ONGC Summer Training Project Report

Topic: ONGC Guest House Room Booking Portal

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Acknowledgement

My sincere gratitude goes out to my mentor, Mr. John Hansda, Chief Manager (Programs) of ONGC, Dehradun, for his steady leadership, superb collaboration, and unfailing inspiration during my training. My professional development has been greatly influenced by Mr. Hansda's priceless mentoring, and I am incredibly grateful for his unwavering support and encouragement.

Harshit Dutt Tyagi

Certificate

I hereby certify that the work which is being presented in this project report for the award of certificate of summer training of four weeks duration, submitted to ONGC Computer Services (HW) department, ONGC DEHRADUN is an authentic record of my own work.

Harshit Dutt Tyagi

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Mr. JOHN HANSDA Ch. Manager(prog.)

(Project guide)

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Oil and Natural Gas Corporation Limited (ONGC)
About ONGC

ONGC, as a pioneer in the field, plays a pivotal role in ensuring India's energy security. This prestigious Maharatna company stands as India's largest producer of crude oil and natural gas, contributing an impressive 71 percent to the country's domestic production. The crude oil it extracts serves as the fundamental raw material for downstream entities such as IOC, BPCL, HPCL, and MRPL (the last two being ONGC subsidiaries), enabling them to manufacture vital petroleum products like Petrol, Diesel, Kerosene, Naphtha, and LPG (Cooking Gas).

Committed to bolstering India's energy security, ONGC boasts a unique distinction it possesses inhouse expertise and capabilities across all aspects of oil and gas exploration, production, and related oilfield services. Recognized with the Best Employer award, this public sector giant relies on a dedicated workforce of approximately 27,000 professionals who work tirelessly in challenging environments around the clock.

Furthermore, ONGC Videsh Limited, a Miniratna Schedule "A" Central Public Sector Enterprise (CPSE) under the Ministry of Petroleum & Natural Gas, stands as ONGC's wholly owned subsidiary and overseas arm. ONGC Videsh is entrusted with the task of prospecting for oil and gas resources beyond India's borders, encompassing exploration, development, and production activities. The company holds Participating Interests in 35 oil and gas assets spanning 15 countries and contributes significantly to India's oil (30.3%) and oil and natural gas (23.7%) production abroad. In terms of reserves and production, ONGC Videsh ranks as India's second largest petroleum company, following closely behind its parent company, ONGC.

ONGC's subsidiary, Mangalore Refinery and Petrochemicals Limited (MRPL), operates as a

schedule 'A' Miniratna CPSE under the Ministry of Petroleum & Natural Gas. The refinery, with a capacity of 15.0MMTPA, boasts a versatile design capable of processing various API crudes and producing a wide range of high-quality products. Additionally, MRPL, in collaboration with its parent company ONGC, owns and operates ONGC Mangalore Petrochemicals Limited (OMPL), a petrochemical unit with the capacity to produce 0.905 MMTPA of Para Xylene and 0.273 MMTPA of Benzene.

ONGC's subsidiary, HPCL, is recognized as a Maharatna CPSE and holds the secondlargest share of product pipelines in India, encompassing a vast network spanning more than 3,370 kilometers for the transportation of petroleum products. With 14 Zonal offices in major cities and 133 Regional Offices supported by an extensive infrastructure that includes terminals, pipeline networks, aviation service stations, LPG bottling plants, inland relay depots, and retail outlets, HPCL plays a crucial role in ensuring the consistent and excellent performance of India's petroleum sector. This remarkable achievement is made possible by a highly motivated workforce of over 9,500 employees spread across various refining and marketing locations throughout India.

History

Oil and Natural Gas Corporation Limited (ONGC) is one of India's largest and most prominent public sector enterprises in the energy sector. It has a rich history dating back to the early years of India's post-independence era. Here is a brief timeline of ONGC's history in 8 points:

1. 1.Foundation and Early Years (19561960s): ONGC was founded on August 14, 1956, as a statutory body under the Industrial Development and Regulation Act. Its primary objective was to explore, develop, and produce hydrocarbons, both crude oil and natural gas, in India. It initially operated as a subsidiary of the Oil and Natural Gas Commission, which was part of the Ministry of Natural Resources and Scientific Research. The organization's early years were marked by pioneering efforts to discover and extract oil and gas resources in India.

2. 2.First Major Discovery (1960): ONGC made its first significant oil discovery at Ankleshwar in Gujarat in 1960. This marked a crucial milestone in India's journey towards self-sufficiency in oil and gas production.

3. 3.Rapid Expansion (1970s1980s):In the 1970s and 1980s, ONGC expanded its operations significantly. It made several major discoveries, including the Bombay High field in the Arabian Sea in 1974, which was one of the largest offshore oil fields in the world. This discovery transformed India's energy landscape and reduced the country's dependence on oil imports.

4. 4.Maharatna Status (1990s):In 1994, ONGC was conferred with the prestigious "Maharatna" status, a recognition of its exceptional performance and financial strength.

This status granted ONGC greater autonomy in decision-making and financial management.

5. Global Expansion (2000s): ONGC Videsh Limited (OVL), the overseas arm of ONGC, was established to pursue international oil and gas exploration and production opportunities. OVL made investments and acquired assets in various countries, expanding ONGC's global footprint.

6. Diversification and Subsidiaries: ONGC diversified its operations by establishing subsidiaries such as Mangalore Refinery and Petrochemicals Limited (MRPL) and Hindustan Petroleum Corporation Limited (HPCL), which are involved in refining and marketing of petroleum products.

7. Technological Advancements: ONGC has continuously invested in research and development to adopt advanced drilling and exploration technologies, improving efficiency and productivity in oil and gas operations.

8. Sustainability and CSR:ONGC has been actively involved in corporate social responsibility (CSR) initiatives, supporting various community development projects in the areas where it operates. It has also embraced sustainable practices in its operations.

Over the years, ONGC has played a pivotal role in meeting India's energy needs, reducing oil imports, and contributing to the country's economic growth. It remains a key player in India's energy sector and continues to explore new opportunities in the everevolving global energy landscape.

Subsidiaries

Oil and Natural Gas Corporation Limited (ONGC) has several subsidiaries that operate in various segments of the oil and gas industry, including exploration, production, refining, marketing, and petrochemicals. Here is an overview of some of ONGC's prominent subsidiaries:

1. Mangalore Refinery and Petrochemicals Limited (MRPL): MRPL is a significant subsidiary of ONGC and is located in Mangalore, Karnataka. It is a leading player in the refining and marketing of petroleum products. MRPL operates a 15 million metric ton per annum (MMTPA) refinery with versatile processing units that can handle various crude oil types, producing a wide range of high-quality petroleum products.

2. HPCL (Hindustan Petroleum Corporation Limited): ONGC acquired a majority stake in HPCL, making it one of its prominent subsidiaries. HPCL is a Maharatna company and is involved in refining, marketing, and distributing petroleum products across India. It has an extensive network of pipelines, terminals, and retail outlets, contributing significantly to India's energy sector.

3. ONGC Videsh Limited (OVL): OVL is the overseas arm of ONGC and plays a crucial role in securing energy resources for India. It focuses on international oil and gas exploration and production activities. OVL has interests in multiple oil and gas assets in various countries, contributing significantly to India's energy security.

4. ONGC Tripura Power Company (OTPC): OTPC is a joint venture between ONGC, the Government of Tripura, and the Infrastructure Leasing and Financial Services (IL&FS). It is involved in the generation and supply of power in the state of Tripura, helping meet

the region's energy needs.

5. ONGC Petro Additions Limited (OPaL): OPaL is a petrochemical company located in Dahej, Gujarat. It is a joint venture between ONGC, GAIL (India) Limited, and Gujarat State Petroleum Corporation (GSPC). OPaL produces a wide range of petrochemical products, including polyethylene and polypropylene, contributing to India's growing petrochemical industry.

6. ONGC Mangalore Petrochemicals Limited (OMPL): OMPL is another subsidiary located in Mangalore, Karnataka, and is jointly owned by ONGC and MRPL. OMPL is primarily involved in the production of paraxylene and benzene, essential raw materials in the petrochemical industry.

7. ONGC Energy Centre: The ONGC Energy Centre is a research and development arm of ONGC, focusing on various aspects of the energy sector, including renewable energy sources, energy efficiency, and sustainable practices.

These subsidiaries play a critical role in ONGC's overall business strategy by diversifying its operations, expanding its presence in the energy value chain, and contributing to India's energy security and economic growth. Each subsidiary specializes in its respective field, complementing ONGC's efforts to meet the country's growing energy demands and promoting sustainable practices in the oil and gas industry.

Projects

- Azerbaijan:

- ACG (Azeri, Chirag & Deepwater Guneshli): ONGC Videsh holds a 2.31% Participating Interest (PI) in ACG, a significant offshore project in the Caspian Sea, with BP as the operator.

- BTC (BakuTbilisiCeyhan) Pipeline: ONGC Videsh holds a 2.36% PI in the BTC pipeline project, which transports oil from Azerbaijan to the Mediterranean Sea.

- Bangladesh:

- Block SS04: ONGC Videsh, in partnership with Oil India Ltd, holds a 45% PI in this offshore block in the Bengal Basin.

- Block SS09: Similar to Block SS04, ONGC Videsh and Oil India Ltd hold a 45% PI in this offshore block in the Bengal Basin.

- Myanmar:

- BlockA1 & A3: ONGC Videsh has a 17% PI in these blocks, with POSCO INTERNATIONAL as the operator.

- Block B2: ONGC Videsh operates this block with a 97% PI.

- Block EP3: ONGC Videsh is the operator with a 97% PI.

- Pipeco1: ONGC Videsh holds a 17% PI in the Offshore Pipeline Project (Pipeco1).

- Pipeco2: ONGC Videsh has an 8.347% PI in the Onshore Gas Pipeline Project (Pipeco2).

- Russia:

- Sakhalin1: ONGC Videsh holds a 20% PI in the Sakhalin1 project, with Exxon Neftegas Limited as the operator.

- Imperial Energy: ONGC Videsh acquired Imperial Energy Corporation Plc, which has multiple E&P license blocks in Western Siberia.

- Vankor: ONGC Videsh has a 26% equity stake in CSJC Vankorneft, which operates the Vankor field.

- Vietnam:

- Block 06.1: ONGC Videsh holds a 45% PI in this offshore block, with Rosneft Vietnam BV as the operator.

- Block 128: ONGC Videsh is the operator with a 100% PI in this block.

- Iran:

- Block Farsi: ONGC Videsh led an Indian Consortium with a 40% PI in Block Farsi, an offshore block in the Persian Gulf.

- Iraq:

- Block8 (Renamed Block20): ONGC Videsh acquired a 100% stake in exploration Block8, an on land exploration block in Western Desert, Iraq.

- Syria:

- AFPC: ONGC Videsh, in partnership with Mittal Investments, acquired a 50% stake in Himalaya Energy Syria B.V. (HESBV), which has production sharing contracts for multiple oil fields.

- Block24: ONGC Videsh holds a 60% PI in Block24, an exploratory block in eastern Syria.

- UAE:

- Lower Zakum Concession: ONGC Videsh, in a consortium, acquired a 10% PI in the Lower Zakum Project in UAE, with ADNOC as the operator.

- Libya:

- Contract Area 43: ONGC Videsh acquired a 100% stake in exploratory Contract Area 43 in the Cyrenaica Offshore Basin of Libya.

- Mozambique:
- Rovuma Area1 Offshore: ONGC Videsh has a 16% PI in this project, with Total as the operator.

- South Sudan:

- GPOC:ONGC Videsh holds a 25% PI in GPOC, which covers onland Blocks 1, 2 & 4, located in the Muglad basin.

- SPOC (Block 5A): ONGC Videsh has a 24.125% PI in Block 5A, situated in the Muglad basin.

- Brazil:

- BC10: ONGC Videsh holds a 27% PI in BC10, a deepwater project in the Campos Basin.

- Block BM Seal4: ONGC Videsh has a 25% PI in this exploratory block in the Sergipe Alagoas Offshore Basin.

- Colombia:

- MECL: ONGC Videsh has a 50% stake in Mansarovar Energy Colombia Limited (MECL), with interests in Velasquez field, VelasquezGalan pipeline, and Nare Association Contract.

- Block RC9: ONGC Videsh holds a 50% PI in this block, located in the offshore Guajira Basin.

