TravelWithUs

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Submitted by

ABDUL SAMAD ZAHEER KHAN (4NI17CS002)

HARISH D H (4NI17CS023)

K S HARSHA KUMAR (4NI17CS026)

Under the Guidance of

Mr. SUHAS S	**Ms. USHADEVI**
Assistant Professor,	Assistant Professor,
Department of CSE,	Department of CSE,
NIE, Mysuru	NIE, Mysuru

DEPARTMENT OF COMPUETER SCIENCE AND ENGINEERING

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Certificate

This is to certify that the project work entitled "**TravelWithUs**" is a work carried out by **Abdul Samad Zaheer Khan (4NI17CS002), Harish D H (4NI17CS023), K S Harsha Kumar (4NI17CS026)** in partial fulfillment for the project work (Database Laboratory), fifth semester, Computer Science and Engineering, The National Institute of Engineering (Autonomous Institute under Visvesvaraya Technological University, Belgaum) during the academic year 2019-2020, It is certified that all corrections and suggestions indicated for the Internal Assessment have been incorporated in the report deposited in the department library. The project work report has been approved in partial fulfillment as per academic regulations of The National Institute of Engineering, Mysuru.

Internal Guides		**Professor & HOD**
_____	_____	_____
Mr. SUHAS S	Ms. USHADEVI	Dr. V K ANNAPURNA
Assistant Professor,	Assistant Professor,	Professor & HOD,
Department of CSE,	Department of CSE,	Department of CSE,
NIE, Mysore	NIE, Mysore	NIE, Mysore

Examiners

_____	_____
Name:	Name:
Designation:	Designation:

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Thank You

-ABDUL SAMAD ZAHEER KHAN (4NI17CS002)

-HARISH D H (4NI17CS023)

-K S HARSHA KUMAR (4NI17CS026)

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Chapter 1

INTRODUCTION

In recent years due to the work load people are becoming more and more concerned about earning money and not caring about the toll it puts on the mental health of the customer. Usually people avoid holidays or sleep throughout the holiday. Instead people have to use the free time to change the way they perceive the world by spending quality time with people with different cultures and personalities. People when they spend more time with their family can increase the productivity of the person having a refreshing holiday. The time spent with family can increase the bond present between the members of the family so that the family members become more and more understanding.

This mini project basically focuses on providing an easy way to organize all details of various types of information and apply queries and process the data available in the database. TravelWIthUs requires a system that will handle all the necessary and minute details easily, and proper database security accordingly to the user. All this is done in an efficient way, so that there is minimum stress on the computer hardware and software.

The problem the customers face are selecting from a ton of options which may lead to the customer paying more than intended. The options available may make such situations inevitable as the options may make the interface ambiguous.

To provide an efficient solution to this problem, we as a team have created a website which people can use to plan the holiday from. Currently we have created a website which can help the customer in planning a trip in an interactive manner. The website is abstract where in the customer need not select from a load of various hotels available, rather select the type of service you need and the number of people accompanying the customer. This allows customer to plan the trip speedily so as to avoid the customer from wasting the time on something which takes a lot of time and pretty tiring too. The customer may also need to set the duration of the project then, once the payment is complete the customer can rest as the remaining work will be done by the website.

Chapter 2

SYSTEM ANALYSIS

2.1 EXISTING AND SUPPORT SYSTEM

System analysis is a detailed study of the various operations performed by system and their relationships within and outside of the system. Here the key question is - What all problems exist in the present system? What must be done to solve the problem? Analysis begins when a user or manager begins a study of the program using existing system.

During analysis, data collected on various files, decision points and transactions handled by the present system. The commonly used tools in the system are Data Flow-Diagrams, interviews, etc. training experience and common sense are required for collection of relevant information needed to develop the system.

The success of the system depends largely on how clearly the problem is defined, thoroughly investigated and properly carried out through the choice of the solution. A good analysis model should provide not only the mechanism of the problem understanding but also the framework of the solution.

The proposed system should be analyzed thoroughly in accordance with the needs. System analysis can be categorized into four parts.

1: System planning and initial investigation

2: Information gathering

3: Applying analysis tools for structured analysis

4: Feasibility study

2.2 PROPOSED SYSTEM

Our project uses Python 3.6 for backend implementation. Flask is a lightweight WSGI web application framework. It is designed to make getting started quick and easy with the ability to scale up to complex applications. It has become one of the most popular python web application frameworks. MySQL is used for the database management. It is a RDBMS which can be easily integrated with Flask python.

These two systems handle the server side of things. The frontend of our website uses HTML. The Materialize package of CSS components is used to stylize the website. Custom CSS components are also used where necessary.

The Flask Project can be run on a server with network access. This is important because the website grabs font, CSS, JavaScript and icon files from Google's servers. The website requires a fairly modern web browser with JS enabled. Details about the user's system requirements is discussed later in the report.

