

High Level Document

Restaurant Rating Prediction



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Document Version Control

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08/05/2023	1.0	Abstract	Ankush
		Introduction	
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Abstract

The basic idea of analyzing the Zomato dataset is to get a fair idea about the factors affecting the establishment of different types of restaurants at different places in Bengaluru, aggregate rating of each restaurant, Bengaluru being one such city has more than 12,000 restaurants with restaurants serving dishes from all over the world. With each day new restaurants opening the industry hasn't been saturated yet and the demand is increasing day by day. Bengaluru being an IT capital of India, most of the people here are dependent mainly on the restaurant food as they don't have time to cook for themselves. With such an overwhelming demand for new restaurants, it has become important to study the ratings of restaurants.

1. Introduction

1. Why this HLD Document?

The main purpose of this HLD document is to feature the required details of the project and supply the outline of the Model Creation, Evaluation and Deployment. This additionally provides the careful description on however the complete project has been designed end-to-end.

The HLD will:

- Present 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 architectural design of the project.
- List and describe the non - functional attributes like:
 - o Security
 - o Reliability
 - o Maintainability
 - o Portability
 - o Reusability
 - o Resource Utilization

2. Scope

The HLD documentation presents the structure of the system, such as database design, architectural design, application flow and technology architecture. The HLD uses non-technical terms to technical terms that can be understandable to the administrator of the system.

1.3 Definitions

Term	Description
FFP	Restaurant Rating Prediction
Database	Collection of all the information used by the System.
Jupyter-Notebook	It is an interactive computational environment, in which you can combine code execution, rich text, mathematics, plots and rich media.
Heroku	Heroku is a platform as a service (PaaS) that enables developers to build, run, and operate applications entirely in the cloud.

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2. General Description

2.1 Problem Perspective

The **Restaurant Rating Prediction** may be a machine learning model that helps users to predict the rating of the restaurant and help them to understand about the price, quality, location etc. about the restaurant.

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. Proposed Solution

To solve the problem, we have created a User interface for taking the input from the user to predict the **Restaurant Rating** using our trained ML model after processing the input and at last the output (predicted value) from the model is communicated to the User.

2.4 Further Improvements

We also analysis the data used for training the ML model by considering different occasions such as Weekday, Season or any Social reasons, considering different angle of business. If we method such information and predict the **Restaurant Rating**, it will bring some loss to the **restaurant** but user can get benefit from that.

5. Technical Requirements

As technical requirements, we don't need any specialized hardware for virtualization of the application. The user should have the device that has the access to the web and the fundamental understanding of providing the input.

6. Tools Used

- Python 3.9 is employed because the programming language and frameworks like NumPy, Pandas, Scikit - learn and alternative modules for building the model.
- Jupyter-Notebook is employed as IDE.
- For Data visualizations, seaborn and components of matplotlib are getting used.
- For information assortment prophetess info is getting used.
- Front end development is completed victimization HTML/CSS.
- Flask is employed for each information and backend readying.
- GitHub is employed for version management.
- Heroku is employed for deployment.

