

Indian Institute of Information Technology, Allahabad

Database Management System

Tours & Travels Web Application

(Project Report)

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1. Introduction

We have developed an on-line tour and travel web application for the people. Onlinetour and travels system Provides many services to the people. Our online tour and travels system has these five key features:

- (1) It provides the destination information and must visit tourist places to the people;
- (2) It gives the information about the tour packages;
- (3) It provides the accommodation facility to the user;
- (4) It provides the facility of online booking.
- (5) We have designed the system such that it is easy to maintain and upgrade.

2. Technology used

2.1 Frontend Development

For the frontend development we have used Google Material Design. Material is a design system created by Google to help teams build high-quality digital experiences for Android, iOS, Flutter, and the web. Material Components are interactive building blocks for creating a user interface, and include a built-in states system to communicate focus, selection, activation, error, hover, press, drag, and disabled states. Component libraries are available for Android, iOS, Flutter, and the web. Components cover a range of interface needs, including:

- **Display:** Placing and organizing content using components like cards, lists, and sheets.
- **Navigation:** Allowing users to move through the product using components like navigation drawers and tabs.
- **Actions:** Allowing users to perform tasks using components such as the floating action button.
- **Input:** Allowing users to enter information or make selections using components like text fields, chips, and selection controls.
- **Communication:** Alerting users to key information and messages using components such as snack bars, banners, and dialogs.

2.2 Backend Development

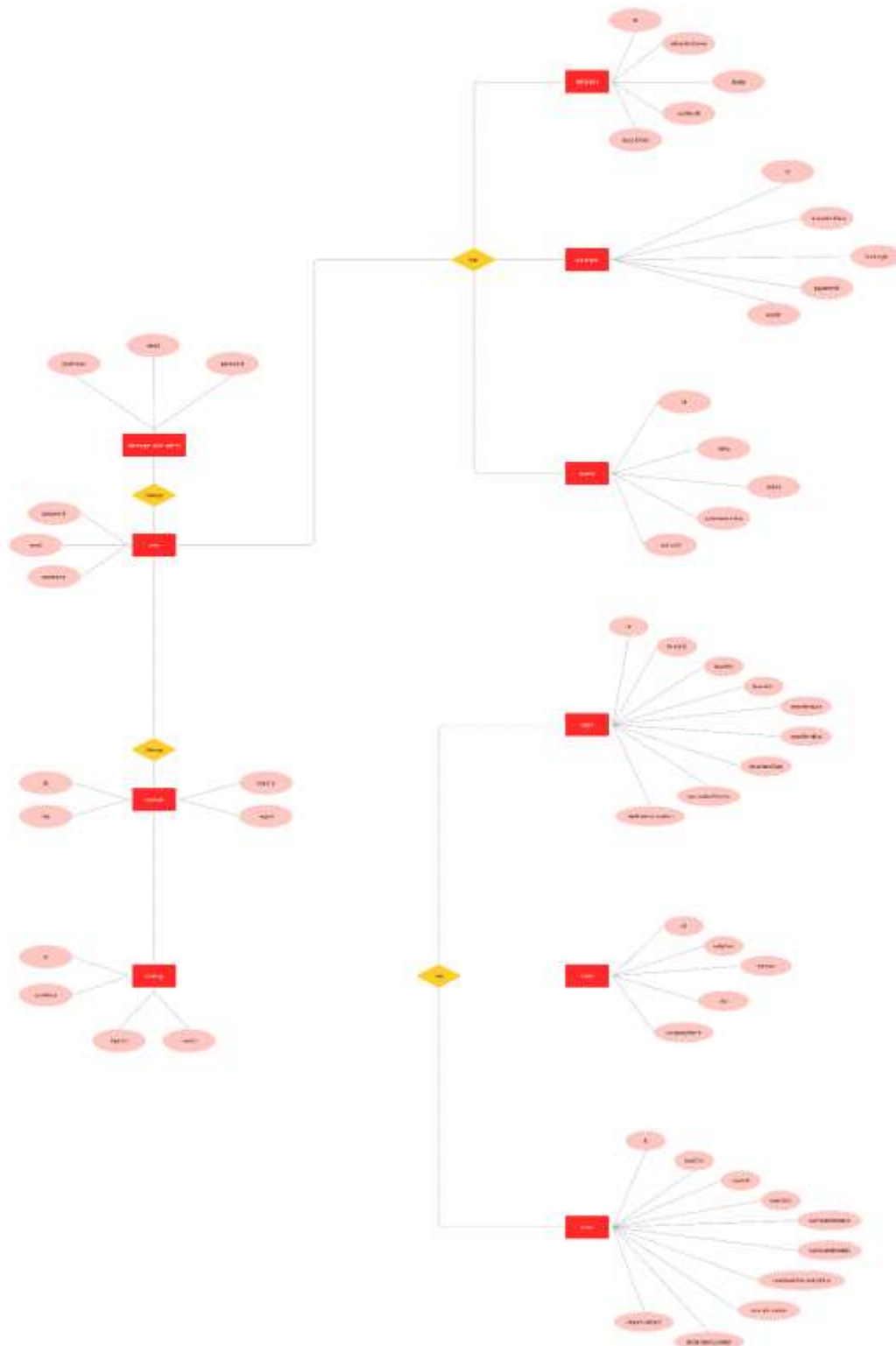
For backend development we have used Django Framework. Django is a high-level Python Web framework that encourages rapid development and clean, pragmatic design. Built by experienced developers, it takes care of much of the hassle of Web development, so you can focus on writing your app without needing to reinvent the wheel. It's free and open source.

