**SOFTWARE REQUIREMENTS SPECIFICATION For**

**Hotel Reservation System**

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**1. Introduction**

**1.1 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 clientBy providing a user-friendly platform, it enables hotels to effortlessly manage room reservations, guest details, and billing processes. This system aims to optimize the overall guest experience by automating booking procedures, ensuring accurate room availability information, and facilitating smooth check-in and check-out processes. This project describes the hardware and software interface requirements using ER diagrams and UML diagrams.

**1.2 Document Conventions**

* Entire document should be justified.
* Convention for Main title
* Font face: Times New Roman
* Font style: Bold
* Font Size: 14
* Convention for Sub title
* Font face: Times New Roman
* Font style: Bold
* Font Size: 12
* Convention for body
* Font face: Times New Roman
* Font Size: 12

**1.3 Scope of Development Project**

The project aims to create a comprehensive hotel reservation system utilizing JavaFX, addressing the core functionalities of reservation management, room availability tracking, report generation, and integration with existing hotel systems. The system will prioritize user-friendliness, reliability, security, and performance, adhering to established software requirements specifications (SRS). Comprehensive testing will be conducted to guarantee the system's adherence to all specified requirements.

The project can be easily implemented under various situations. We can add new features as and when we require, making reusability possible as there is flexibility in all the modules. The language used for developing the project is Java as it is quite advantageous than other languages in terms of performance, tools available, cross platform compatibility, libraries, cost (freely available), and development process.

**1.4 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

**1.5 References**

* Websites:
* <https://www.siteminder.com/r/hotel-reservation-system/>
* <https://www.littlehotelier.com/blog/learn-about-tech/hotel-reservation-systems-work/>
* Books:
* Hotel Management Systems: A Comprehensive Guide by Richard Castle
* Building a Hotel Reservation System Using JavaFX by Jason Grigsby
* Hotel Reservation System: Implementing a Secure and Scalable Web Application by Arun Kumar

**2. Overall Descriptions**

**2.1 Product Perspective**

Use Case Diagram of Hotel Reservation System

**2.2 Product Function**

Entity Relationship Diagram of Hotel Reservation System

**2.3 User Classes and Characteristics**

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

The features that are available to the Admin are:-

* Can view and modify the different categories of rooms available in the Hotel
* Can view the List of rooms available in each category
* Can make record of the cancelled bookings from customers
* Add bookings and their information to the database
* Edit the information of existing bookings of rooms
* Can check the report of the existing bookings
* Can check the report of the issued bookings
* Can access all the reservations of the customers

The features that are available to the Customers are:-

* Can view the different categories of bookings available in the Hotel
* Can view the List of rooms available in each category
* Can own an account in the booking system.
* Can view the rooms issued to him
* Can put a request for a new room
* Can search for a particular book

**2.4 Operating Environment**

The product will be operating in 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 the IE 6.0. Most of the features will be compatible with the Mozilla Firefox & Opera 7.0 or higher version. The only requirement to use this online product would be the internet connection.

The hardware configuration include 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.

**2.5 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 users
* 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 Hotel Reservation System is running 24 hours a day

**2.6 Requirement**

Software Configuration:-

This software package is developed using java as front end which is supported by sun micro 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

**2.7 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 user receiving the details of their accounts. In this project the inputs will be the queries as fired by the users like create an account, booking rooms and making reservations. Now the output will be visible when the user requests the server to get details of their bookings in the form of time, date and which rooms are currently under reservation.

**3. External Interface Requirement**

**3.1 GUI**

The software provides good graphical interface for the user and the administrator can operate on the system, performing the required task such as booking rooms, updating room status, viewing the details of the booking.

Users can view quick reports such as room bookings and check-ins/check-outs within a specified time range using an interactive dashboard.

The application provides stock verification and search features, allowing hotel staff to manage room availability, view details, and search for specific rooms based on different criteria.

