful" message.

4.5 Activity Diagrams

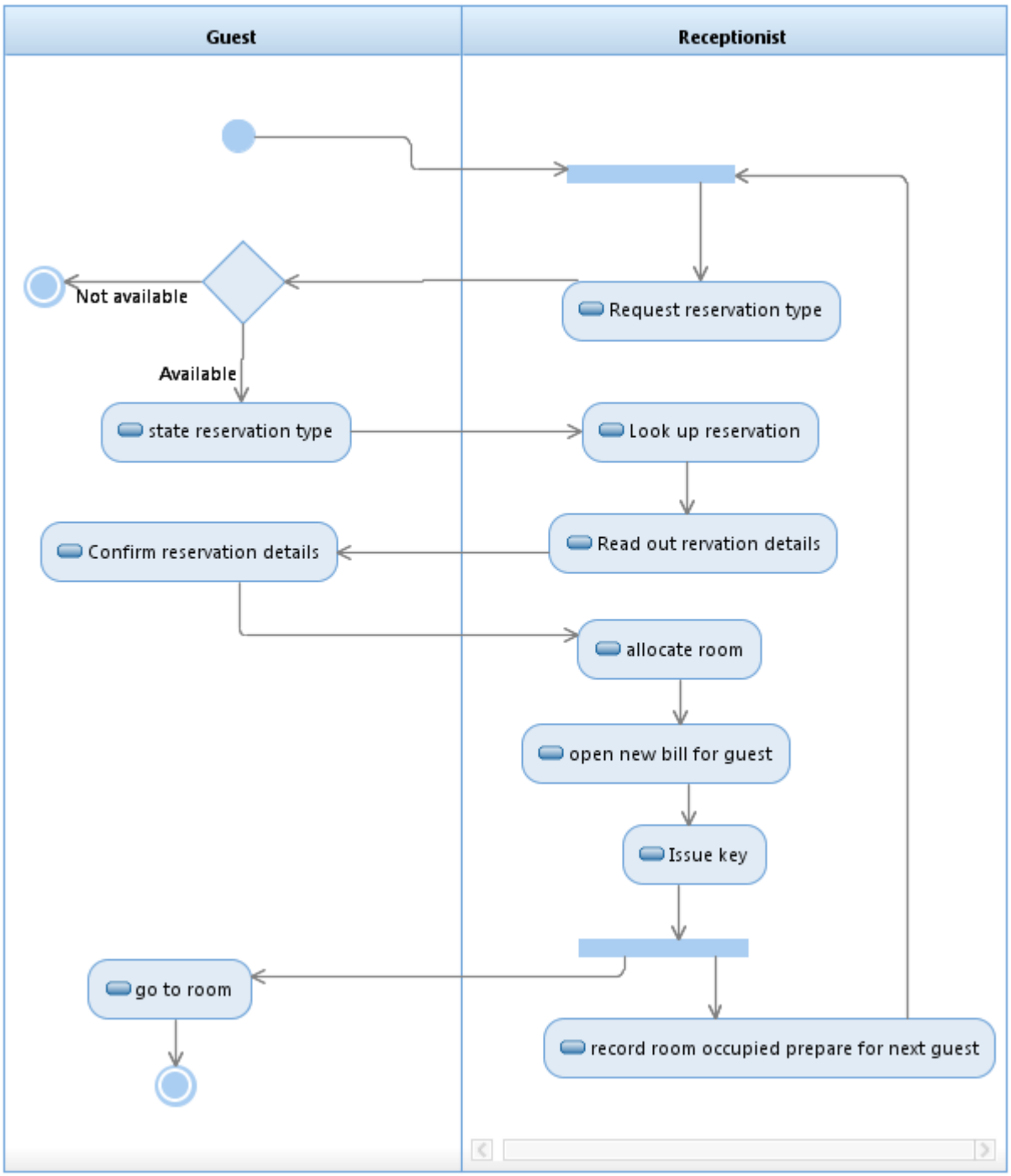
Add new Hotel Room



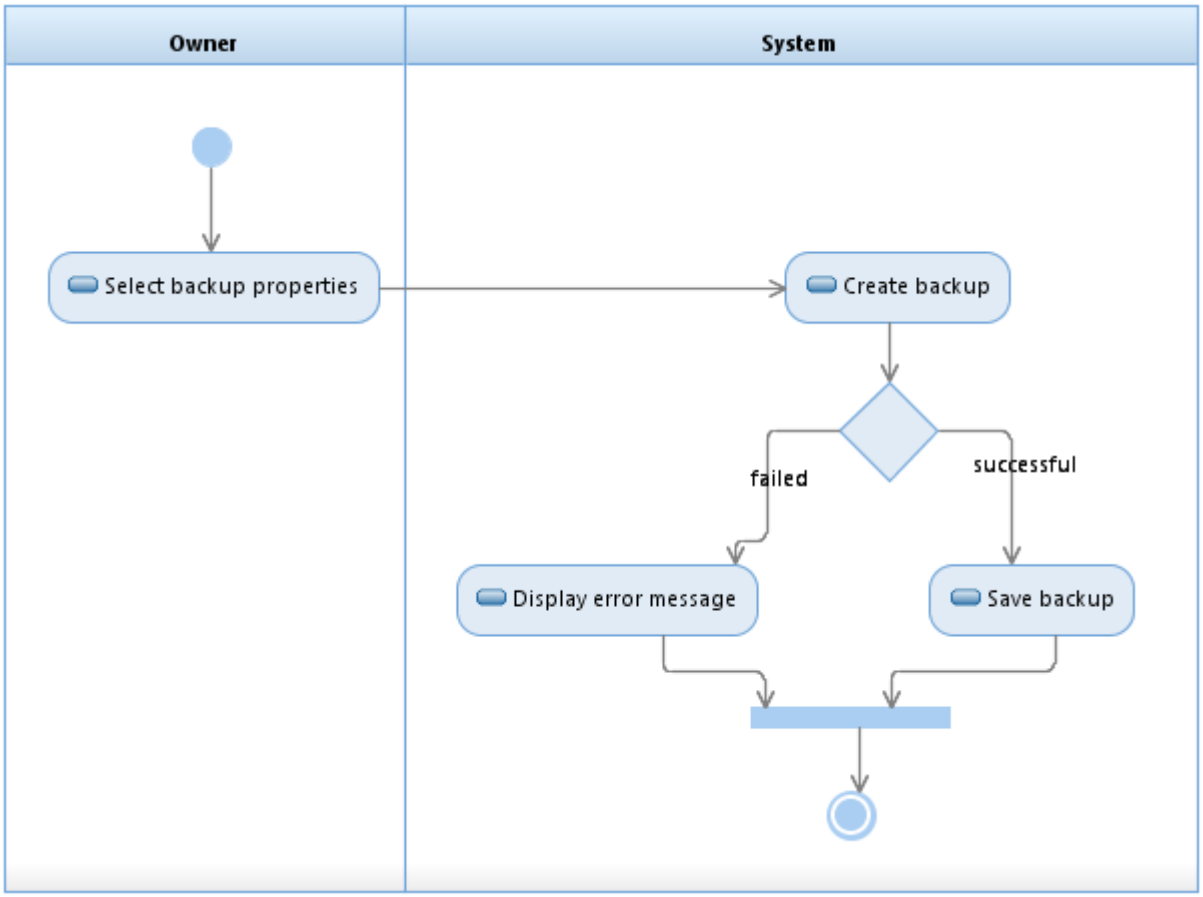
