

A Project Report on
On
Hotel Booking System

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Abstract

The Ocean Pearl Hotel Booking system is an online booking website designed using Django and SQL. It is an online platform that helps the user reserve/book the hotel room of their own preference

The user is required to create a profile using their email and creating a safe password, this email is the verified by sending a One Time Password on the user's email. If the email is verified it will lead the user to a page to make the booking. The user can then once the booking is done look at their profile which will generate a Portable Document Format (PDF) which contains the details of the rooms booked. Users that already have an Email ID can just log in using their email id used to create the account. This makes multiple bookings by a single user much easier to do. Once a booking is confirmed it is committed to the Database for storage.

The system admin of the webpage can access the admin part of the website by using a secure username and password. This admin side of the webpage can add and delete users and their bookings. The admin can also add rooms and different room types if the hotel is expanded. The changes made by the admin are directly connected to the Database.

There are 3 types of rooms – Deluxe, Luxurious, Presidential and in a single session of booking you can add any number of rooms of multiple types. The booking page deals with the situation of seeing the number of rooms available and if there is a booking made after rooms are full there is an alert saying that there aren't enough rooms. The booking page also involves a to and from date the person needs the rooms for. The cancelation of the rooms can be done over a phone call which the system admin can work with.

The rooms page deals with the booking of the rooms. It involves adding a check-in and check-out date with the number and type of rooms (Deluxe, Luxurious, Presidential). If there is a scarcity of rooms between the available dates it will redirect the user to the booking page.

The development of the project is done using Django as the web framework, HTML CSS for the front-end part of the website, SQL for the Backend information storage and JavaScript for the information rendering on the website.

There are multiple tables in the database and they deal with multiple registrations with a single user and all retrieval of information for the profile page and the booking page. Information is only committed to the Database once there is confirmation of the Booking and registration of the Users the other storage part is dealt with by using local storage of the website.

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Introduction

Business Concept

With the introduction of various hotel booking websites that deal with multiple hotels booking we cut down the use of a third-party website and directly present you the hotels direct booking online instead of on call with the management of the hotel. The website is extremely user friendly and provides a registration system which can be further easily developed to add multiple hotels under the same company for one registration with a multi-hotel page. Users will be able to easily book rooms of any type on a date and time according to availability. Users will also be able to check their bookings whenever they want to by just logging in and going to the website.

Problem Background

The current system of booking hotel rooms involves a phone call or actual visit of the user to book the rooms of the hotel which becomes inconvenient. These delays exchanging of information in the hotel. The guests' personal details such as name, age, email, booking dates is done on call. The documents generated by the booking office is transferred to the receptionist the day the guest needs to check in to the hotel which is then verified with the guests ID. This file has a bill which is updated every day regarding expenditure made by the guest during the stay. The expenditure is then added to the cost of the stay and is given to the guest the day of his check out which is to be paid. This manual system has a lot of problems in its approach since a consistent track of records is extremely difficult to keep.

- A constant track of all the records must be maintained and not lost.
- Extra manpower is needed to maintain this storage of files and a special booking officer needs to be present.
- No centralized database.
- If a person has to re-book in the same hotel, he does not have any advantage he must do the entire procedure to book the hotel again.

If a customer wants to cancel a reservation or look at his reservation the record must be found and opened the day, he needs it which proves to be extremely inconvenient.

Proposed Solution

The solution proposed by the Ocean Pearl Booking website is a simple online booking system and a registration portal for new users. The main purpose of the solution is to make the earlier described manual procedure easier and cost effective. It will make administration and booking very easy and reliable. The customer can book the hotel using any smart device e.g. – Smartphone, Tablet, Desktop and Laptop. It provides a simple registration which requires email and a password for the account. The customer can view the different types of rooms available with different prices. On selecting the different rooms and the date of check in and check out the user then can proceed to confirm his booking and check the receipt for a basic bill which contains the cost of the stay of the hotel.