Software Details

Program or Package	Version Used
• Python	3.7
• MySQL	8.0.17
• Flask	0.12.4
• CSS	3.0
• HTML	5

2.3 SOFTWARE AND HARDWARE REQUIREMENTS

Server side

Hardware:

1. A dual core CPU @ 2.5GHz

2. Minimum of 8 GB RAM

3. 20 GB of storage

4. Fast and high bandwidth internet connection

Software:

1. Compatible version of any Linux or Windows OS

2. Python 3.6

3. Flask for managing the server.

User side

Hardware:

1. A dual core CPU @ 2.5GHz

2. Minimum of 2 GB RAM

3. Internet connection

Software:

1. Compatible version of any Linux or Windows OS

2. A web browser.

Chapter 3

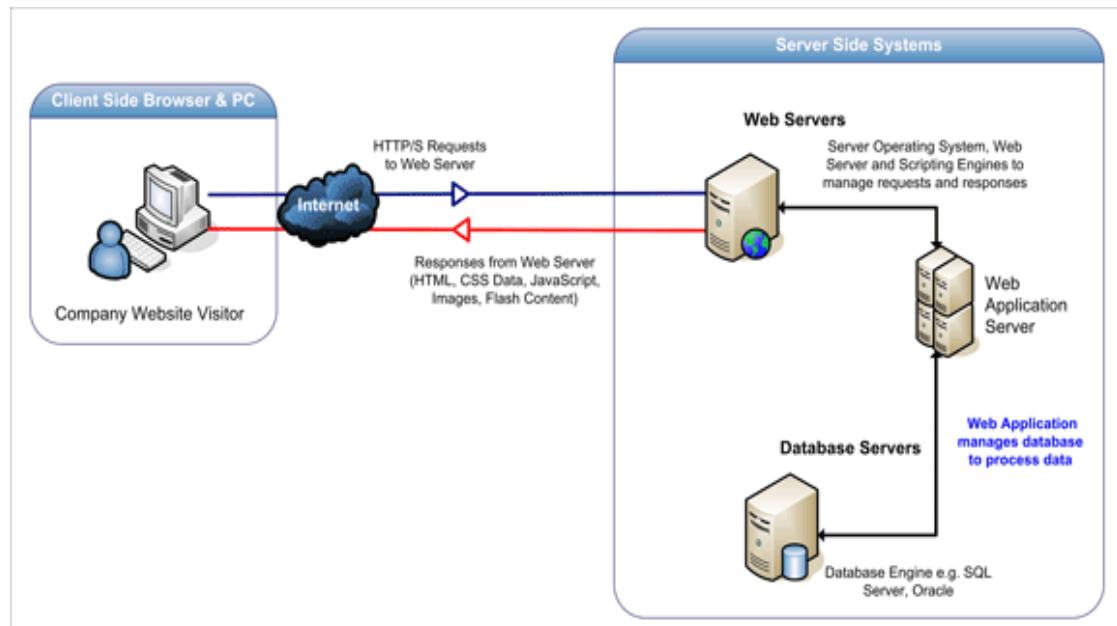## SYSTEM DESIGN

3.1 SYSTEM ARCHITECTURE

Fig 3.1 Architecture of the TravelWithUs website

The website employs the traditional three-layer web application model as seen in Fig. 3.1. The first layer is the web browser on the user's PC, through which he can interact with our website. The second layer dynamically generates content for the client, such as displaying only his items and requests. The third layer is the MySQL database which actually stores and retrieves the content as per the second layer's request. It contains the users' details, their messages and every item and request uploaded on the website. In the next section we'll take a look at the conceptual data model of our database with the help of an Entity-Relationship diagram.

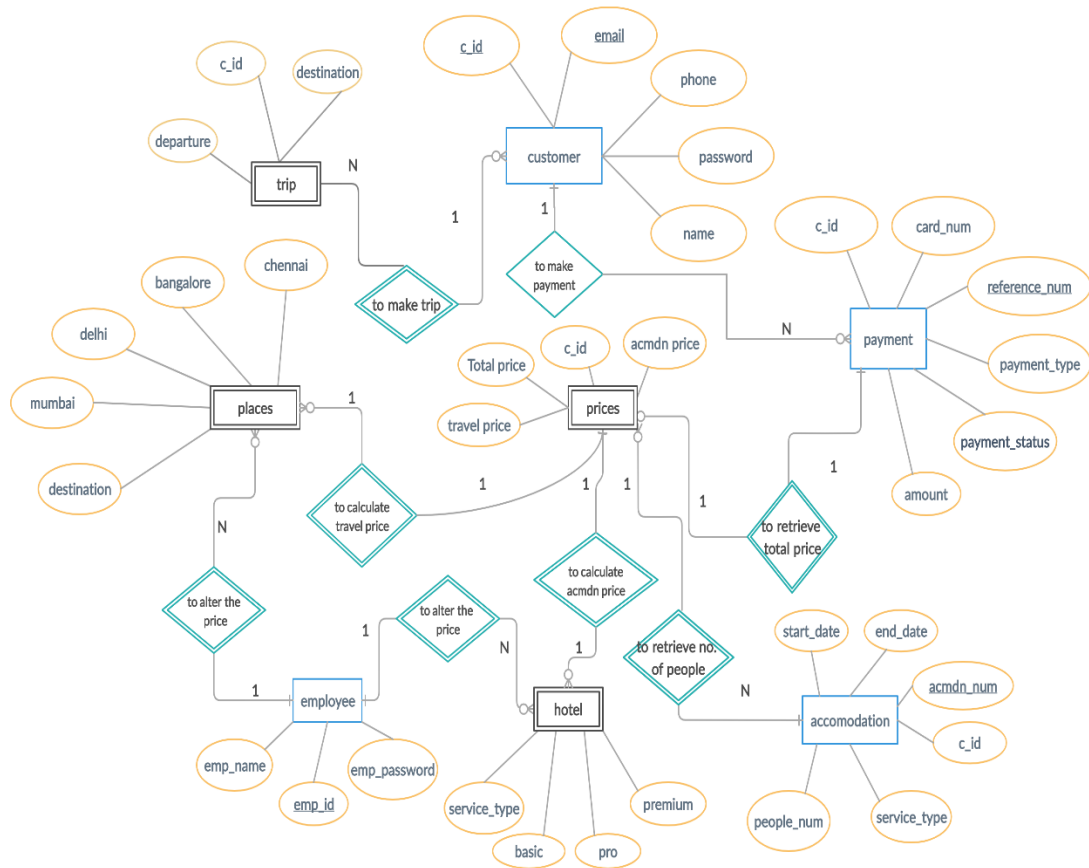## 3.2 ENTITY RELATIONSHIP DIAGRAM

Fig. 3.2 Entity Relationship Diagram of the database used for the TravelWithUs website.