Edit Hotel Room



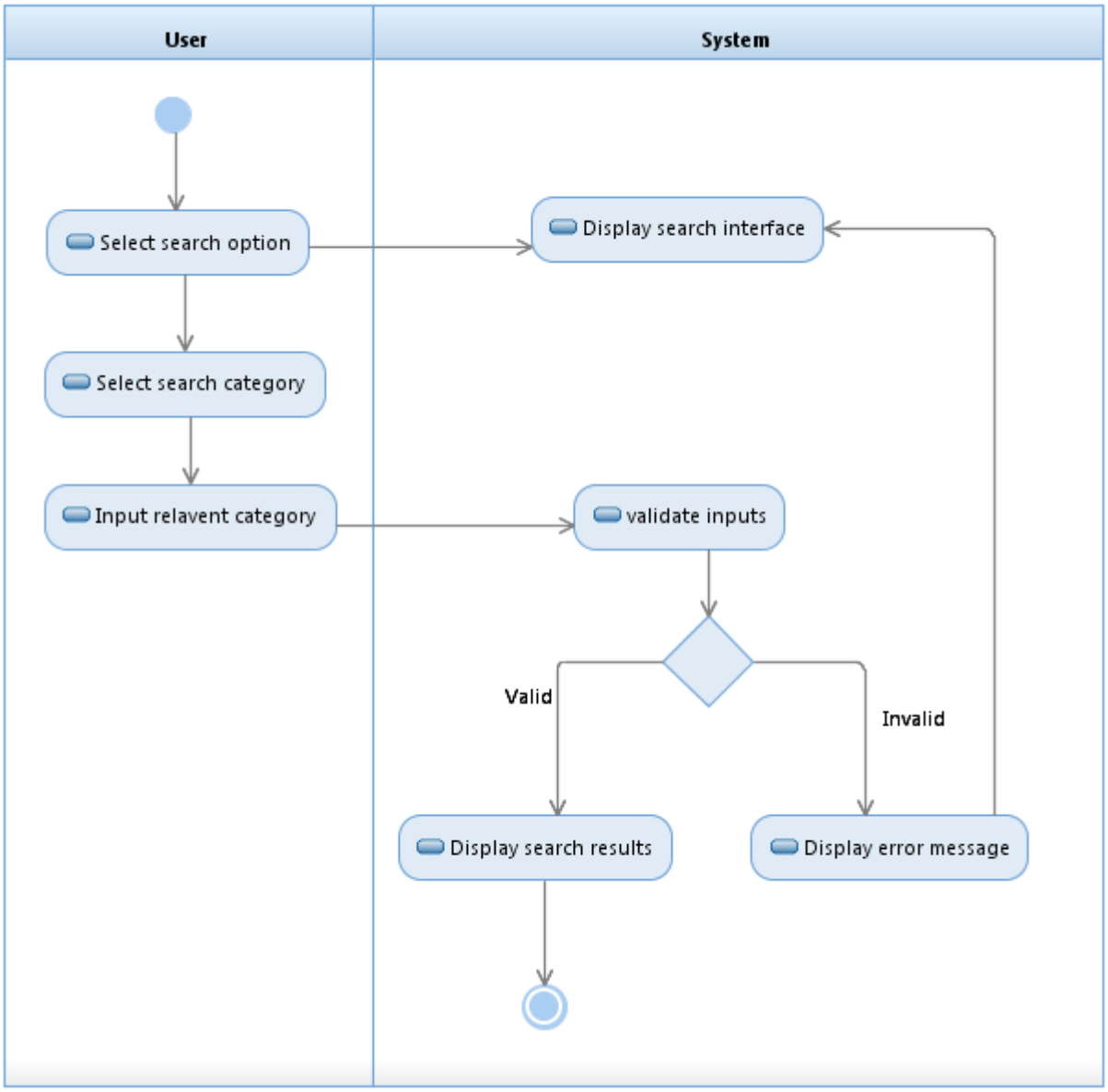
Make Reservation



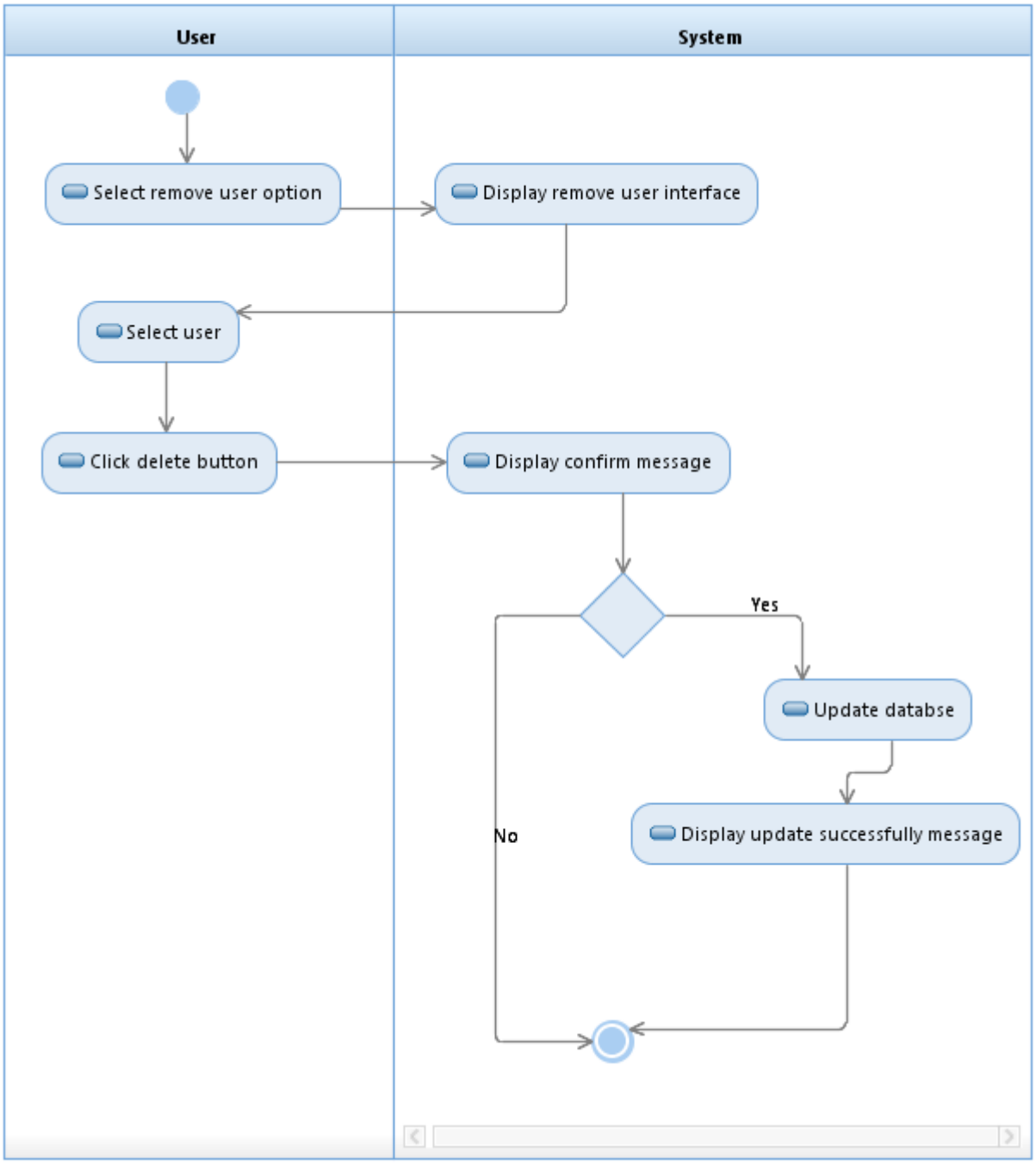
Take Backup


Owner
System
Select backup properties
Create backup
failed
successful
Display error message
Save backup