- Block RC10: Similar to RC9, ONGC Videsh is the operator with a 50% PI.

- Block SSJN7: ONGC Videsh holds a 50% PI in block SSJN7.

- Block CPO5: ONGC Videsh, in partnership with Petrodorado Energy, operates this block with a 70% PI.

- Block LLA69: ONGC Videsh holds a 50% PI in this block, operated by MEC

Training Project

Introduction

1.1 Purpose

The purpose of this project is to serve employees of ONGC to help them book rooms of guest house across India in ONGC Campuses. There are in total thirteen guest houses present across India. The present system of booking involves the physical presence of employees to book rooms and take permission from Register and present the copy of permission to staff of the guest house. This causes a burden on students. In order to solve this issue, we came up with a website which allows students to book rooms online by authenticating that they belong to ONGC via xxxx@ongc.co.in account.

1.2 Objective

In this world of growing technologies everything can be digitized. With a higher efficiency, digitized systems are always preferred options. We are living at a time when digitization of room bookings has never been this big. Thus, there is a need for a system which can help employees of ONGC to book rooms of guest houses across India online. This is where our project comes into play.

Requirements Analysis and Specification

This system allows employees of ONGC to book rooms in guest house in advance for their parents and relatives. This website provides information about rooms availability, check in, checkout details etc. The main functionality of this application is to allow employees to book rooms in ONGC guest house online. User needs to login using valid mail provided by the institution and can create an account, check availability of rooms and book rooms accordingly for parents, relatives visiting the campus of ONGC.

2.1 Software Requirements

DBMS:

When the development platforms are looked at, Oracle, MS SQL Server 2000, SQLite3 are the possible solutions. As stated, as we chose Django as the development platform My SQL was our database of choice as it is available in Django easily. We believe that this was the best solution for us.

Development:

For developing our system, we used the following tools and languages:

- Python3 is the programming language for main development
- Django is the run-time environment that executes Python code outside of a browser.
- HTML5, Bootstrap for making front-end of the webpages. Bootstrap is a collection of CSS files that will help us use CSS modules directly.

Database Design

3.1 ER Diagram

An entity relationship diagram (ERD) shows the relationships of entity sets stored in a database. An entity in this context is an object, a component of data. An entity set is a collection of similar entities. These entities can have attributes that define its properties. An Entity Relationship Diagram (ERD) is a snapshot of data structures. An Entity Relationship Diagram shows entities (tables) in a database and relationships between tables within that database.

3.2 ER Diagram for our app:

The following image is the ER diagram of our project named ONGC Guest House Room Booking Portal .
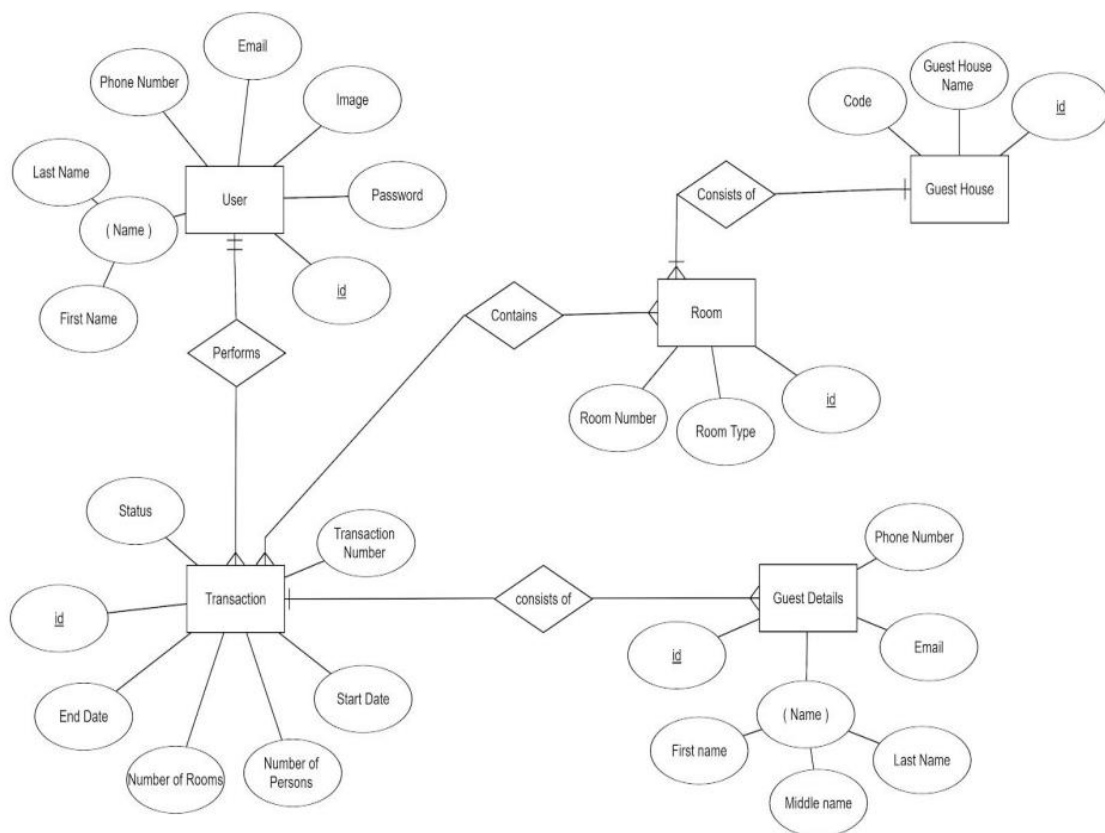
Figure 3.2.1 ER diagram of the Portal

The ER diagram consists of Entities, Attributes and relationships among entities. The entities are represented using rectangles, Attributes using oval and relationships via lines between entities. There are five entities in our namely User, Guest house, Guest details, Rooms, Transactions.Each entity has a primary key and a foreign key if referenced by other entities. The ER diagram consists of Different kinds of attributes such as key attribute, derived attribute, multi-valued attributes and composite attribute. Key attribute in given ER diagram is represented with an underline, Composite is like attributes derived from an attribute and multi-valued attribute using double oval and derived attribute using dashed oval.

The relationship(cardinality) between various entities is as follows:

User - Transaction : One-Many relationship.

Room- Transaction : Many-Many relationship.

Guest house - Rooms : One-Many relationship.

Transaction- Guest details : Many-Many relationship.

3.3 Tables in the database:

3.3.1 User Table

Field	Type	About
id	int(6)	This is the unique ID given tothe user. This field is the primary key of the table.
firstname	varchar(30)	The first name of theuser. It is part of the composite attributename.
lastname	varchar(30)	The last name of the user. It is part of the composite attribute name.
Phone number	int(10)	The phone number of theuser.

Email	Varchar(30)	The Email id of the user.
Image	Varchar(30)	The display pictureof the user
password	Binary(100)	The password provided by the u

3.3.2 Guest Details Table

Field	Type	About
id	int(3)	Unique id generated for every guest.
firstname	varchar(30)	The first name of the guest. It is part of the composite attribute name.
middlename	varchar(30)	The middle name of the guest. It is part of the composite attribute name.
lastname	varchar(30)	The last name of the guest. It is part of the composite attribute name.
Phone number	int(10)	The contact number of the guest.
email	varchar(30)	Email of the guest.
id	int(3)	This is the foreign key referenced from transaction id.

3.3.3 Guest House Table

Field	Type	About
Gid	int(6)	A unique id given to every Guest house. This is the primary key of the table.
Guest house name	varchar(30)	The name of the guest house where user books room.

Code	varchar(10)	Unique code given to each of the guest houses.

3.3.4 Room Table

Field	Type	About
RoomID	int(5)	The Room id of the Rooms in each guest houses.
Room number	int(5)	Room number of the rooms in guest house.
Room type	varchar(15)	Type of the rooms available in guest house
Gid	int(3)	Foreign key referencing the guest house id in guest house table.

3.3.5 Transaction Table

Field	Type	About
Transaction ID	Int(8)	The transaction Id of each of the bookings.
Start date	Date	The checkin date for the booking of room
End date	Date	The checkout Date of the guest from the rooms
Number of persons	int(3)	Number of persons for which room has to be booked.
Number of rooms	int(3)	Number of rooms booked by each user per transaction.
Status	varchar(10)	Status whether the rooms are avilable or not for each transaction.

Transaction Number	int(10)	Transaction done by each user is numbered and storedin this field.
uid	int(3)	Foreign key of the user referenced from user table who carries out the transaction.

3.3.6 Sessions Table

Field	Type	About
session_id	varchar(128)	This is the unique id given toany login session of the player.
expires	int(11) unsigned	The time in milliseconds after which the session will expire.
data	text	The field which stores datafor the cookie.

3.4 The Relational Schema for our website:

A **relation schema** is essentially the **schema** for a table. In a **relational** database each table can be referred to as a "**relation**" . Hence a **relational schema** is the design for the table.

A relation schema consists of primary key, Foreign key and cardinality between entities.

Primary key : A primary key is a special relational database table column (or combination of columns) designated to uniquely identify all table records. A primary key's main features are: It must contain a unique value for each row of data. It cannot contain null values.

Foreign key : In the context of relational databases, a foreign key is a field (or collection of fields) in one table that uniquely identifies a row of another table or the same table. In simpler words, the foreign key is defined in a second table, but it refers tothe primary key or a unique key in the first table.

Cardinality : In the context of databases, cardinality refers to the uniqueness of data values contained in a column. High cardinality means that the column contains a large percentage of totally unique values. Low cardinality means that the column contains alot of "repeats" in its data range.

The relational schema for our app is displayed below.
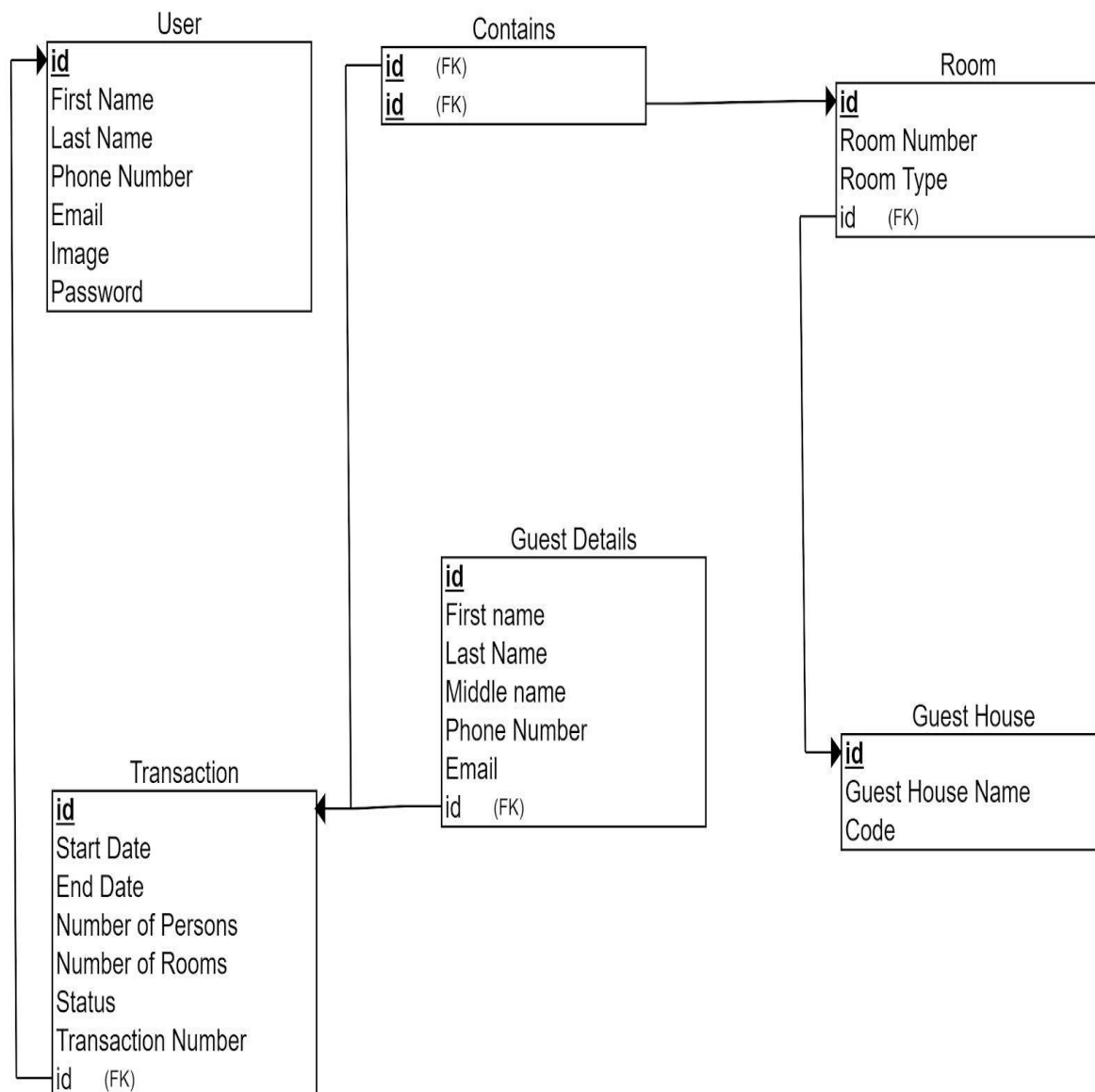
Figure 3.4.1 Relational Schema of the Portal

Project Components

4.1 Front End Design:

4.1.1 Framework:

We have used **Express** as the backend framework. For the front end, we have used **CSS3, Bootstrap 4, HTML5 and JavaScript.**

4.1.2 UI Components:

- **Home Page:** This animative page welcomes users to our web application and tells users about Guest houses in nitk, gallery of images of guest house. The home page has various sections like About, Gallery and contact information along with the kinds of rooms available and its price.

