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Research Paper

on

Website Development on the *"Hotel Management"*

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***Abstract*-- The main of this project is to build an exceptionally beautiful and responsive website for the advertisement and management of the *Hotel Rajputana* (an imaginary hotel). If a user wishes to know about the hotel the website allows them to do so. The website will exhibit different aspects of the hotel such as rooms, facilities, prices, etc. It will contain different sections where each will have a unique moto. Also, the hotel administrator will have the access to the website to interact with the customer.**

***Keywords*—CSS, HTML, Hotel Management, JQuery, MongoDB, Node.js**

I. Introduction

The proposed "Hotel management system" is developed for handling the hotel affairs which are using the manual system. There are three key users in hotel management system, Manager, Administrator and Receptionist. Administrator is supposed to maintain daily updates of the hotel records. This proposed methodology will automate the important operations of the hotel. Administrator have access to all the system functionalities without any constraints. He is the authorized user where he has an ability to change the password. The system provides the facility for logout, password recovery etc. Manager have access to all the system functionalities with limited constraints whereas the receptionist has access only to the Reservation Management section. The main objective of the entire activity is to automatize the process of daily activities of the hotel.

The main purpose of Reservation System is keeping a track in hall and room reservation and also check the availability. By using this system, a user is able to check which room is reserved or available, also he is able to reserve the room from the reservation module. To manage all room types of room services the Room Management System is developed. In this module a user can track all information of their hotel room where he can check food service, room laundry service, sweeping service etc. The Inventory Control System module is developed to track all inventories of the hotel whereas guest management system will handle the guests. The main aim of developing this system is to automatize every activity of the hotel like Assign a room according to customer's demand, admission of a new customer, releasing the room, checkout of a customer and finally totalize the bill etc. By using this system, a user can manage check in and check out easily. While checking in, a user can easily check the availability of the room in the hotel. And while checking out user can easily generate the total bill.

II. Motivation

The main aim of the entire activity is to automatize the process of daily activities of the hotel. By using this system, we can handle room activities while keeping track of admission of the New Customer. Also, by using this system we can check rooms according to customer's requirement and can assign the demanded room to them. This system provides an easy process to update the information of a customer's checkout and then fill in the details about the vacant room. The system generates final bill after calculation of all the bills when a user will checkout. In online mode user can also check the available packages, rooms; he can also book or cancel the room as per his choice. The proposed Hotel management system have the access to check the list of regular customers and also the feedback of the customers.

III. Existing Hotel Management System

Nowadays in a hotel all the work is done manually, whether it is to make a guest reservation including their details are all recorded in a hotel register. Not only this but also at the time of a checkout, totalization of bills and inventory items are worked manually too. While going through this process it takes a lot of precious man hours, also the manual calculation of bills is error prone. At the times when someone from the management needs any old information such as reservation details or room records, then finding those records can be tiresome and time consuming. Following are the major problems in managing hotel manually:

- Keeping a manual record is very time consuming.
- Written data cannot always be reliable as it is prone to human errors.
- Reservation process is slow.
- The recorded data's security cannot be guaranteed as it can be easily altered or theft.
- In order to retrieval a guest's record is extremely difficult and time consuming.

Hence, the proposed Hotel management system is developed in the lain to overcome such issues.

IV. Software Requirements

A. Hardware Requirements

- Processor: Minimum 1 GHz; Recommended 2GHz or more.
- Ethernet connection (LAN) OR a wireless adapter (Wi-Fi)
- Hard Drive: Minimum 32 GB; Recommended 64 GB or more.
- Memory (RAM): Minimum 1 GB; Recommended 4 GB or above

B. Software Requirements

- Any Web Browser (eg: Chrome)
- Operating system: Windows or MacOs or Linux
- Language: Javascript on Node.js
- Database: MongoDB

V. Implementation Details

A. Frontend

HTML: HTML is the acronym for Hypertext Markup Language which is the standard markup language for the documents designed to be viewed in the web browser. It can be aided by a scripting language such as JavaScript and some technologies such as Cascading Style Sheets (CSS). The HTML documents are received by a web browser from a web server or from a local storage and provide the documents into the multimedia web pages. HTML demonstrates the structure of a web page originally and semantically which indicates the appearance of the document.

The building blocks of the HTML pages are based on the HTML elements. One of the services of HTML is to create an electronic document also known as a structured documents by signifying structural semantics for the text such as paragraphs, headings, links, lists, quotes and other items. HTML elements are described by tags which are written using angle brackets. Tags like <input /> and <img /> directly launch content into the page. Other tags like <p> gives information about a document text and it may also include other tags such as sub-elements. Browsers doesn't lay out the HTML tags, but can use them to elucidate the content of the page.