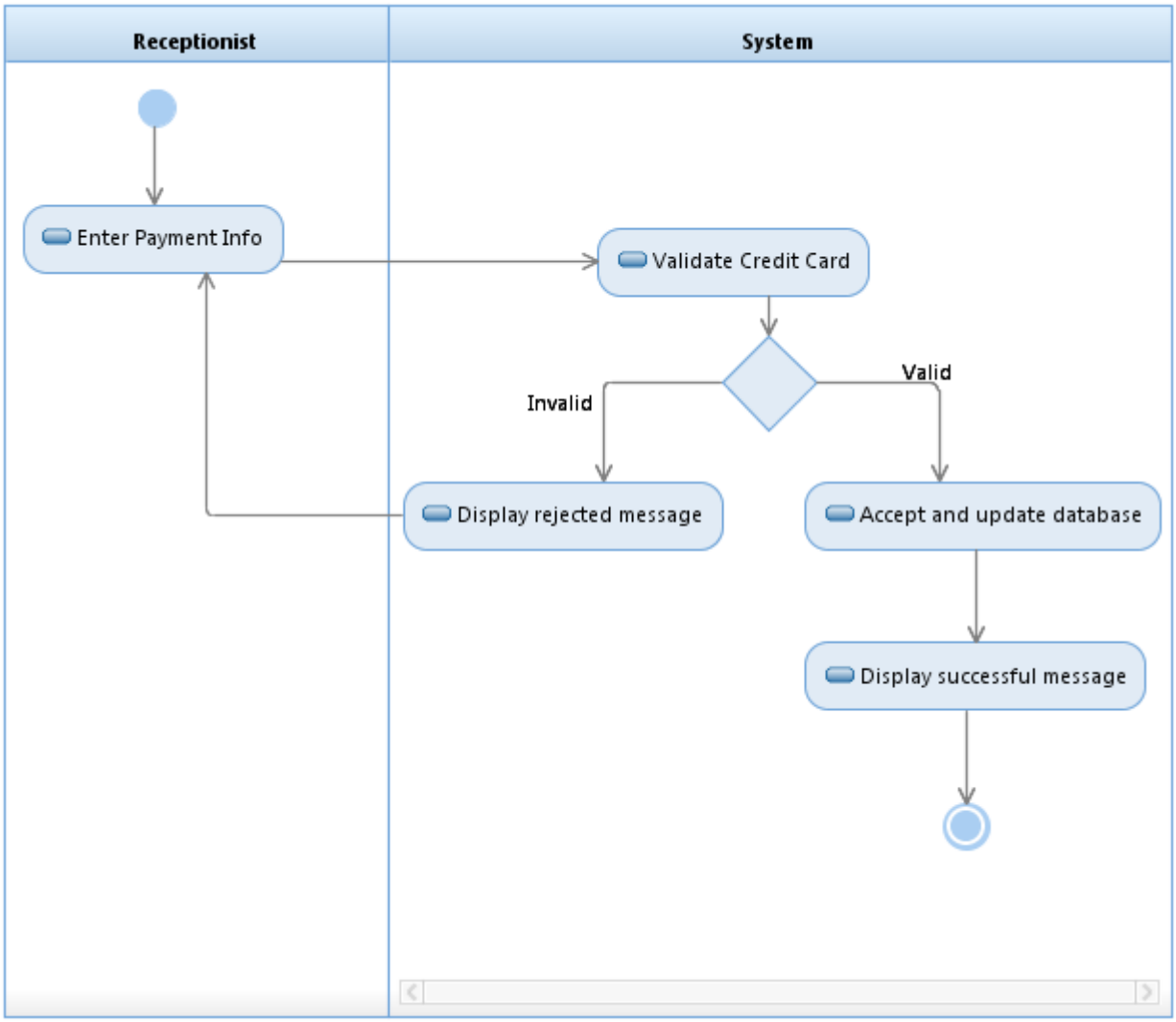
Search


User
System
Select search option
Display search interface
Select search category
Input relavent category
validate inputs
Valid
Invalid
Display search results
Display error message