- **Login:** The login page allows users to enter identifier information into our system in order to access that system. Our login form requires users to enter a valid institution mail and a password. And for manager a separate popup login page will be displayed.

- **SignUp:** This form allows people to become registered users. The users should give a valid institution mail, choose a new password which follows a few industry defined rules. Users can also provide a profile picture here.

- **Profile:** This is the page the user is directed to when he/she logs in. The user can view his details here and edit them if he feels necessary. Also he can change his account password.

- **Room booking form:** This page has a form which asks user to fill check in and check out dates for rooms. On submitting the system takes them to rooms availability page in guest houses.

- **Availability :** The availability page shows number of rooms available in each of the three guest houses and has a button which allows users to get details of rooms available in guest house. Under details section , the number of rooms available in each category is shown along with an option to book rooms of certainkind by specifying number of rooms and number of guest.

- **My bookings:** My bookings contains the information about all the bookings doneby the user with his/her account and details of the bookings done every time.This also gives option to cancel rooms before checkin and shows the information about cancellation of rooms.

- **User profile :** This page contains the personal information about the user. He/she can edit information at any point of time and allows to provide their profilepicture. This allows users to change their passwords incase they want to change the password.

- **Manager profile :** Manager profile page has a bundle of functionalities. This shows the information about recent bookings and rooms in each of the guest houses separately. Also managers can change their passwords by going to manager account page.

- **Room booking statistics :** This page shows the graph of rooms booked by users with respect to date. This helps manager to have a clear picture about the number of rooms available and number of rooms booked.

● **Navbar:** The navbar is present at the top of every page in our application. ThisUI component allows users to easily navigate from one page to another, often giving users the feeling that they are switching between tabs.

4.2 Security Measures:

1. SQL INJECTIONS

What it is: SQL injection is a type of web application security vulnerability in which an attacker attempts to use application code to access or corrupt database content. If successful, this allows the attacker to create, read, update, alter, or delete data stored inthe back-end database. SQL injection is one of the most prevalent types of web application security vulnerabilities.

How we solved it: Prepared Statements (with Parameterized Queries)

The use of prepared statements with variable binding (aka parameterized queries) is how all developers should first be taught how to write database queries. They are simple to write, and easier to understand than dynamic queries. Parameterized queries force the developer to first define all the SQL code, and then pass in each parameter to the query later. This coding style allows the database to distinguish between code and data, regardless of what user input is supplied.

Safe Java Prepared Statement Example

The following code example uses a PreparedStatement, Java's implementation of a parameterized query, to execute the same database query.

```
String custname = request.getParameter("customerName"); // This should REALLY be

validated too

 // perform input validation to detect attacks

 String query = "SELECT account_balance FROM user_data WHERE user_name = ? ";

 PreparedStatement pstmt = connection.prepareStatement( query ); pstmt.setString( 1, custname);

 ResultSet results = pstmt.executeQuery( );
```

Our website uses one way hashing to store important details like passwords using anoptimal

salt value of ten.

 The salt value is generated at random and can be any length, in this case the salt value is 8 bytes

 (64-bit) long. The salt value is appended to the plaintext password and then the result is hashed,

 this is referred to as the hashed value. Both the salt value and hashed value are stored.

Username	Salt value	String to behashed	Hashed value = SHA256 (Salt value +Password)
user1	E1F53135E559C253	password123E1F53135E559C253	72AE25495A7981C40622D49F9A52E4F1565C90F048F59027BD9C8C8900D5C3D8
user2	84B03D034B409D4E	password12384B03D034B409D4E	B4B6603ABC670967E99C7E7F1389E40CD16E78AD38EB1468EC2AA1E62B8BED3A

As the table above illustrates, different salt values will create completely different hashed values, even when the plaintext passwords are exactly the same. Additionally, dictionary attacks are mitigated to a degree as an attacker cannot practically precompute the hashes.

2. CROSS SITE SCRIPTING (XSS)

What it is: Cross-site scripting (XSS) targets an application's users by injecting code, usually a client-side script such as JavaScript, into a web application's output. The concept of XSS is to manipulate client-side scripts of a web application to execute in themanner desired by the attacker. XSS allows attackers to execute scripts in the victim's browser which can hijack user sessions, deface websites, or redirect the user to malicious sites.

How we solved it: In the forms we use, we use hashing to store passwords and the other fields are accessed via django rather than directly querying the database. So, Cross Site Scripting won't affect the website.

3 . BROKEN AUTHENTICATION & SESSION MANAGEMENT

What it is: Broken authentication and session management encompass several security issues, all of them having to do with maintaining the identity of a user. If authentication credentials and session identifiers are not protected at all times an attacker can hijack an active session and assume the identity of a user.

How we solved it: To ensure that the identity of a user is kept safe, we use password hashing and session timeout. As already mentioned, the hashing ensures that access topasswords cannot be cracked even if one has access to the database. Also, we use session managers which ensure that a user session stops after a certain amount of timeand he/she would have to login again.

4. INSECURE DIRECT OBJECT REFERENCES

What it is: Insecure direct object reference is when a web application exposes a reference to an internal implementation object. Internal implementation objects include files, database records, directories, and database keys. When an application exposes a reference to one of these objects in a URL hackers can manipulate it to gain access to auser's personal data.

How we solved it: One common way to access objects like profiles is to use profile IDsin the URLs. So, we do not use profile IDs. Instead, we have a single URL for all the profiles. None of the URLs that we use, contain a reference to an internal object. Moreover any irregular or wrong URL is processed to be a 404 error and necessary action is taken.

5. SECURITY MISCONFIGURATION

What it is: Security misconfiguration encompasses several types of vulnerabilities all centered on a lack of maintenance or a lack of attention to the web application configuration. A secure configuration must be defined and deployed for the application, frameworks, application server, web server, database server, and platform. Security misconfiguration gives hackers access to private data or features and can result in a complete system compromise.

How we solved it: The security configurations used by us are the ones provided by django itself. The django modules have been known to use custom cryptographic libraries and multi-step authorisation and authentication and permission guarantees in order to avoid such vulnerabilities.

6. CROSS-SITE REQUEST FORGERY (CSRF)

What it is: Cross-Site Request Forgery (CSRF) is a malicious attack where a user is tricked into performing an action he or she didn't intend to do. A third-party website will send a request to a web application that a user is already authenticated against (e.g. their bank). The attacker can then access functionality via the victim's already authenticated browser. Targets include web applications like social media, in browser email clients, online banking, and web interfaces for network devices.

How we solved it: On each of our sessions, we use CSRF tokens, which are generated randomly with timestamp and a short lifetime.