This proves to be more useful than the manual system:

- The user can book the hotel without having to actually visit or call the hotel for the booking.
- Once registered existing users will no longer have to register again, they will just have to log in using the email and the password they created to complete the registration
- Requirement of manual labour is removed.
- File and Information retrieval are extremely easy
- Centralized Database to make the changes at any point
- No log of available rooms needs to be maintained
- There is no lag in exchanging information as the database is updated at every point

Literature Review

Review

After analyzing and interpreting the documentation of a handful of published projects we were capable of expanding our understanding and scope of our project. In this section a brief discussion of our investigation and critical comprehension of various published articles is presented.

This paper was published as a part of the Master's Degree in Computer Science by Chun - Hsien Wang. The idea of the project was to develop a user-friendly website using PHP and HTML for GoodLuck Hotel which is an imaginary hotel. The aim was to provide the fastest booking service online through a web browser. Although the project is successful in providing a blueprint for future online hotel booking systems it has its limitations.^[1]

This paper published in the International Journal of Innovative Science, Engineering and Technology (IJSET) aims at easing the work of a customer looking for a hotel room. The proposed software makes ample use of HTML for front-end while MySQL for database management. The design ensures a cohesive experience for both administrator and customer. HANSONIC hotel in Dansoman was taken as a test subject for building a prototype of the hotel reservation system.^[2]

This is a paper published in the International Institute for Science, Technology and Education (IISTE) E - journals by Kehinde Willams and Micheal Ajinaja. This paper aims at minimizing the effort of hotel administration by replacing the old book keeping methodology with an online hotel management system. The developed software under the project was built using MySQL database and PHP and HTML. The manager of Grand Ville hotels was interviewed as to what technology was currently being used by the hotel management and also to understand the drawbacks of the current methodology to help in improving it. The manager conveyed the usage of Excel sheets to manage their records of customers and booked rooms. The suggested hotel management system software eradicates the tidy work of manual entry. It auto-updates the database of the hotel when user books or cancels their rooms.^[3]

Research Gap

It limits one time room booking to 4 which might cause inconvenience to large families or vocational school trips. For booking more than 4 rooms the user has to re-book. Booking system lacks flexibility as it prohibits user from changing or cancelling pre-booked rooms within few days of booking.^[1]

The proposed hotel reservation system lacked room cancellation service. It is also oblivious to the need of storing and calculating room service charge though, it is a well-designed and structured application to manage primitive hotel administrative activities^[2].

Design And Workflow

Class Diagram

Below in Figure 1 is the UML class Diagram of the structure of the project. We have 3 tables User, Rooms, Schedule in the project

