High-Level Document

Zomato Restaurant Rating Prediction

Version: 1.00

Updated: 01/08/2022

Author: N. Mohammad Afzal

Praveen Raj O

Contents

Abstract

Abstract

The restaurant industry is one of the most active revenue generating sectors in developing cities. In order to build a successful restaurant we need to choose a set of factors such as location,cuisines etc. These factors decide the rating of a restaurant. In this paper we have collected a dataset of Bangalore restaurants, which will be visualised using tools to understand various patterns in their sales and success rate. Also we have applied a regression machine learning algorithm model which gives the output results (factors) leading to a successful restaurant. The result of this model will suggest new restaurants to choose the optimal location, type of cuisines preferred in that particular region, amenities expected, prices, menus etc.

1.Introduction

Why this High-Level Design Documentation

The purpose of this High-Level Design (HLD) Document is to add the necessary detail to the current project description to represent a suitable model for coding. This document is also intended to help detect contradictions prior to coding, and can be used as a reference manual for how the modules interact at a high level.

The HLD will:

- **Present all of the design aspects and define them in detail**
- **Describe the user interface being implemented**
- **Describe the hardware and software interfaces**
- **Describe the performance requirements**
- **Include design features and the architecture of the project**
- **List and describe the non-functional attributes like:**

  o Security

  o Reliability

  o Maintainability

  o Portability

  o Reusability

  o Application compatibility

  o Resource utilization o Serviceability

Scope

- This software system will be a web application, this system will be designed to predicts the restaurant rating based on the user's input in which there are several categories to fill in like the online order, table booking, votes, location, restaurant type, dishes liked, cuisines, type of restaurant and cost for two persons.

2. General Description

Product Perspective

- This Restaurant rating system is a machine learning based model which will predict the rating of the restaurant.

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.

Proposed Solution

- This system requires features like services provided by the restaurants like online order, table booking facility, what type and variety of food they provide, what is the location of the restaurant and how many of such restaurants are there in different regions of Bangalore, how many votes were given and the cost of 2 persons. Based on these features the system will predict the rating of the restaurants

Further Improvements

- As the data is not very huge our main aim is to complete this use case with a machine learning algorithm as a best optimized solution. In future if we are expected to get more data and different categories, if needed we might use a deep-learning algorithm to get the best solution.

Data Requirements

- Data requirements completely depend on our problem statement.

Tools used

Constraints

- The project is based on Bangalore (India) data. This framework will not work in other parts of the country.

Assumptions

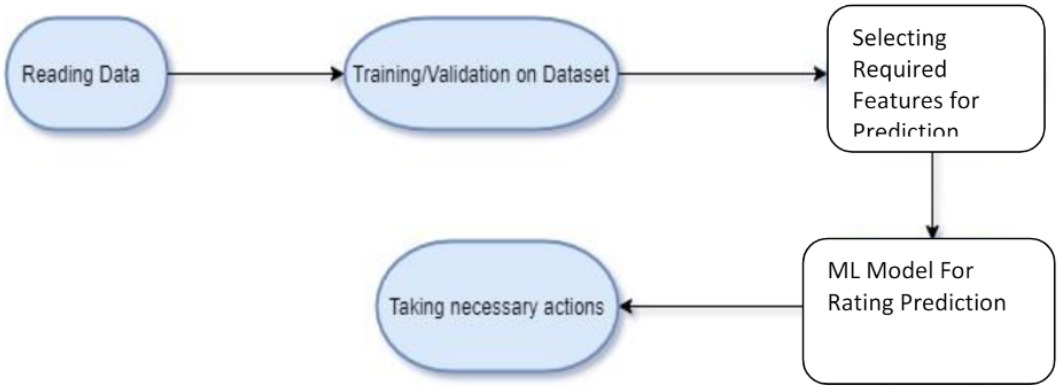
- This system will help us predict the rating of the restaurant available in the Bangalore region. We assume that this machine learning model will help the organization to know the exact rating of their restaurant.