Result And Discussion
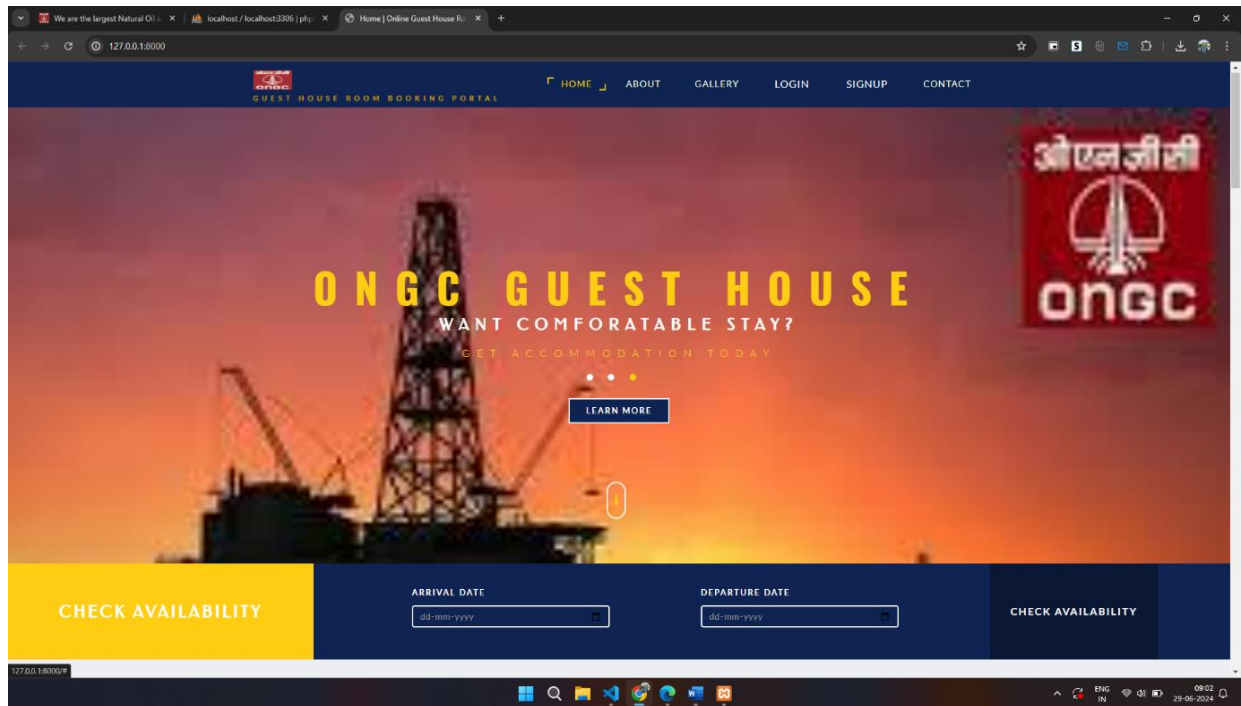
The home page of the website which hosts picture of ONGC in the background.
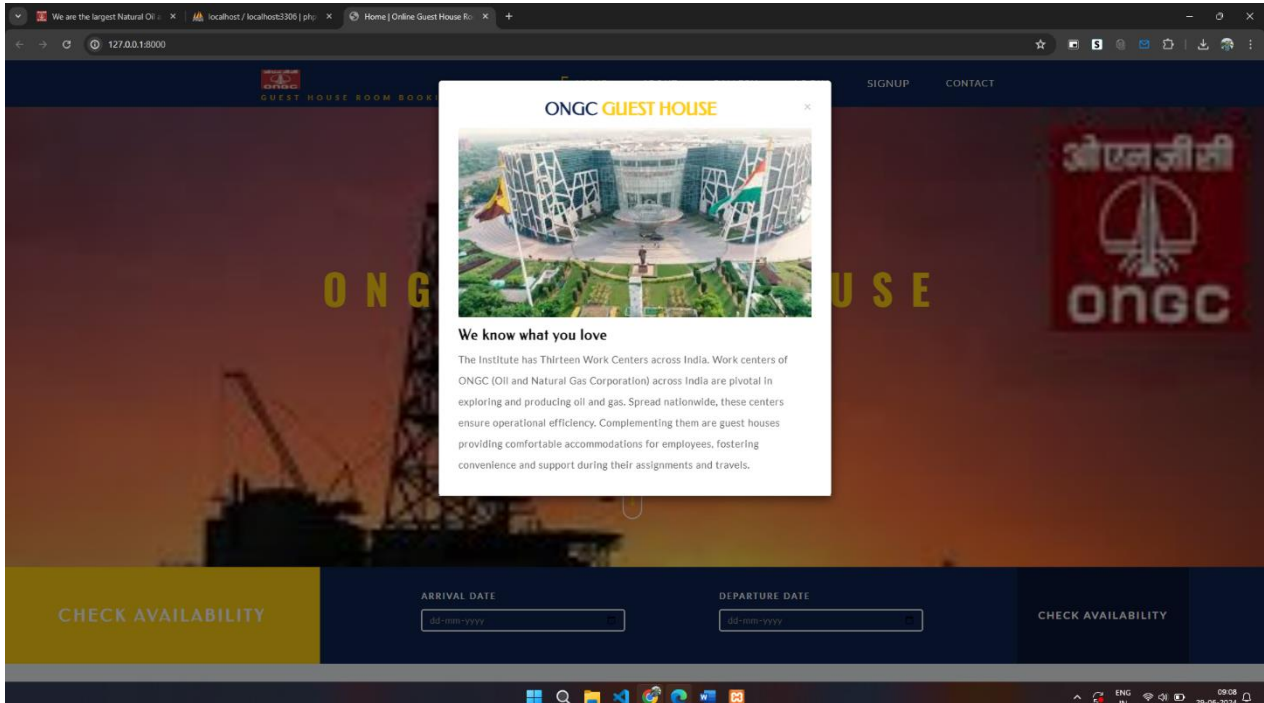
In the learn more section we show the brief view of our guest houses.
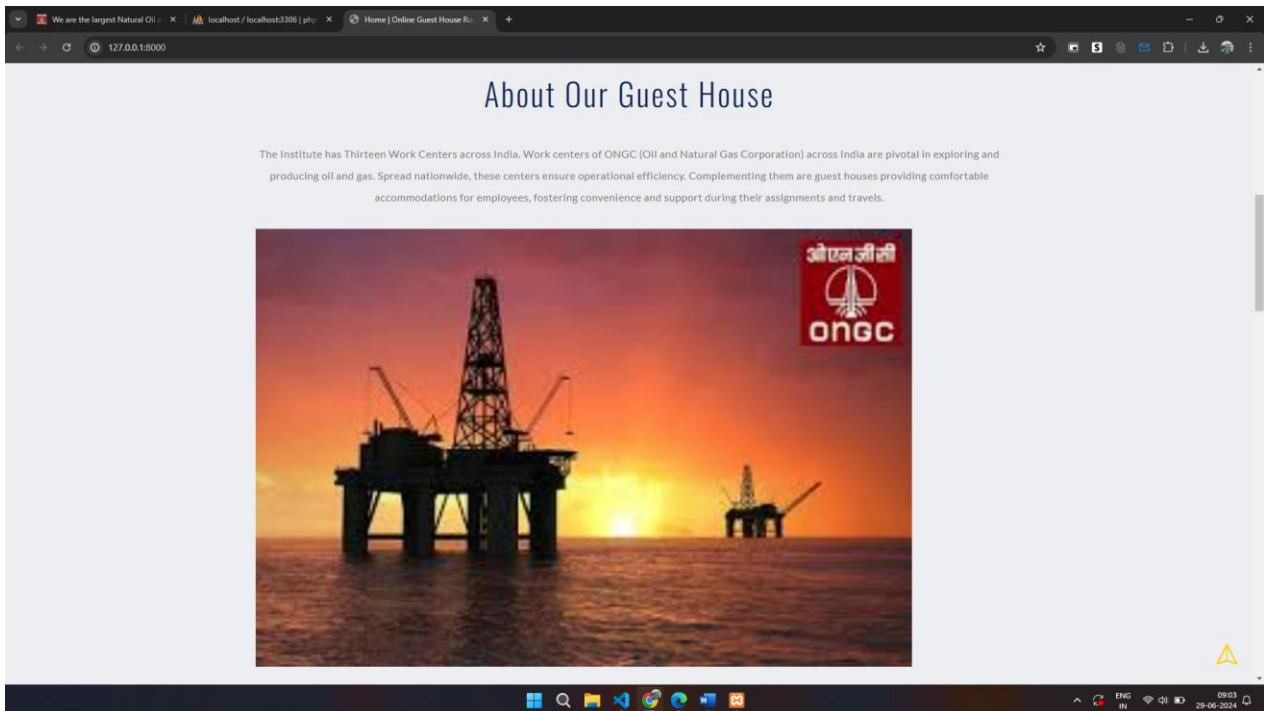
In this section we explain about all the thrirteen guest houses along with pictures.
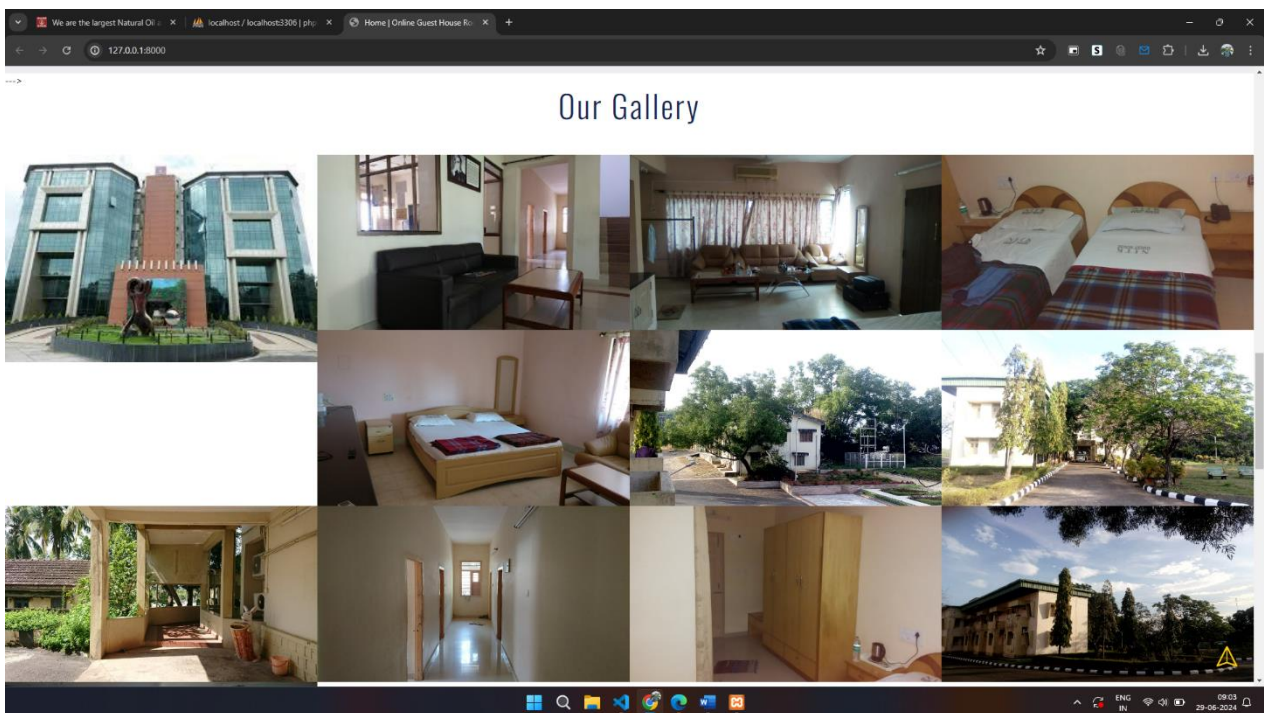
The gallery section displays the pictures of rooms and guest houses of ONGC across India.
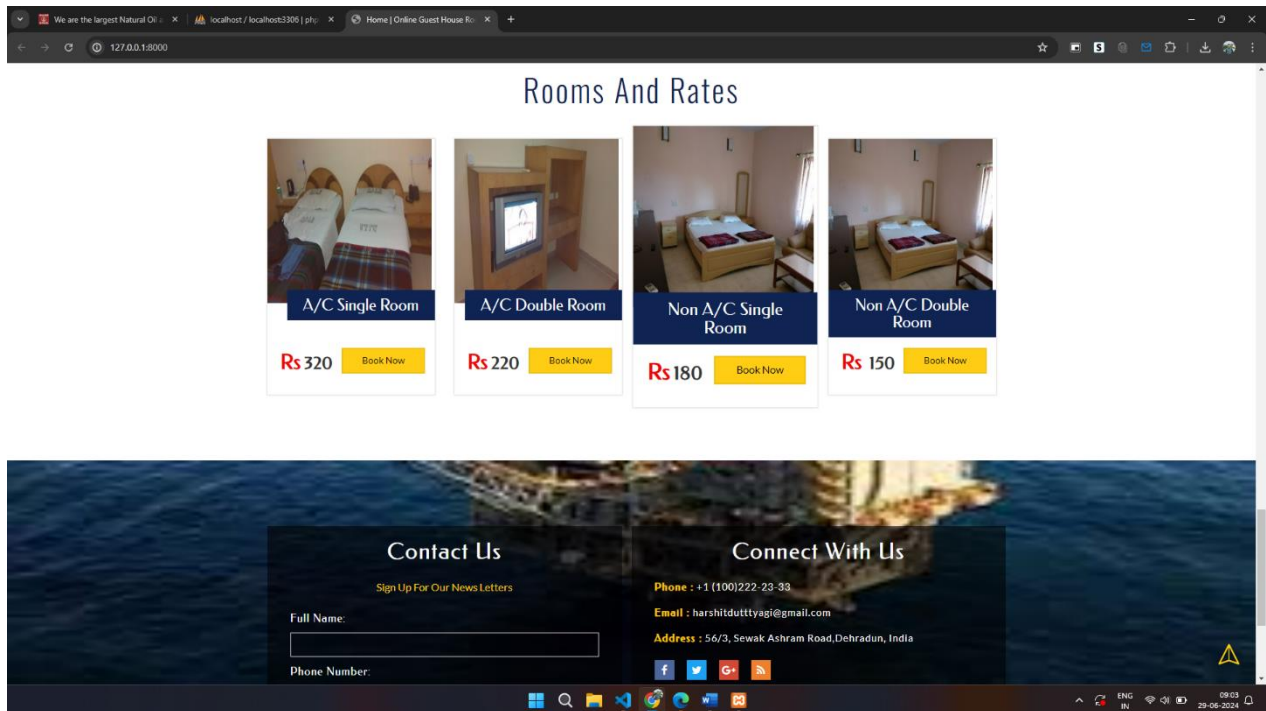
In home page different types of rooms and its prices are shown and an option to bookrooms.
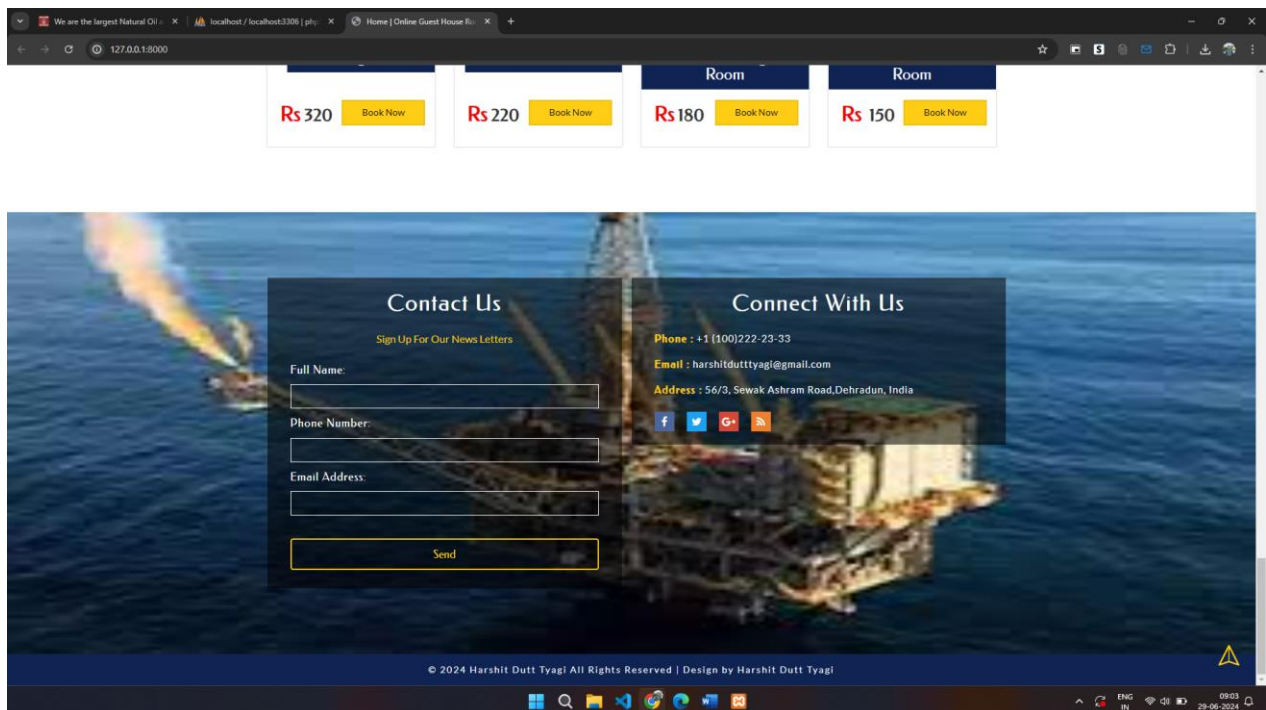
The contact us part allows users to contact the managers for any kind of information regarding booking rooms.
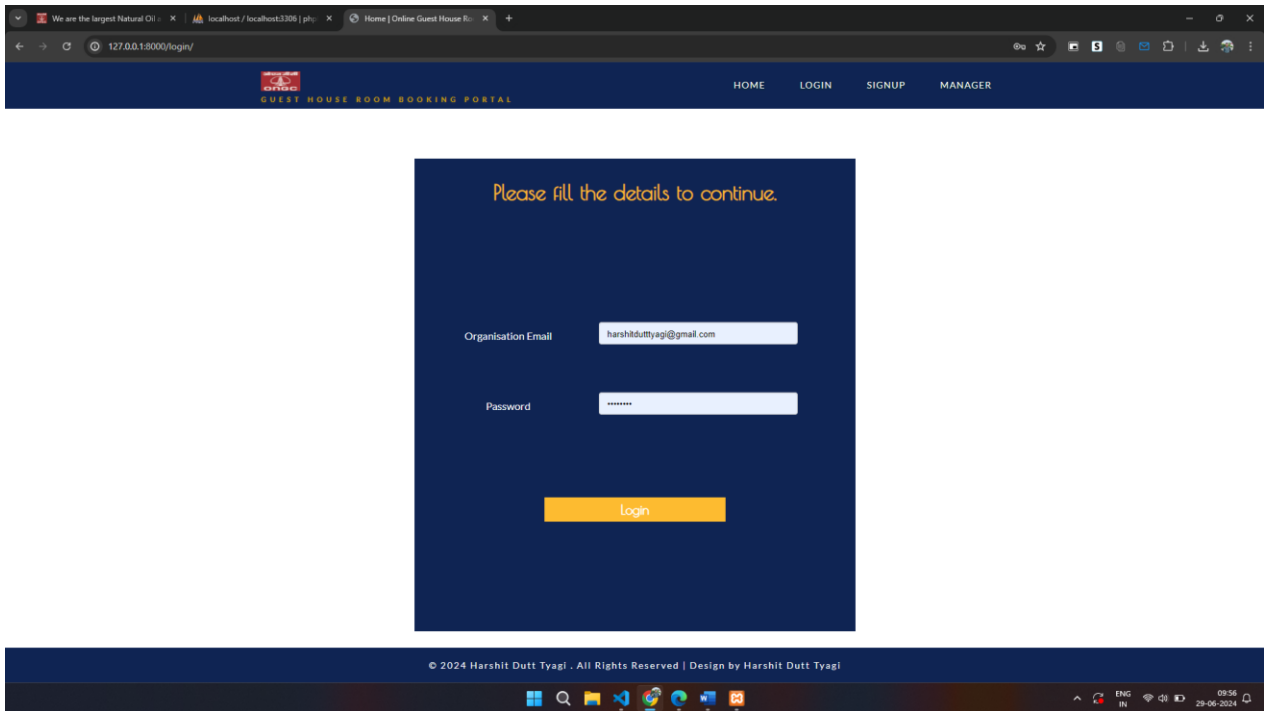
Login page which has functionality to enter from organizational email (if required).
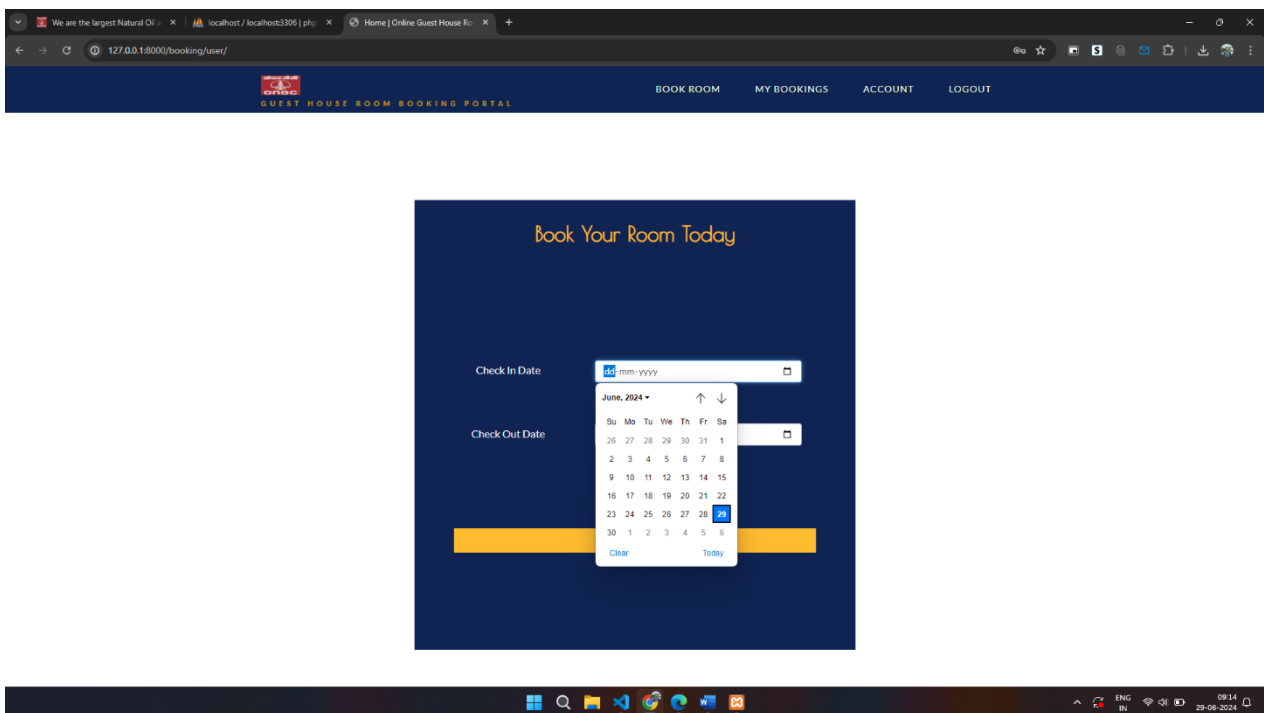
The booking form asks users to enter checkin date and checkout date.
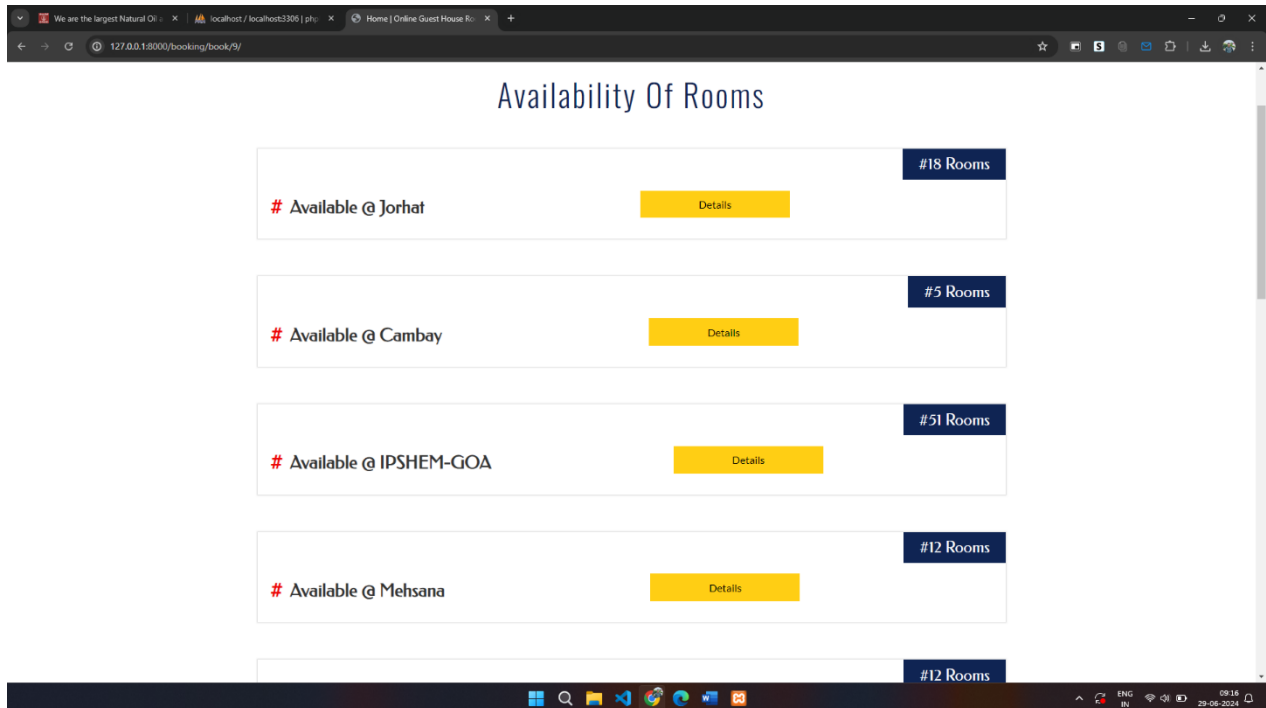
The availability page displays number of rooms available in each of the guest houses across India.