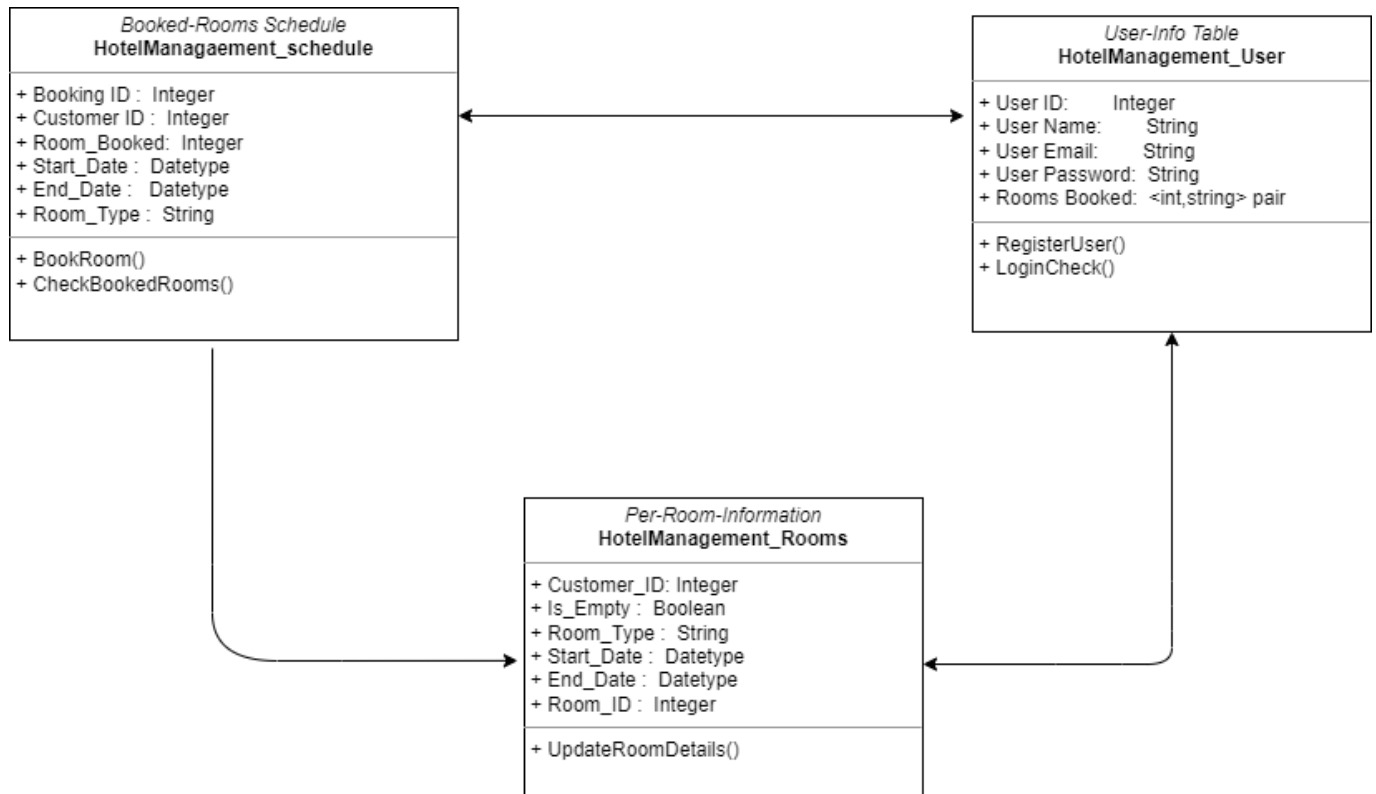


Figure 1 – Class Diagram of the Hotel Booking System

Tech Stack

Different Elements involved in the project:

- Front End - HTML CSS Bootstrap
- Database - SQLite3
- Web Framework – Django

Django

- Web Framework to help create web applications with ease.
- Write only the functional bits of the code and not having to “reinvent the wheel” every time.
- Has templates and versatile with many front-end and back-end software’s.
- Secure and safe way to manage users.

Chapter 3 – Design and Workflow

- Extremely easy to maintain, repetition of code can be avoided.

HTML, CSS, JS

- HTML is the standard language to create the structure of the webpage.
- CSS is used to add styles to web pages; it does not require multiple changes on the code.
- JS is lightweight and essential to handle user interaction such as text fields, buttons, etc. and also to make the webpage dynamic by rendering information onto the site.

Procedure Involved as a User

- ❖ Access the Page using the website Link
- ❖ Click on Book now
- ❖ If the user has an account
 - Log in using registered email and password
- ❖ If the user does not have an account
 - Register using your email id and create a password
 - Verify your Email ID using the OTP sent on your email
- ❖ If the user has booked a room
 - Click on bookings on the profile page
 - See the generated PDF for information regarding the booking you made
- ❖ If the user needs to book a room
 - Click on the Type and Number of Rooms
 - Choose the Start and End Date
 - Click on Book
 - Verify the Bill generated for the rooms and check the total cost and confirm
 - The Page will redirect you to the log-in page

Webpages

- Home Page [Figure 2]
- Log - In Page [Figure 3]
- Register Page [Figure 4]
- OTP Verification [Figure 5]
- Rooms Page [Figure 6]
- Receipt page [Figure 8]
- Profile Page [Figure 10]
- Dynamically generated invoice PDF [Figure 11]

Overview of the Webpages

Description of the pages

- Home Page

This page acts as a link to the login and register page and provides a welcoming origin to the users. It also consists of the links to the About Page and the Contact Us Page which can be implemented as required in the future.

