

# Travel Guide

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## 1 Application Frontend Design

The website consists of 7 major webpages:

1. Login: A user can log into their account.
2. Signup: A user can create a new account.
3. Dashboard: It lists the favourite places of the user and the rating of various places as given by the user.
4. Places: This consists of places in all states of India. It has a search bar for explicitly searching places. Apart from that, it has a list of all states. Each state has a list of cities which in turn has a list of places in that city. We also list the places a user may like based on their favourite places.
5. Hotels: This consists of various hotels in India. One can filter hotel results based on cost, rating, facilities etc. We also have a feature to recommend restaurants and places close to a hotel.
6. Restaurants: This consists of various restaurants in India. One can filter the results based on cost, rating, cuisine etc.
7. Travel: This can be used to plan the trip to any city. It takes a source and destination city and lists all the flight, train paths that may be used.

## 2 Supported transactions

Broadly, the application supports the following queries and transactions.

1. Validate signup: Ensure that the entered username doesn't exists in the database.
2. Signup: Insert a new user's details to the Users table.
3. Authenticate login: Log in if the username and the password hash matches an entry in the database.
4. Query places based on a search term that displays places having the search term as a prefix in a given city or state.
5. Show cities in a state ordered by their average rating and number of ratings.
6. Query for nearby hotels for a place.
7. Add or remove places from a user's favorite places list.
8. Submit user's rating for a place.
9. Suggest places to visit for a user based on the favorite places list, taking into account the favorites list of other users.
10. Query hotels based on a search term that displays hotels having the search term as a prefix of the hotel name.
11. Filter hotel results based on cities, facilities like free wifi, free breakfast and swimming pool, maximum rent, minimum star rating of hotel.
12. Query for nearby places for a hotel.
13. Query for nearby restaurants for a hotel.

14. Query restaurants based on a search term that displays restaurants having the search term as a prefix of the restaurant name.
15. Filter restaurant results based on cities, cuisines, maximum cost and minimum rating for the restaurants.
16. Query for transport details by specifying the source city, destination city and mode of transport (flight and train).