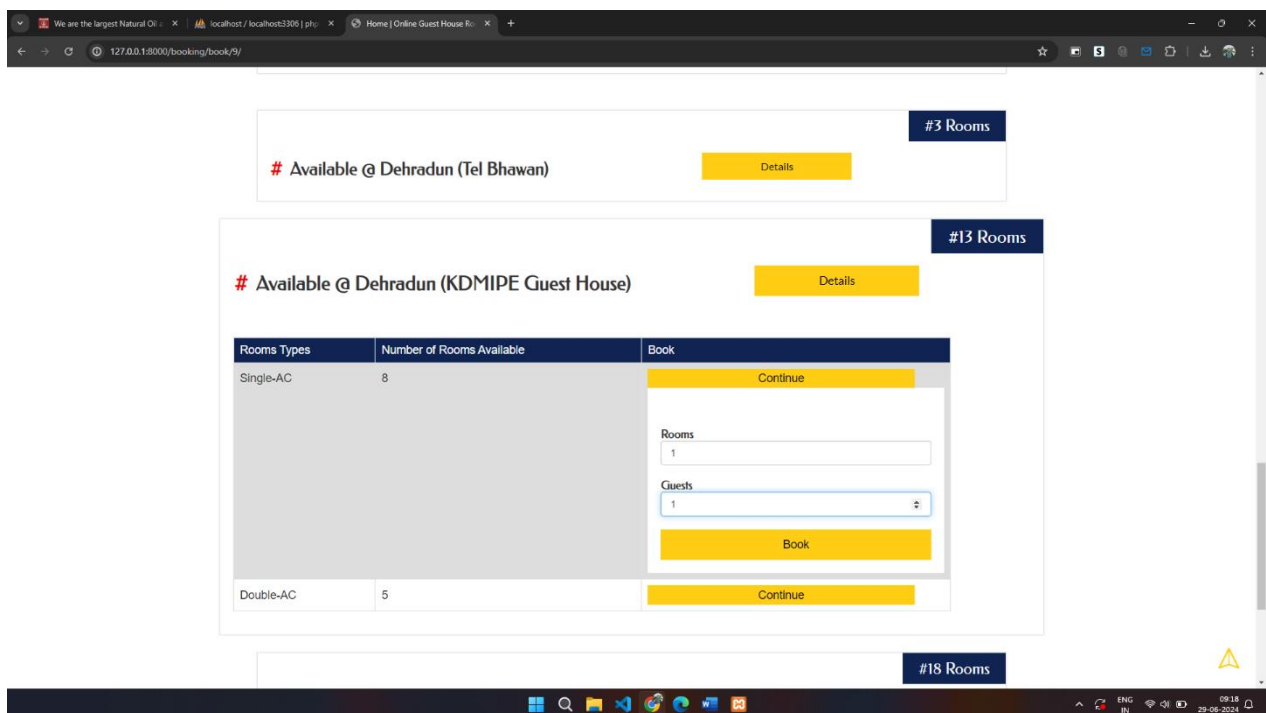
In room availability page users can get information about rooms and can book enter number of rooms required and number of guests.
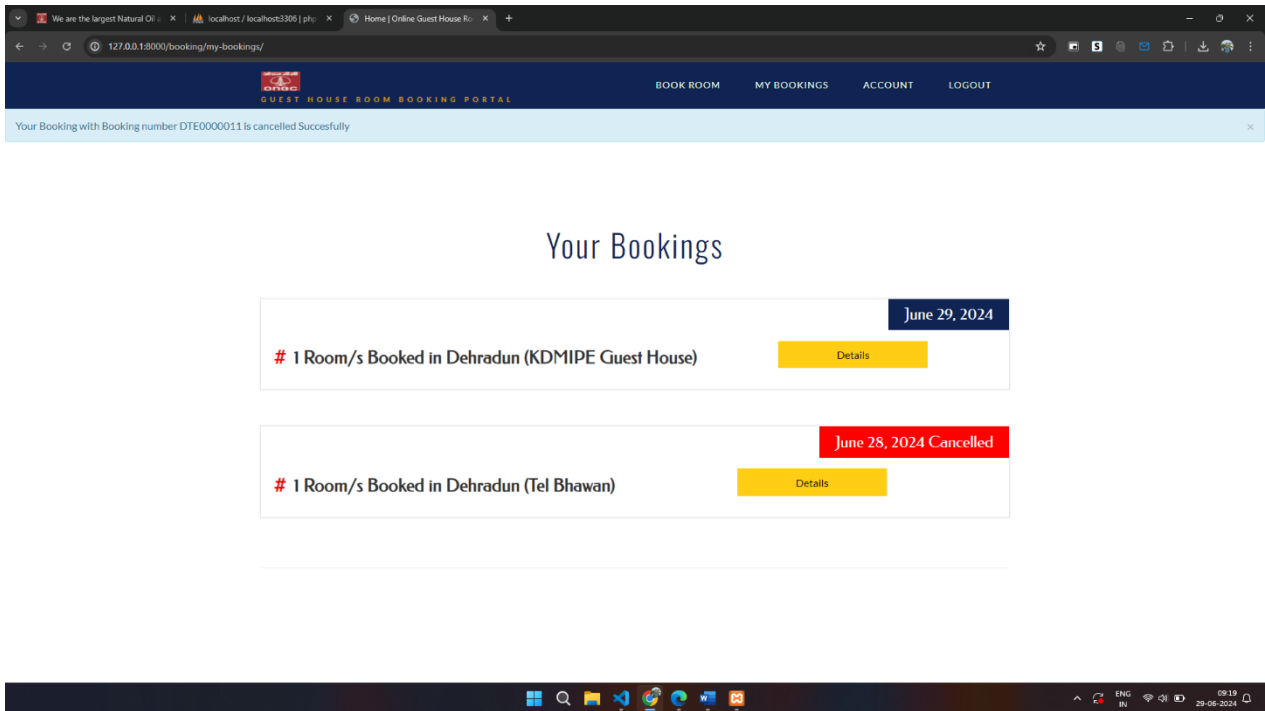
My bookings page will show the bookings done by user using the account.
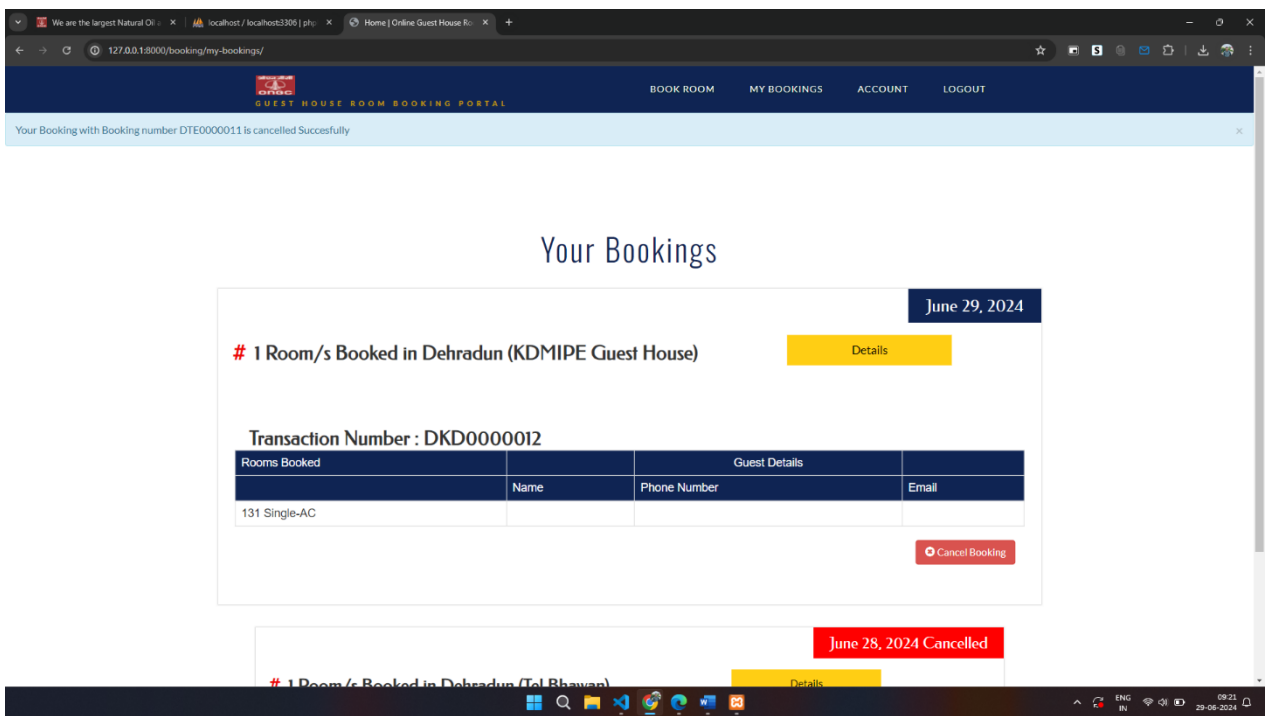
under my bookings user can view description about each of the bookings by clickingdetails and also can cancel the booking of room before checkin.
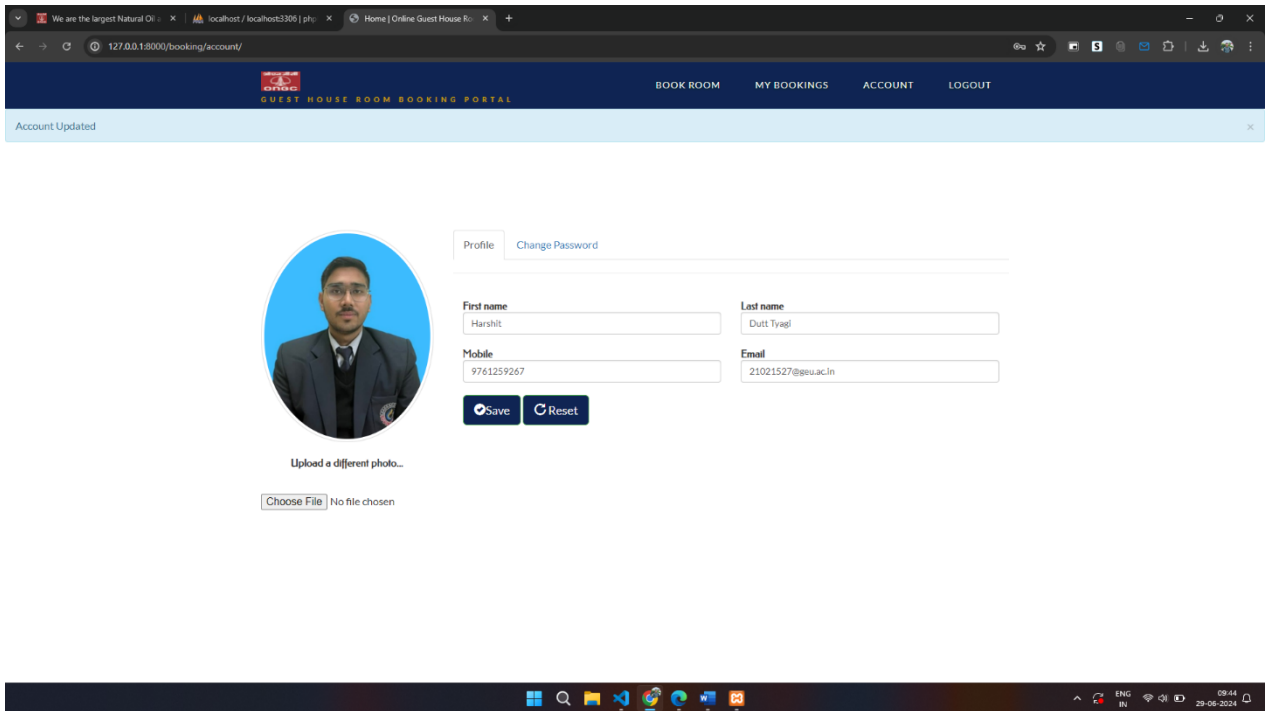
The profile page of the user with his personal information and image which he/she canedit at any point of time
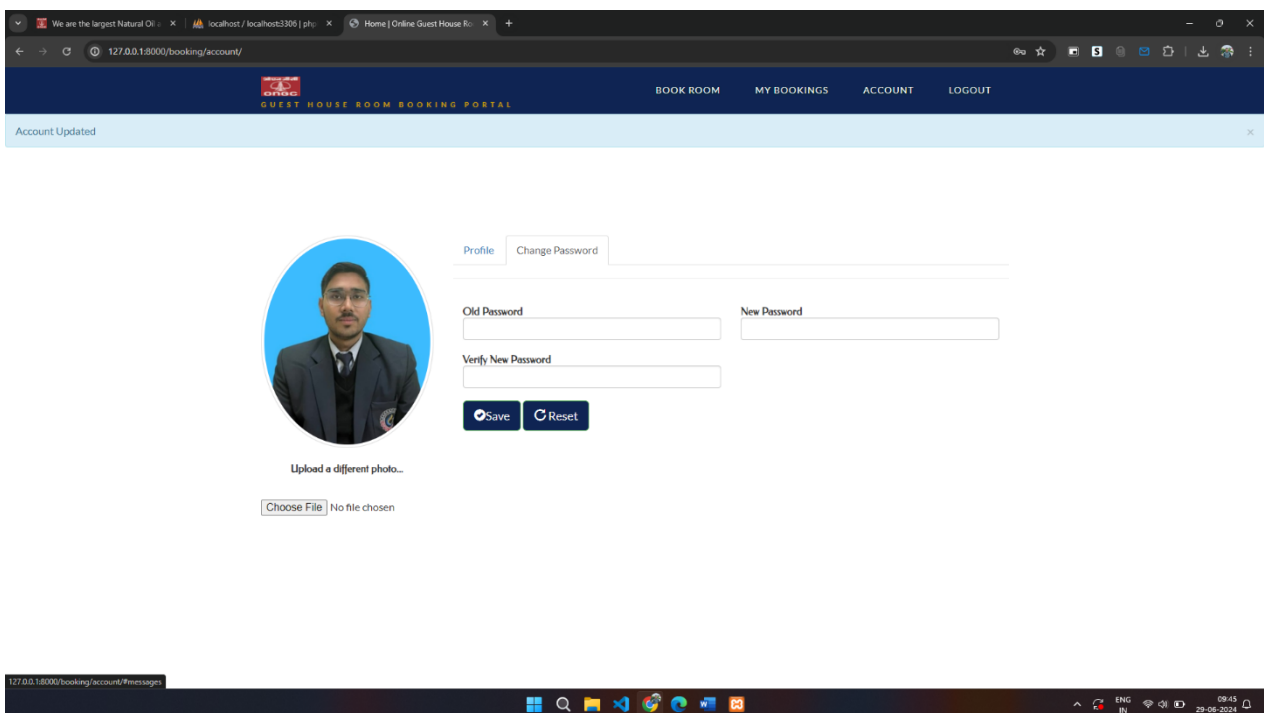
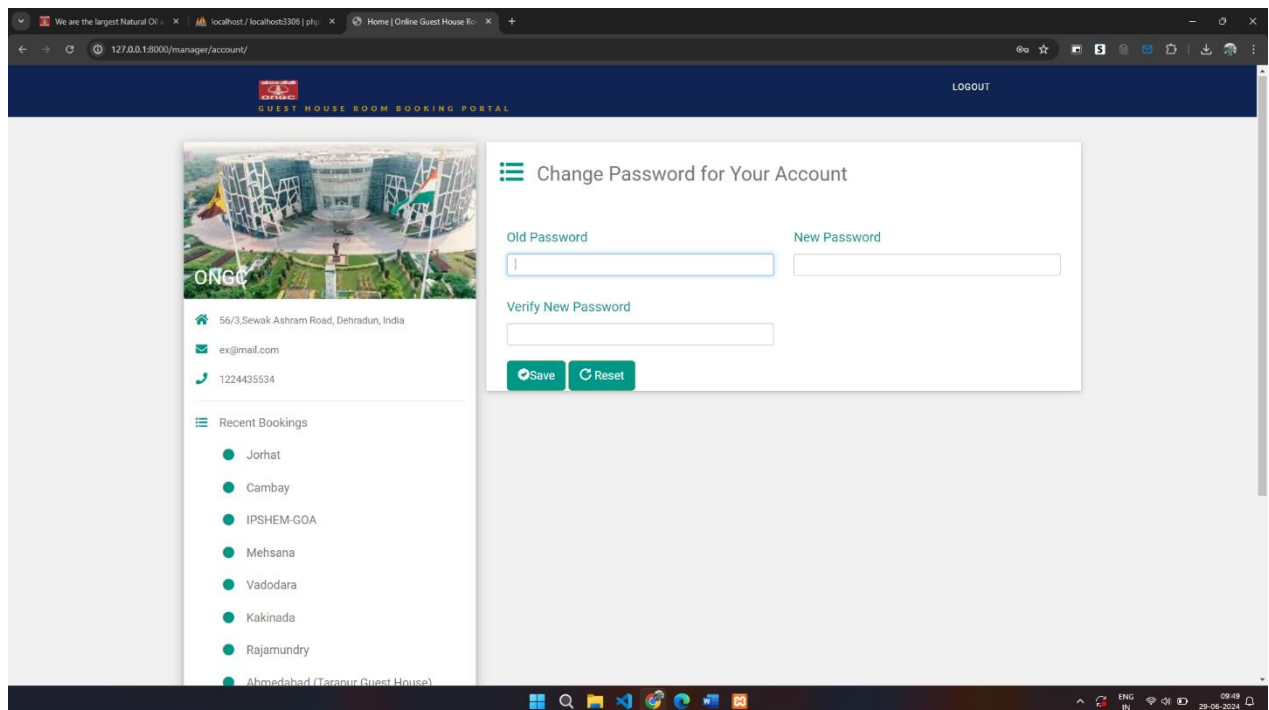The profile page also allows user to change password if he/she wishes to.
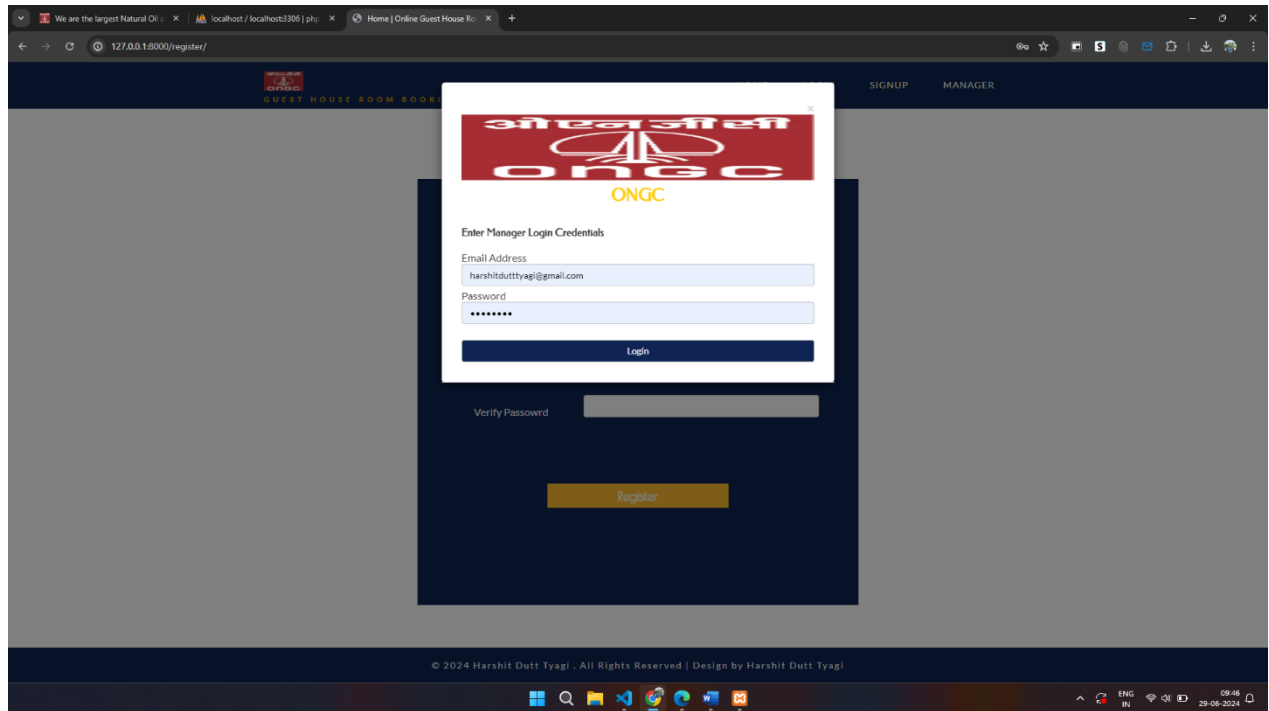
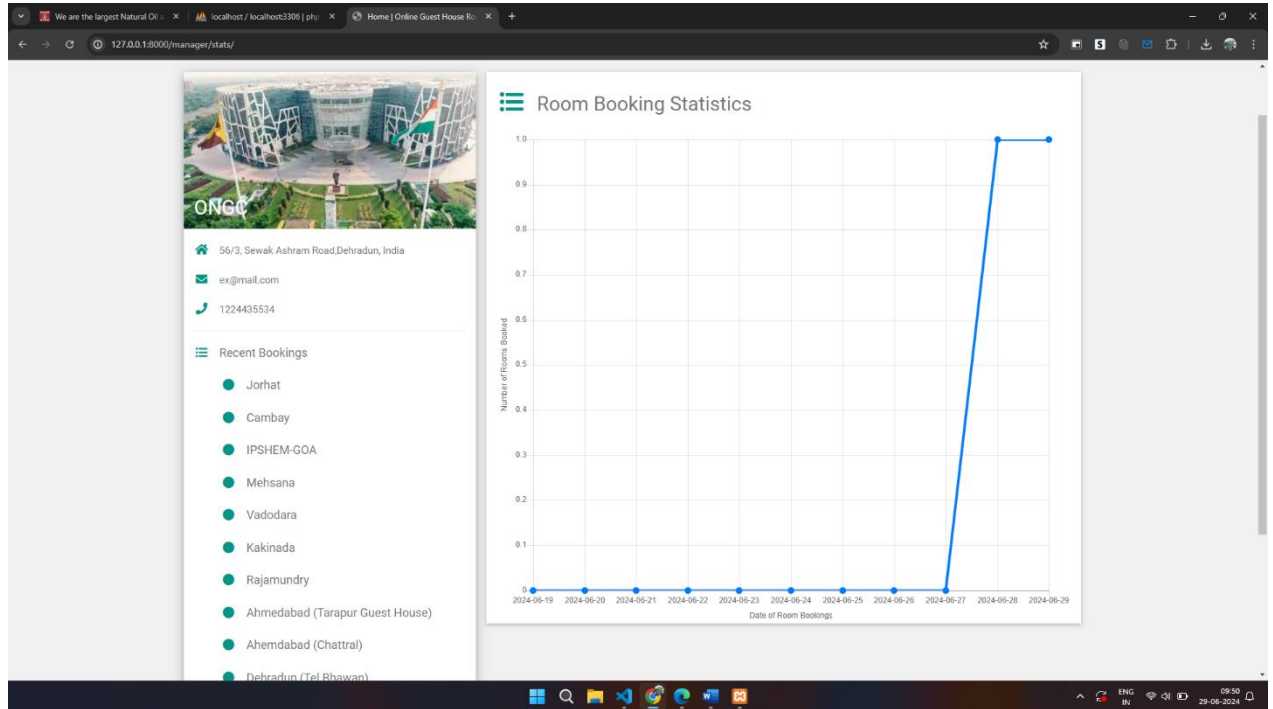This is the login page to login as the manager of guest house.
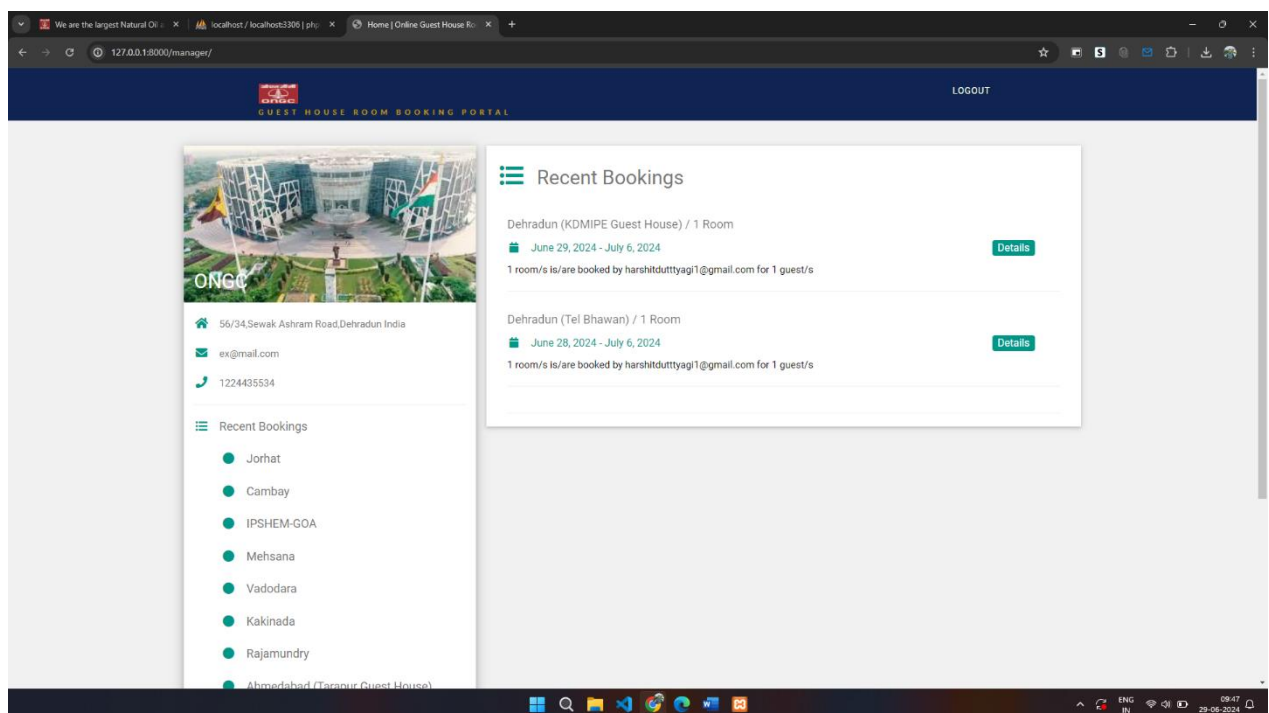
This is the manager page where he can control all the transactions.manager can seethe recent bookings in various guest houses seperately.
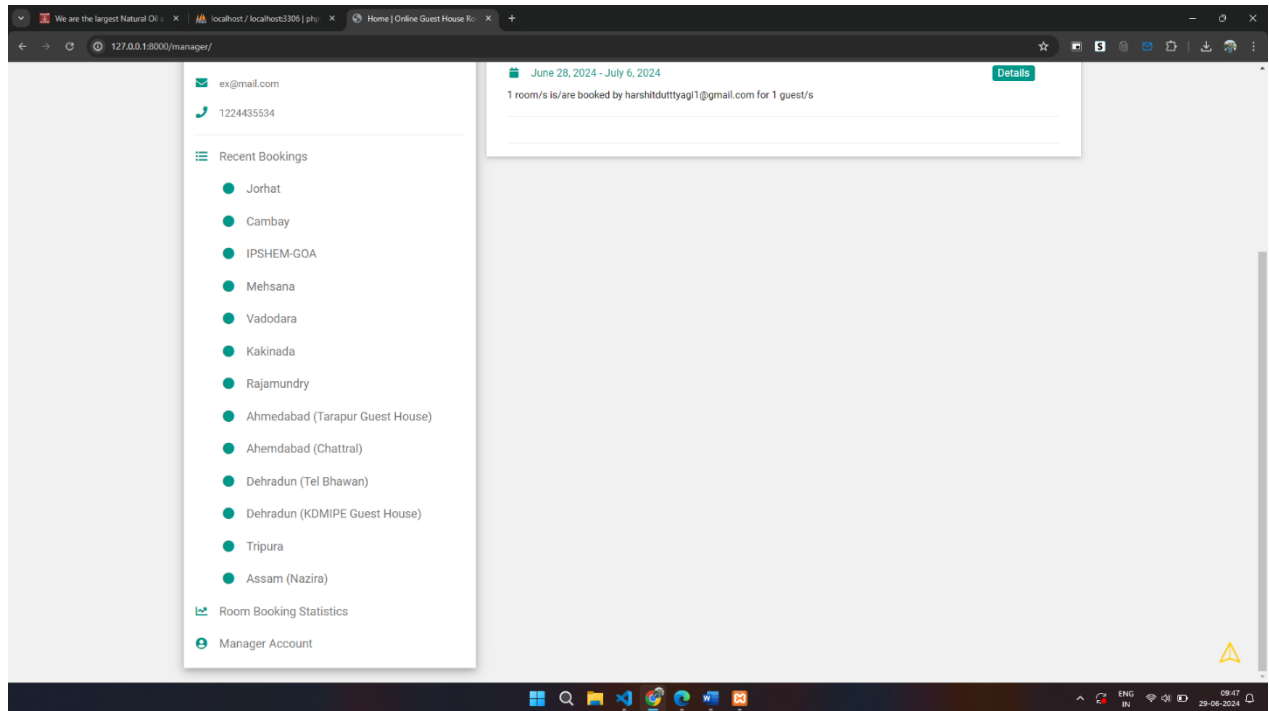
Can show bookings separately for each guest house.