2.3 Database

For database management we have used PostgreSQL. PostgreSQL also known as postgres is a powerful, open-source object-relational database system with over 30 years of active development that has earned it a strong reputation for reliability, feature robustness, and performance.

3. ER Diagram

Group no. 51
Tour and Travel Management System
ER DIAGRAM



ENTITIES	ATTRIBUTES
Attraction	<u>id</u> , attractionName, attractionDescription, image, location_id
Booking	<u>id</u> , startDate, Flight_id, Hotel_id, Train_id
Flight	<u>id</u> , departureDate, sourceLocation, destinationLocation, fareEconomy, fareBusiness, fareFirst, numSeatsRemainingEconomy, numSeatsRemainingBusiness, numSeatsRemainingFirst
Hotel	<u>id</u> , dailyCost, address, city, companyName
Location	<u>id</u> , city, region, country, image
Payment	<u>id</u> , amount, paymentType, cardNo
Purchase	<u>id</u> , transactionDate, type, bookingID_id, aymentID_id, use rID_id
Review	<u>id</u> , rating, review, submissionDate, author_id
Train	<u>id</u> , departureDate, sourceLocation, destinationLocation, fareEconomy, fareBusiness, fareFirst, numSeatsRemainingEconomy, numSeatsRemainingBusiness, numSeatsRemainingFirst
User	username, <u>email</u> , password
Developer_user_admin	username, <u>email</u> , password

4. Schema of each table required

1) User Table

```
class user(models.Model):  
  
    username = models.CharField(max_length=40)  
  
    email = models.CharField(max_length=35,  
unique=True, primary_key=True)  
  
    password = models.CharField(max_length=20)
```

2) Location Table

```
class location(models.Model):  
  
    id = models.IntegerField(auto_created=True,  
primary_key=True, unique=True)  
  
    city = models.CharField(max_length=30)  
  
    region = models.CharField(max_length=2)  
  
    country = models.CharField(max_length=2,  
default='US')  
  
    image = models.CharField(max_length=200)
```

3) Attraction Table

```
class attraction(models.Model):  
  
    id = models.IntegerField(auto_created=True,  
primary_key=True, unique=True)  
  
    location = models.ForeignKey(  
        location, on_delete=models.CASCADE)  
  
    attractionName =  
models.CharField(max_length=30)  
  
    attractionDescription =  
models.CharField(max_length=1000)  
  
    image = models.CharField(max_length=200)
```

4) Flight Table

```
class flight(models.Model):  
  
    id = models.IntegerField(auto_created=True,  
primary_key=True, unique=True)  
  
    departureDate = models.DateField()
```



```
        sourceLocation =
models.CharField(max_length=30)

        destinationLocation =
models.CharField(max_length=30)

        fareEconomy = models.DecimalField(max_digits=6,
decimal_places=2)

        fareBusiness = models.DecimalField(max_digits=6,
decimal_places=2)

        fareFirst = models.DecimalField(max_digits=6,decimal_places=2)

        numSeatsRemainingEconomy =
models.IntegerField()

        numSeatsRemainingBusiness =
models.IntegerField()

        numSeatsRemainingFirst = models.IntegerField()
```

5) Hotel Table

```
class hotel(models.Model):

    id = models.IntegerField(auto_created=True,
primary_key=True, unique=True)

    dailyCost = models.DecimalField(max_digits=6,
decimal_places=2)
```

```
address = models.CharField(max_length=30)

city = models.CharField(max_length=30)

companyName = models.CharField(max_length=30,
default='hotel')
```

