SOFTWARE REQUIREMENTS SPECIFICATION

**For**

**Hotel Reservation System**

**Prepared by:-**

*Abinaya M (22CS007)*

*Aishwarya R (22CS011)*

*Amirtha Swaathini A (22CS016)*

# Introduction

## Purpose

The main objective of this document is to illustrate the requirements of the project Hotel Reservation system.The document gives the detailed description of the both functional and non-functional requirements proposed by the client.The purpose of this project is to provide a friendly environment to maintain the details of hotels,rooms and customers.The main purpose of this project is to maintain an easy circulation system using computers and to provide different reports.This project describes the hardware and software interface requirements using ER diagrams and UML diagrams.

## Document Conventions

* + - Entire document should be justified.
    - Convention for Main title

Font face: Times New Roman Font style: Bold

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* + - Convention for Sub title

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Font Size: 12

* + - Convention for body

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## Scope of Development Project

Main aim of designing this project is to design a system that can manage and handle the activities that are involved in a hotel reservation in an organized, cost-effective, and reliable way. It will help the administration to do their work in a very simple manner without causing any trouble and Visitors or customers can reserve their room according to needs before they come to the hotel. Customers can use any electronic device like laptop, computers, smart phones, or tablet etc. to book and confirm their stay with the motel. Based on the limitations and shortcomings identified in the existing Hotel Room reservation system, the solutions have been provided for better management to the organization and ease of access to the customer. The project will have the ability to manage customer’s accounts where they can save their preferences and personal information. Customers will have many options to compare rates and services based on their requirements. Efficient searching, sorting, and filtering offered to the customer. Travelers or any other customer can book and secure their place to stay before or without visiting the hotel. Executives and business owners can easily manage the inventory and rates of their hotel rooms. With the new system business owners are capable of marketing their product. The system will be able to handle payment and transactions.

## Definitions, Acronyms and Abbreviations

JAVA -> platform independence

SQL-> Structured query Language

ER-> Entity Relationship

UML -> Unified Modeling Language

IDE-> Integrated Development Environment

SRS-> Software Requirement Specification

## References

* + - Books
* Software engineering books design patterns
* A Philosophy of software design by John Ousterhout
* Working effectively with legacy code by Michael C.Feathers
  + - Websites

[**https://www.academia.edu/**](https://www.academia.edu/)

[**https://www.geeksforgeeks.org/**](https://www.geeksforgeeks.org/)

# Overall Descriptions

## Product Perspective

Use Case Diagram of Hotel Reservation System

*searches*

1

1 *requests*

1

1

1..\*

\*

search\_book

1..\*

check\_limit

check\_availability

User 1

issue\_book

*request\_renew*

<<include>>

*monitors\_request*

1

*monitors\_renew* 1

1

*performs*

*give\_book*

<<include>>

0..\*

1..\*

renew\_book

verify\_member

<<include>>

*take\_book*

1

1 Librarian

Student

0..\*

1..\*

*adds\_new\_book*

*perform\_transaction\_updation*

Staff

\*

\*

return\_book

View\_logs

<<extend>>

add\_book

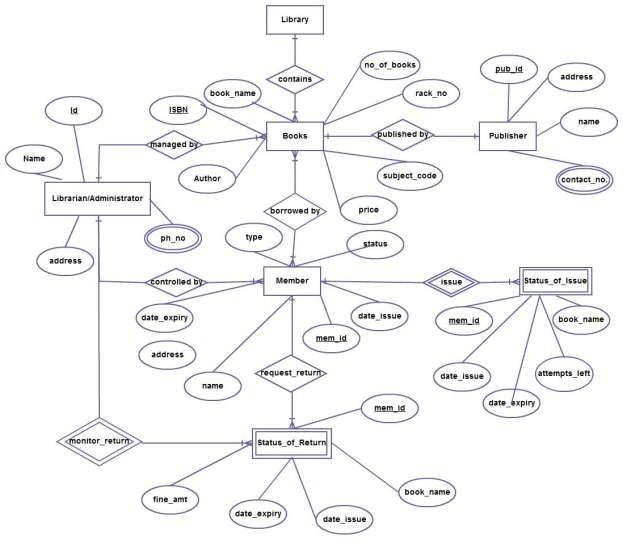
\*

calculate\_fine

update\_record

## Product Function

Entity Relationship Diagram of Hotel Reservation System



## User Classes and Characteristics

## The system provides different types of services based on the type of users [Admin/Customer]. The manager will be acting as the controller and he will have all the privileges of an administrator. The customer will be from the public who will be accessing the hotel online.

The features that are available to the Admin are:-

* + - Admin can access the data of the website.
    - Can view the different categories of rooms available in the hotel.
    - Can view the list of rooms available in each category.
    - Add rooms and their information to the database.
    - Edit the status of existing rooms.
    - Can check the report of the available rooms.
    - Can check the report of the booked rooms.
    - Can access all the accounts of the customers.
    - Can check the room cancellations by the customer.

