

Hotel Management System

Subject: Software Engineering (CSE 305)

→ Group -4

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Title: Hotel Management System

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Declaration And Approval:

We, students from SRM-AP college, Amaravathi hereby declare that the project work report entitled "Hotel Management System" has been submitted to our project organizer.

It is a record of original work done by our group, we also declare that this project Report is of our own effort and it has not been submitted to any other university for the award of any degree.

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1. Introduction:

In today's dynamic world, hotel management has gone deep into departments such as catering, airlines, clubs, and tourism, making it an attractive career choice. Through the Hotel Management system, the customers can book the rooms and services of the hotel online. It allows for easy management of customer information and facilitates communication between the hotel and customers.

The project, Hotel Management System is a web-based application that allows the hotel manager to handle all hotel activities online. This website has been built as a full-stack web application. This is a user-friendly application and the ability to manage various hotel bookings and rooms make this system very flexible and convenient. This web application has the flexibility to manage the entire system from a single online system.

An effective hotel management project includes features for booking hotel rooms, managing staff, and more. Using the system, the manager can advertise available rooms. So the Online booking and viewing of rooms are available to customers. Admins have the power to approve or reject a customer's reservation request. Besides the hotel services, other hotel services can also be viewed and booked by customers. Therefore, both hotel managers and customers can use the system to conveniently manage hotel activities.

1.1 Purpose:

Let's take a step back and make sure we fully understand the main aim of developing a hotel management system. Planning hotel management projects has the main objective of turning down management efforts in hotels. There is no difficulty in finding and using the required software and hardware.

The purpose of the hotel booking system is to automate the existing manual process by utilizing computerized equipment and

fully-featured computer programs, thus enabling customers' valuable information as well as their valuables to be stored for a longer period and easily accessed. Thus, the hotel manager will be able to maintain further activities, time to time check about works and bookings and customers will be able to plan their stay accordingly by looking at and booking online rooms.

1.2 Scope:

Hotel management and administration are made easier with this application. Detailed information about an unlimited number of customers can be kept. This makes the booking considerably faster and reduces a great deal of manual work. Users can track at all times which rooms are available for occupancy. The system also helps the hotel to better manage their rooms and reduces a lot of paperwork.

Hotel management software assists in managing a hotel more efficiently with tools like booking or reserving rooms, reserving as well as canceling the room, ordering room service, making reservations at the restaurant, viewing menus of recipes, etc. Software like this makes it easier for the administrator to understand customer details so that they can satisfy customer requirements, as well as maintain user data according to these details. The admin can update the menu of recipes available, the rooms availability, and the services provided from time to time so that the users can easily see the plans for their stay.

1.3 System Overview:

The hotel Management System project is intended for booking rooms through an online platform. Our Hotel Management System has 2 end-users:

• Admin/Owner:

As an administrator, you will be able to view financial reports and update any information related to the room, such as adding rooms. The administrator is the only one who can see the customer information, payment and billing details, feedback provided by the user, and questions.

• User/Customer:

The user can check the availability of rooms, services, and the food menu. These services can be booked by the user and he or she will be able to enjoy the stay.

1.4 Abbreviations:

1.	HMS	Hotel Management System
2.	DBMS	Database Management System
3.	UI	User Interface
4.	API	Application Interface
5.	HTML	Hypertext Markup Language
6.	CSS	Cascading Style Sheets
7.	JS	JavaScript
8.	SRS	Software Requirement Specifications
9.	RAM	Random Access Memory
10.	ID	Identity
11.	GB	GigaByte
12.	HDD	Hard Disk Drive
12.	SSD	Solid State Drive
13.	os	Operating Systems
14	SQL	Structured Query Language

1.5 References:

• Text Book:

Roger S. Pressman, "Software Engineering: A Practitioner Approach", 7th International Edition, McGraw-Hill Education (Asia), Singapore

Link:

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Youtube:

- https://www.youtube.com/results?search_query=srs+docum ent+in+software+engineering
- https://www.youtube.com/results?search_query=flowcharts
 +for+hotel+management+system+in+software+engineering
- https://www.youtube.com/results?search_query=report+for+ hotel+management+system+in+software+engineering

Apps Used:

- o App.Diagram: https://app.diagrams.net/
- Lucid-Chart: https://www.lucidchart.com/pages/

2. The Overall Description

2.1 Product Perspectives

It is designed so the customer can browse the Hotel, Services, and Rooms and book their stay accordingly. This helps both the user and the owner save time. Administrators can store user details directly in the database, which reduces the amount of manual work and streamlines the process. There are some of the perspectives which made the website idea came from and each feature provided has a unique strategy of background work, Now let's discuss them:

- The simple and interactive UI makes it easier for the end-users to understand various contents on the web application.
- This system allows the customer to book rooms and pay online in advance without actually going to the particular hotel.
- He/She can check the availability of the rooms and cancel or reschedule any room if they have a change of plans.
- This system is not only limited to room booking service. But also manages the food menu for the day. The menu is updated regularly on this web application based on what is being served.
- Data regarding the room bookings, payment information, and customer information including the login credentials for validation is stored in the database thus decreasing the hectic work of maintaining physical files.
- The customer feedback will be helpful to make the services, even more, better and make the changes accordingly. The quires will be resolved easily as early as possible so that the customer will get the trust on us and our services.

2.2 Product Functions

In general, the aim of the Hotel Management System is to generalize and simplify the monthly or day-to-day activities of hotels such as the processing of room reservations, checking in and out customers, assigning rooms based on customer requirements, and calculating the bill, etc. which has to be performed repeatedly on regular basis. Providing a quick, reliable, efficient, and user-friendly system is the main goal.

Each Of the pages has a unique use and features. Each page will help the user to utilize the available services of the Hotel. Every page can be accessed by the user after logging in to the website by providing the necessary details. In the same way the user information and the selected services everything can be viewed by the admin. Admin has the authority to change the services according to availability. Now let's explore how different functions manage structures and data files:

• Login/Registration:

The website for this hotel management system is designed for multiple users. In the beginning, the website will redirect the user to the login/register page since to access the website, the user must enter his/her credentials and these credentials must be validated.

If you are a first-time visitor to the website, you will have to register your details before you can log in. If you are an existing user, you can simply use your login details. Users will be prompted to enter their login details to determine whether they are correct. Incorrect entry will result in an "Invalid User/Password" message.

• Service Details Pages:

Our website will assist the user with learning about the hotel, our services, rooms availability, food recipes, and mainly the packages. The home page and about page tell the user all these things.

We intend to use these pages to provide detailed information about the hotel's activities in order to help users better understand the services we provide and convince them to plan a stay with us.

Room & Service Pages:

Checking information about the rooms and our services is crucial for the user so they can check the availability and book the rooms according to their needs and also Users can browse the services, such as massages, room service, and food recipes, and book them as needed.

• Billing and Payment:

The user can check their expenditure and pay their bill directly from the website in order to remind themselves of the total they spent. Besides enabling the user to track the progress of their money expenditure, it also allows them to complete the payment very easily via many payment methods such as credit card, debit card, net bank, etc.

Menu Page:

This menu page is intended for users who are interested in discovering what menu items are available at our hotel when they visit for lunch or dinner. Likewise, the hotel guests will also require food to be served to them according to their taste, so they will be able to see the menu and place an order accordingly.

Contact Us:

It is natural for every user to have questions regarding their stay at a hotel, such as the rooms, services, food, payment, and costs. Consequently, to clarify a user question, they can use the option called contact us. This will send the user's question/doubt to the admin and they will respond.

Feedback Section:

Feedback from hotel guests is the only way to improve and develop services. The guest feedback is one of the most important aspects of estimating the quality of the stay at the hotel.

As a result, the feedback section will be helpful to hotel management to improve themselves. The user only has to answer a few simple questions after leaving the hotel.

2.3 User Characteristics

Analyzing users means identifying their hierarchies, their functionalities, and the different categories of users using the application. There are different kinds of users that will be interacting with the system. The intended user of the software are as follows:-

User-A:

In using the Hotel Management system website, the user will find it very easy to access, very easy to use, and has very comfortable options and features. If the user is using the system for the first time, this website provides them with useful information and allows them to make an online payment.

Users will be able to access it very comfortably because options, views, and processes are simple and clear. The user can check

their expenditure and pay their bill directly from the website in order to remind themselves of the total they spent.