6) Train Table

```
class train(models.Model):

    id = models.IntegerField(auto_created=True,
primary_key=True, unique=True)

    departureDate = models.DateField()

    sourceLocation =
models.CharField(max_length=30)

    destinationLocation =
models.CharField(max_length=30)

    fareEconomy = models.DecimalField(max_digits=6,
decimal_places=2)

    fareBusiness = models.DecimalField(max_digits=6,
decimal_places=2)

    fareFirst = models.DecimalField(max_digits=6,decimal_places=2)
```

```
        numSeatsRemainingEconomy =  
models.IntegerField()  
  
        numSeatsRemainingBusiness =  
models.IntegerField()  
  
        numSeatsRemainingFirst = models.IntegerField()
```

7) Review Table

```
class review(models.Model):  
    id = models.IntegerField(auto_created=True,  
primary_key=True, unique=True)  
    rating = models.IntegerField()  
    review = models.CharField(max_length=1000)  
    author = models.ForeignKey(user,  
on_delete=models.CASCADE)  
    submissionDate =  
models.DateField(auto_now=True)
```

8) Payment Table

```
class payment(models.Model):  
    id = models.IntegerField(auto_created=True,  
primary_key=True, unique=True)  
    PAYMENT_TYPES = [('credit', 'Credit'),  
('debit', 'Debit')]
```

```
        amount = models.DecimalField(max_digits=6,
decimal_places=2)
        paymentType =
models.CharField(choices=PAYMENT_TYPES,
max_length=6)
        cardNo = models.CharField(max_length=16)
```

9) Booking Table

```
class booking(models.Model):
    id = models.IntegerField(auto_created=True,
primary_key=True, unique=True)
    startDate = models.DateTimeField(auto_now=True)#
    TRANSPORTATION_TYPES = [('flight'),
('train')]
    # classType = models.CharField(max_length=10)

    Flight = models.ForeignKey(
        flight, on_delete=models.CASCADE,
default=None, null=True)
    Train = models.ForeignKey(
        train, on_delete=models.CASCADE,
default=None, null=True)
    Hotel = models.ForeignKey(
```

```
        hotel, on_delete=models.CASCADE,  
default=None, null=True)
```

10) Purchase Model Table

```
class purchase(models.Model):  
  
    transactionDate =  
models.DateTimeField(auto_now=True)  
    userID = models.ForeignKey(user,  
on_delete=models.CASCADE)  
    Type = models.CharField(max_length=10,  
default="", null=True)  
    bookingID = models.ForeignKey(  
        booking, on_delete=models.CASCADE)  
    paymentID = models.ForeignKey(  
        payment, on_delete=models.CASCADE)
```

11) Admin Table

```
class user_admin(models.Model):  
    username = models.CharField(max_length=40, default="")  
    email = models.CharField(max_length=35, unique=True, primary_key=True)  
    password = models.CharField(max_length=20)
```

5. Functional components of Project

Step 1: - Ensuring First Normal Form in Tables

1. First Normal form states that every table column in the database should have a unique value, there should be no repetition in values.
2. All the databases created for the subject of this project have a single attribute and will give only a single output with respect to primary key ensuring 1st normal form.

Step 2: - Ensuring Second Normal Form in Tables: -

1. Second Normal form states that every non primary key attribute should be fully functional dependent on primary key, i.e. it should not be dependent on part of a candidate key.
2. To ensure 2nd normal form in our database, no combination of keys is used as primary key, a separate id is provided as a primary key in most cases.
3. Since every table has mostly separate ids (like Booking id in booking Table, purchase id in Purchase table etc.) or single Email like primary Key in user database, so point of partial dependency even comes here.

Step 3: - Ensuring Third Normal Form

1. The table is already in second Normal form, so we have to ensure our database schema has no transitive dependency.
2. Since every table has a single key as a primary key, most likely to be ID or similar stuff, every other key (primary or non-primary) is directly dependent on that, so no transitive things are there.
3. For table inter-dependency also, only primary key on any table were used as foreign key in any other table.

For example: -

Booking table, purchase table and user table are there.

All have Booking_ID, purchase_id and Email as respective single primary key on which all other keys are directly dependent, so there is no partial dependency neither the transitive dependency is present.

For inter-connectivity, booking_id and purchase_id act as foreign key in the user database, so no issue as of here also.

In this way. We have a database that not only follows **3rd normal form**, but also follows **BCNF** due to all candidate and non-primary key dependent on a single primary key.