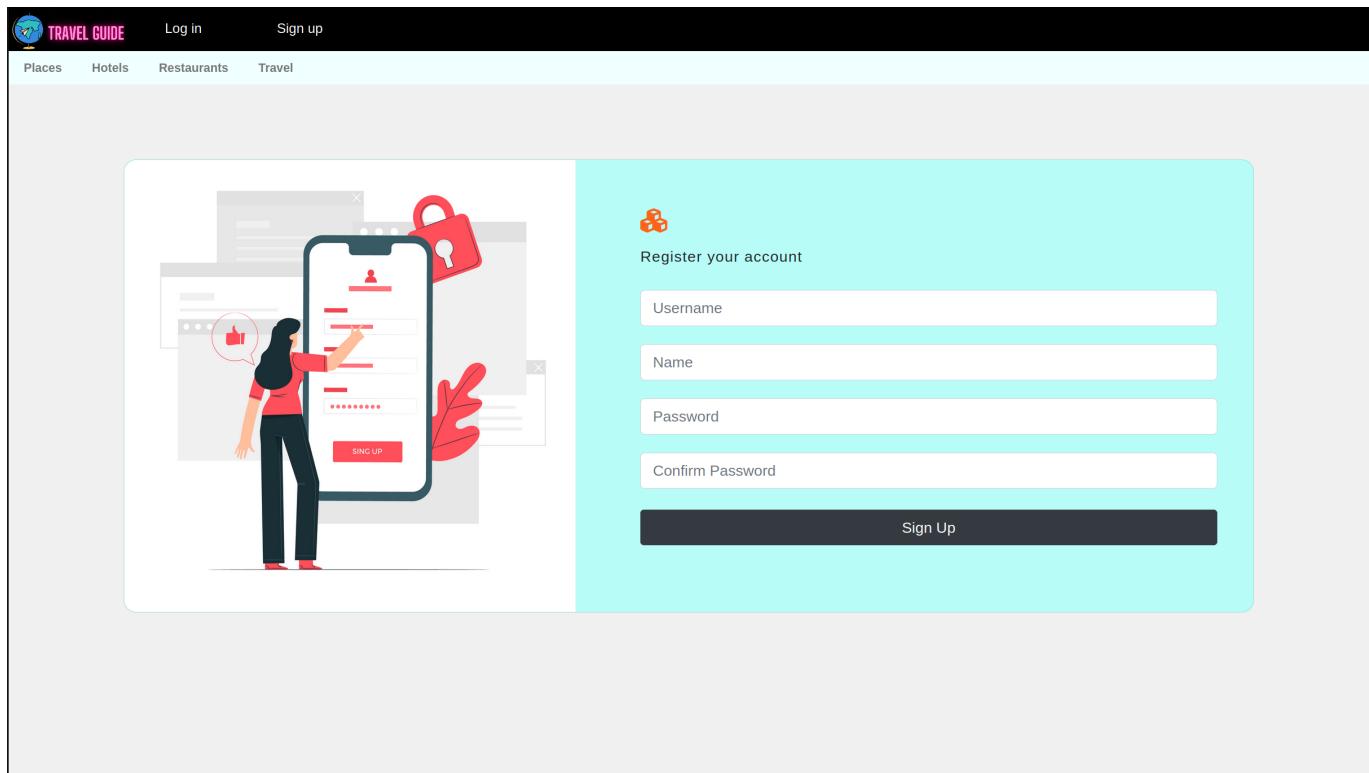
### 3 Overall architecture

- Frontend Architecture: The frontend of the application uses HTML, CSS, and JavaScript to create a responsive and interactive interface. The application uses Bootstrap as the CSS framework, which provides pre-designed components. The JavaScript code is used to handle dynamic behaviour like user inputs and making asynchronous requests to the backend.
- Backend Architecture: The backend of the application is built using Flask, a Python web framework. The backend follows the Model-View-Controller (MVC) design pattern, which separates the application into three components: the Model, the View, and the Controller. The Model is responsible for managing the data and the application's logic. The View is responsible for displaying the data to the user, and the Controller is responsible for handling user input and responding to user actions.
- The Flask application is defined in the Python code, which contains the model and the controller. The views are implemented using HTML templates, CSS stylesheets, and JavaScript scripts.
- Jinja2, a templating engine for Python, has been used to render dynamic HTML pages by dynamically inserting data retrieved from the PostgreSQL database, such as the results of a search query, into HTML templates.
- psycopg2, a PostgreSQL adapter for Python, has been used to establish connection to the PostgreSQL database, and to perform various operations such as executing SQL queries and inserting, updating, and deleting data.
- Flask sessions have been used to implement user authentication. When a user logs in, their username is stored in the session cookie, and when they log out, the cookie is cleared.