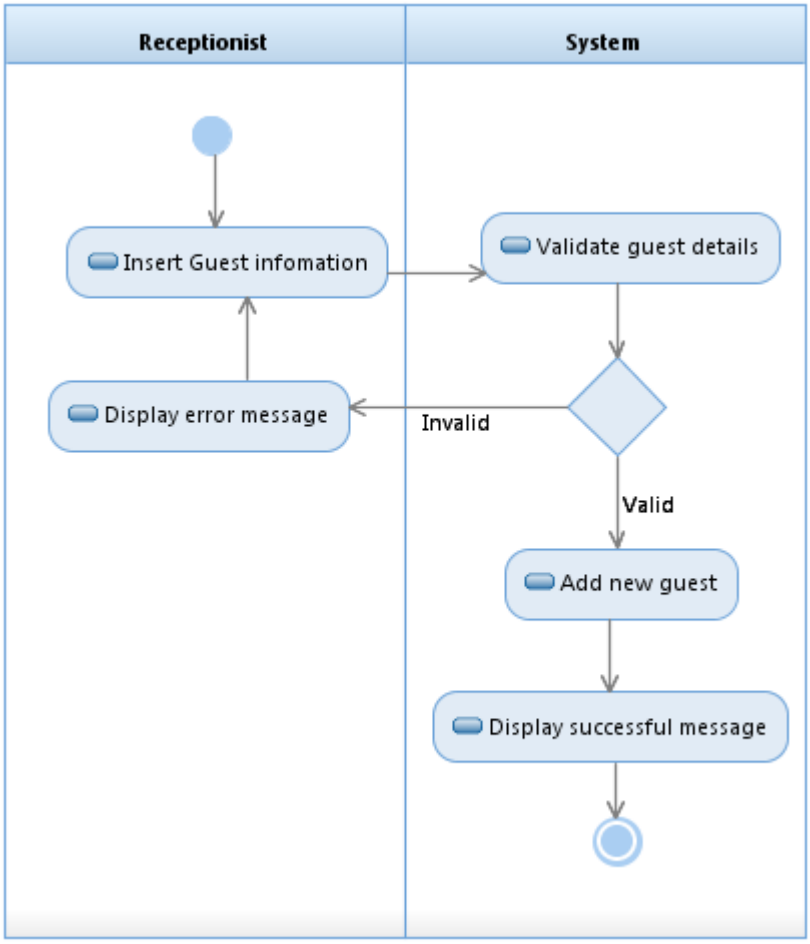
Delete a user



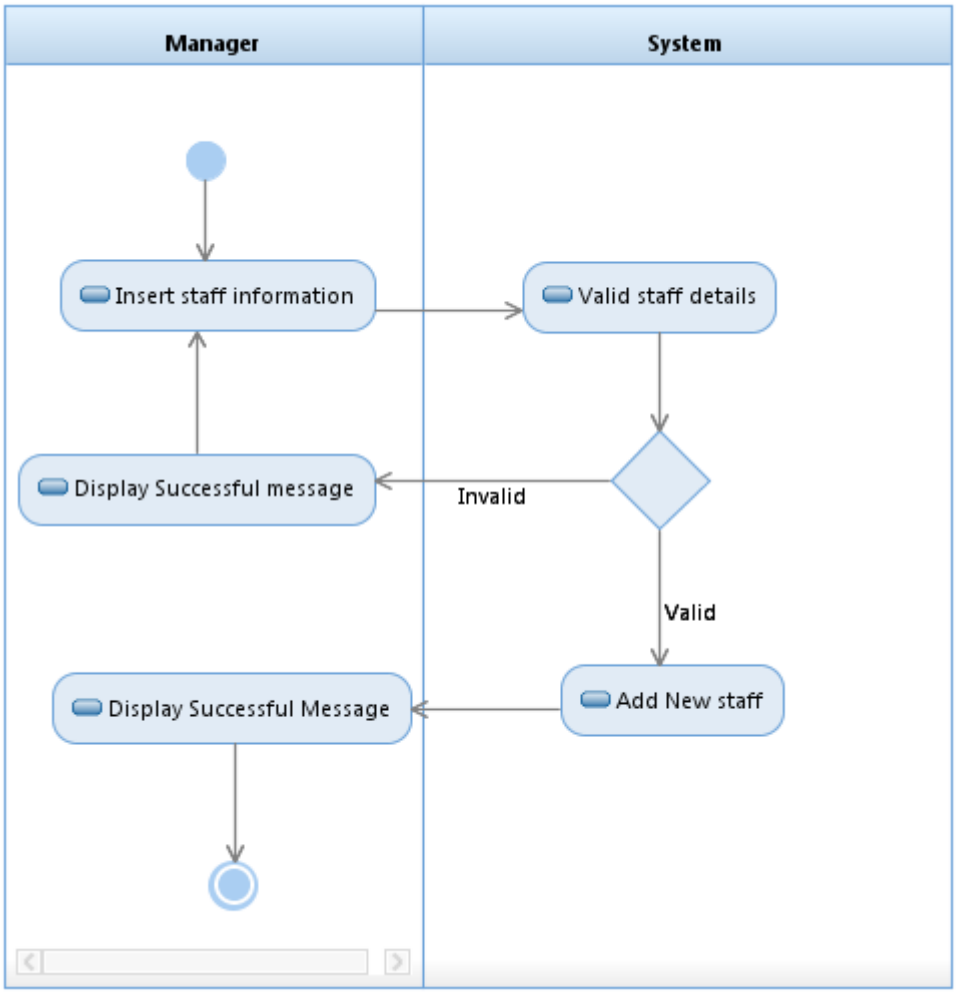
Add Payment



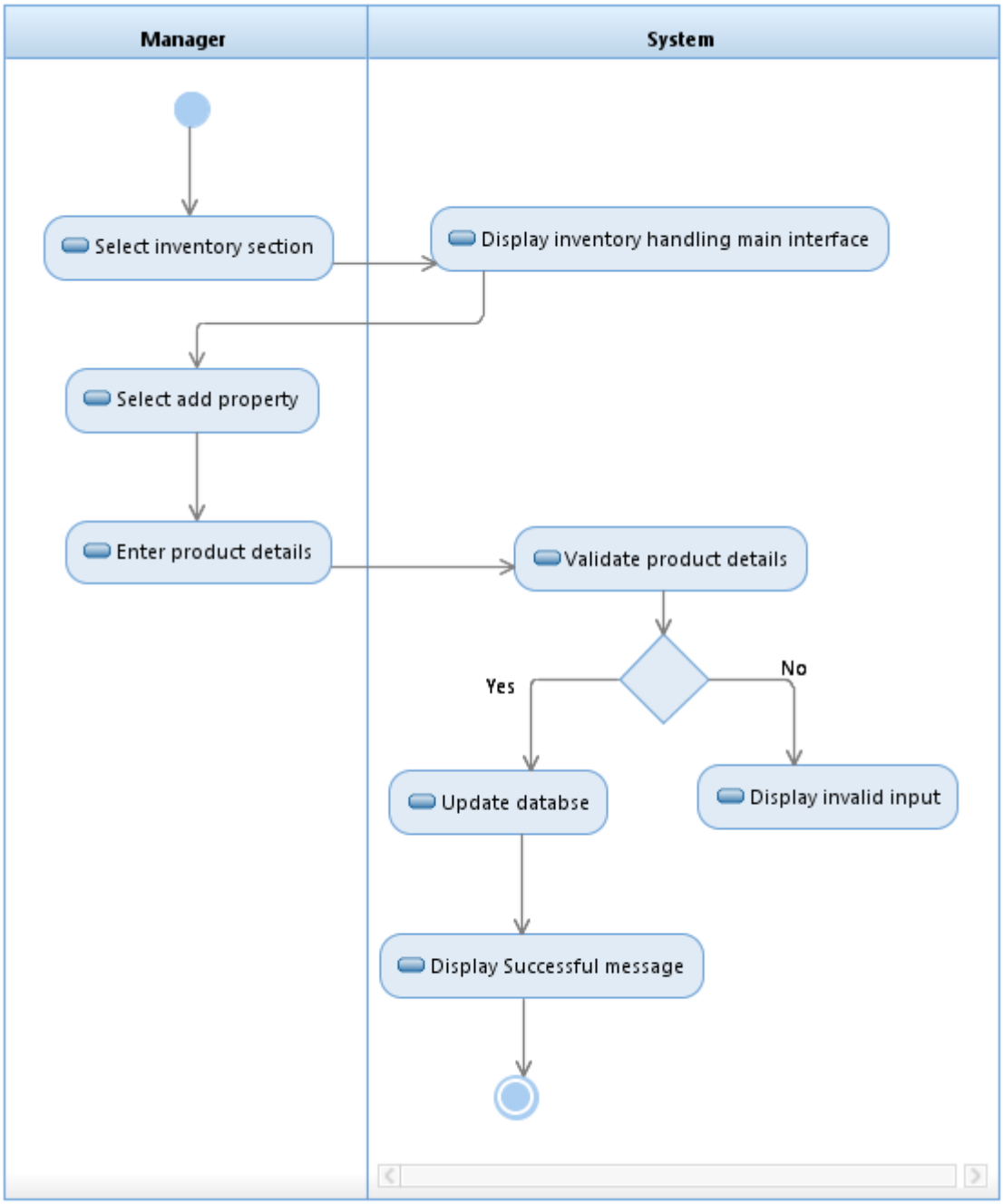
Add Guest


Receptionist
System
Insert Guest infomation
Validate guest details
Display error message