In the diagram Fig. 3.2 customer is the central entity of this website, this table contains the information relating the customer who has completed the sign-up process of the website. In the figure table contains the most important attribute c_id (customer identity), which is used to relate to the customer on all the tables where customer information is stored. c_id is a primary key which auto-increments when a new customer signs up to the website. The password present in the column password in encrypted and cannot be viewed by anyone.

The payment information is stored is payment table, and the information is related to the customer using the attribute c_id. The payment table contains the sensitive information such as card_num (card number) and reference_num (payment number).

The total amount to be paid is retrieved from the prices table, which in turn retrieves information from the table places and hotel which contain only the prices of the hotel service and travel fare. The collected information is added together to the total_price in the prices table which is filled in the amount column of the payment table.

The accommodation table contains the start_date, end_date, service_type opted by the customer and the number of people accompanying the customer on the trip. A primary key acmdn_num (accommodation number) is used to relate to the c_id. The trip table contains the destination and departure of the pertaining c_id.

The hotel and places table is similar as they store only the prices corresponding to the respective column and row. In the fig. 3.2 we can see that both the tables are weak entities. These tables only contain the prices of the hotel corresponding to the service_type you opt for, and the places contains the travel fare between the departure and destination points.

The characters 1 and N in the fig. 3.2 depict the type of relationship between the entities. The different type of entities are 1:1 relationship, 1:N relationship and M:N relationship. There are no M:N relationships in the database used by the website.

The employee table contains the emp_id, emp_password and emp_name where emp_id is the primary key. The employee is the admin who needs to enter the name and password to enter the admin page and make changes to the travel prices. The admin cannot be created on the website and is added in the back end of the website.

Chapter 4

SYSTEM IMPLEMENTATION

4.1 DESIGN

As discussed above, the website is made using the flask library on Python 3.7 and the front end is made using HTML and CSS. The details of these libraries are given below.

Flask

Flask is a micro web framework written in Python. It is classified as a micro-framework because it does not require particular tools or libraries. It has no database abstraction layer, form validation, or any other components where pre-existing third-party libraries provide common functions. However, Flask supports extensions that can add application features as if they were implemented in Flask itself. Extensions exist for object-relational mappers, form validation, and upload handling, various open authentication technologies and several common framework related tools. Extensions are updated far more regularly than the core Flask program. Flask is commonly used with InnoDB, which gives it more control over databases and history. [3]

MySQL

MySQL is a relational database management system contained in C programming library. In contrast to many other database management systems, MySQL is not a client-server database engine. Rather, it's embedded into the end program .[1]

MySQL is ACID-compliant and implements most of the SQL standard, using a dynamic and weakly typed SQL syntax that guarantees the domain integrity. MySQL is a popular choice as embedded database software for local/client storage in application software such as web browsers. It is arguably the most widely deployed database engine, as it is arguably the most widely deployed database engine, as it is used today by several widespread browsers, operating system, and embedded systems (such as mobile phone), among others. MySQL has bindings to many programming languages.

HTML

HTML or HYPERTEXT MARKUP LANGUAGE is the standard markup language used to create webpages. The purpose of the web browser is to read HTML documents and compose them into visible or audible web pages. The browser does not display the HTML tags, but uses the tags to interpret the content of the page. HTML describes the structure of a website semantically along with cues for presentation, mailing it a markup language rather than a programming language. Web browsers can

also refer to cascading style sheets (CSS) to define the look and layout of text and other material. The W3C maintainer of both the HTML and the CSS standards, encourages the use of CSS over explicit presentational HTML [5].

CSS

Cascading style sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language. Although most often used to set the visual style of web pages and user interface written in HTML and XHTML, the language can be applied to any XML document, including SVG, and is applicable to reading in speech or on other media. Along with HTML and CSS is a cornerstone technology used by most websites to create visually engaging web pages, user interface for web applications, and user interface for many mobile applications .[6]

CSS is designed primarily to the separation of document content from document presentation, including aspects such as the layout, colors and fonts .This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple HTML pages to share formatting by specifying the relevant CSS in a separate .css file and reduce complexity and repetition in the structural content.

4.2 TABLES USED IN THE DATABASE

1. CUSTOMER

This table in the fig. 4.1 contains the basic information of the customer using the services of our company. This table contains the customer id and email as primary key. This table also contains the name and mobile number. This table also contains the password used by the customer.

```
mysql> desc customer;
+----------+-------------+------+-----+---------+----------------+
| Field    | Type        | Null | Key | Default | Extra          |
+----------+-------------+------+-----+---------+----------------+
| c_id     | int(5)      | NO   | PRI | NULL    | auto_increment |
| name     | varchar(30) | YES  |     | NULL    |                |
| email    | varchar(30) | NO   | PRI | NULL    |                |
| password | varchar(20) | YES  |     | NULL    |                |
| phone    | bigint(20)  | YES  |     | NULL    |                |
+----------+-------------+------+-----+---------+----------------+
5 rows in set (0.00 sec)
```