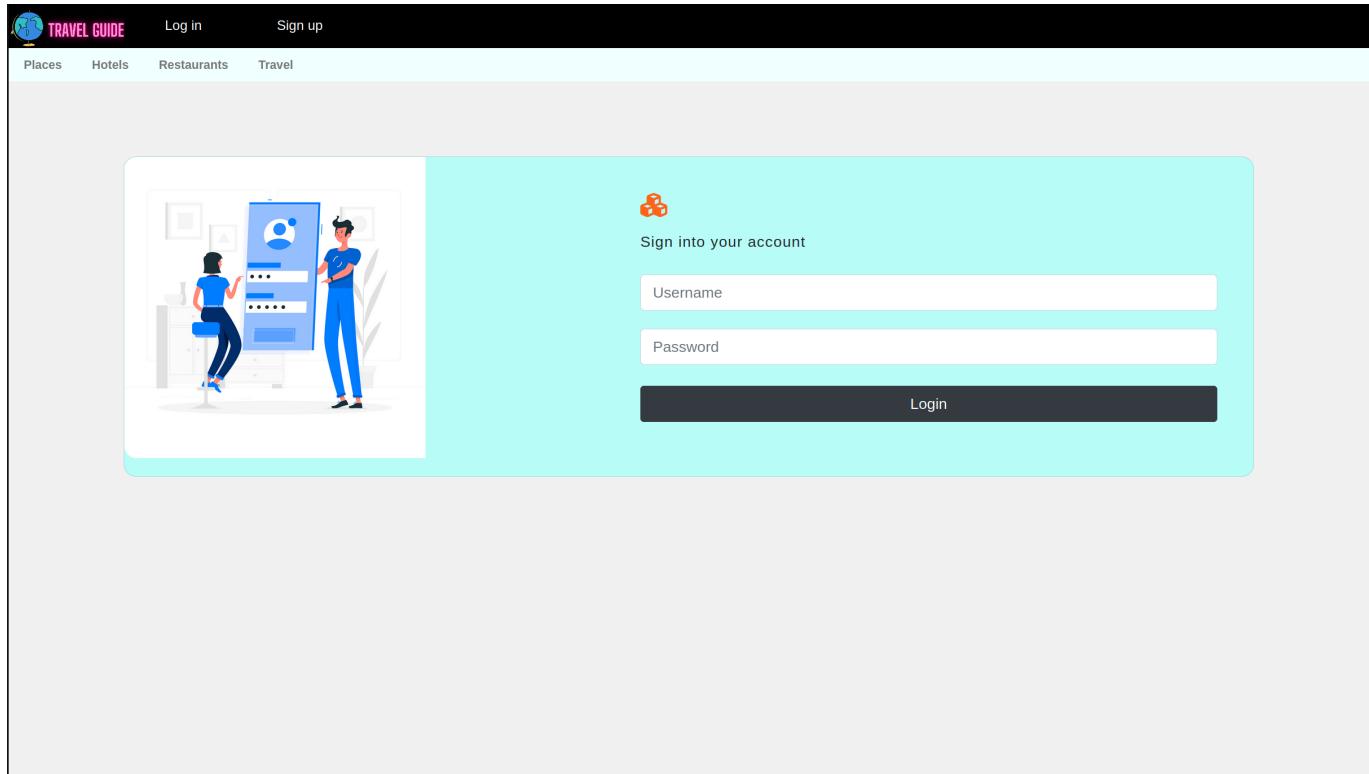
### 4 Demonstration scenario

Suppose a user wants to use the Travel Guide. They may proceed in the following steps:

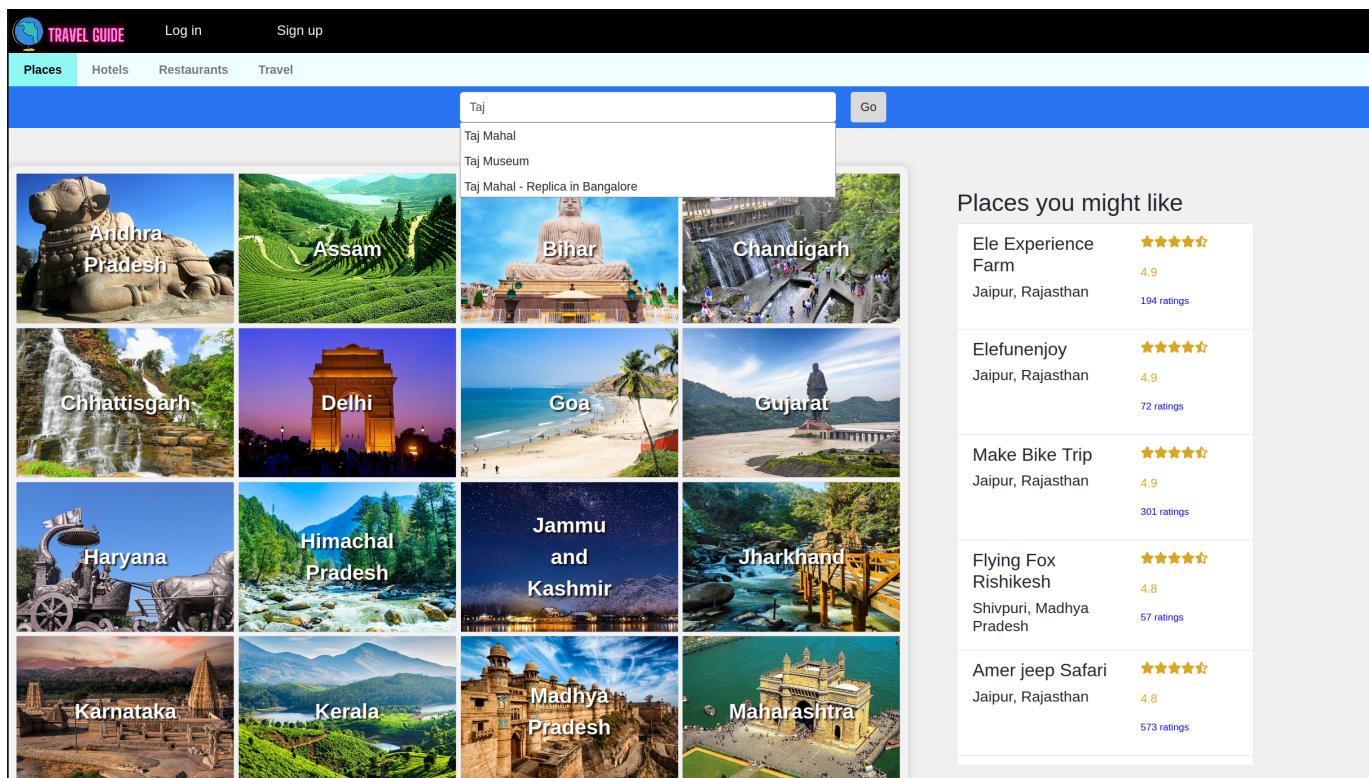
1. They are required to sign up using the signup page.