In addition to being able to choose any payment method of their comfort, the user will also be able to complete the billing process by choosing an option.

User-B:

The users are probably already familiar with hotel services as they have been to various hotels. Because of this, they will require advanced features and advanced services. Our website had many advanced features that fulfilled the user's expectations. Services will be provided at the best level, and users will be able to utilize the services according to their needs.

• Admin Maintenance:

The admin can modify the website features by logging in using admin login information. The admin can check the data of users, booked and available rooms, and payments. Administrators will be able to customize the site's menu, room bookings, activities, and services as they see fit. The site can be easily redesigned in the future.

2.4 Constraints

- The language of communication is only English
- The UI is simple.
- Runs on the local server.
- Users have a unique id so that multiple requests from different users under the same name get redirected to a single user.
- Only the admin will be given access to monitor everything including access to the database.

2.5 Assumptions and Dependencies

- Users must have a unique id and a strong password
- Users cannot access the contents on the web application until and unless they pass the login validation.
- A user id and password are used for login validation.
- Actual Payment is not carried out, wherein the user's money is deducted from his/her bank account.

3. External Interface Requirements

3.1 User Interface Requirements

An aesthetically pleasing user interface and an interactive help feature will be provided to the user for each service available on the site. It is a menu-driven interface and the following screens will be provided:-

- A small welcome page is displayed at the beginning of the website which can make the user feel look elegant and to the user understand what was the website all about. This helps to provide a brief overview to the user.
- A welcome page will direct the user to the login or register pages.
 The user is facilitated to choose at the welcome page whether to
 go to the login/register page. The new users have to do the
 registration first then only they can login into the website. But the
 existing users can directly enter their username and password
 and can enter into the website.

- The admin asks the user about their name, mail id, gender, phone number, and password which are very primary details to login into a software/ website. In the same way for the already existing user, the admin asks for the username and password. If the user enters the wrong login details then a small error notification will be displayed for the user by notifying the issue.
- After the user completes the login process he will be directed to the main website.
- Pages and features available on the main website:
 - o Home page.
 - o About Page.
 - o Hotel Rooms.
 - o Activities & Services.
 - o Food Menu.
 - o Billing & Payment
 - Contact Us
 - Feedback.
- Each of the pages has a unique use and feature. Each page will help the user to utilize the available services of the Hotel.

3.2 Hardware Interfaces

Required Hardware in order to run/access software:

- Minimum 4GB of RAM for Admin Side and 1GB+ RAM for client-side.
- Monitor with a minimum resolution of 1024x768.
- Keyboard and mouse/touchpad.
- Multicore-1.8Ghz Processor.
- HDD/SSD with minimum space of 10GB for Admin and 1GB for Client.
- Gigabit Ethernet Port or Router for the internet.

3.3 Software Interfaces

• Backend Technologies:

- Framework: Django
- Database: (My SQL or SQLite) in order to store/access login details, room details, menu details, payment information, etc.

• Front End Technologies:

- o HTML
- o CSS
- Javascript
- o Bootstrap 5.0
- Node is
- React js
- **OS**: Microsoft Windows 10(32-bit) and above.

3.4 Communications Interfaces

For various purposes, including login verification and account access, the website must communicate with the main branch for each session, and the following list contains the communication interface requirements that have to be fulfilled in order to run the software reliably. There are sustain interface abilities:

- Supports all types of browsers.
- Customers must have an active internet connection to access the website
- A broadband connection with speeds of 5 Mbps or more.
- A telecom connection with the above-mentioned speeds is sufficient.

4. System Features

4.1 Website Features

In today's dynamic world, hotel management has gone deep into departments such as catering, airlines, clubs, and tourism, making it an attractive career choice. Through the Hotel Management system, the customers can book the rooms and services of the hotel online. It allows for easy management of customer information and facilitates communication between the hotel and customers.

As a facilitator, the Hotel website is used to make the user aware of the services and activities which the hotel provides. Each of the pages displayed on the website has a specific purpose. On the website, we provide the most up-to-date information on available rooms, the food recipes menu, as well as other services such as gym, massage, pool, room service, etc.