Fig. 4.1 Customer table

2. PLACES

This table in the fig. 4.2 contains the places from which the customer departs and the destination. It also contains cost of travelling from the selected departure.

```
mysql> desc places;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| destination | varchar(30) | YES  |     | NULL    |       |
| bangalore   | int(11)     | YES  |     | NULL    |       |
| mumbai      | int(11)     | YES  |     | NULL    |       |
| delhi       | int(11)     | YES  |     | NULL    |       |
| chennai     | int(11)     | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
5 rows in set (0.11 sec)
```

Fig. 4.2 Places table

3. ACCOMMODATION

In the accommodation table present in the fig. 4.3 the primary key is acmdn_num and the foreign key is c_id which references the customer table.

```
mysql> desc accomodation;
+--------------+-------------+------+-----+---------+----------------+
| Field        | Type        | Null | Key | Default | Extra          |
+--------------+-------------+------+-----+---------+----------------+
| c_id         | int(5)      | YES  | MUL | NULL    |                |
| acmdn_num    | int(5)      | NO   | PRI | NULL    | auto_increment |
| people_num   | int(11)     | YES  |     | NULL    |                |
| service_type | varchar(10) | YES  |     | NULL    |                |
| start_date   | date        | YES  |     | NULL    |                |
| end_date     | date        | YES  |     | NULL    |                |
+--------------+-------------+------+-----+---------+----------------+
6 rows in set (0.02 sec)
```

Fig. 4.3 Accommodation table

4. HOTEL

The hotel table present in fig. 4.4 contains the one-day cost of staying at the hotel based on the service_type. The service_type contains three entries, they are basic, pro and premium service. This cost is multiplied with the number of the days the the customer will be enjoying the holiday to get the final accommodation cost that will be added in the

Fig. 4.4 Hotel table

5. PAYMENT

This payment table visible in fig. 4.5 contains the card details and other sensitive information about the customer.

Fig. 4.5 Payment table

6. PRICES

This table contains the accommodation cost (acdmn_price), travel cost (travel_price) and sum of acmdn_price and travel_price that is stored in total_price. The foreign key is c_id which references the customer table.

Fig. 4.6 Prices table

7. EMPLOYEE

Table in fig. 4.7 contains the details of the employees who have access to the customer information and the admin who can access the admin page that is present.

Fig. 4.7 Employee table

8. TRIP

Contains the departure place and the holiday destination the customer has selected. The information is required only to decide the travel fare that may be applicable to the customer.

Fig. 4.8 Trip table

Chapter 5

SYSTEM TESTING

5.1 TESTING

The website was tested with various permutation and combination. It included a multitude of cases to check whether things run as expected.

The various test cases involved in the project are:

1. User Registration.
2. Logging in of the user.
3. Entering the URL of pages when not logged in.
4. Selecting the preferred destination and departure places.
5. Selecting the accommodation.
6. Payment page.
7. Modifying the trip.
8. Cancelling the trip.
9. Updated payment page.
10. Logging in of the admin.
11. Viewing customer's detail.
12. Updating the travel fare.

5.2 WORKING

1. User registration: The user creates an account in the website. The name, password and phone number is set accordingly along with their email address which is used for logging into the website.

2. Logging In: After registration the user must login using his email address along with the valid password.

3. Selecting the preferred destination and departure places: The customer chooses the preferred departure and destination from the available options.

4. Selecting the accommodation type: The customer chooses the type of service that suites the customer's requirements. The customer has three types of services to choose from.

5. Payment Page: If the customer has entered a valid card name and the card number which should be 16-digit length. The CVV entered should be of three characters length.

6. Modifying the trip: The customer can update the trip if faced with an emergency situation. The customer can change the departure places and the updated price has to be paid if the new price is greater the old price.

7. Cancelling the trip: The customer may cancel the trip and the money remaining after the deduction of cancellation fee is refunded to the customer.

8. Admin Login: The admin can login into the website and make the changes which can be made under his supervision or view the customer detail.