- Login Page

This page takes the email and password using HTML input tags. The inputs are then sent to a Django view on submitting the form. It then compares the password entry for the provided email in the database. If the email entered does not exist in the Database, then it will redirect the user to the login page. It then renders the next page based on whether the user has booked rooms previously or not.

If the user has booked a room and is entering the website before the check-out page, it will lead them to the profile page otherwise it will lead them to the room and date selection page.

- Register page

This page takes inputs of email, username and password. This information is sent to a Django view on submitting the form. The Django view then uses this information, and tries to send a verification code to the given email address using an API call.

- OTP verification code

This page appears after the user has provided their email address. The page uses the random string which was sent to the email to verify if the user has provided the correct verification code. On successfully verifying the verification code using JavaScript, it sends the user information to the Django view using an ajax request. In the Django view, the information is committed to the database using some query script. The user is then redirected to the login page to use his generated credentials.

- Rooms page

This page is rendered if the registered user has not yet booked a room. Here they can select the start date, end date and the quantity of each type of room. On clicking the

book now button, the JavaScript picks up the different elements having the values of the number for each room type, the start and end date, the users email. It then sends these values to a Django view using an ajax request. The view then uses these parameters to find the available rooms suitable to the user.

- Receipt page

The users are prompted to this page once the book now button is clicked. It shows the price of their purchase with a pay now option. Clicking the pay now option will send the list of rooms to a Django view so that all the tables of the database can be updated after which an alert is displayed for a successful payment and the user is redirected to the login page.

- User profile page

This page lists out all the information entered by them. It also consists of a bookings tab which will display the rooms allocated in a dynamically generated pdf which the customer can then download.