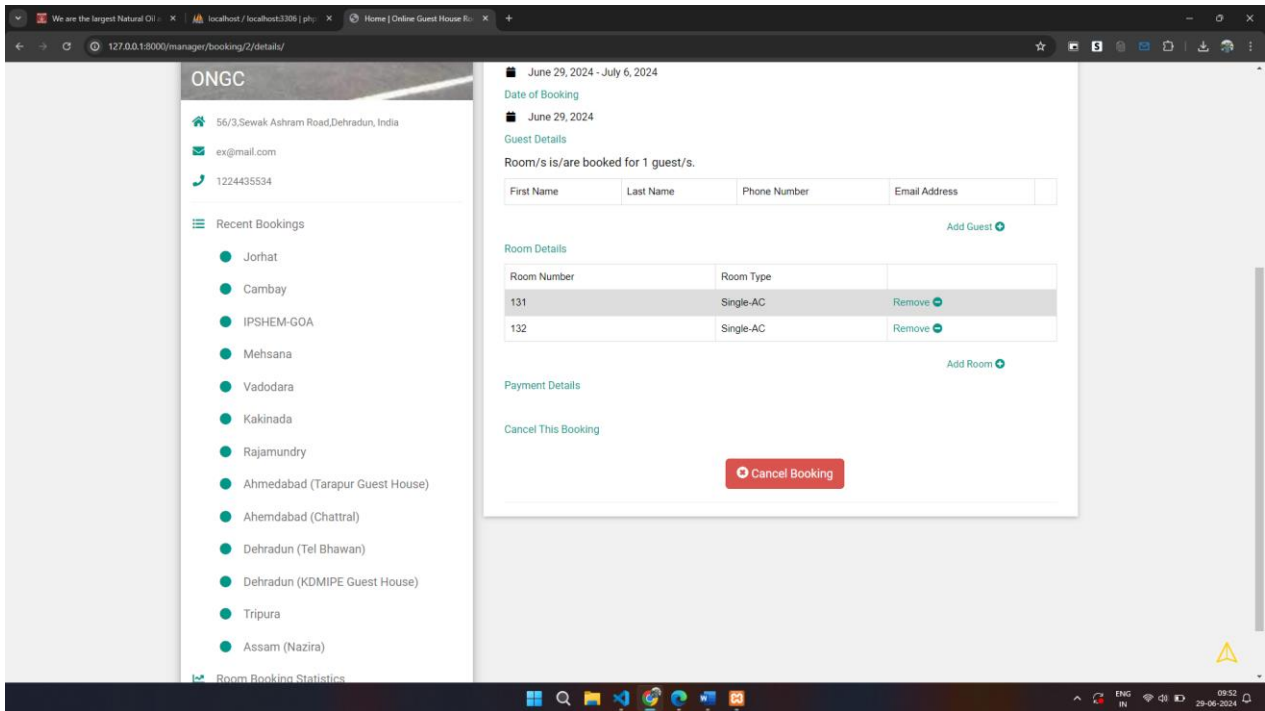The manager can change password at any point.