2.8 Constraints

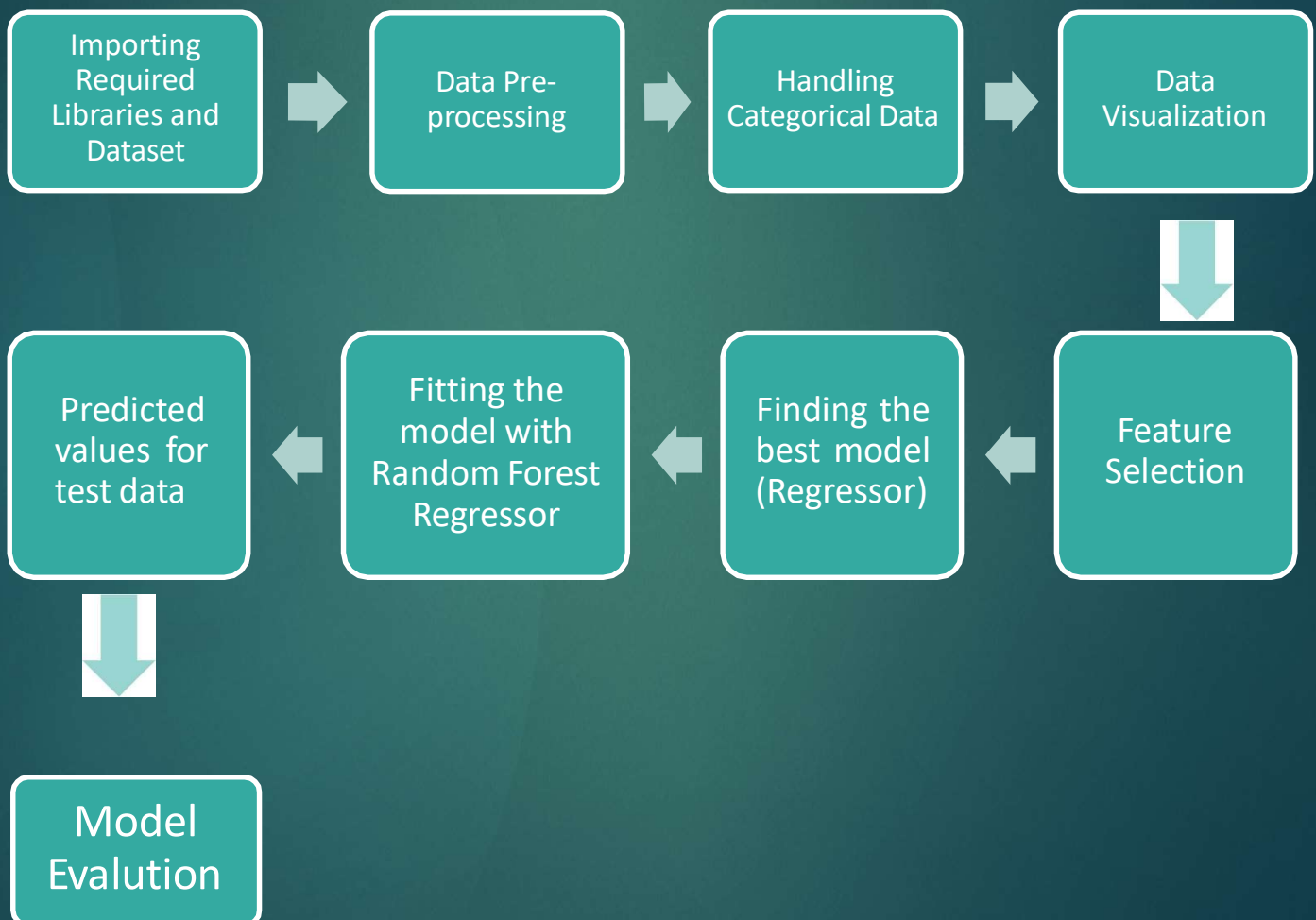
The Restaurant rating prediction answer should be user friendly, as automatic as attainable and also the user should not be needed to understand any of the operating.

2.9 Assumptions

The main objective of the project is to implement the utility cases as for the new dataset that provides the user the ability to predict Restaurant rating. Machine learning model is employed for process the user input for prediction. It additionally assumed that each one aspects of this project have the flexibility to figure along within the approach the designer is expecting.

3. Design Flow

1. Modelling Creation and Evaluation



3.2 Deployment Process



3. Logging

In logging, at each if an error or an exception is occurred, the event is logged into the system log file with reason and timestamp. These helps the developer to debug the system bugs and rectifying the error.

4. Error Handling

Once the error is occurred, the reason is logged into the log file with timestamp to rectify and handle it.

4. Performance Evaluation

1. Reusability

The code written and the components used should have the ability to be reused with no problems.

2. Application Compatibility

The different parts of the system are communicating or using Python as an interface between them. All the components have its own tasks to perform and it is a job of a Python to ensure proper transfer of data.

3. Resource Utilization

When any task is performed, it'll doubtless use all the process power offered till the process is finished.

4. Deployment

The model can be deployed using any cloud services such as Microsoft Azure, Amazon web services, Heroku, Google cloud, etc.

5. 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.