2. Next, they are redirected to the login page where they can log in using their credentials.



3. Next, suppose they have a place to visit in mind. They may go to the places tab to search for that place.



4. They can also search for places in a given state or a given city.

**TRAVEL GUIDE** Log in Sign up

Places Hotels Restaurants Travel

Taj Go

Azamgarh ★★★★★ 5 2 ratings

Bahraich ★★★★★ 4.6 21 ratings

Firozabad ★★★★★ 4.5 17 ratings

Moradabad ★★★★★ 4.5 84 ratings

Agra ★★★★★ 4.3 39271 ratings

Kanpur ★★★★★ 4.3 1084 ratings

Meerut ★★★★★ 4.2 419 ratings

Lalitpur ★★★★★ 4.2 5 ratings

Aligarh ★★★★★ 4.2 150 ratings

Lucknow ★★★★★ 4.1 6794 ratings

Jhansi ★★★★★ 4 446 ratings

Mathura ★★★★★ 4 1792 ratings

Fatehpur Sikri ★★★★★ 4 2394 ratings

Vrindavan ★★★★★ 4 71 ratings

Etawah ★★★★★ 4 2 ratings

Lakhimpur ★★★★★ 4 2 ratings

Places you might like

- Ele Experience Farm ★★★★★ 4.9 194 ratings
- Elefunenjoy Jaipur, Rajasthan ★★★★★ 4.9 72 ratings
- Make Bike Trip Jaipur, Rajasthan ★★★★★ 4.9 301 ratings
- Flying Fox Rishikesh ★★★★★ 4.8 57 ratings
- Amer jeep Safari Jaipur, Rajasthan ★★★★★ 4.8 573 ratings

**TRAVEL GUIDE** Log in Sign up

Places Hotels Restaurants Travel

Taj Go

Jain Muni Samadhi Stahl ★★★★★ 5 1 ratings ADD TO FAVORITES

Chhatri of Raja Jaswant Singh ★★★★★ 5 1 ratings ADD TO FAVORITES

Paliwal Park ★★★★★ 4.7 3 ratings ADD TO FAVORITES

Wildlife SOS ★★★★★ 4.7 1514 ratings ADD TO FAVORITES

Rawli Maharaj Temple ★★★★★ 4.6 11 ratings ADD TO FAVORITES

Spiritual Museum ★★★★★

Places you might like

- Ele Experience Farm ★★★★★ 4.9 194 ratings
- Elefunenjoy Jaipur, Rajasthan ★★★★★ 4.9 72 ratings
- Make Bike Trip Jaipur, Rajasthan ★★★★★ 4.9 301 ratings
- Flying Fox Rishikesh ★★★★★ 4.8 57 ratings
- Amer jeep Safari Jaipur, Rajasthan ★★★★★ 4.8 573 ratings

- They may mark some places as favourite places and even rate places from 1 to 5 stars. The website also recommends places that they may like based on the places that they have marked as favourite.