Let me begin by describing the user-friendly features provided on the website by starting with the welcome page. The welcome page should be no more complicated than the website's briefing page. Users can thus know how many services and features are available on the website and what it is all about. In order to maintain clear data, the admin uses the login & registration pages to collect user information. In this way, the user will be assured that the hotel maintains data confidentiality and that the selected services by the user will be provided correctly.

A user will learn about the hotel more effectively from the Home and About pages. These pages will display relevant information about the hotel, such as its history, features, and services, as well as its address and contact details.

When using the Hotel Rooms page a user will see what types of rooms are available, what rooms can be booked, and if they want to cancel a room already booked by them they can cancel it if they have any issues. During the time of a user's stay in the hotel, the billing page will display the total expenditures made for using the hotel's services, and the

amount spent on room and food. In order to complete the billing process, the user can use the payment page where they can provide payment options such as credit card, debit card, and net banking.

A contact us page acts as a service friend to the user, so that anytime a user has a query or issue, the user can drop a message to the admin. A Feedback page will assist the hotel admin to collect the guest's opinions about their stay. It is valuable for the admin to have this feedback for making improvements to the services and hotel features.

Using the website is an easy and user-friendly process. Each page has a distinct purpose and user-friendliness. The user is offered dozens of features and options to choose from according to their preferences.

4.2 Validity Checks

Obtaining access to the system requires the user to enter valid user details. This allows the user to access the website and make use of the rooms and services provided. First-time visitors to our site will need to register themselves by providing the correct information. In order to gain access to the admin portal, the admin must first login with the correct allotted username and password, and then they will be able to view the customer data, see billing information, and make changes.

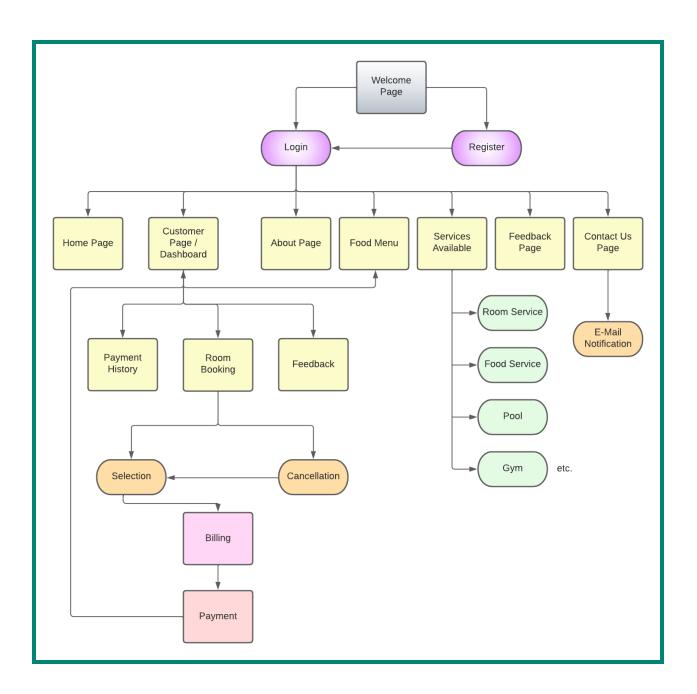
4.3 Sequencing Information

Prior to any transactions, the database should be filled out with information about users and their accounts, along with a backup of all account information.

4.4 Error Handling / Response to Abnormal Situations

In the event that one of the above validation/sequencing criteria fails, the user will be shown the appropriate error message so that they can take action.

5. Flow Chart



6. Functional Requirements

Each page has a unique function and all of the processes are customer-friendly so you can plan your stay at this hotel with ease. Our hotel management system can be accessed by users the moment they complete the registration and login processes.

The following is a description of the functional requirements:

- Login Page with validation
- Home Page
- Food Menu
- Room Booking Services
- Payment Options
- Filtering content
- FAQs
- Feedback Section
- Payment History
- Contact Us

• Login Page with validation:

Registration is done by providing a unique user name or id through which the customer can log into the web application. The login credentials are checked before the customer is allowed to enter the web application.

You will be prompted to provide the following information, which the system will record:

- Username
- Full Name
- Gender
- Email ID
- Phone number
- Password

Every detail that the user provides to the admin will not be shared with anyone else but was only meant to be viewed by the admin in order to allocate the services booked and to keep a record of their activities every step of the way.

