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| Programme: | | |
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**Introduction**

Hotel Dreamy View is a hotel in Colombo, Sri Lanka. It's using a manual hotel management system where they use paperwork and human language to manage the hotel.

They wanted to make a computerized hotel management system where their customers can book their rooms by using a web application.

They wanted to use PayPal as their online payment method, and it has a feature to send SMS and email notifications.

As per their requirements, I developed a Java web application for this matter.

Using this web application their customers can register to the system by providing all required information. This application has information about the hotel various room options and it's availability status. Each registered customers can reserve their preferable room and they can make payments via PayPal or credit/debit cards.

Front End of this web application is developed by using html, CSS and it uses Java server pages. JSP and Servlet was used to develop the communication client. MySQL Workbench was used to create the database.

Also, this application was developed by adhering to the design patterns such as MVC pattern.

This system will help to reduce hotel employees and to manage their work more efficiently to achieve maximum potential.

**Objectives**

* Main objective of this application is to make hotel management process more efficient and secured while giving customers an easier and user-friendly solution to make their reservations.
* When a new customer registered and make reservations, all records of the hotel will be updated automatically. Which makes all the records of the hotel always up to date. This way there will be less issues such as booking an unavailable room.
* Manual hotel management system uses paperwork as their records and those who want to access restricted information can access it easily. In this application all records are available in the database, and it enforce security methods. Only the authorized users can access the information they need.
* when using manual hotel management system there can be human errors but when using a web application, it avoids the data entry errors.
* One of our objectives is to give users an easier way to authorize and modify data which will make communication within the hotel more reliable and efficient.

**System Requirements**

**Functional Requirements**

* Customers should be able to Register to the system
* System should store customer username, ID, email, and password in the database
* When login system should check whether the customer details are correct
* System should enable customer to access room details and to reserve rooms
* System should check availability of the rooms when a customer is making a reservation
* System should record customer room details
* Customer should be able to make payments online via PayPal or using credit/debit card
* Customer should be able to contact hotel through web application if they need any assistance
* Customer should be able to access their information through profile page

**Non - Functional Requirements**

* Data storing time in the database should be happen within few seconds
* User Interface should take only few seconds to load
* Access to different pages should be prohibited without login to the system. This will provide view and accessible function.
* Payment should be done by using HTTP protocol to make customer transactions are secured
* User Interface should be responsive to any device
* System needs to be flexible enough to make changes and to provide enough space

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| Software Used | Logo | Description |
| NetBeans IDE 8.2 |  | It is an Open-Source IDE which allows to create application using JAVA and HTML5 platform  I used it to develop my web application. |
| MySQL Workbench 8.0 |  | It is a unified visual tool which is used to develop databases using SQL queries.  I used it to develop my database. |
| XAMPP Control Panel |  | It is an Open-Source solution stack which includes web and database servers and scripting engine.  I used this to connect my MySQL database to the system. |

**System Architecture**

**EBC Class Diagram**

**Use Case Diagram**

**Sequence Diagram**

**User Guide**

When users access web application through their browser this registration interface will be the entrance page. (Figure 4)

There's a form for the users to input their information to register and I used session handling to keep track of users when they register to the system.

Through this form users can register themselves to the system. If they have an account, they can click 'already have an account' button and then they will be redirected to the below login page. (Figure 5)

If the user is not a registered user, then when they try to login to the system there will be a message mentioning that the user account is not available in the system and they will be redirected to the registration page. (Figure 6)

Graphical user interface

Description automatically generated

Figure 4 (Registration Form)

Graphical user interface, website

Description automatically generated

Figure 5 (Login Page)

Graphical user interface, text, application

Description automatically generated

Figure 6 (User not found Message)

After users log in to the system by entering required information, they will be redirected to the welcome page. (Figure 7)

On top of this welcome page, in the navigation bar users can access the reservation page, contact page and their profile page. Then in the middle of this page I created html cards to show available room options and it’s details. By clicking those cards users will be redirected to the reservation form page.

Graphical user interface, application

Description automatically generatedAlso, at the end of the page I made a footer where users can easily access the contact form.

Figure 7 (Welcome Page)

When users click on the Book Now button, HTML cards which shows room details or Reservation in the navigation bar, they will be redirected to the reservation page. (Figure 8)

In the reservation page there’s a form which can be used to reserve customer’s preferable rooms. They must enter their preferable room type, number of rooms, check-in check-out time and their personal details to reserve their room.

Also, in this page if the number of rooms users need is not available, an availability message will be appeared such as ‘not available’

Graphical user interface

Description automatically generated

Figure 8 (Reservation Page)

After they fill the reservation form successfully and click the proceed to pay button, they will be redirected to the payment page. (Figure 9)

In this page I put both PayPal and card options to make user experience easier.

Graphical user interface, website

Description automatically generated

Figure 9 (Payment Page)

Graphical user interface, application

Description automatically generatedIf user selected the Credit/Debit card option, below form will be loaded and they must input their card details in order to proceed the payment. (Figure 10)

Figure 10 (Card Details Form)

If the user select PayPal option PayPal sandbox will be appeared in a new window and the users have to create a PayPal account or to login to their PayPal account to proceed the payment. (Figure 11)

Graphical user interface

Description automatically generatedThen after they login to their PayPal account a receipt will be generated as below. (Figure 12)

Figure 11 (PayPal Sandbox)

Graphical user interface, application, chat or text message

Description automatically generated

Figure 12 (PayPal Sandbox Receipt)

After Users do their payment successfully payment successful message will be appeared as below. (Figure 13)

Text

Description automatically generated

Figure 13 (Payment Success Message)

In some cases, users need to contact the hotel management to assist them through the reservation process or users might need to share their feedback with the hotel management. I developed a contact us form for users to contact the management within few minutes. (Figure 14)

Users can send their messages by filling this below form and within few seconds hotel management will receive an email notification which consists of the user’s message with their details. (Figure 15)

Graphical user interface

Description automatically generatedAfter submitting this Contact Us form a message will be appeared stating that the message sent successfully. (Figure 16)

Graphical user interface, text, application, email

Description automatically generatedFigure 14 (Contact Page)

Figure 15 (Received Email)

Graphical user interface, text, application

Description automatically generated

Figure 16 (Message Successful page)

Also, the users can see their account details such as name, email address and password from the below profile page. (Figure 17)

Graphical user interface, application

Description automatically generated

Figure 17 (User Profile Page)

**Database Records**

Graphical user interface, text, application

Description automatically generatedFigure 18 (User Table)

Graphical user interface, text, application, email

Description automatically generated

Figure 19 (Booking Table)

**Questions**

1. **How did you used session handling when developing this web application?**