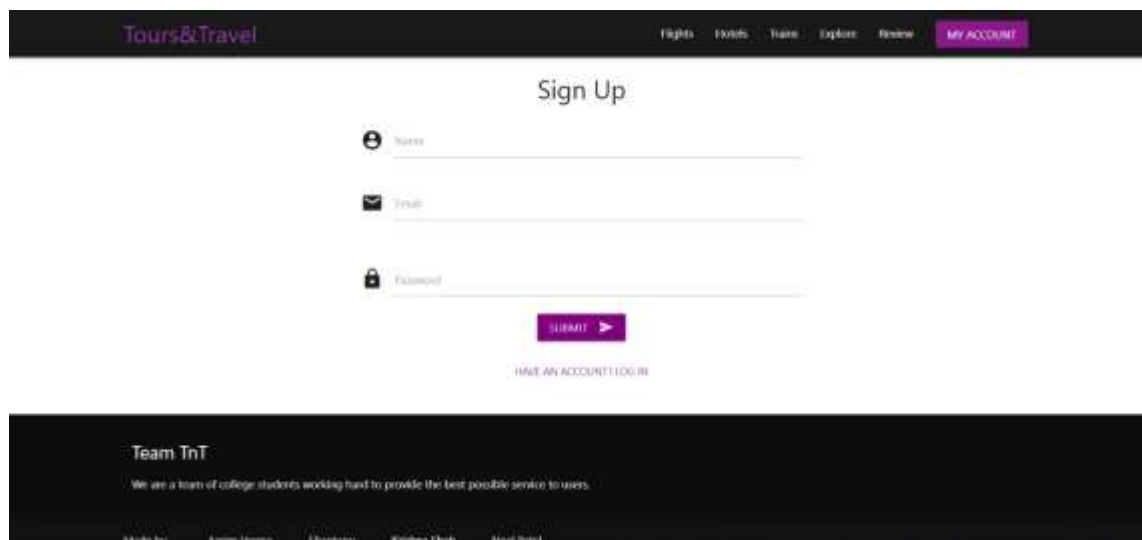
6. Functional components of Project

6.1 Functional Requirements covered for Users

HOME PAGE: The home page of the website.



SIGN UP: Signup feature allows users to login into the system successfully byfilling in the credentials required i.e., Name, Email, Password.



LOGIN: Users can login into the website by filling the proper credentials i.e., email and password.