CSS: CSS is an acronym for Cascading Style Sheets which is a style sheet language used for demonstrating the presentation of a document that is written in a markup language such as HTML. CSS has said to be the bedrock technology of the World Wide Web (www), alongside JavaScript and HTML.

It is designed to separate the content and presentation, including colours, layouts, and fonts. This separation can enhance content accessibility, it can also provide more flexibility and control in the identification of presentation characteristics.

JQuery: jQuery is said to be a lightweight JavaScript library which is concise and blazing fast. This library was designed by John Resig in 2006 and it has been created to simplify HTML document object model manipulation and tree traversal, as well as CSS animation, event handling, and Ajax.

Another use of jQuery is to find a specific HTML element in the HTML document with a distinct ID, class or attribute and after that we can use it to alter one or more attributes of the same element such as visibility, colour etc. It can also be used to create an interactive webpage.

Uses of jQuery:

- Local Installation – We can download jQuery library on our local machine and include it in our HTML code.
- CDN Based Version − We can integrate jQuery library into our HTML code, directly from Content Delivery Network (CDN).

B. Backend

Node.js: Node.js is said to be a server-side platform which is built on Google Chrome's JavaScript Engine (V8 Engine). Node.js was designed by Ryan Dahl in 2009 and its latest version is v0.10.36.

It is a platform built on Chrome's JavaScript runtime for scalable network applications. It uses an event-driven, non-blocking I/O model that aids it to create the efficient and lightweight, ideal for data-intensive real-time applications that run across distributed devices.

It is also an open source, cross-platform runtime environment for creating networking applications and server-side. The applications of Node.js are written in JavaScript which can be run within the Node.js runtime on Microsoft Windows, OS X, and Linux.

MongoDB: MongoDB can be described as a document-oriented database system which uses the notion of NoSQL. Providing high performance, high availability, along with automatic scaling. The open-source product of MongoDB was developed by 10gen in October 2007, and the company also owns and maintains it. This system exists under the General Public License (GPL) as a free database management tool along with this this it is also available under Commercial license as of the manufacturer. The intention to develop MongoDB was to function with commodity servers. Not only this, but MongoDB is also used by the companies of different markets and sizes all over the world, and across all industries as their database.

Advantages of using MongoDB are:

- Easy to set up, i.e., install the MongoDB from the verified source.
- As it is the document-oriented language, we have to use document queries, which plays an important role in creating a support for dynamic queries.
- It is easily scalable.
- It is also easy to have a performance tuning as compared to the other relational databases.
- Users can also run MongoDB as a windows service too.

VI. Website Demonstration

A. Home page

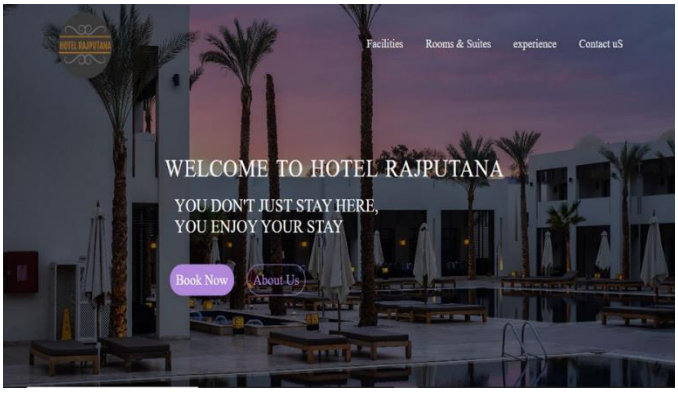

Figure1. Home page

This is the first page users will connect with on the website. It provides a detail elucidation about the hotel, within selected date to check room availability there is a booking form for customers. The home page also has a Review form for users to leave feedback about their experience in the hotel. Users can login and register on this page in order to have full way in of the website.

B. About Us

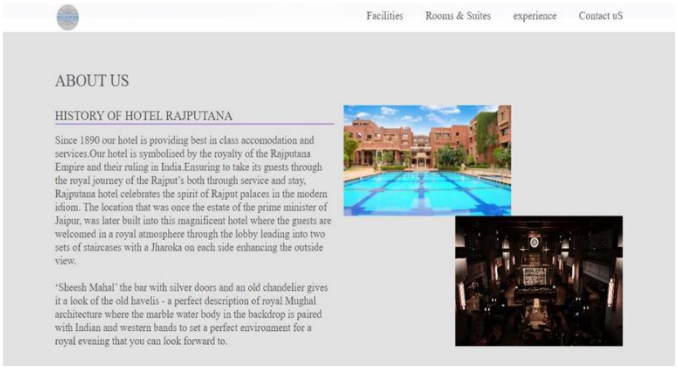

Figure2. About us page

This is the 'about us' of the website gives information about the hotel.