Chapter 6

RESULT

1. Signup page
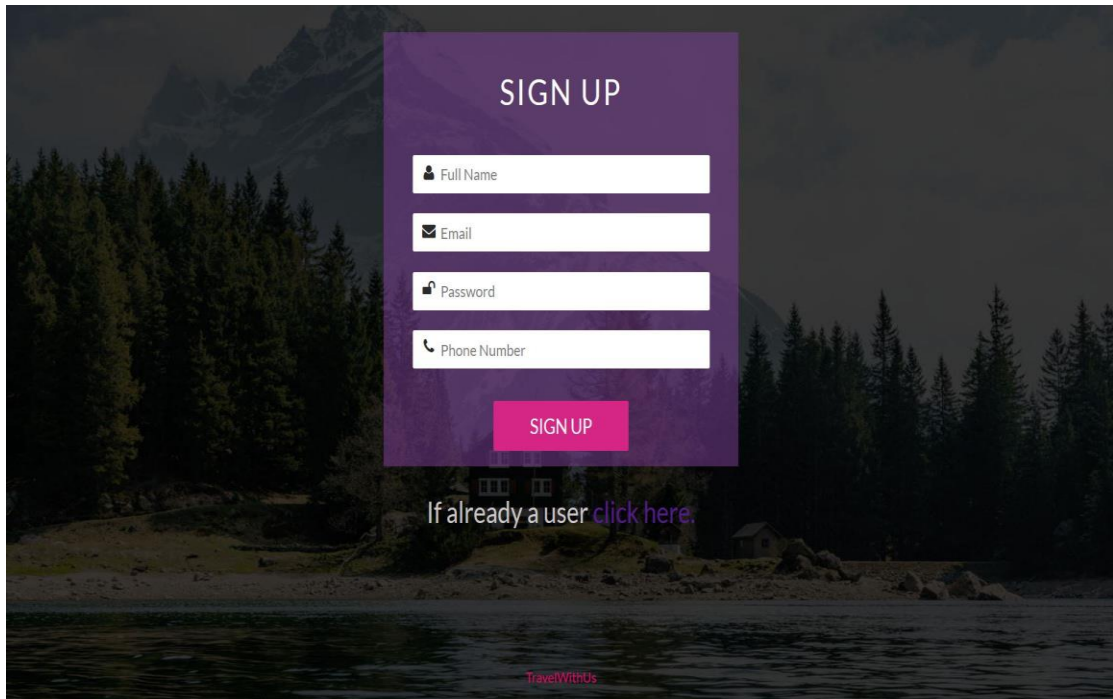
Fig. 6.1 Sign-up page

As we can see in the fig. 6.1 the customer enter the details such as name, email and phone number, and also sets the password for his account. After signup the customer is taken to the login page so as enter intom his account. Once you sign-up on the website you will be taken to the login page where you can enter your credentials and enter the website to use it's features [2].

The sign-up page also contains the secret link to the admin login page. The link is the pink color text of the name of the website present at the bottom of the page. If the information input is invalid then this page is taken to a invalid input page.

2. Login page
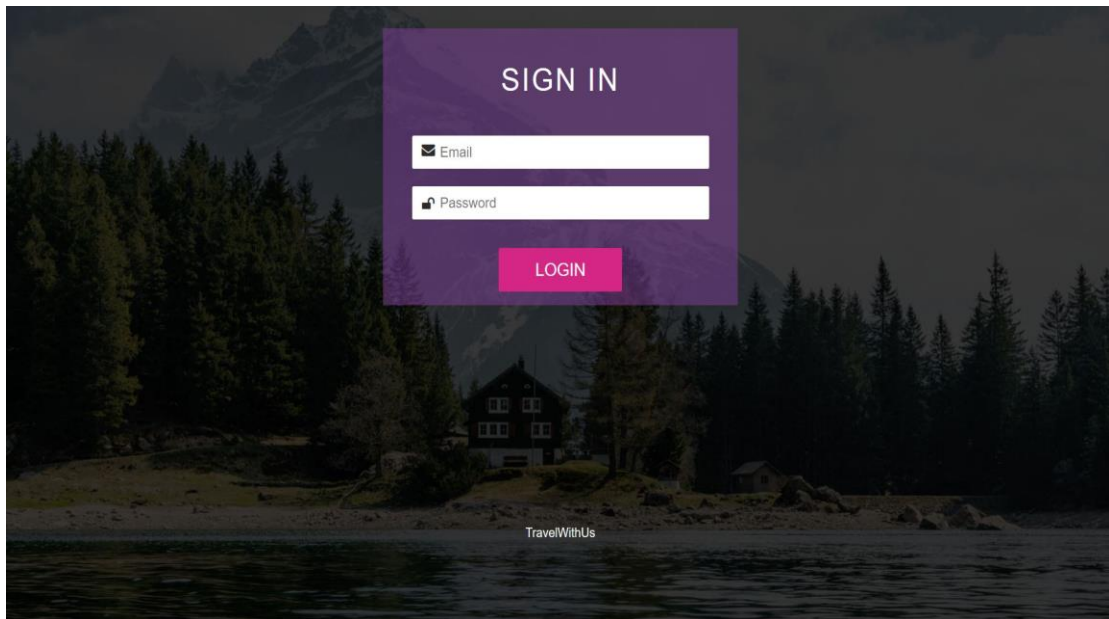
Fig 6.2 Login page

After entering email id and password the customer may enter the home page. The email id and password are verified to validate the entry of a legal customer on the website. The snapshot of the login page is present in fig. 6.2.

3. Home page
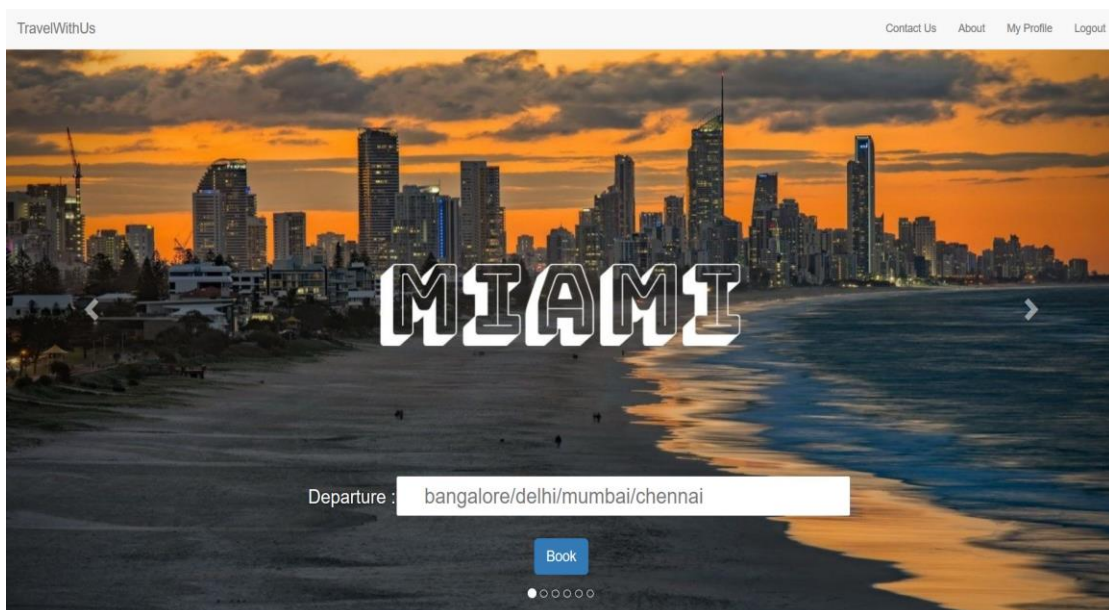
Fig. 6.3 Home page

The home page contains the destinations from which the customer can select to travel and spend time to refresh his/her life. The departure point is also entered in this page. The departure points include major Indian cities. The destination and departure places entered are updated on to the trip table using the c_id as the foreign key to relate to the customer.