Tours&Travel

FlightsHotelsTrainsExploreReviewMY ACCOUNT

Log In

Email

Password

SUBMIT >

CHANGE PASSWORD

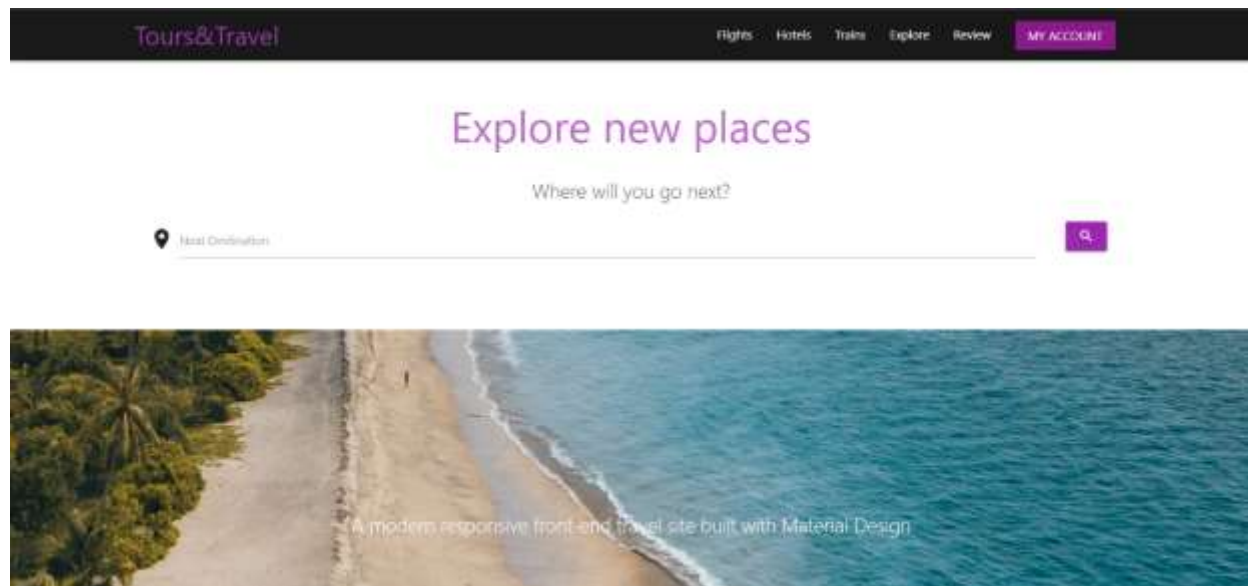
DON'T HAVE AN ACCOUNT? REGISTER NOW

Team TnT

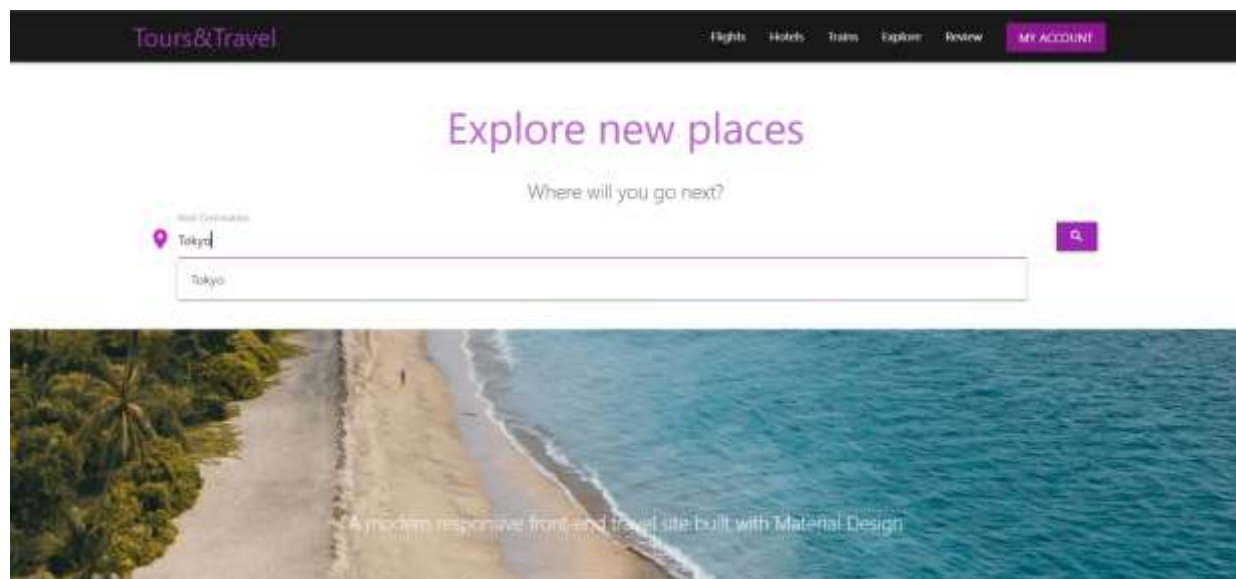
We are a team of college students working hard to provide the best possible service to users.

Made by:Aglin VermaShantanuKrishna ShahNeel Patel

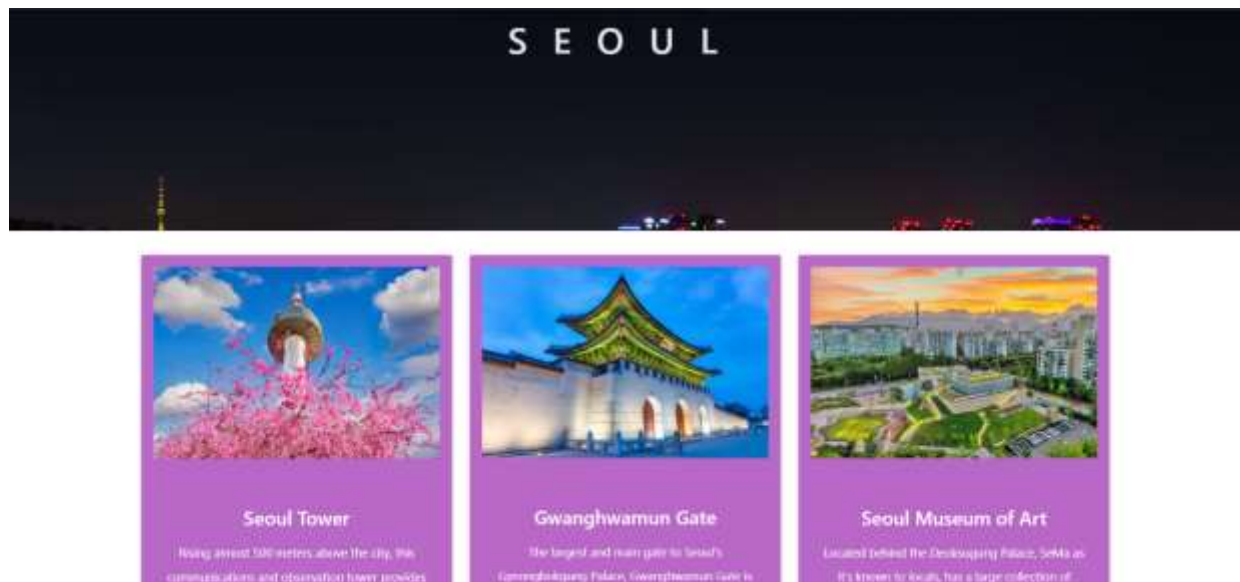
EXPLORE: Helps users to make best choices of destination for their travel.