Results

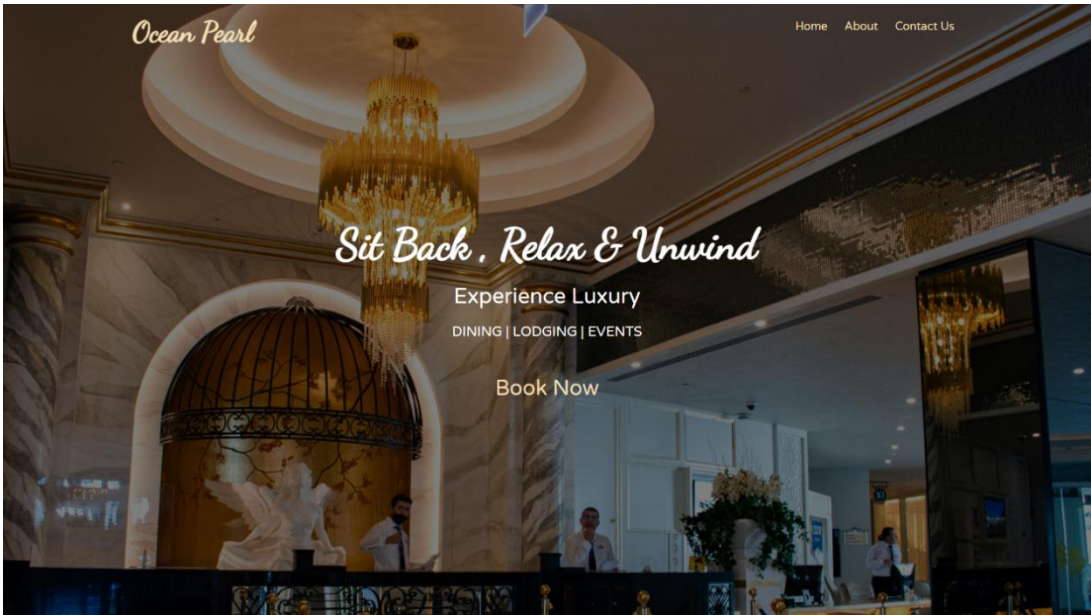


Figure 3 – Home Page

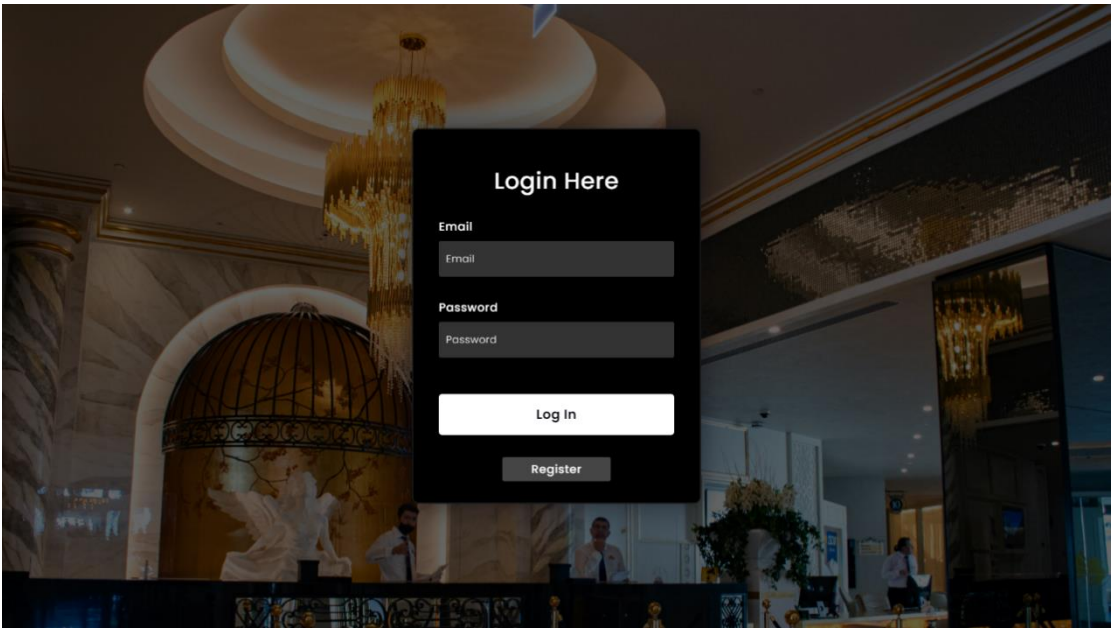


Figure 4 – Login Page

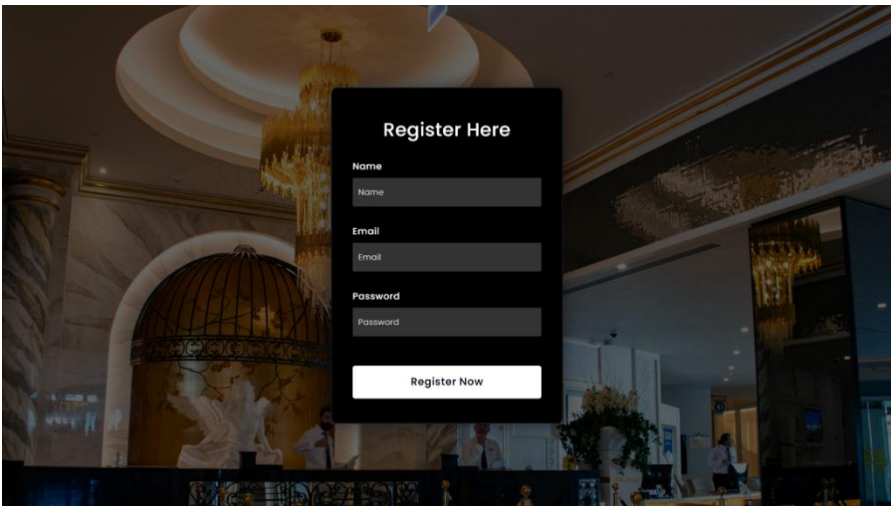