4. Trip details page
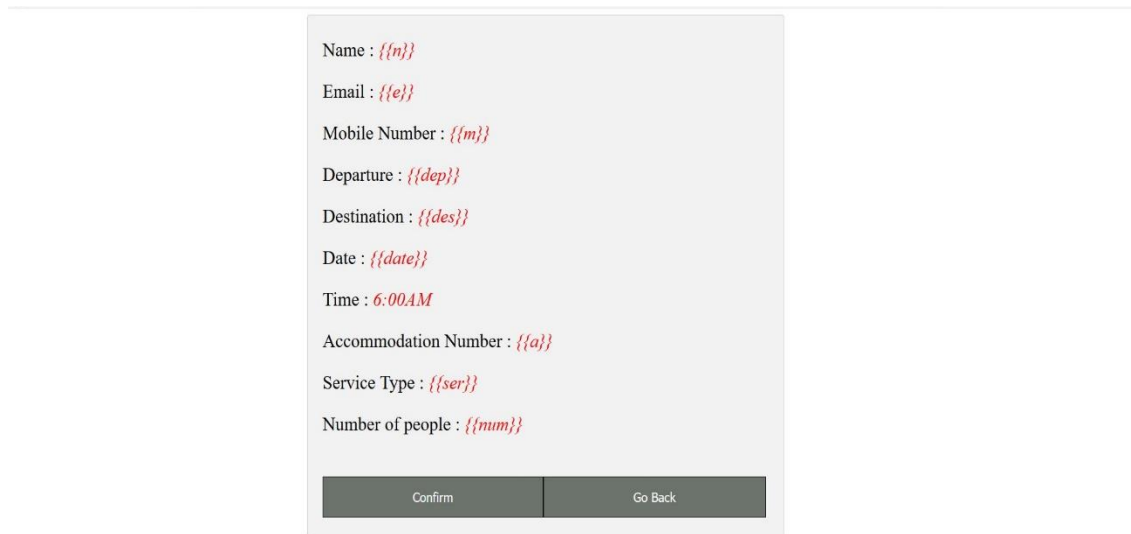
Fig. 6.4 Accommodation selection page

Here the customer selects from the various details available the ones which meet his requirements. The selection of a suitable service type is very important. The customer also select the start and end date of the trip to be planned, the customer also enters the number of people accompanying the customer to the vocation. After the customer clicks on book button it leads to confirmation page present in fig. 6.5.
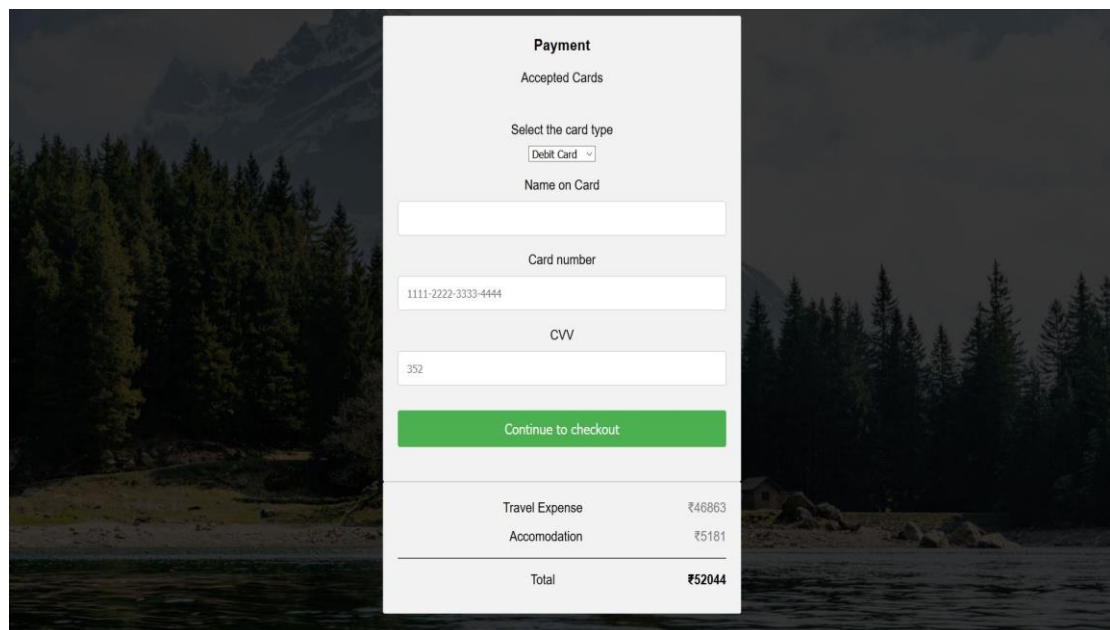
5. Confirmation Page

Name : *{{n}}*

Email : *{{e}}*

Mobile Number : *{{m}}*

Departure : *{{dep}}*

Destination : *{{des}}*

Date : *{{date}}*

Time : *6:00AM*

Accommodation Number : *{{a}}*

Service Type : *{{ser}}*

Number of people : *{{num}}*

Confirm   Go Back

Fig. 6.5 Accommodation type confirmation page

The details you have selected throughout the process are displayed on this page. If the customer validates the displayed information then the website takes the customer to the payment page otherwise the customer can go back one page to correct the options they have selected.