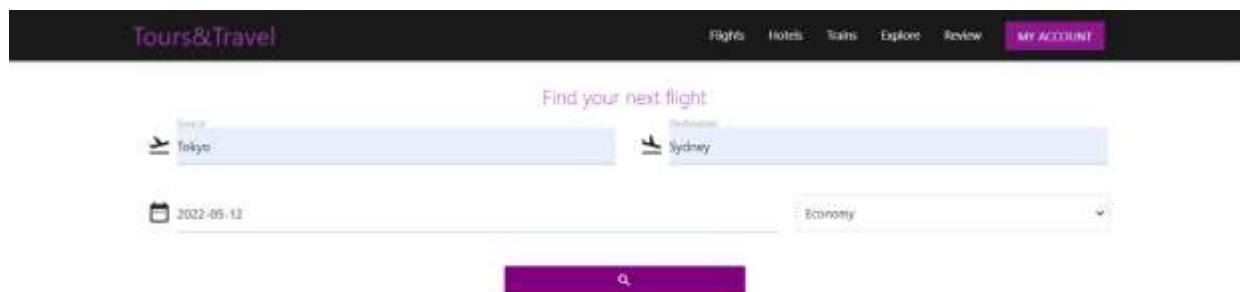
SEARCHING THE DESTINATION: User can search his fav place of destination.



Users will also have the feature to have the knowledge of the famous places in that location.



SEARCHING THE FLIGHT/TRAIN: Users can search for the flight or train by entering the details required.



BOOK THE FLIGHT/TRAIN: Users can book for the flight or train and get the information like availability of seats.

The screenshot shows the 'Find your next flight' form. At the top, there is a navigation bar with 'Tours&Travel' on the left and links for 'Flights', 'Hotels', 'Trains', 'Explore', 'Review', and 'MY ACCOUNT' on the right. The form itself has a title 'Find your next flight' and three input fields: 'Source' (with an airplane icon), 'Destination' (with an airplane icon), and 'Choose a date' (with a calendar icon). Below these fields is a large blue search button with a magnifying glass icon. Underneath the search button is a light blue box containing the following details: 'Source: New York', 'Destination: Tokyo', 'Seats Available: 18', 'Departure Date: May 10, 2022', 'Departure Time:', 'Class: business', and 'Fare: 300.00'. At the bottom of this box is a red button labeled 'VIEW DETAILS'.

MAKE PAYMENT FOR FLIGHT/TRAIN: Users can make payment for the flight or train by entering the details required and confirm their booking.

The screenshot shows the 'Current Booking' form. At the top, there is a navigation bar with 'Tours&Travel' on the left and links for 'Flights', 'Hotels', 'Trains', 'Explore', 'Review', and 'MY ACCOUNT' on the right. The form has a title 'Current Booking' and a 'Card Number' input field with a card icon and the number '607132214569'. To the right of the card number is a 'Debit' button. Below the card number is a large blue button labeled 'CONFIRM'. Underneath the 'CONFIRM' button is a light blue box containing the following details: 'New York <-> Tokyo', 'May 10, 2022 @', and 'Business Rs 300.00'. At the bottom of the page is a dark blue footer with the text 'Team TnT' and 'We are a team of college students working hard to provide the best possible service to users.' Below this is a row of names: 'Made by: Agnis Verma, Shantane, Krishna Shah, Neel Patel, Aniya Singal'.

VIEW TICKET HISTORY: Users can view its ticket history.

Tours&Travel

[Flights](#)[Hotels](#)[Trains](#)[Explore](#)[Review](#)[MY ACCOUNT](#)

Current Booking

Card Number

Card Type

CONFIRM

Booking successful

Type	Class	Source	Destination	Book Date	Total	Card Number
Flight	business	New York	Tokyo	May 5, 2022, 3:49 p.m.	Rs 300.00	001132214565

Team TnT

We are a team of college students working hard to provide the best possible service to users.

Made by:

[Agrim Verma](#)[Shantana](#)[Krishna Shah](#)[Neel Patel](#)[Anaya Singal](#)

SEARCHING THE HOTEL: Users can search for the flight or train by entering the details required.

Tours&Travel

[Flights](#)[Hotels](#)[Trains](#)[Explore](#)[Review](#)[MY ACCOUNT](#)


Find your travel accommodations

Locations

Ladakh

2022-05-08

2022-05-10



BOOK THE HOTEL: Users can search for the hotel by entering the details required.

Tours&Travel
Flights
Hotels
Trains
Explore
Review
MY ACCOUNT

Find your travel accommodations

Ladakh Company
LadakhCity
Rs 2000.00 per day
BOOK NOW

Team TnT
We are a team of college students working hard to provide the best possible service to users.