C. Facilities

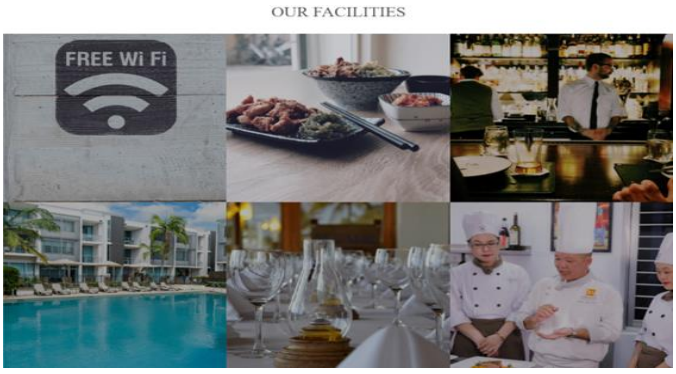

Figure3. Facilities page

This is the Facilities page of the website from which the user can view the different facilities of the hotel.

D. Rooms and Suits

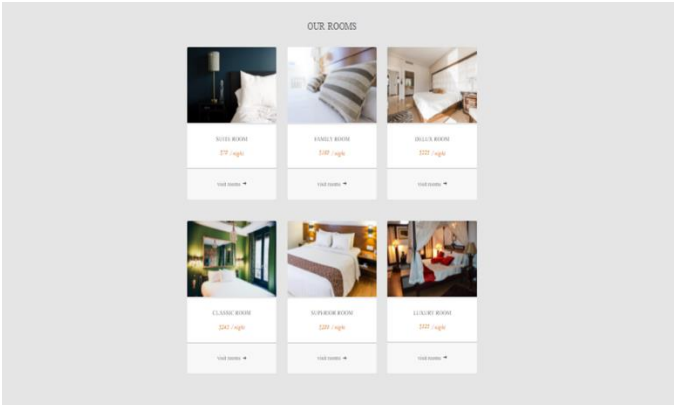

Figure4. Rooms and Suits page

In this web page, users can view the types of rooms available in the hotel on the website, they can also click on these room types to have an idea or know more information about the room.

E. Testimonials

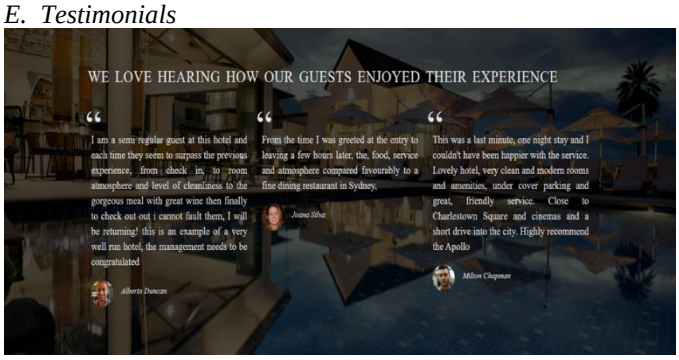

Figure5. Testimonials page

This is the testimonials page which shows the reviews of the guests about their experience in the hotel.

F. Booking Form

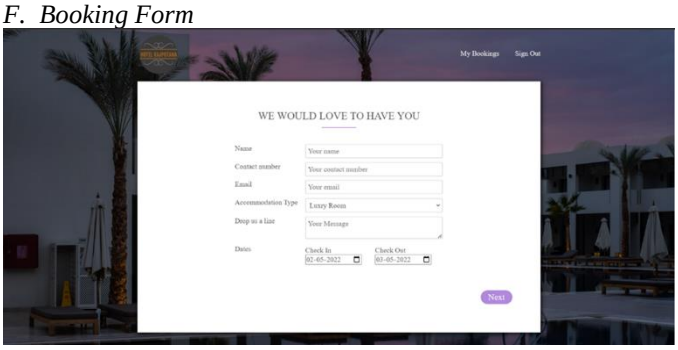

Figure6. Booking form page

This page is for users who may wish to make a reservation with the hotel online, following information is required - Name, Contact Number, Email, Accommodation Type, Drop us a line, Dates (check in – check out details) in the form. Users are supposed to fill in this form and click the Next button to confirm their reservation.

G. Contact Us

Figure7. Contact Us page

This page has the hotel's address, contact number and Newsletter in which user can enter its email.