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All modules within the hotel management software adhere to a standard template, ensuring consistency in design and navigation.

The design of the graphical user interface is kept simple, prioritizing ease of use.

**Search Functionality:**

Users, including hotel staff, can search for specific room details by entering criteria such as room type or availability.

**Categories View:**

The Categories View allows hotel staff to manage and customize room categories. Librarians can add, edit, or delete categories from a list using a straightforward and visually appealing interface.

**4. System Features**

The users of the system should be provided the surety that their account is secure. This is possible by providing:-

* User authentication and validation of clients using their unique booking ID
* Proper monitoring by the administrator which includes updating the room status, showing a popup if the client attempts to make a reservation.
* Proper accountability which includes not allowing a client to see other client’s account.
* Only administrator will see and manage all reservations done

**5. Other Non-functional Requirements**

**5.1 Performance Requirement**

The proposed system that we are going to develop will be used as the Chief performance system within the different hotels which interacts with the hotel administration and clients. Therefore, it is expected that the database would perform functionally all the requirements that are specified by the hotel.

* The performance of the system should be fast and accurate
* Hotel Reservation System shall handle expected and non-expected errors in ways that prevent loss in information and long downtime period. Thus it should have inbuilt error testing to identify invalid username/password
* The system should be able to handle large amount of data. Thus it should accommodate high number of reservations and clients without any fault

**5.2 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.

**5.3 Security Requirement**

* System will use secured database
* Normal users can just read information but they cannot edit or modify anything except their personal and some other information.
* System will have different types of users and every user has access constraints Proper user authentication should be provided
* No one should be able to hack users’ password
* There should be separate accounts for admin and members such that no member can access the database and only admin has the rights to update the database.

**5.4 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

**5.5 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 admin nor member should cross the rules and regulations.

**5.6 User Requirement**

The users of the system are clients and Administrators of the hotel to maintain the system. The clients are assumed to have basic knowledge of the computers and internet browsing. The administrators of the system should have more knowledge of the internals of the system and is able to rectify the small problems that may arise due to disk crashes, 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 users on how to use the system without any problems

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

* Backup and Recovery
* Forgot Password
* Data migration i.e. whenever client makes registration for the first time then the data is stored in the server
* Data replication i.e. if the data is lost in one branch, it is still stored with the server
* Auto Recovery i.e. frequently auto saving the information
* Maintaining files i.e. File Organization
* The server must be maintained regularly and it has to be updated from time to time

**6. Other Requirements**

**6.1 Data and Category Requirement**

There are different categories of users namely administrator and customer. Depending upon the category of user the access rights are decided.It means if the user is an administrator then he can be able to modify the data,delete, append etc. All other users except the administrator only have the rights to retrieve the information about database and make a reservation. Similarly there will be different categories of rooms available. According to the categories of rooms their relevant data should be displayed. The categories and the data related to each category should be coded in the particular format.

**6.2 Appendix**

A: Admin, Administrator, Abbreviation, Acronym, Assumptions; B: Bookings, Business rules; C: Class, Client, Customer, 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;

**6.3 Glossary**

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

* Administrator: A login id representing a user with user administration privileges to the software
* User: A general login id assigned to most users
* Client: Intended users for the software
* SQL: Structured Query Language; used to retrieve information from a database
* SQL Server: A server used to store data in an organized format
* Layer: Represents a section of the project
* User Interface Layer: The section of the assignment referring to what the user interacts with directly
* Application Logic Layer: The section of the assignment referring to the Web Server. This is where all computations are completed
* Data Storage Layer: The section of the assignment referring to where all data is recorded
* Use Case: A broad level diagram of the project showing a basic overview
* Class diagram: It is a type of static structure diagram that describes the structure of a system by showing the system’s cases, their attributes, and the relationships between the classes
* Interface: Something used to communicate across different mediums
* Unique Key: Used to differentiate entries in a database

**6.4 Class Diagram**