MAKE PAYMENT: Users can make payment for the hotel by entering the details required and confirm their booking.

Tours&Travel
Flights
Hotels
Trains
Explore
Review
MY ACCOUNT

Current Booking

LadakhCity Ladakh
Rs 2000.00
CONFIRM

Team TnT
We are a team of college students working hard to provide the best possible service to users.


Made by-
Agim Verma
Shantanu
Kishnu Shah
Navee joshi
Briya Singal

VIEW BOOKED HISTORY: Users can view its ticket history.

Tours&Travel

FlightsHotelsTrainsExploreReviewMY ACCOUNT

Current Booking

 Card Number

Card Type

CONFIRM

Booking successful

Type	Class	Source	Destination	Book Date	Total	Card Number
Hotel	NULL	NULL	Latakh	May 5, 2022, 3:51 pm	Rs 2000.00	34345

Team TnT

We are a team of college students working hard to provide the best possible service to users.


Made by:Agim VermaShantanaKrishna ShahNeel patilAnya Singal

REVIEW: Users can give their reviews about the services provided by thiswebsite and rate accordingly :)

Tours&Travel

FlightsHotelsTrainsExploreReviewMY ACCOUNT

Review our service

 Review

Rating

SUBMIT

agrim says...

Ratings: 5 | April 30, 2021

Very good offers on hotels and flights.

agrim says...

Ratings: 2 | May 2, 2022

Great website

VIEW TOTAL HISTORY OF ALL TIMES: Users can view their preferred email.

Tours&Travel

FlightsHotelsTrainsExploreReviewMY ACCOUNT

PreferencesPayment MethodsHistory

Preferences

Email Loginshantans@gmail.com

Team TnT

We are a team of college students working hard to provide the best possible service to users.

VIEW TOTAL HISTORY OF ALL TIMES: Users can view their booking history of all time.

Tours&Travel

FlightsHotelsTrainsExploreReviewMY ACCOUNT

PreferencesPayment MethodsHistory

History

Type	Transportation	Source	Destination	Book Date	Total	Card Number
Flight	business	New York	Tokyo	May 5, 2022, 3:49 pm	Rs.300.00	607132214565
Hotel	NULL	NULL	Ludwig	May 5, 2022, 2:51 pm	Rs.2000.00	34343

Team TnT

We are a team of college students working hard to provide the best possible service to users.

VIEW TOTAL HISTORY OF ALL TIMES: Users can view their payment history of all time.

The screenshot shows the 'Tours&Travel' website header with navigation links: Flights, Hotels, Trains, Explore, Review, and a 'MY ACCOUNT' button. On the left, a sidebar menu contains 'Preferences', 'Payment Methods', and 'History'. The main content area is titled 'Payment' and displays a table with two rows: 'Credit' and 'Debit', both showing the masked card number '0000-0000-0000-0234'.

Payment	
Credit	0000-0000-0000-0234
Debit	0000-0000-0000-0234

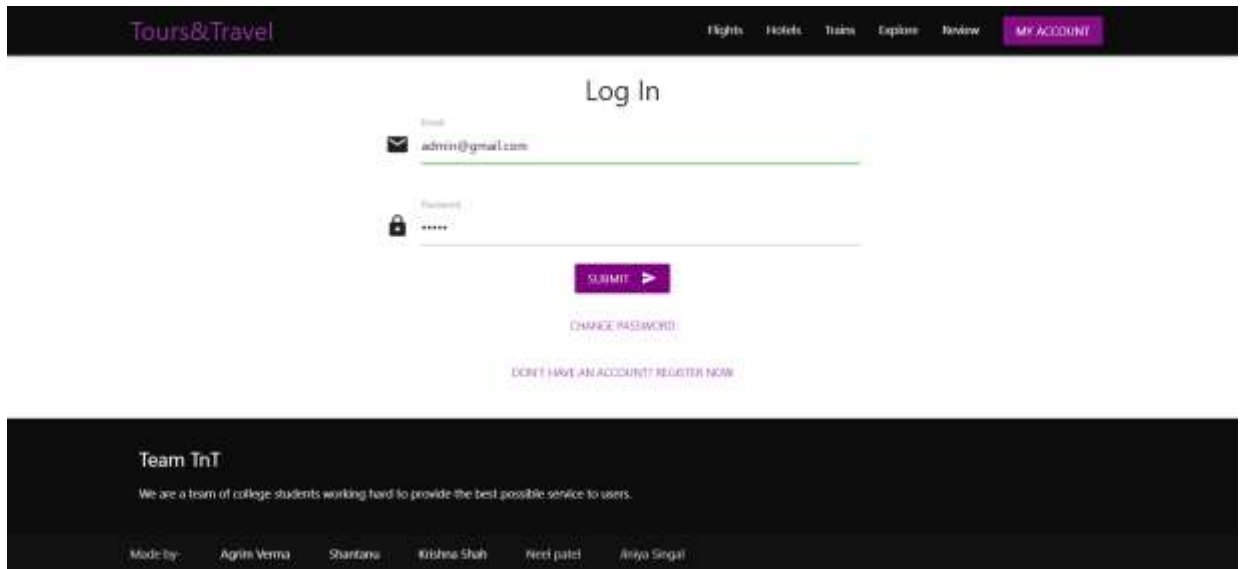
Below the table, there is a 'Team TnT' section with the text: 'We are a team of college students working hard to provide the best possible service to users.'

