ARCHITECTURE

Restaurant rating prediction system

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Contents

Abstract

Bengaluru is known as the 'Silicon Valley of India'. And what comes with that tag, is a cosmopolitan city with new and upcoming restaurants in every part of the city. Restaurants from all over the world can be found here in Bengaluru. From United States to Japan, Russia to Antarctica, you get all type of

cuisines here. Delivery, Dine-out, Pubs, Bars, Drinks, Buffet, Desserts you name it and Bengaluru has it. Bengaluru is best place for foodies. The number of restaurant are increasing day by day. Currently which stands at approximately 12,000 restaurants. With such an high number of restaurants. This industry hasn't been saturated yet. And new restaurants are opening every day. However it has become difficult for them to compete with already established restaurants. This work deals with rating restaurants in Bengaluru based on certain factors.

1 Introduction

1.1 Why this Low-Level Design Document?

The purpose of this document is to present a detailed description of the Restaurant rating prediction System. It will explain the purpose and features of the system, the interfaces of the system, what the system will do.. This document is intended for both the stakeholders and the developers of the system and will be proposed to the higher management for its approval.

The main objective of the project is to predict a restaurant's rating based on certain factors.

1.2 Scope

This software system will be a Web application. The HLD documentation presents the structure of the system and the technology used .

2 Technical specifications

2.1 Dataset

Zomato restaurants is publicly available dataset. It is a available in csv format on Kaggle.
Dataset link -https://www.kaggle.com/himanshupoddar/zomato-bangalore-restaurants

2.1.1 Zomato restaurant dataset overview

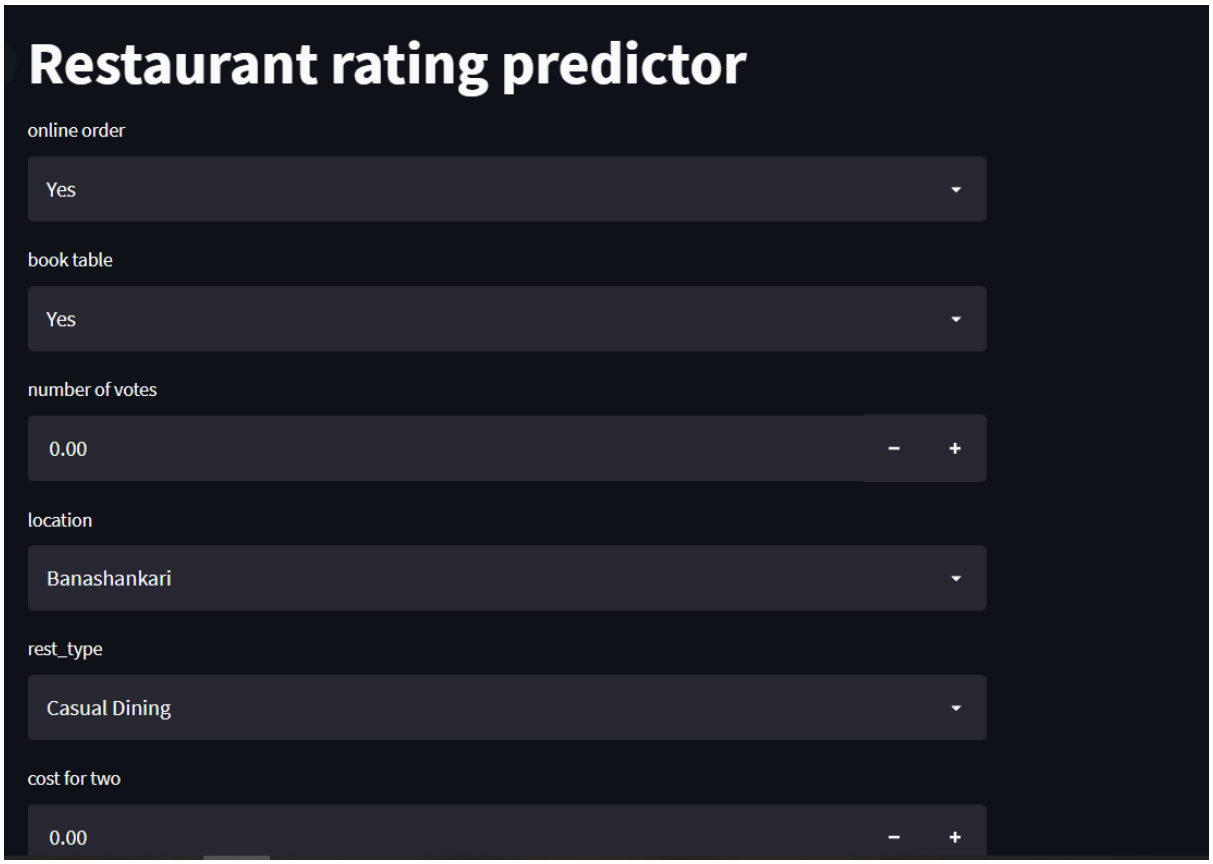
There are a total of around 52,000 rows and 12 columns.