6. Payment Page

Fig. 6.6 Payment page

In this page present in fig. 5.6 the customer enters the card details. First the customer selects the type of card they are using. The categories are debit card and credit card. Card details include name on the card, 16-digit card number and the cvv which is not stored by the computer.

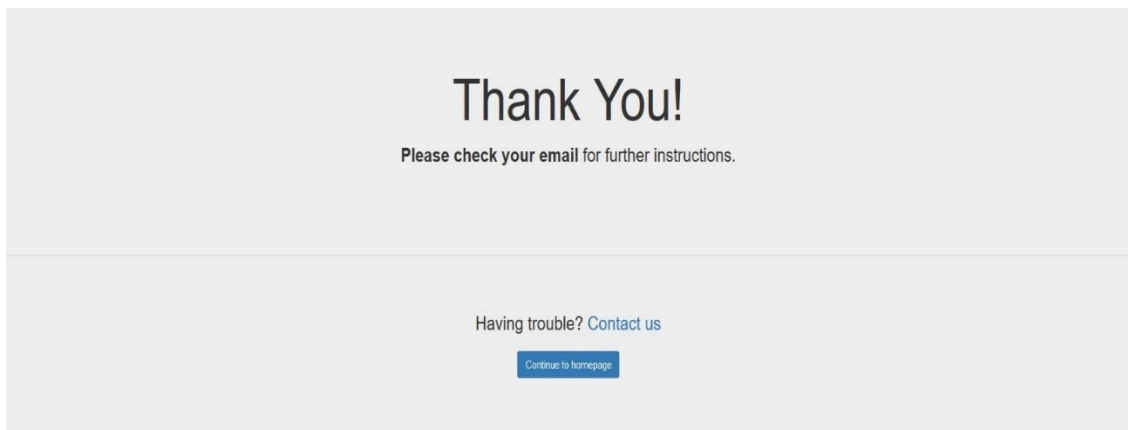**7. Payment Successful Page**

Fig. 6.7 Trip confirmed page

This page confirms your trip and an email is sent to the customer thanking the customer for choosing our website to plan the trip which contains the link of his profile on the website. As you can see in the fig. 6.7 the page also contains the information of the website handlers. The page contains the ways using which the customer can get help when faced with a problem .[7]
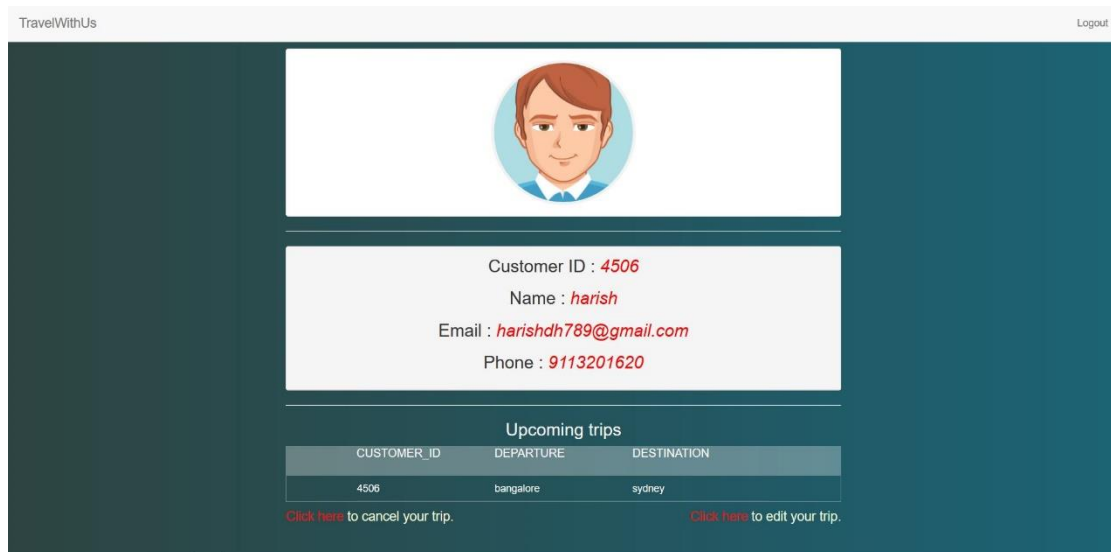
8. User Profile Page

Fig. 6.8 User Profile page

The profile page present in fig. 6.8 contains the information entered by the customer and is not visible to anyone other than the customer. This page also contains the brief information about their upcoming holiday plans. You can also cancel your trip in this page and the amount remaining after deducting cancellation fee will be sent to the account.
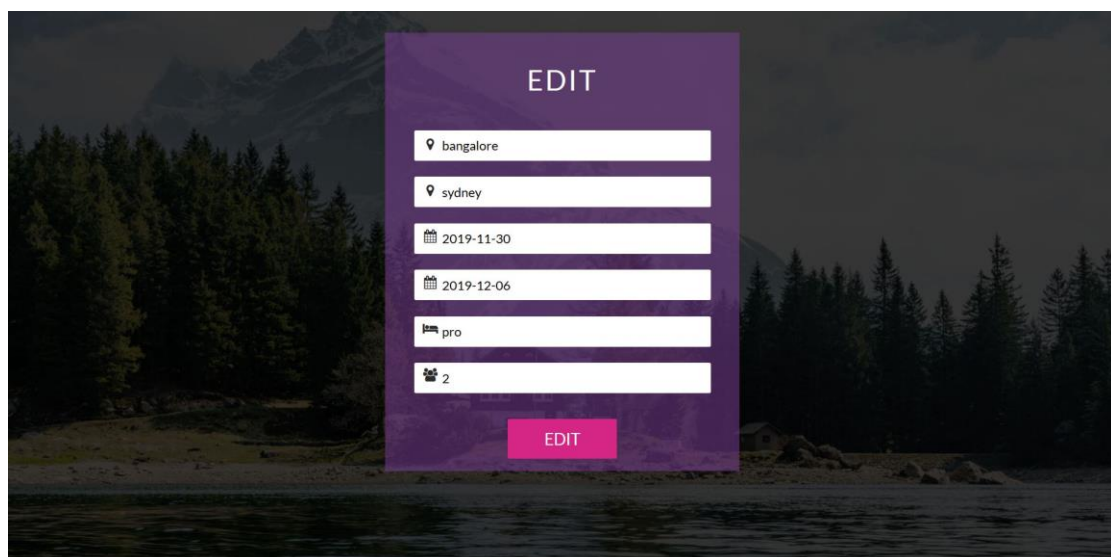
9. Update Trip page