Home Page

On the home page of the web application, the users will find a list of the services they can receive and the purpose of the web application. There will also be a contact section at the bottom, where the admin can be contacted for any questions.

Food Menu

Prior to arriving, customers can check out the menu to find out what is being served for that day and its respective prices.

• Room Booking Services

During the online check-in process, customers will have the option to reserve a room in advance. Once reserved, the room would offer the option of cancellation at any time. For reservations made after the check-in, the room would be disabled and not displayed during the specific check-in period and check-out dates.

Payment Options

There are numerous payment options available to customers, including credit, debit, net banking, and UPI.

Filtering content

When searching for rooms that are of the right type or when searching for a particular food item on the food menu, the customer should be able to filter the content by using the filter options provided.

FAQs

Hopefully, this section will explain any doubts that the customer has. If there are any questions that aren't answered there, then they may choose to navigate to the contact us page.

Feedback Section

By filling out the feedback section of the website, the customer can express his or her views on the overall hotel experience as well as the web application.

Payment History

As well as being able to view their past room reservation payment history, the customer should be given access to their current receipt that has been generated for the completed room reservation process.

Contact Us

Listed here are the appropriate contact details of all staff and administrative staff, including the phone numbers, electronic mail addresses, and address(location) of the hotel so that the customer can get in touch with them if they have questions.

7. Non-Functional Requirements

7.1 Performance Requirements

- The database should store/delete the data immediately after user registration, user room booking, user payment, user room cancellation, etc.
- The login and registration are validated and data is saved in the database within 5 seconds.

7.2 Software System Attributes

Reliability:

- o Provide Support
- Client data must be secured.
- o OTP verification during payment.
- Detailed billing.

Availability:

- o Room Booking service.
- Foodservice shall be available during restaurant operating hours.
- Only admins can change the availability of rooms, increase or decrease the staff.

Security:

All data must be stored and protected.

- The password validation so that the user is able to set a strong password
- Admin access is password protected.

• Maintainability:

- Administrators should be up to date on the modification of the website from time to time.
- These include: Changing the availability of the room, changing the staff, changing the course of the menu every day.

7.3 Bussiness Rules

- The Administrator has the authority to fix the rules and regulations and to set or update the policies as and when required. The admin can make the changes in the services and food menu according to the daily availability.
- Total access to the website including the database manipulation is given to the administrator.
- The admin can view the detailed customer information and the payment process. The admin can solve the quires which are addressed by the user. The quires can be answered directly by the email provided by the user.
- The two users that can access the platform are the customers and the administrator.
- These include
 - o Adding / Deletion of Rooms.
 - o Viewing customer information of users living in each room.

- Changing the food menu from time to time based on what is being served.
- Handling the feedback and issues reported by the customers.
- Viewing payment information and history of all the transactions that were carried out.
- In case, If the user is facing any difficulties, he/she can raise the
 related issue through the contact us page. If he/she feels that the
 service is not up to their expectations, they are free to leave
 feedback.

8. Domain Requirements

The domain requirements mainly address the conditions that are required for the domain to function, so that the user is more likely to gain access to the required pages.

- As a user completes the log-in/registration process, access to every page of the website will be granted. In this case, access to the website can only be granted after completing the login process.
- In the login process, the user has to complete a validity check of the details provided by the user. Only after the validity check has been complete can the user access the website. This has been specified by the user because the website can be accessed if the validity check is complete.
- For registration, the user must enter the correct phone number, email address, and password. The password must be strong, and it should contain the required signs.

- Additionally, the food page has the advantage that the user can access the menu page after logging in, whether they are staying in the hotel or if they are just coming for a meal.
- To assign the booked services to the appropriate user, each page of the process will need to gather the user's information.
- For the purpose of booking the rooms on the website, the website needs access to certain pieces of user information. If services are booked, the user needs to provide a few details in order to have access to the requested services.
- Bills have to be generated for users when the billing and payment processes occur. The bill must contain all of the services used, then be able to access the details of the user.
- The payment process needs the user banking information to complete the transaction process.

Therefore, it is emphasized that these validity checks and specifications will safeguard against improper use of the hotel's facilities and services. To get a similar process, administrators must follow these requirements. Having these requirements will assist the administrator to manage the process easily.