

Low-Level Document

Zomato Restaurant Rating Prediction

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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 Low-Level Design Documentation

- ❖ The goal of LLD or a low-level design document (LLDD) is to give the internal logical design of the actual program code for the Food Recommendation System. LLD describes the class diagrams with the methods and relations between classes and program specs. It describes the modules so that the programmer can directly code the program from the document.

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.

Constraints

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

2. Technical Specification

Dataset

Data	Finalized	Source
Zomato Dataset	Yes	https://www.kaggle.com/datasets/himanshupoddar/zomato-bangalore-restaurants?resource=download

Dataset Overview

url	address	name	online_order	book_table	rate	votes	phone	location	rest_type	dish_liked	cuisines	approx_cost(for two people)	reviews_list	menu_item	listed_in(type)	listed_in(city)
https://942, 21st Jalsa	Yes	Yes	4.1/5	775 080	Banashan	Casual Dir	Pasta, Lunch	North Indi	800	[("Rated 4.0", [])]	Buffet	Banashankari				
https://2nd Floor Spice Elv	Yes	No	4.1/5	787 080 4171	Banashan	Casual Dir	Momos, Lun	Chinese, f	800	[("Rated 4.0", [])]	Buffet	Banashankari				
https://1112, Nei San Chu	Yes	No	3.8/5	918 +91 9663	Banashan	Cafe, Casu	Churros, Can	Cafe, Mex	800	[("Rated 3.0", [])]	Buffet	Banashankari				
https://1st Floor, Addhuri	No	No	3.7/5	88 +91 9620	Banashan	Quick Bite	Masala Dosa	South Indi	300	[("Rated 4.0", [])]	Buffet	Banashankari				
https://10, 3rd Fl Grand V	No	No	3.8/5	166 +91	Basavanag	Casual Dir	Panipuri, Go	North Indi	600	[("Rated 4.0", [])]	Buffet	Banashankari				
https://37, 5-1, 4 Timepas	Yes	No	3.8/5	286 +91	Basavanag	Casual Dir	Onion Rings,	North Indi	600	[("Rated 3.0", [])]	Buffet	Banashankari				
https://19/1, Nei Rosewo	No	No	3.6/5	8 +91	Mysore R	Casual Dining		North Indi	800	[("Rated 5.0", [])]	Buffet	Banashankari				
https://2469, 3rd OneSta	Yes	Yes	4.6/5	2556 080	Banashan	Casual Dir	Farmhouse F	Pizza, Cafe	600	[("Rated 5.0", [])]	Cafes	Banashankari				
https://1, 30th M Penthou	Yes	No	4.0/5	324 +91	Banashan	Cafe	Pizza, Mockt	Cafe, Itali	700	[("Rated 3.0", "RATED\n I had been to this place with one of my fr						
e are a things te service	("Rated 4.0"	"RATED\n A	Top f	no outdo	thought a	nice pla	("Rated 1.	"RATED\n Lc	we had ni	it turned out worse than the	[("Rated 3.0"	"RATED\n S	parking facility	It was litt	[[]]	
https://2470, 21 f Smaczn	Yes	No	4.2/5	504 +91	Banashan	Cafe	Waffles, Pas	Cafe, Mex	350	[("Rated 4.0", [])]	Cafes	Banashankari				
https://12, 29 Nei Caf f f	Yes	No	4.1/5	402 080	Banashan	Cafe	Waffles, Pas	Cafe	500	[("Rated 4.0", [])]	Cafes	Banashankari				
https://941, 3rd F Cafe Sh	Yes	Yes	4.2/5	150 +91 9742	Banashan	Cafe	Mocktails, P	Cafe, Itali	600	[("Rated 1.0", [])]	Cafes	Banashankari				
https://6th Block The Coff	Yes	Yes	4.2/5	164 +91 9731	Banashan	Cafe	Coffee, Spag	Cafe, Chin	500	[("Rated 4.0", [])]	Cafes	Banashankari				
https://111, Sapp; Caf-Elev	No	No	4.0/5	424 080 4957	Banashan	Cafe	Sandwich, O	Cafe, Coni	450	[("Rated 2.0", [])]	Cafes	Banashankari				
https://1112, Nei San Chu	Yes	No	3.8/5	918 +91 9663	Banashan	Cafe, Casu	Churros, Can	Cafe, Mex	800	[("Rated 3.0", [])]	Cafes	Banashankari				
https://2303, 21s Cafe Viv	Yes	No	3.8/5	90 080	Banashan	Cafe	Garlic Bread,	Cafe	650	[("Rated 2.0", [])]	Cafes	Banashankari				
https://241, 4th F Catch-up	Yes	No	3.9/5	133 +91	Banashan	Cafe	Momos, Mus	Cafe, Fast	800	[("Rated 1.0", [])]	Cafes	Banashankari				
https://405, 24th Kirth's E	Yes	No	3.8/5	144 080	Banashan	Cafe	Pasta, Gelati	Chinese, C	700	[("Rated 3.0", [])]	Cafes	Banashankari				
https://504, CJ V f 13H Caf	No	No	3.9/5	93 +91 8894	Banashan	Cafe	Cheese Mag	Cafe, Itali	300	[("Rated 4.0", [])]	Cafes	Banashankari				
https://47, 46 & 4360 Ato	Yes	No	3.1/5	13 +91 9880	Banashan	Cafe	Cafe, Chin		400	[("Rated 5.0", [])]	Cafes	Banashankari				
https://146, 50 ft The Vint	Yes	No	3.0/5	62 +91	Banashan	Cafe	Burgers, Cari	Cafe, Fren	400	[("Rated 2.0", [])]	Cafes	Banashankari				
https://3353, 2nd Woodsee	Yes	No	3.7/5	180 +91 7406	Banashan	Cafe	Pizza, Garlic	Cafe, Pizzi	500	[("Rated 3.0", [])]	Cafes	Banashankari				
https://SRF Comy Cafe Col	No	No	3.6/5	28 080 3248	Banashan	Cafe	Cafe, Fast		900	[("Rated 4.0", [])]	Cafes	Banashankari				