Fig. 6.9 Update trip information page

As you can see the fig. 5.9 which contains the trip update page using which the customer can update the trip details. In this page we can update the number of people who are accompanying the customer on the trip. The departure point can also be changes and the updated price has to be paid if the new total price exceeds to initially paid price.
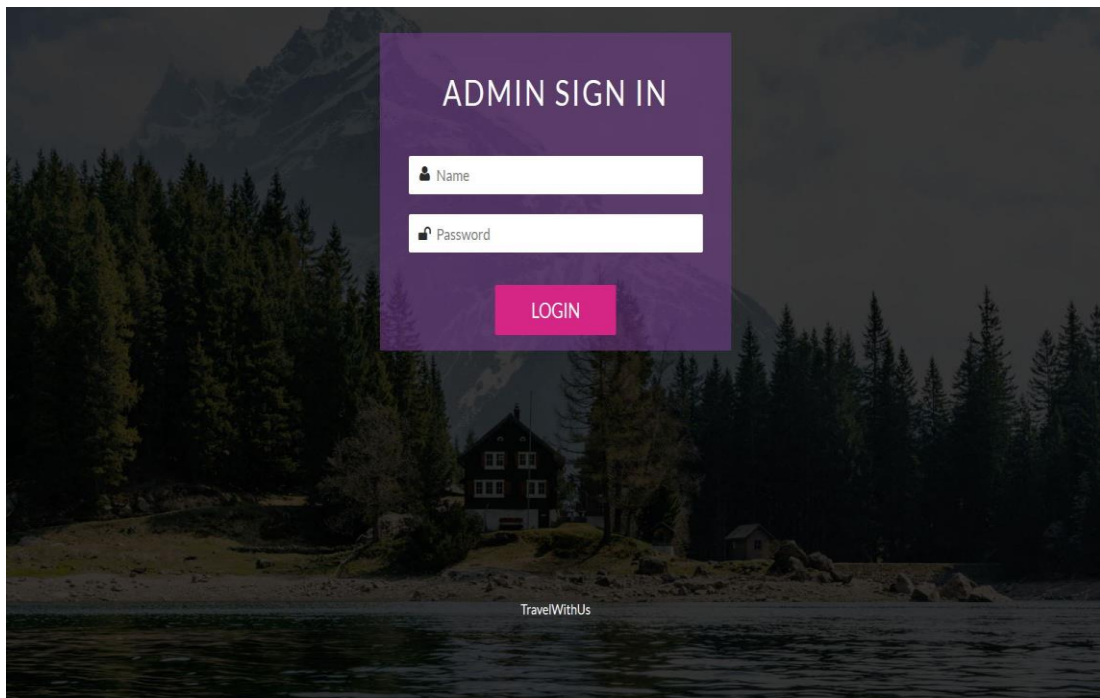
10. Admin Login Page

Fig. 6.10 Admin Login page

The admin needs to enter their name and password to go to the admin page which contains the details of the customer's basic information and accommodation details. Once you enter the admin page you will have two options either to view customer information or update the travel prices between destinations. If the admin selects to view the details of the customer then the website transfers the admin to a page that contains the trip details of the customer who has planned a trip. If the admin opts to go to the update travel fare page then the website redirects the admin another page that displays the travel fare. Below the table are two options either to leave the page or update the prices, if the admin selects to update the travel fare than the admin is redirected to a page containing the options to select departure and destination points and the updated travel fare. In this way admin can change the basic information in an abstract level. A snapshot of the admin login page is present in fig. 6.10.

CONCLUSION AND FUTURE ENHANCEMENTS

The project build as a website helps the customers plan a holiday without going through a load of unfiltered options which may waste the time of our valuable customers. The project aims to increase the interactivity which is rarely provided by the present day travel website that are very ambiguous. The concepts used in the project are all implemented in such a way to make the customer feel easy while planning a holiday. In a country like India where the middleclass population is booming and more and more people are coming out of poverty, the project aims to grab the opportunity and increase the user base and put an excellent initial impression so as to be the primary website for people who would like to plan a holiday.

Future Enhancements

Possible future enhancements include increasing the number of departure points and destinations. Increasing the number of departure points may persuade more and more people to travel to different places through our website. Other enhancements include validation of the holiday planned, through a phone call, verification of a valid customer by calling at the checking whether the customer has really planned a trip and frequently updating the customer about the trip they have planned. Update the system to ensure the safety of the customer. Update should include implementation of quality encryption techniques on all the information pertaining the customer. Also having an insurance in case hackers were to be successful in breaking into the website. The website plans to provide coupons to the customers if they persuade more people to join the website.

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