CHANGE PASSWORD: Users can change their password.

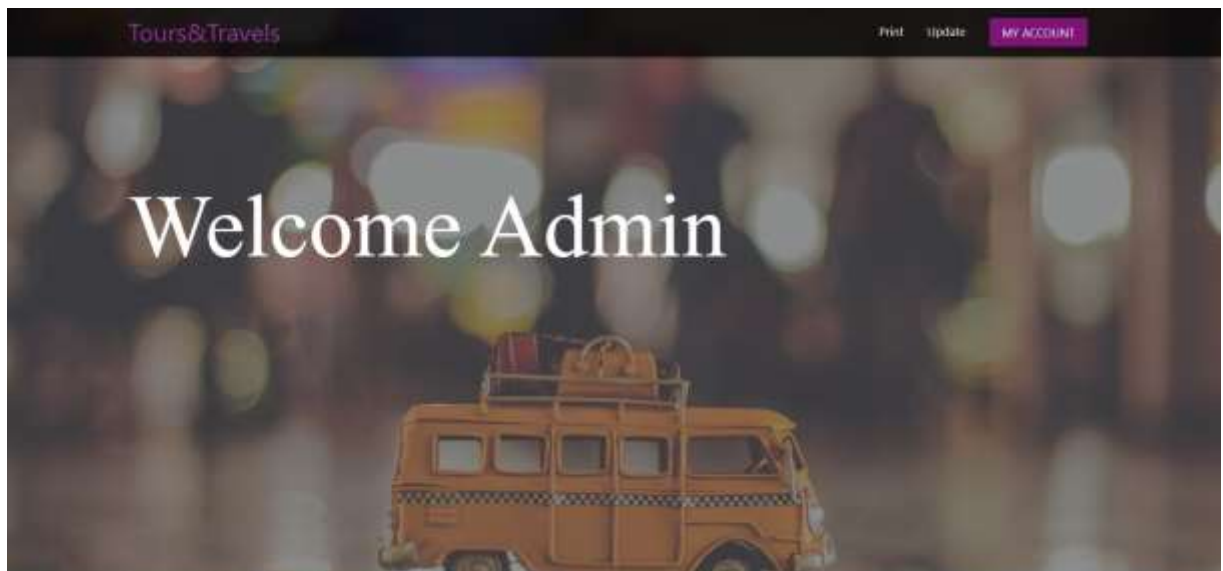
The screenshot shows a 'Change Password' form with three input fields: 'Email' (with an envelope icon), 'Old Password' (with a lock icon), and 'New Password' (with a lock icon). A purple 'SUBMIT' button with a right-pointing arrow is located at the bottom of the form.

6.2 Functional Requirements covered for Admin

LOGIN: Admin can login into the system by putting in the correct details.



The screenshot shows the login interface of the 'Tours&Travel' website. The header includes the site name and navigation links for Flights, Hotels, Trains, Explore, Review, and a 'MY ACCOUNT' button. The main section is titled 'Log In' and contains two input fields: 'Email' with the value 'admin@gmail.com' and 'Password' with masked characters. Below these fields are three links: a 'SUMMIT >' button, a 'CHANGE PASSWORD' link, and a 'DON'T HAVE AN ACCOUNT? REGISTER NOW' link. The footer section, titled 'Team TnT', includes a description of the team as college students and a list of team members: Made by: Agrim Verma, Shantana, Krishna Shah, Neel Patel, and Aniya Singal.



PRINT: Admin can view all the booking history of all users.

Tours&Travels							
				Print Update		My Account	
User	Type	Class	Source	Destination	Book Date	Total	Card Number
agrim@gmail.com	Hotel	NULL	NULL	Tokyo	May 1, 2022, 7:53 p.m.	Rs 1500.00	232233434
shantana@gmail.com	Flight	business	New York	Tokyo	May 5, 2022, 3:40 p.m.	Rs 300.00	60713274545
shantana@gmail.com	Hotel	NULL	NULL	Ladakh	May 5, 2022, 3:51 p.m.	Rs 2000.00	34343