Figure 5 – Register Page

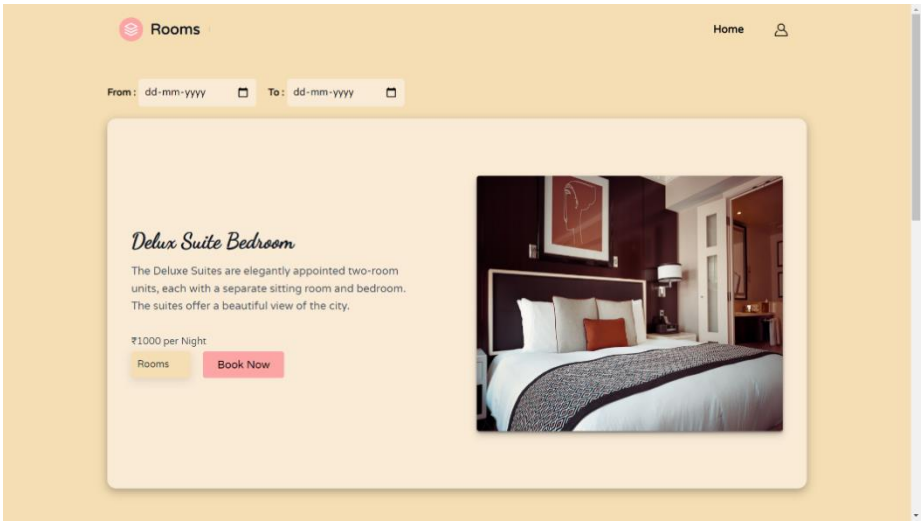


Figure 6 – Room Booking Page (Deluxe Type)

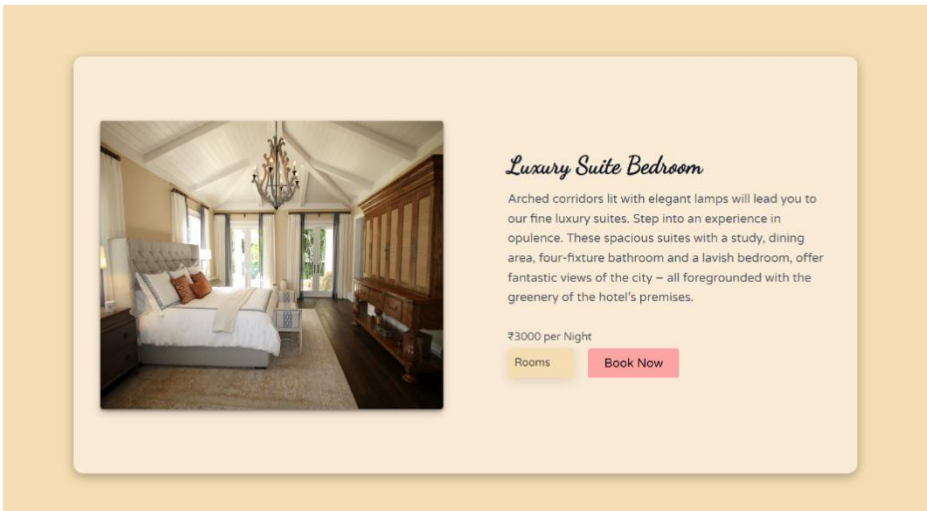


Figure 7 – Room Booking Page (Luxurious Suite)