The features that are available to the Members are:-

* + - Can log in/log out.
    - Can own an account on the website.
    - Can view the different categories of rooms available in the Hotel.
    - Can view the list of rooms available in each category.
    - Can book rooms online using their electronic devices.
    - Can make payments for their booking online.
    - Can cancel their bookings.

## Operating Environment

The product will be operating in a windows environment.The Hotel Reservation System is a website and shall operate in all famous browsers, for a model we are taking Microsoft Internet Explorer,Google Chrome,and Mozilla Firefox.Also it will be compatible with IE 6.0.0.The only requirement to use this online product would be the internet connection.The hardware configuration includes Hard Disk: 40 GB, Monitor: 15” Color monitor, Keyboard:122 keys.The basic input devices required are keyboard, mouse and output devices are monitor, printer etc.

## Assumptions and Dependencies

The assumptions are:-

* + - The coding should be error free.
    - The system should be user-friendly so that it is easy to use for the customers.
    - The information of all customers , rooms and hotels must be stored in a database that is accessible by the website.
    - The system should have more storage capacity and provide fast access to the database.
    - The system should provide search facility and support quick transactions.
    - The Reservation System is running 24 hours a day
    - Customers may access from any computer that has Internet browsing capabilities and an Internet connection
    - Customers must have their correct usernames and passwords to enter into their online accounts and do actions

The dependencies are:-

* + - The specific hardware and software due to which the product will be run.
    - On the basis of listing requirements and specification the project will be developed and run.
    - The end users (admin) should have proper understanding of the product.
    - The system should have the general report stored.
    - The information of all the customers must be stored in a database that is accessible by the Hotel Reservation system.
    - Any update regarding the room from the hotel is to be recorded to the database and the data entered should be correct.

## Requirement

Software Configuration:-

This software package is developed using java as front end system. Microsoft SQL Server as the back end to store the database.

Operating System: Windows NT, windows 98, Windows XP Language: Java Runtime Environment, Net beans 7.0.1 (front end) Database: MS SQL Server (back end)

Hardware Configuration:-

Processor: Pentium(R)Dual-core CPU

Hard Disk: 40GB

RAM: 256 MB or more

## Data Requirement

The inputs consist of the query to the database and the output consists of the solutions for the query. The output also includes the customer receiving the details of their accounts. In this project the inputs will be the queries as fired by the customers like creating an account,booking rooms and putting into account. Now the output will be visible when the customer requests the server to get details of their account in the form of time, date and rooms are currently available.

# External Interface Requirement

## GUI

The software provides a good graphical interface for the customer and the administrator can operate on the system, performing the required task such as create, update, and view the details of the room.

* + - It allows customers to view quick reports like room booked/canceled in between particular times.
    - It provides room availability and search facility based on different criteria.
    - The user interface must be customizable by the administrator.
    - All the modules provided with the software must fit into this graphical user interface and accomplish to the standard defined
    - The design should be simple and all the different interfaces should follow a standard template
    - The user interface should be able to interact with the user management module and a part of the interface must be dedicated to the login/logout module

Login Interface:-

In case the customer is not yet registered,he can enter the details and register to create his account. Once his account is created he can ‘Login’ which asks the user to type his username and password.If the user entered either his username or password incorrectly then an error message appears.

Search:-

The admin or customer can enter the type of room he is looking for and the type he is interested in,then he can search for the required room by entering the room name.

Categories View:-

Categories view shows the categories of rooms available and provides ability to the admin to add/edit or delete category from the list.

Admin’s Control Panel:-

This control panel will allow admin to add/remove users; add, edit, or remove a resource. And manage lending options.

# System Features

* The system allows customers to create accounts and authenticate themselves to access personalized features and make reservations.
* A customer's search for available rooms can be tailored to their preferred dates, location, kind of lodging, and additional criteria.
* Customers can access,edit,or cancel their reservations via the system. It sends out booking vouchers or emails of confirmation with the reservation information.
* The chosen accommodation, length of stay, and any extra services are taken into account by the system when determining the overall cost of the reservation.Various payment methods are available for users to make secure online payments.

# Other Non-functional Requirements

## Performance Requirement

A hotel reservation system project must meet certain performance requirements to ensure smooth and efficient operation. First, the system should be able to handle a large number of concurrent users without significant performance degradation.This means that even during peak times such as holidays or special events, the system should be able to handle a large number of users simultaneously without slowing down or crashing.In addition, system response time should be minimal, ensuring that users can quickly search for room availability, make reservations and complete other tasks without frustrating delays. The system must also have an effective database management system that ensures fast retrieval and storage of information, which enables quick access to customer information, room availability and reservation information. In addition, the system must be scalable, which allows for future growth and accommodates an increasing number of hotels, rooms and users.By meeting these performance requirements, a hotel reservation system can provide a smooth and satisfying user experience while managing reservations and reservations efficiently.

## Safety Requirement

## The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup so that the database is not lost. Proper UPS/inverter facility should be there in case of power supply failure.