Predicting

- ❖ The system displays the restaurant rating according to the user's input.
- ❖ The system presents the set of inputs required from the user.
- ❖ The user gives the required information.
- ❖ The system should be able to predict the rating of a restaurant for the information provided by the user.

Logging

- ❖ 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.

Database

- ❖ The system stores every data given by the user.
- ❖ We have used MongoDB.

Deployment



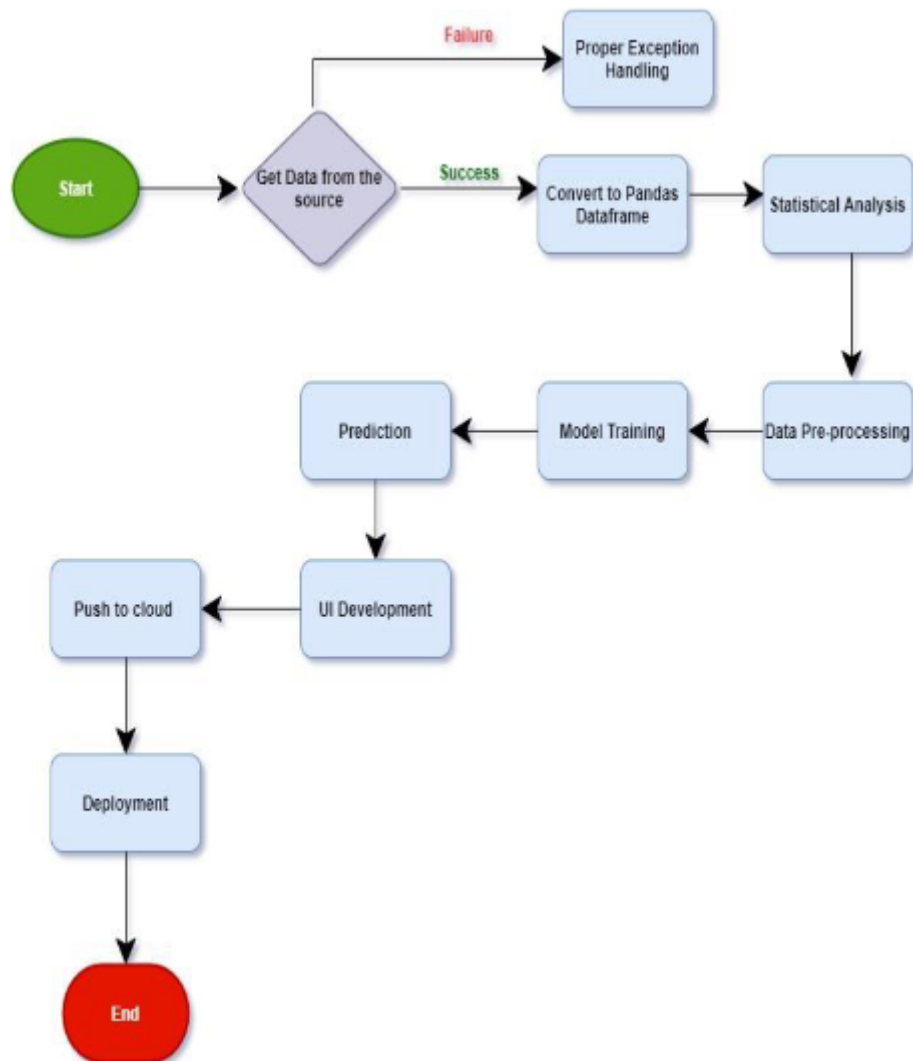
3. Technology Stack

Frontend	HTML
Backend	Python Flask
Database	MongoDB
Deployment	AWS

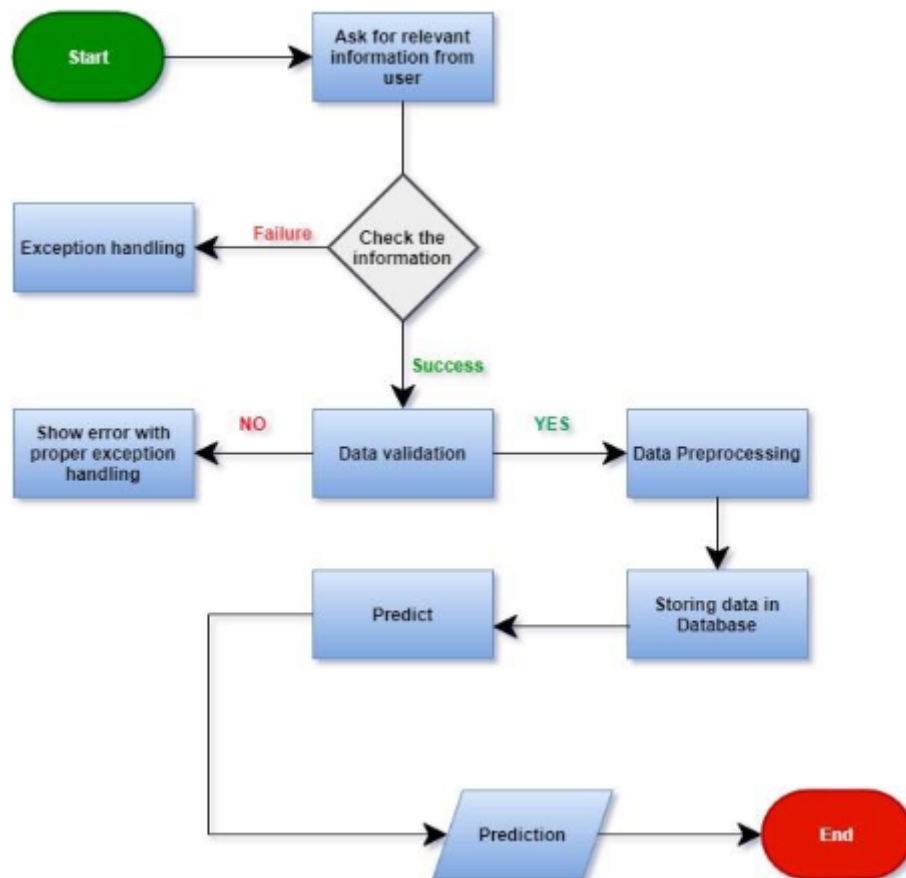
4. Proposed Solution

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. 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.

5. Model Training/Validation Workflow



6. User I/O Workflow



7. Test Cases

Test Case Description	Pre-Requisite	Expected Result
Verify whether the Application URL is accessible to the user	Application URL should be defined	Application URL should be accessible to the user
Verify whether the Application loads completely for the user when the URL is accessed	1. Application URL is accessible 2. Application is deployed	The Application should load completely for the user when the URL is accessed
Verify whether user is able to edit all input fields	1. Application is accessible 2. User is logged in to the application	User should be able to edit all input fields
Verify whether user gets Submit button to submit the inputs	1. Application is accessible 2. User is logged in to the application	User should get Submit button to submit the inputs
Verify whether user is presented with recommended results on clicking submit	1. Application is accessible 2. User is logged in to the application	User should be presented with recommended results on clicking submit
Verify whether the recommended results are in accordance to the selections user made	1. Application is accessible 2. User is logged in to the application	The recommended results should be in accordance to the selections user made
Verify whether is going to inappropriate page or URL it should go to the desired error page.	1. Application is accessible 2. User is logged in to the application	Recommended error page should be according to the Error/issue.