H. Sign Up Form

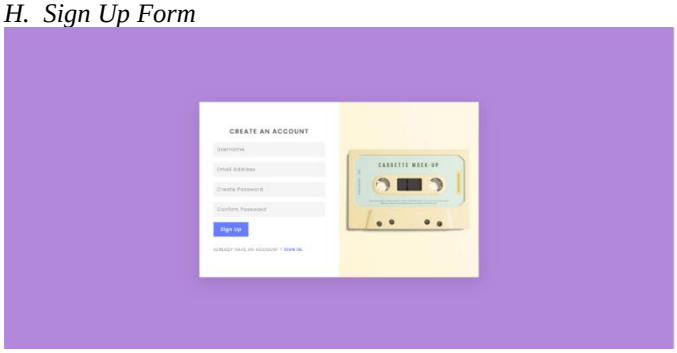

Figure8. Sign Up Form page

The new users can register their details by using the signup form into the hotel database. Without the sign-up function, users will not be able to make reservations in the hotel but can view other webpages available.

I. Sign In Form

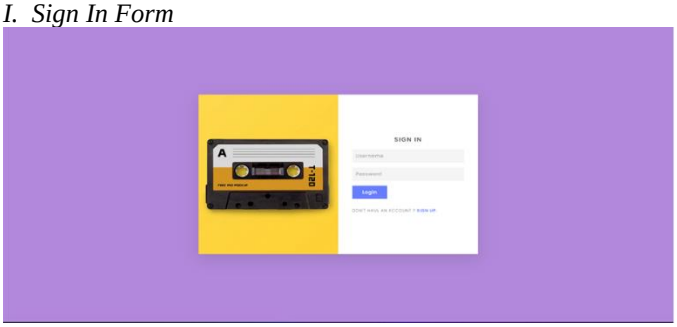

Figure9. Sign in form page

Once users are registered to the website, the login function allows the system to further book their room and checkout other facilities.

J. Database

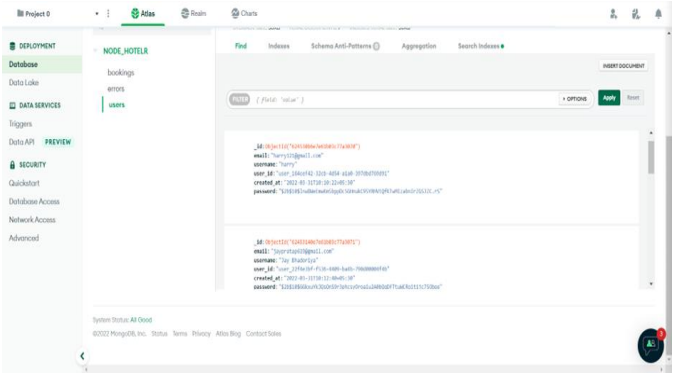

Figure10. Database

This is the Database of the website where all the information of the users who got registered on the website is handled by the admin in the bookings and the users of the database as you can see in the above figure.

VII. Conclusion

After successfully completing this project, a simple conclusion can be drawn that a "Hotel Management System" is a well organised and computerized management system. The proposed system magnificently keeps the records of the hardware means besides the software of this organization. In this report; the issues related to customers and hotels face while making a reservation using a manual booking system by creating an online booking system for the clients to have a reservation at their own comfort was addressed ably. It has also been discussed in the former studies of an online booking system and the integration of the internet connection by hotels enhancing their ability to connect better with their customers. Discussion on the different types of methods has been done such as; the collection of the needed requirements, and the type of developed methodology was selected for the research. A very detailed description of the website pages was discussed and the types of examination used to examine the website.

This software application would provide great aid to the admin while handling the customer's information, payment details, room allocation details, billing information etc. As the existing hotel management system is manually maintained, all the hotel records are supposed to be maintained manually for the details of each customer's fee details, attendance, room Allocation etc. All these details are to be entered and retrieved manually, due to which of there are certain disadvantages such as time consumption, inaccuracy of data, updating process, and much more. To avoid these issues, we have introduced a new system and according to the proposed system, the computerized version of the existing manual system renders quick and easy access to the entire data.

VIII. Future Scope

In a nutshell, the future scope of the project could be said to revolve around maintaining the required information through the online system. Seeing the results of this project, a few changes could aid in the enhancement of the proposed methodology, such as:

- Adding a printer in future.
- Hosting the platform on online servers would create its accessibility worldwide.
- Integration of multiple load balancers for the distribution of loads of the system.
- To reduce the database queries overload, the development of a master and slave database structure can be done.
- Development and implementation of a backup mechanism to manage the backup of database and codebase could reduce the overload issues on different servers daily.

The above-mentioned points are the changes which would help in the enhancement of the new system, increasing the usage and applicability of this project. In here we can successfully maintain the records of the services provided by a certain hotel. Also, as it can very well be observed that nowadays the players are versatile, i.e., a lot of methods can be proposed to maintain the Airbnb website. New enhancements could be done in order to maintain all the hotel, services, rooms, bookings, payments etc. All the options for further enhancement in the proposed system are kept open to meet the requirements of a user in the near future.

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