This is the rooms statistics page which shows the graph between rooms booked and date at which rooms are booked. This helps to keep track of rooms.
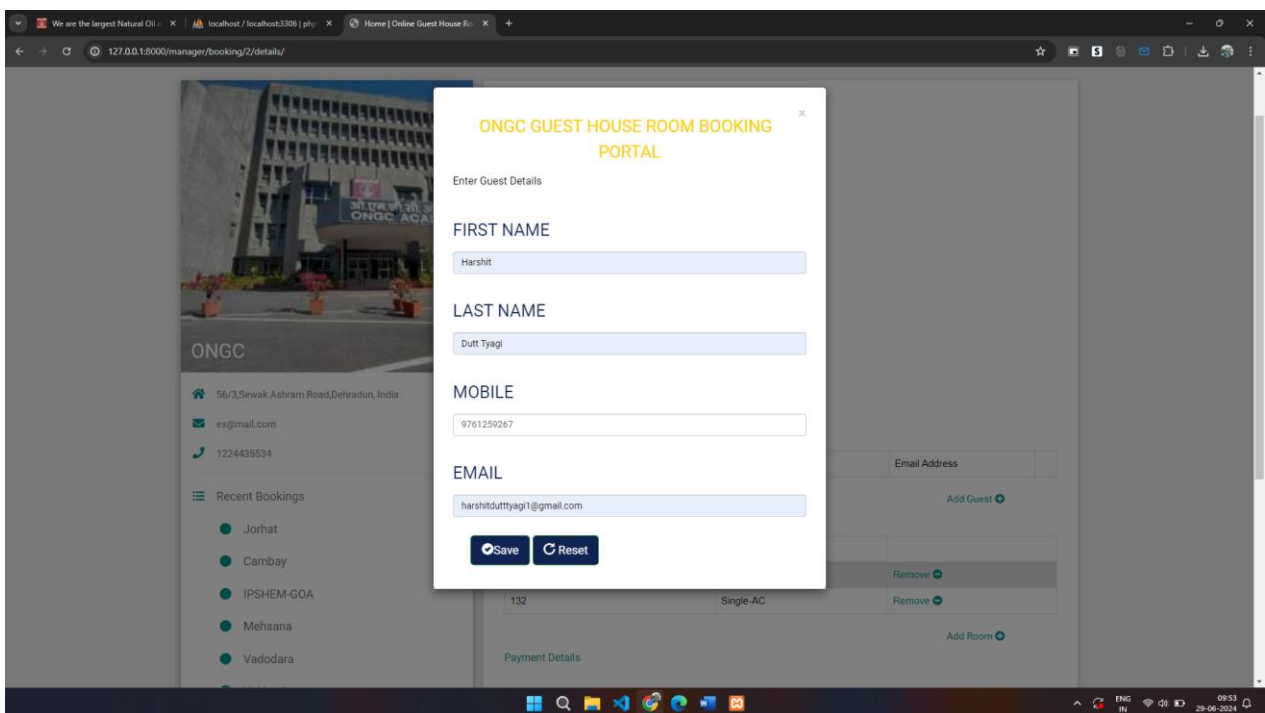