## Security Requirement

* + - The system should have secure mechanisms to authenticate users and ensure that only authorized persons have access to sensitive information and operations.
    - Sensitive data such as customer data, payment data and backup data must be encrypted both during transmission and storage to protect against unauthorized access.
    - The system must adhere to industry standards and best practices for secure payment processing, including encryption of payment information. , Payment Card Industry Information Security Standard (PCI DSS) compliance and integration with trusted payment gateways.
    - Regular data backups and robust disaster recovery must be in place to ensure data availability and integrity in the event of system failures, natural disasters or other unforeseen events.

## Requirement attributes

* + - There may be multiple admins creating the project, all of them will have the right to create changes to the system. But the members or other users cannot do changes
    - The project should be open source
    - The Quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database
    - The user be able to easily download and install the system

## Business Rules

A business rule is anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision, or infer new data from existing data.This includes the rules and regulations that the System users should abide by. This includes the cost of the project and the discount offers provided.The users should avoid illegal rules and protocols. Neither admits nor customers should cross the rules and regulations.

## User Requirement

The users of the system are customers and managers of the hotels who act as administrator to maintain the system. The customers are assumed to have basic knowledge of computers and internet browsing. The admins of the system should have more knowledge of the internals of the system and are able to rectify the small problems that may arise due to power failures and other catastrophes to maintain the system. The proper user interface, user manual, online help and the guide to install and maintain the system must be sufficient to educate the customers on how to use the system without any problems.

The admin provides certain facilities to the customers in the form of:-

* + - **User Friendly Interface:** The system should have an intuitive and easy-to-use interface that allows users to search for hotels,view available rooms, and make reservations without any confusion.
    - **Search Functionality:**Users should be able to search for hotels based on various criteria such as location, dates, price range, amenities, and room types.
    - **Detailed Hotel Information:**Users should be able to access detailed information about each hotel, including descriptions, photos, amenities, and customer reviews.
    - **Secure Payment Options:**The system should offer secure payment options, allowing users to make reservations and complete transactions with confidence.
    - **Reservation Management:**Users should have the ability to view, modify, or cancel their reservations easily through the system.

## Data and Category Requirement

There are different categories of customers namely Hotel Information,User Information, Reservation Dates, Pricing and Discounts, Reporting etc. Depending upon the category of customer the access rights are decided.It means if the customer is an administrator then he can be able to modify the data,delete, append etc. All other customers except the Admins only have the rights to retrieve the information about the database.These data and category requirements are crucial for the effective functioning of a hotel reservation system. However, the specific requirements may vary depending on the scale and complexity of the system.

## Appendix

A: Admin, Abbreviation, Acronym, Assumptions; B: Books, Business rules; C: Class, Client, Conventions; D: Data requirement, Dependencies; G: GUI; K: Key; M: Member; N: Non-functional Requirement; O: Operating environment; P: Performance,Perspective,Purpose; R: Requirement, Requirement attributes; S: Safety, Scope, Security, System features; U: User, User class and characteristics, User requirement;

## Glossary

The following are the list of conventions and acronyms used in this document and the project as well:

* + - Hotel Reservation System: A software application or platform that allows users to search, book, and manage hotel reservations.
    - Availability: Refers to the number of rooms or accommodations that are currently open and can be booked for a specific date or time period.
    - Room Types: Different categories or types of rooms available in a hotel, such as standard rooms, suites, deluxe rooms, etc.
    - Check-in: The process of arriving at the hotel and officially starting the stay. During check-in, guests provide their personal information and receive room keys or access cards.
    - Check-out: The process of leaving the hotel and ending the stay. Guests settle any outstanding bills and return room keys or access cards.
    - Reservation: A booking made by a guest to secure a room or accomodation for a specific date or time period.
    - Confirmation:A notification or document provided to the guest after a successful reservation, confirming the details of the booking.
    - Cancellation: The act of canceling a previously made reservation. This may involve a cancellation fee depending on the hotel's policy.
    - Occupancy: The number of guests staying in a room or accommodation.
    - Rate/Price:The cost associated with booking a room or accommodation for a specific date or time period.
    - Online Booking: The process of making a reservation through a hotel's website or online booking platform.
    - Room Inventory:The total number of rooms available in a hotel for a specific date or time period.
    - Overbooking:When a hotel accepts more reservations than the available number of rooms, which may result in relocating guests or providing compensation.
    - Group Booking: A reservation made for a large group of people, such as a conference or tour group.
    - Revenue Management: The practice of optimizing room rates and availability to maximize hotel revenue.

These terms should provide a basic understanding of the key concepts and terminology used in a hotel reservation system.

## Class Diagram

A class is an abstract, user-defined description of a type of data. It identifies the attributes of the data and the operations that can be performed on instances (i.e. objects) of the data. A class of data has a name, a set of attributes that describes its characteristics, and a set of operations that can be performed on the objects of that class. The classes’ structure and their relationships to each other frozen in time represent the static model. In this project there are certain main classes which are related to other classes required for their working. There are different kinds of relationships between the classes as shown in the diagram like normal association, aggregation, and generalization. The relationships are depicted using a role name and multiplicities. Here ‘Librarian’, ‘Member’ and ‘Books’ are the most important classes which are related to other classes.