Some of the columns are:-

- Location of the restaurant
- Approximate Price of food
- Theme based restaurant or not
- Which locality of that city serves that cuisines with maximum number of restaurants
- The needs of people who are striving to get the best cuisine of the neighbourhood
- Is a particular neighbourhood famous for its own kind of food.

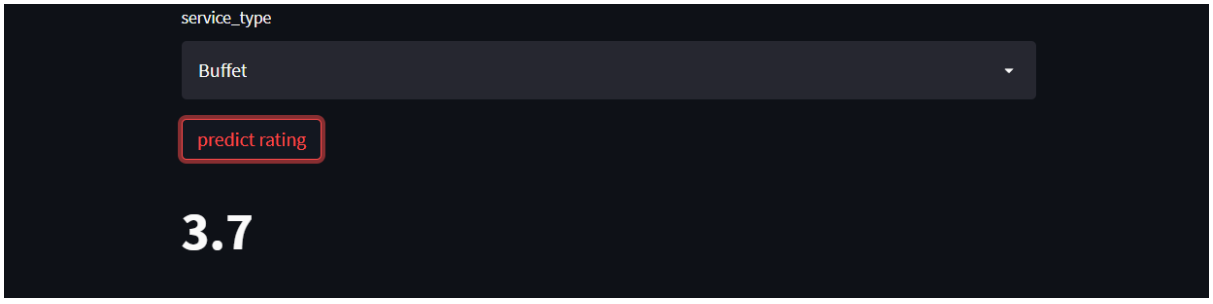
phone	location	rest_type	dish_liked	cuisines	approx_cost(for two people)	reviews_list	menu_item	listed_in(type)	listed_in(city)
080 42297555\r\n+91 9743772233	Banashankari	Casual Dining	Pasta, Lunch Buffet, Masala Papad, Paneer Laja...	North Indian, Mughlai, Chinese	800	[('Rated 4.0', 'RATED\n A beautiful place to ...	[]	Buffet	Banashankari
080 41714161	Banashankari	Casual Dining	Momos, Lunch Buffet, Chocolate Nirvana, Thai G...	Chinese, North Indian, Thai	800	[('Rated 4.0', 'RATED\n Had been here for din...	[]	Buffet	Banashankari
+91 9663487993	Banashankari	Cafe, Casual Dining	Churros, Cannelloni, Minestrone Soup, Hot Choc...	Cafe, Mexican, Italian	800	[('Rated 3.0', "RATED\n Ambience is not that ...	[]	Buffet	Banashankari
+91 9620009302	Banashankari	Quick Bites	Masala Dosa	South Indian, North Indian	300	[('Rated 4.0', "RATED\n Great food and proper...	[]	Buffet	Banashankari
+91)26612447\r\n+91 9901210005	Basavanagudi	Casual Dining	Panipuri, Gol Gappe	North Indian, Rajasthani	600	[('Rated 4.0', 'RATED\n Very good restaurant ...	[]	Buffet	Banashankari

2.1.2 Input



2.2 Predicting Rating

- The user gives required information.
- The system should be able to predict the rating of the restaurant.



2.5 Deployment

1. Heroku

The restaurant rating prediction system is deployed on Heroku. It is a cloud platform as a service supporting several programming languages. With access to the link , any user can predict the rating of the restaurant in real time.