**TRAVEL GUIDE** Dashboard Logout

Places Hotels Restaurants Travel

Search... Go

### Search Results

Taj Mahal Agra, Uttar Pradesh	★★★★★ 4.3 23232 ratings	REMOVE FROM FAVORITES	
Taj Mahal - Replica in Bangalore Bengaluru, Karnataka	★★★★★ 4.1 11 ratings	ADD TO FAVORITES	
Taj Mahal Palace Bhopal, Madhya Pradesh	★★★★★ 4 20 ratings	ADD TO FAVORITES	

### Places you might like

Ele Experience Farm Jaipur, Rajasthan	★★★★★ 4.9 194 ratings
Elefunenjoy Jaipur, Rajasthan	★★★★★ 4.9 72 ratings
Make Bike Trip Jaipur, Rajasthan	★★★★★ 4.9 301 ratings
Flying Fox Rishikesh	★★★★★ 4.8 57 ratings
Amer jeep Safari Jaipur, Rajasthan	★★★★★ 4.8 573 ratings

6. When they decide on a place, they may search for hotels near that place. Once they decide on a hotel to stay in, they may further query for other places to visit near that hotel.

**TRAVEL GUIDE** Dashboard Logout

Places Hotels Restaurants Travel

Search... Go

### Search Results

<b>Bentleys Hotel Colaba</b> 17, Oliver Road, Colaba, Mumbai, Maharashtra 17, Oliver Road, Colaba, Mumbai, Maharashtra, 400001, Mumbai ★★★★★	free wifi free breakfast	2581 INR
<b>Chateau Windsor Hotel</b> 3-star hotel with restaurant 86, Veer Nariman Road, Next to Ambassador Hotel, Mumbai, Maharashtra, 400020, Mumbai ★★★★★	free wifi free breakfast	5500 INR
<b>Diplomat Hotel</b> 3.5-star hotel with restaurant 24-26, B.K. Boman Behram Marg, Apollo Bunder, Mumbai, Maharashtra, 400001, Mumbai ★★★★★	free wifi free breakfast	4989 INR
<b>Executive Enclave</b> 3-star hotel with restaurant, near Mt. Mary Church 331, Dr. Ambedkar Road, Pali Hill, Bandra (West), Mumbai, Maharashtra, 400050, India, 400050, Mumbai ★★★★★	free wifi free breakfast	5882 INR

7. They may also get the restaurants close to the hotel for dineout.

The screenshot shows the 'Travel Guide' website interface. At the top, there's a navigation bar with links for 'Dashboard' and 'Logout'. Below the navigation is a secondary menu with tabs for 'Places', 'Hotels', 'Restaurants' (which is highlighted in green), and 'Travel'. A search bar with the placeholder 'Search...' and a 'Go' button are located at the top right. On the left side, there's a sidebar titled 'Filters' containing sections for 'Cities', 'Cuisines', 'Maximum Cost', and 'Minimum Rating', each with input fields and an 'Add' button. A blue 'Filter' button is at the bottom of the sidebar. The main content area is titled 'Search Results' and displays five restaurant entries in a grid format. Each entry includes the restaurant name, address, rating (e.g., 4.4, 4.5, 4.6), price (e.g., Rs. 2700, Rs. 2000, Rs. 1200, Rs. 1500, Rs. 2500), and a list of categories (e.g., Chinese, Seafood, Asian, Thai, Multi-Cuisine, North Indian, Continental, Seafood, Oriental, Fast Food, Desserts, Health Food, Burmese, Finger Food, Thai, Seafood, Asian). The background of the main content area is light grey.

8. Next, they can search for a route to visit their destination city in the travel tab. The route shows all the intermediate stops and the mode of transport (flight/train). There is also an option to display the flight/train number.

The screenshot shows the 'Travel Guide' website interface. At the top, there's a navigation bar with links for 'Dashboard' and 'Logout'. Below the navigation is a secondary menu with tabs for 'Places', 'Hotels', 'Restaurants', and 'Travel' (which is highlighted in green). A search bar with two input fields for 'From' (Delhi) and 'To' (Mumbai), a dropdown for 'Mode' (Both), a checkbox for 'Display transport details', and a 'Go' button are located at the top right. The main content area is titled 'Search Results' and displays a list of travel routes. Each route entry shows the departure city (Delhi), arrival city (Mumbai), mode of transport (Flight or Train), and intermediate stops. The background of the main content area is light grey.