RESTAURANT RECOMMENDATION SYSTEM

A UG PROJECT PHASE -1 REPORT

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

Developed By

P. Swathi	**19UK1A0593**
B. Rajashekar	**19UK1A05B0**
P. Nuthan kumar	**19UK1A05A8**
K. Nishitha	**19UK1A0586**

Under the esteemed guidance of

Mr. G. Ramesh

(Assistant Professor)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VAAGDEVI ENGINEERING COLLEGE

(Affiliated to JNTUH, Hyderabad)

Bollikunta, Warangal – 506005

2019- 2023

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VAAGDEVI ENGINEERING COLLEGE

(Affiliated to JNTUH, Hyderabad)

Bollikunta, Warangal – 506005

2019- 2023

CERTIFICATE OF COMPLETION

UG PROJECT PHASE -1

This is to certify that the UG Project entitled "**RESTAURANT RECOMMENDATION SYSTEM**" is being devoloped by **P.Swathi (19UK1A0593), B. Rajashekar(19UK1A05B0), P.Nuthan Kumar(19UK1A05A8), K.Nishitha(19UK1A0586)** in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Computer Science and Engineering to Jawaharlal Nehru Technological University Hyderabad during the academic year 2022-2023, is a record of work carried out by them under the guidance and supervision.

Project Guide	**Head of the Department**
Mr. Ramesh	**Dr. R. Naveen Kumar**
(Assistant Professor)	**(Professor)**

External

ACKNOWLEDGEMENT

We wish to take this opportunity to express our sincere gratitude and deep sense of respect to our beloved **Dr.P.PRASAD RAO,** Principal, Vaagdevi Engineering College for making us available all the required assistance and for his support and inspiration to carry out this UG Project Phase-1 in the institute.

We extend our heartfelt thanks to **Dr.R.NAVEEN KUMAR**, Head of the Department of CSE, Vaagdevi Engineering College for providing us necessary infrastructure and thereby giving us freedom to carry out the UG Project Phase-1.

We express heartfelt thanks to **Smart Bridge Educational Services Private Limited**, for their constant supervision as well as for providing necessary information regarding the UG project Phase-1 and for their support in completing the UG project Phase-1.

We express heartfelt thanks to the guide **Mr. Ramesh,** Assistant professor, Department of CSE for his constant support and giving necessary guidance for completion of this UG project Phase-1 Finally, we express our sincere thanks and gratitude to my family members, friends for their encouragement and outpouring their knowledge and experience throughout the thesis.

P. Swathi	**(19UK1A0593)**
B. Rajashekar	**(19UK1A05B0)**
P. Nuthan kumar	**(19UK1A05A8)**
K. Nishitha	**(19UK1A0586)**

ABSTRACT

The Recommendation system is the unavoidable thing for whatever we buy or go to the new place. Restaurants also need recommendation systems in terms of attracting more customers in the management side and tasting favorite, famous food in the restaurant in customers side. In reality finding the favorite food and famous food especially in new area is a challenging task. In this project, we present the recommendation system for restaurants based on ratings. With addition to that we build the popularity-based recommender model for recommending restaurants to the customers. The output of the model may be recommending most popular restaurants to the customers. The aim is to create a content-based recommender system in which when we will write a restaurant name, the Recommender system will look at the reviews of other restaurants, and the System will recommend us other restaurants with similar reviews and sort them from the highest-rated. The main people who are going to benefit from this recommendation system are the tourists, who are new to a city. Most of the tourists always love to visit famous restaurants in a particular city during their visit. Otherwise, it can be heavily used by people belonging to the same city, to see if any new restaurant is recommended based on their activity.

Key words: Recommendation, Customers, Restaurants, Content-based Recommendation.