Link- https://zomatoratepredictor.herokuapp.com/

3 Technology stack

Deployment	Heroku

4. Proposed Solution

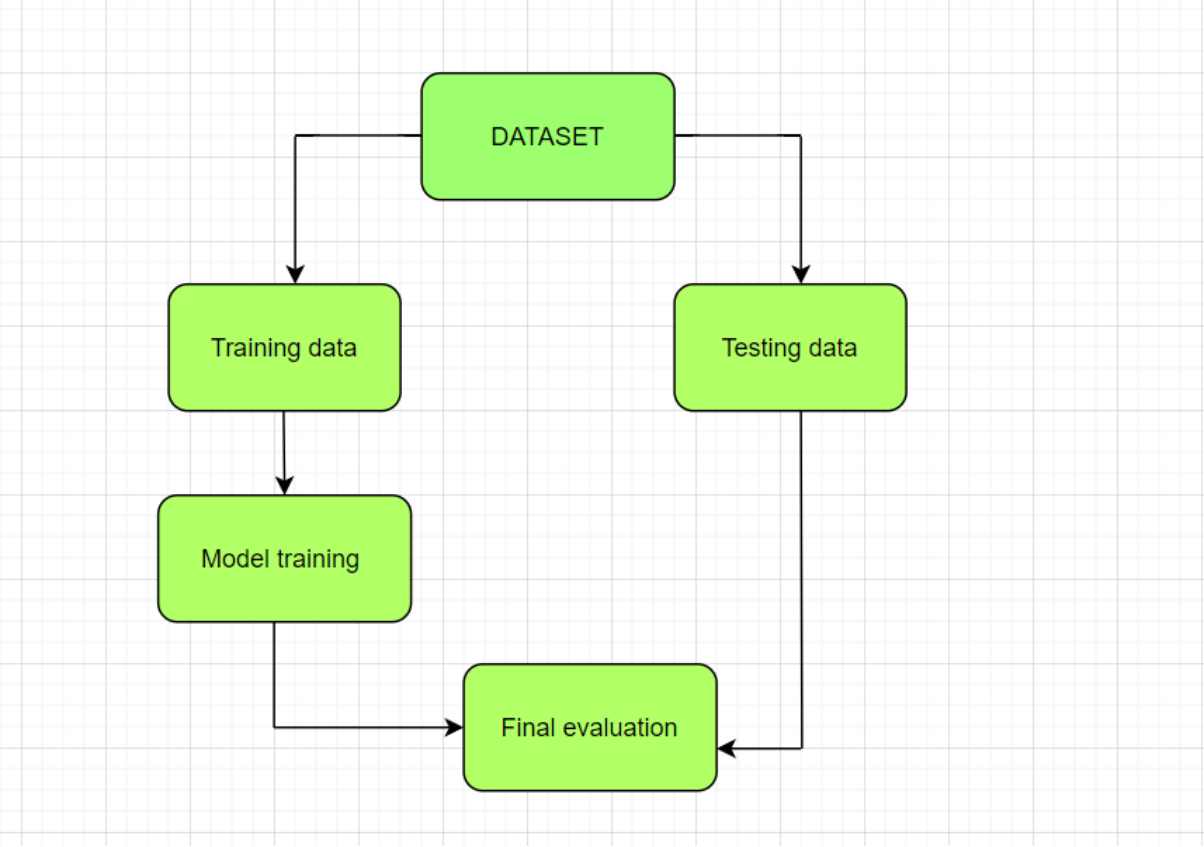
The solution proposed here is that we tested various algorithms to predict the rating . According to our testing , Random forest provides an accuracy of 91% in predicting the rating. Before prediction, various steps like data cleaning , data preprocessing and EDA were performed in order to create the best model.

1. Baseline model: Linear regression since this is a regression problem.

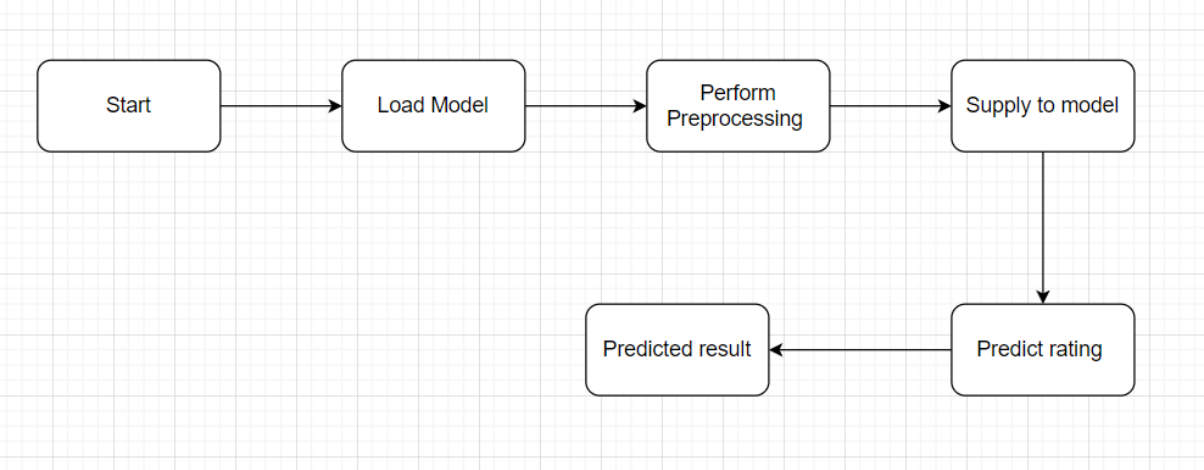
2. Actual model- Random forest regressor

	Algorithm	Accuracy
0	Linear regression	0.33
1	Random Forest	0.91
2	Decision tree	0.88
3	Lasso	0.18

5 Model training workflow



4 User I/O workflow


Start
Load Model
Perform Preprocessing
Supply to model
Predict rating
Predicted result