Invalid
Valid
Add new guest
Display successful message

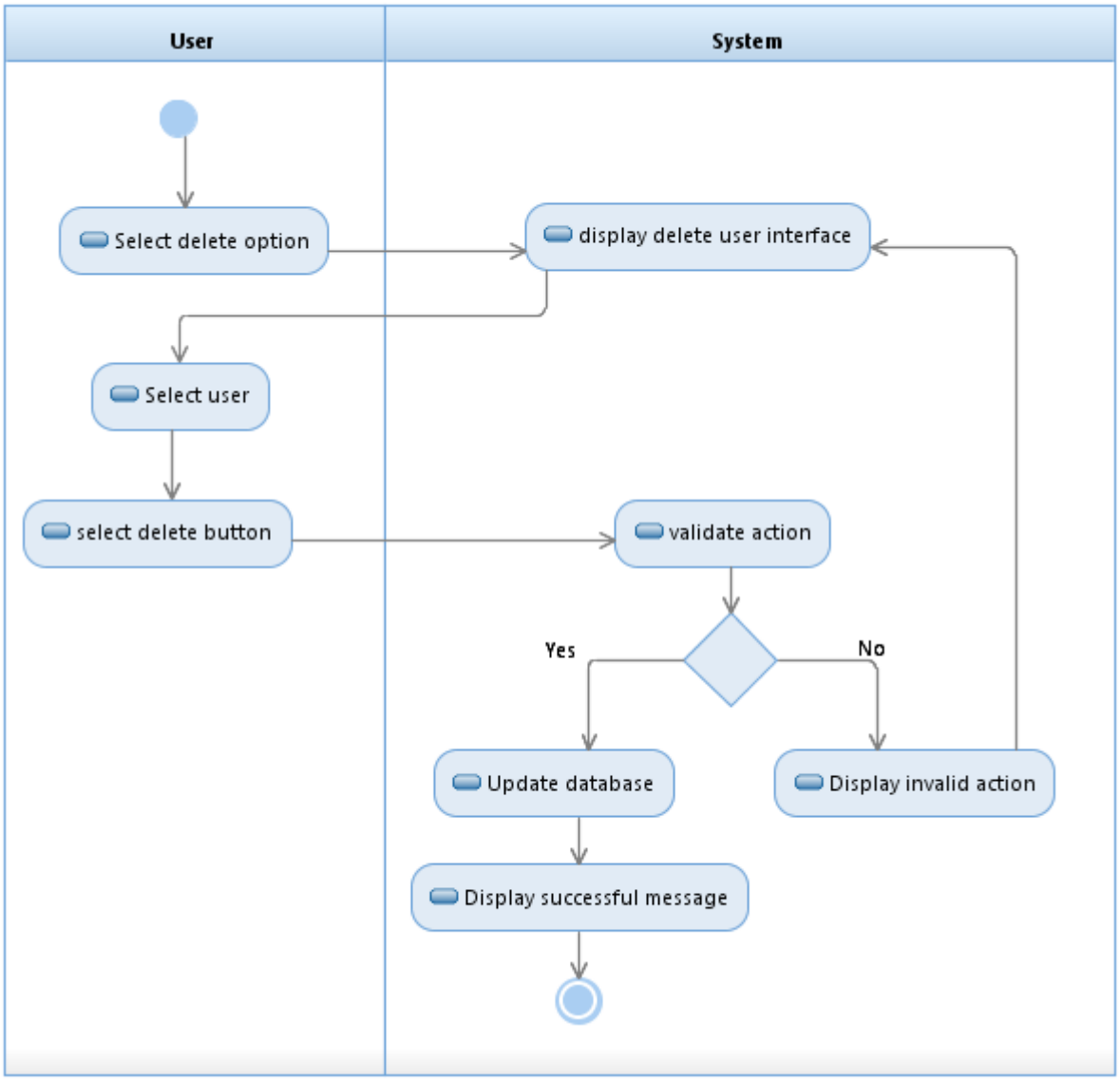
Add Staff


Manager
System
Insert staff information
Valid staff details
Display Successful message
Invalid
Valid
Display Successful Message
Add New staff