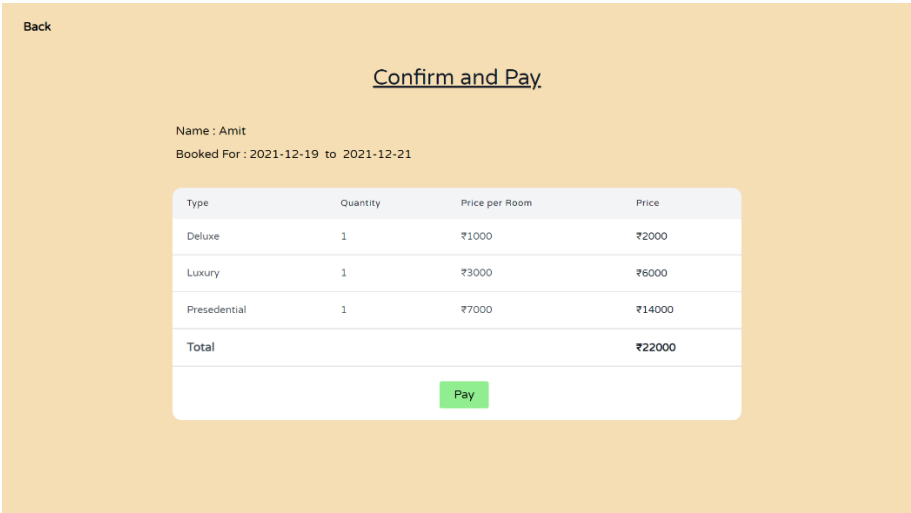


Figure 8 – Receipt Page

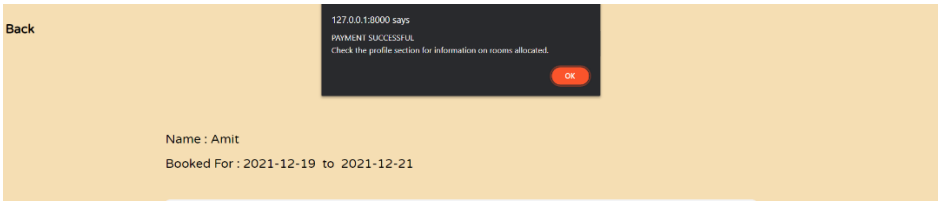


Figure 9 – Receipt Page Confirmation Alert

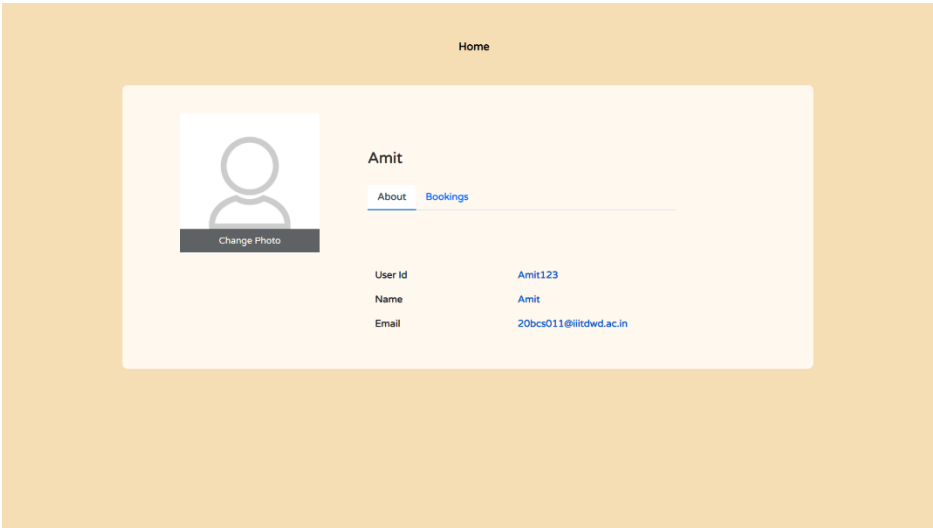


Figure 10 – Profile Page



Figure 11 – Generated PDF for booking

Discussions

Future Prospects

The project at this point of time is extremely simple and is created in such a way that it can be upgraded extremely easily and has room for improvement at multiple points.

- Same hotel with Multiple locations by just adding tables to the Database for those locations which would make it very easy for the user to have one account but multiple hotels to choose from.
- Discounts and offers to users who book the hotel often. Discounts can be added to the bill section by checking if the user has booked more than a certain number of times.
- The website can also add a room cancellation option which would remove the need to call the receptionist for the cancellation of the room.
- Hotel preferences of the user can be stored and a recommendation system be offered to the user to improve the user interaction of the website.

Conclusion

In times of the Digital world and where everything can be done through your smartphone and smart device it seems unnecessary to use a call or actually visit a hotel before booking it. Thus, the introduction of an Online Booking System is required and makes sense. The project is extremely feasible since it just needs a server to host the website and simple design to structure the website.

There are multiple third-party websites which have multiple hotels that give you the best prices and they book the hotel for you, however since they are booking the website there must be some sort of commission to the third-party website for securing a booking which would be incurred by you. This makes the third-party website not completely trustworthy.

The project is an example of Full Stack development project since it involves a back-end Database and a front-end HTML, CSS, JavaScript. This connection between the two and framework of the website is helped by Django itself.

We learnt how to design and implement a successful working website.

References

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