TABLE OF CONTENTS

LIST OF FIGURES

1.INTRODUCTION

1.1 Overview

This project is a restaurant recommendation system (RRS). A Recommendation System is an information filtering system that seeks to predict the rating a user would give for the item (in this case a restaurant). RRS is an on-line system to search restaurants. Visitors can browse all restaurants in L.A, and. Get information about restaurant name, type, rating, price. The functions include searching restaurants, viewing recommendations. Recommendation systems are important for increasing business revenue and giving users the ability to find desired restaurants of their taste. The system is challenging because many users don't give ratings and we have new restaurants and users added to the system every day. In order to improve restaurant rating system, we need to predict the rating for the restaurant which are not rated. So it is important to build recommendation system for sparse rated restaurants. For this recommendation model, all that users have to input is a restaurant name that they have previously enjoyed visiting into the model and it will generate a list of the 10 most recommended restaurants based on the highest cosine similarity scores to that particular restaurant. For the content-based recommendation model**,** it works by recommending restaurants to users based on similar restaurant categories and dominant topic keywords, thus suggesting restaurants that align with a user's preferences.

1.2 Purpose

The purpose of this system is to let people get ideas about which restaurant will be great for them. This system can give people some suggestions; also you can get others' opinions from this site. Further more, you can find the best restaurants by viewing the ratings page, which gathers many members' experience and response. This system is designed for people to search the information you send, and response all those restaurants matched the customers' request. Except viewing other's opinions, you can give suggestions by rating restaurants to other people. This system is like a communication bulletin for people who love to eat. In this site, the customer need to search restaurants by their names. They will get a page describing the related names of the restaurants and their type and ratings.

2.LITERATURE SURVEY

2.1Existing problem and Existing approaches or methods

As we are users of recommendation applications, people care more about how we will like a restaurant. It is very common that we hang out with families, friends, and co-workers. when comes to lunch or dinner time. In the past, people obtained suggestions for restaurants from friends. Although this method is straightforward and user-friendly, it has some severe limitations. First, the recommendations from friends or other common people are limited to those places they have visited before. Thus, the user is not able to gain information about places less visited by their friends. Besides that, there is a chance of users not liking the place recommended by their friends.

2.2 Proposed solution

Here we are creating a content-based recommendation system. The aim is to create a content-based recommender system in which when we will write a restaurant name, the Recommender system will look at the reviews of other restaurants, and the System will recommend us other restaurants with similar reviews and sort them from the highest-rated. The main people who are going to benefit from this recommendation system are the tourists, who are new to a city. Most of the tourists always love to visit famous restaurants in a particular city during their visit. Otherwise, it can be heavily used by people belonging to the same city, to see if any new restaurant is recommended based on their activity.