Manager can see the details of each booking transaction. Add the details of guests and can dynamically change the request for rooms by users.

Here manager can see the details about the guests and can cancel rooms if requestedby user. And the details about the guests is entered in below page.

Here Manager can add Guests at the time of checkin if required.

Future Enhancements

1. User Profiles and Authentication: Implement user profiles and authentication mechanisms to ensure that only authorized personnel can access and submit cartridge requirements. User roles can be defined to manage different levels of access and permissions.

2. Real-time Notifications: Integrate a notification system to alert users about the status of their cartridge requests, approvals, and order deliveries. Email notifications or in- app alerts can keep users informed.

3. Advanced Reporting: Enhance reporting capabilities with advanced filters, date ranges, and export options. Users should be able to generate customized reports based on their specific requirements.

4. Predictive Analytics: Implement predictive analytics to forecast cartridge requirements based on historical data. This can help in proactive procurement planning and inventory management.

5. Mobile Application: Develop a mobile app version of the portal to allow users to submit requirements and access reports on the go. Mobile apps can provide a more convenient user experience.

6. Integration with SAP System: Integrate the portal with ONGC's SAP system to automate the creation of purchase requisitions. This ensures seamless bookingprocesses

and reduces manual data entry.

7. Enhanced Security: Continuously update and improve security measures to protect against evolving cyber threats. Regular security audits and vulnerability assessments are essential.

8. User Training and Support: Provide comprehensive training and support resources for users to maximize the portal's benefits. This includes user guides, FAQs, and helpdesk support.

9. Performance Optimization: Regularly monitor and optimize the portal's performance to ensure fast loading times, especially when dealing with large datasets.

10. Feedback Mechanism: Implement a feedback mechanism to gather input from users. User feedback can drive future improvements and enhancements.

11. Integration with Vendor Systems: Explore possibilities for integrating the portal with guest house managers systems to streamline the booking process and improve the process.

These future enhancements aim to make the ONGC Guest Room Booking Portal more efficient, user-friendly, and capable of meeting the evolving needs of ONGC's guest house management. Each enhancement should be carefully assessed for its potential impact and alignment with the organization's goals and priorities.

Conclusion

We have made ONGC's Online guest house booking portal as a web-application developed to provide employees of ONGC a chance to book rooms online in guest houses and reduce the burden of taking permission from register and physically visiting guest house to check availability of rooms. As the system makes sure that only users with valid organization mail can only book rooms at the guest house. The tool is made to be simple to understand and to be used by anyone who is familiar with using elementary websites.Also the system helps managers of guest house to handle the rooms well as the statistics about availability of rooms and info about the guest present in rooms. This project is a contribution to the ONGC organization which digitalizes the guest house booking system completely.

References

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3. https://ongcindia.com/web/eng/about-ongc/ongc-at-a-glance - History and details from ONGC official website.

4. https://dev.mysql.com/doc/   - MySQL Documentation