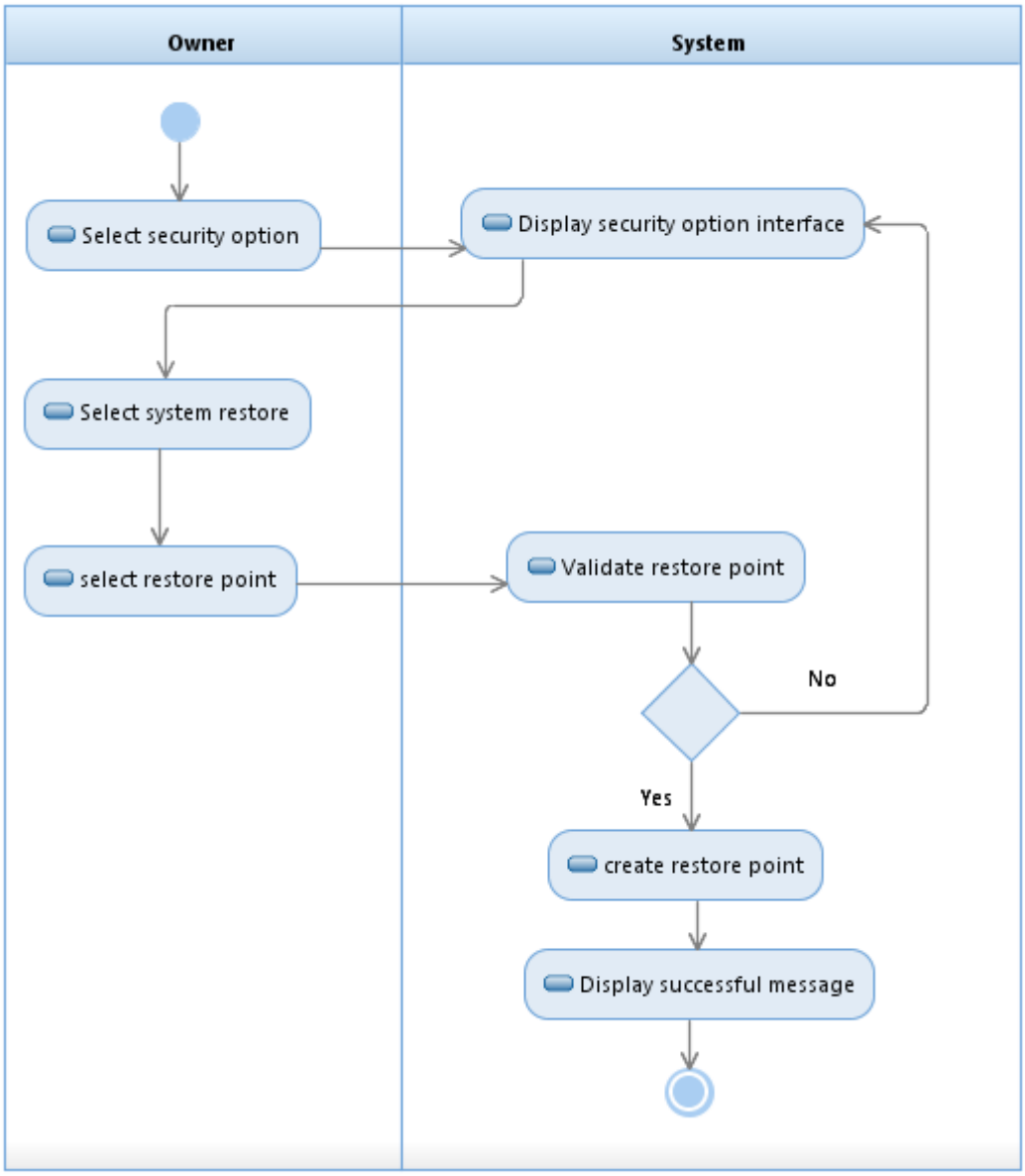
Add property



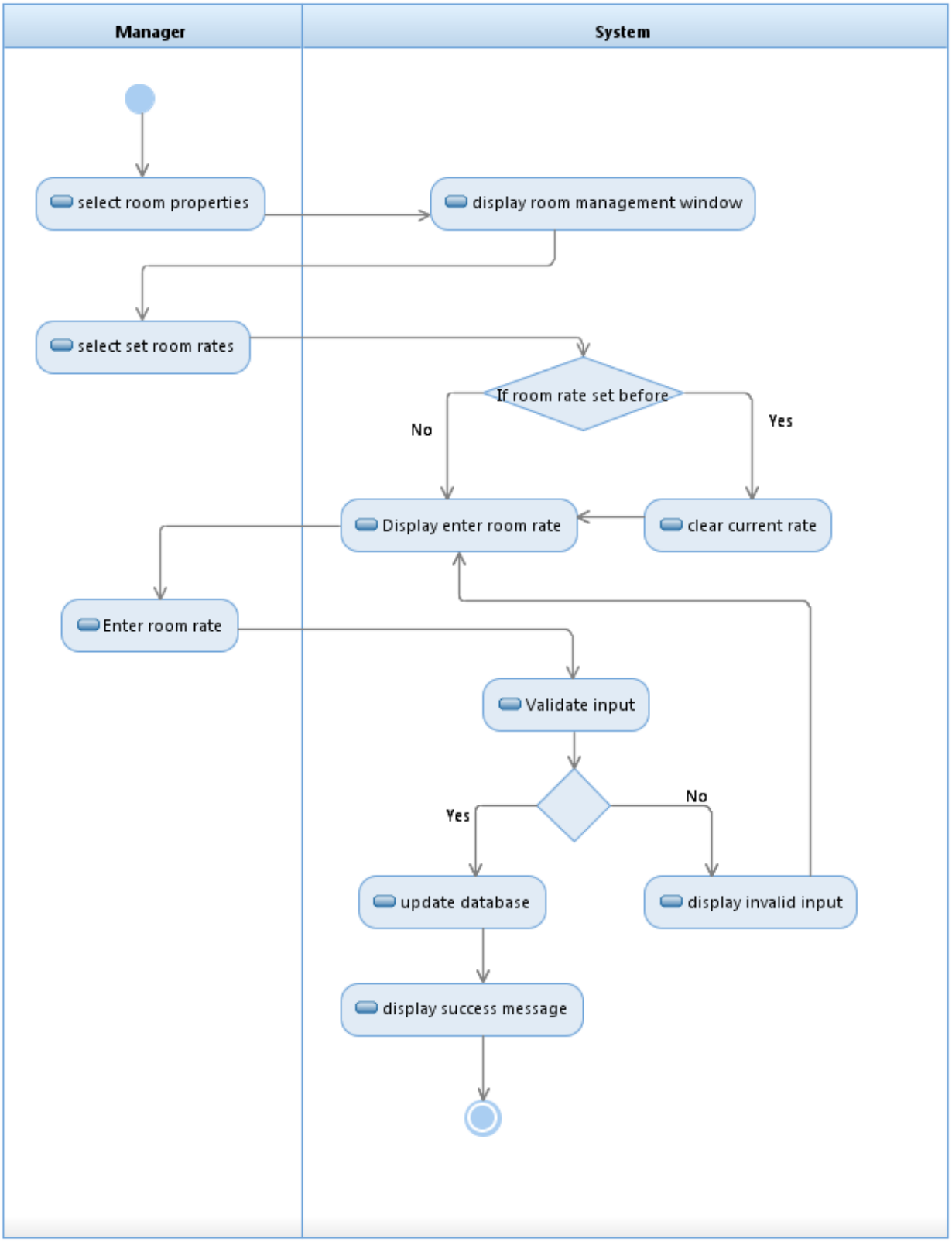
Delete user


User
System
Select delete option
display delete user interface
Select user
select delete button
validate action
Yes
No
Update database
Display invalid action
Display successful message

Create system restore point



Set room rate



2. Other Nonfunctional Requirements

2.2 Performance Requirements

Performance requirements define acceptable response times for system functionality. Although the system is developed suiting for the least system performances, the performance of the system will highly depend on the performance of the hardware and software components of the installing computer. When consider about the timing relationships of the system the load time for user interface screens shall take no longer than two seconds. It makes fast access to system functions. The log in information shall be verified within five seconds causes' efficiency of the system. Returning query results within five seconds makes search function more accurate.

2.3 Safety Requirements

There are several user levels in hotel management system, Access to the various subsystems will be protected by a user log in screen that requires a user name and password. This gives different views and accessible functions of user levels through the system. Maintaining backups ensure the system database security. System can be restoring in any case of emergency.

2.4 Security Requirements

Customer Service Representatives and Managers and owner will be able to log in to the Hotel Management System. Customer Service Representatives will have access to the Reservation/Booking and subsystems. Managers will have access to the Management subsystem as well as the Reservation/Booking subsystems. Owner has the maximum privilege to all subsystems. Access to the various subsystems will be protected by a user log in screen that requires a user name and password.

2.5 Software Quality Attributes