3.THEORITICAL ANALYSIS

3.1 Block Diagram

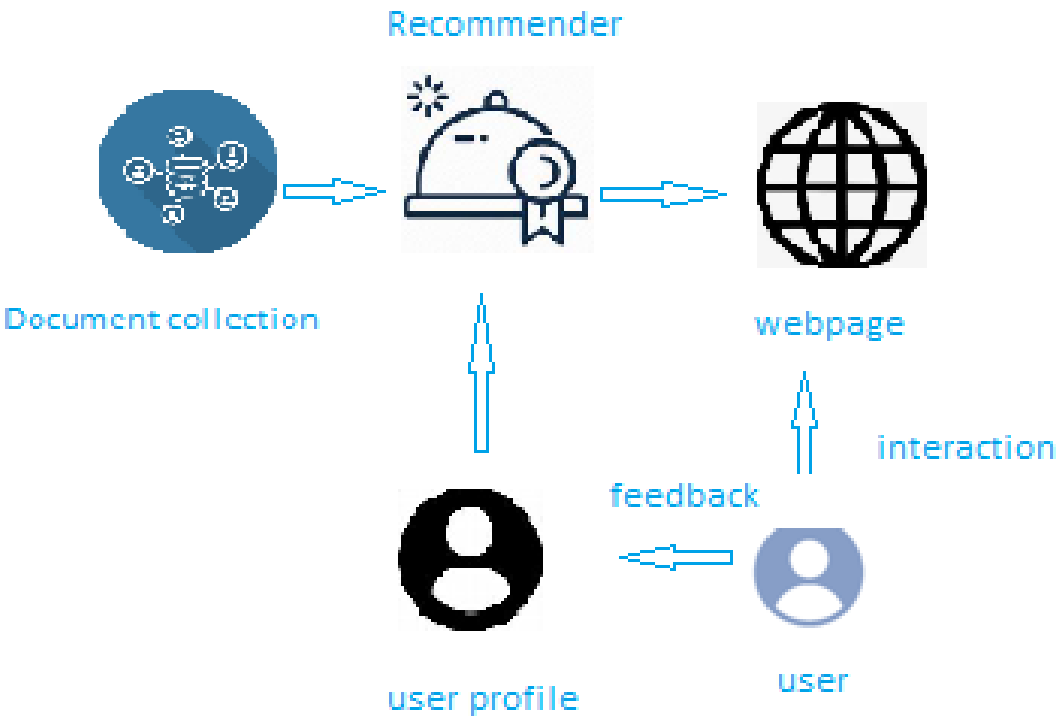

Fig1. Block diagram for Restaurant Recommendation System

3.2 Hardware and Software

Software Requirements:

To complete this project, you must require the following software's, concepts, and packages

Anaconda navigator

Python packages:

- pandas
- matplotlib
- seaborn
- plotly
- numpy
- scikit-image
- scikit-learn
- Flask

Hardware Requirements

- Processor : Intel Core i3
- Hard Disk Space : Min 100 GB
- Ram : 4 GB
- Display : 14.1 "Color Monitor(LCD, CRT or LED)
- Clock Speed : 1.67 GHz

4.EXPERIMENTAL INVESTIGATION

For developing the project the team has completed several tasks:

1. Data Collection.
    1. Collect the dataset or Create the dataset

1. Data Pre- processing.
    1. Import the Libraries.
    2. Importing the dataset.
    3. Exploratory Data Analysis
    4. Data Visualization.

3. Content Based Filtering
    1. Merging datasets
    2. Creating the recommender system
    3. Predicting the results

4. Application Building
    1. Create an HTML file
    2. Build a Python Code

5.FLOW CHAT

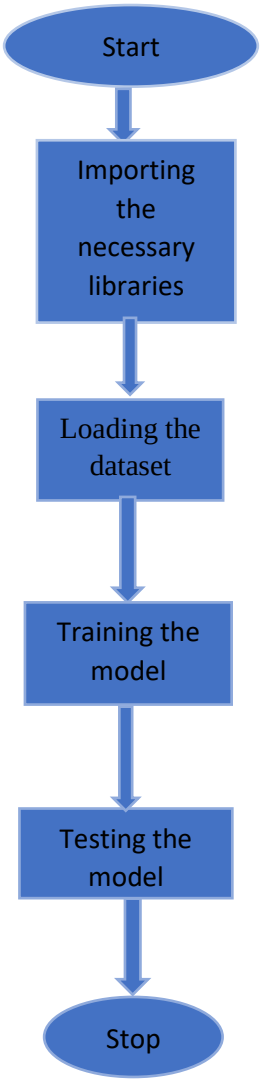

Fig.2 Flowchart for Restaurant Recommendation System

6.CONCLUSION

The main objective of the study is to develop the restaurant recommendation system using machine learning with the web interface that can act as a application for the customers. This application is used for the users to predict the suitable restaurant and find out which dish is famous in region wise and in person. This application ensures the availability of ratings to the customers. The popularity based and collaborative based filtering makes the recommendation more efficient so that each user can use this application for their easy prediction of restaurant. Most the case user need the restaurant with their nearby location. We also solving that issue by adding the restaurant location in our dataset. So that our machine learning algorithm easily predicts the restaurant for the customer with their present location. This restaurant recommendation system web application will provide user a better experience in searching of restaurant with short amount of time and nearby location. This will decrease the user's effort and makes the time more precious.

7.FUTURE SCOPE

To build more friendly graphical interfaces, the next goal for a further project is to improve the performance of system and improve the member's benefit such as providing more functions for member, like online reservation function, online order menu, and website, etc.