Topic :	Restaurant Rating Prediction
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1. Introduction:

The Restaurant Rating Prediction Tool is an advanced application designed to accurately predict restaurant ratings by analyzing various key factors. It allows users to select from a wide range of cuisines, including Chinese, Thai, and street food, as well as different dining formats like dine-in, online delivery, and quick bites. This diversity ensures that the predictions are tailored to various dining preferences and operational styles.

In addition to these options, the tool considers other critical elements such as online ordering availability, table booking facilities, location, and cost. By incorporating these features, the app delivers reliable ratings that reflect the true essence of the dining experience. Whether you're choosing a quick meal or planning a special outing, the Restaurant Rating Prediction Tool helps you make informed decisions with confidence.

2. Problem Statement:

The main goal of this project is to perform extensive Exploratory Data Analysis (EDA) on the Zomato Dataset and build an appropriate Machine Learning Model that will help various Zomato Restaurants to predict their respective Ratings based on certain features.

3. Dataset Information

There are 17 variables in the dataset which contains information about the restaurant.

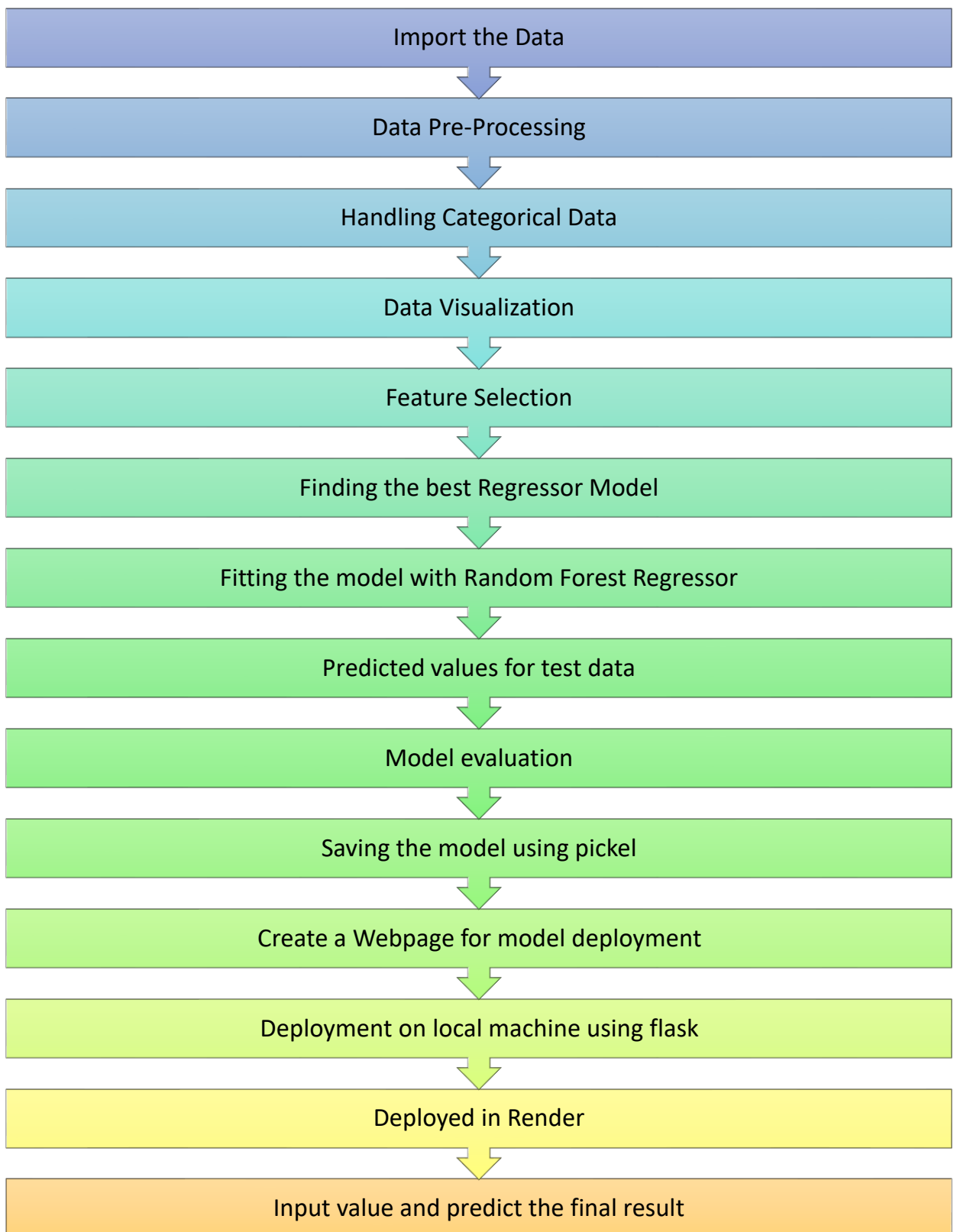| url	Urls of the restaurants on Zomato website
address	Address of Restaurants
name	Name of the Restaurant
online_order	Whether online facility is provided or not
book_table	If advanced booking of table is allowed or not
rate	Average rate of the restaurant given by the customers
votes	Total number of votes
phone	Phone number of restaurant
location	Location of restaurant
rest_type	Type of restaurant
dished_liked	Most dished liked in that restaurant
cuisines	Types of cuisines served in that restaurant
approx_cost(for two people	What is the approximate cost of the 2 people's meal
reviews_list	Rate and reviews given by the customers
menu_item	List of Menu Items
listed_in(type)	Type of restaurant listed as – buffet/cafes etc.
listed_in(city)	City where the restaurant is located

4. Tools Used:

Python programming language and frameworks such as NumPy, Pandas, Scikit-learn, Matplotlib, Seaborn and Flask are used to build the whole model. Render is used to deploy the model

5. Design Details:

Methodology and Deployment:

```
Import the Data
        ↓
Data Pre-Processing
        ↓
Handling Categorical Data
        ↓
Data Visualization
        ↓
Feature Selection
        ↓
Finding the best Regressor Model
        ↓
Fitting the model with Random Forest Regressor
        ↓
Predicted values for test data
        ↓
Model evaluation
        ↓
Saving the model using pickel
        ↓
Create a Webpage for model deployment
        ↓
Deployment on local machine using flask
        ↓
Deployed in Render
        ↓
Input value and predict the final result
```

Logging:
Logging is done for every action performed by your code use the python logging library for this.

6. Conclusion:

The Restaurant Rating Prediction system will predict the rating for helping the customers with the trained knowledge with set of rules. The user can use this system to recognize the approximate rating of the restaurant.