- Availability: - The system shall be available during normal hotel operating hours
- Correctness: - extent to which program satisfies specifications, fulfills user's mission objectives
- Efficiency: - How much less number of resources and time are required to achieve a particular task through the system.
- Flexibility: - Ability to add new features to the system and handle them conveniently.
- Integrity: - How the system would insecure the information in the system and how it avoids the data losses. Referential integrity in database tables and interfaces
- Maintainability: - How easy is to keep the system as it is and correct defects with making changes.
- Portability: - The Hotel Management System shall run in any Microsoft Windows environment
- Reliability: - Specify the factors required to establish the required reliability of the software system at time of delivery. Mean time between failures and mean time to recovery
- Reusability: - What is the ability to use the available components of the system in other systems as well.
- Testability: - Effort needed to test to ensure performs as intended
- Usability: - How easily a person can be taken the benefits of the system and the user friendliness.
- Robustness: – Strength of the system to handle system functions accurately and maintain the database without facing to unexpected failures
- Maintainability: – What design, coding standards must be adhered to exclusions created

2.Other Requirements

When the system is completely developed and submitted to the client, few sessions will be required to make the users of the system understand about the functionality of it and some time to adapt to the system. After those sessions, it's required that a member from the development team should spend sometime in the system background for an agreed time period. That time period will be used in identifying new bugs that could not be reached in the earlier phases of the development process.

Client should have a valid e-mail account in order to receive reservation e-mail notifications.