3. Design Details

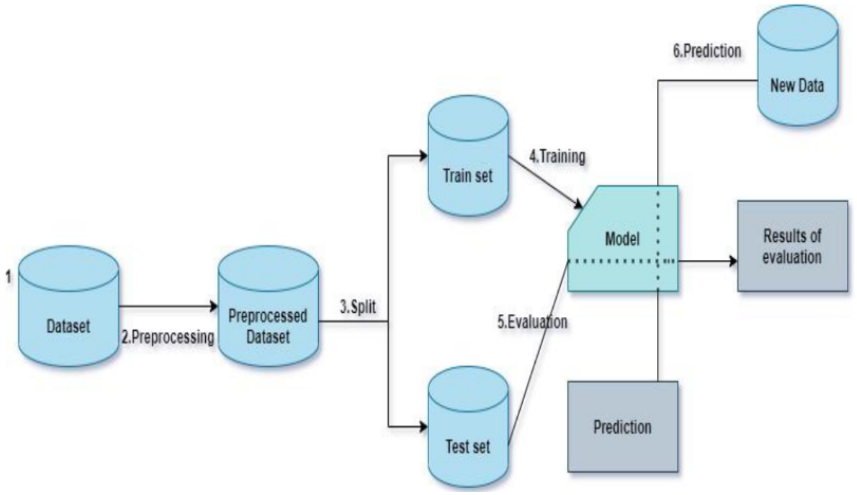
Process flow

- Based on the use-case, we will use a machine learning model. As shown in the flow diagram below.

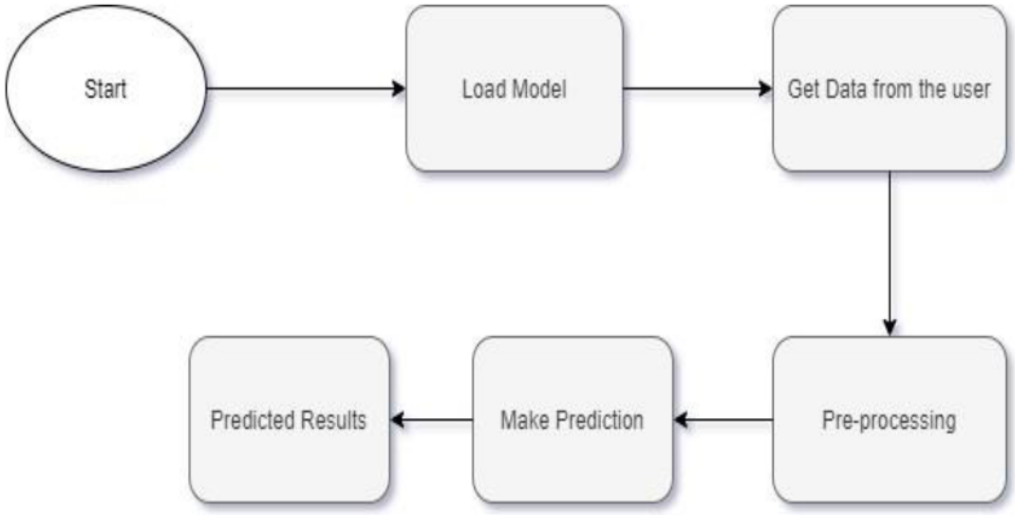
Proposed Methodology



Model Training and Evaluation



Deployment Process



Event Log

- ❖ The system will log every data so that the user will know what process is running internally.

Initial step by step Description:

- The system identifies at what step logging is required
- The system should be able to log every data
- Developers can choose logging methods.
- System should not hang as we have used file logging. We use a logging library to easily debug issues, hence logging is mandatory.

Error Handling

- ❖ There are many built-in exceptions that are raised when a program encounters an error (something in the program goes wrong).
- ❖ When these exceptions occur, the interpreter stops the current process and passes it to the calling process until it is handled. If not handled, the program will crash.

4. Performance

Reusability

- ❖ Reusability is a practice of using existing code for a new function or software. But in order to reuse code, that code needs to be high-quality. And that means it should be safe, secure, and reliable.
- ❖ The code written has the ability to be reused.

Application Compatibility

- ❖ The different components for this project will be using Python as an interface between them. Each component will have its own task to perform, it is the job of the python to ensure proper transfer of information.

Resource Utilization

- ❖ The resources used in this project have been utilized well to get the desired outcome.

Deployment

5. Conclusion

The Restaurant rating system is used in order to provide rating prediction to the customer and restaurant owners. According to the different parameters of the restaurant, the organization should have an idea of what will be the rating of these restaurants.