

Objective

The aim of this project is to develop a restaurant recommendation system that uses explicit user preferences-such as cuisine type, location, and budget-and detailed restaurant attributes (from the Zomato dataset) to provide accurate and relevant suggestions. This system avoids the cold-start problem by not depending on historical user interactions.

Functional Requirements

1. Data Ingestion & Preprocessing

- Dataset Source: Zomato Restaurants Dataset from Kaggle
- Remove duplicates and irrelevant columns (e.g., URLs, addresses)
- Handle missing values
- Normalize text (e.g., cuisines)
- Convert price and ratings to numeric types
- Bucket cost into low, medium, high
- Extract main cuisine
- Normalize rating scales

2. Recommendation Engine

- Match cuisines, budget, location
- Score by rating, vote count, popularity
- Normalize scores and rank top-N
- Explain choices with short summaries

3. User Interface (Streamlit)

- Sidebar: inputs for cuisine, budget, location
- Results: restaurant name, cost, rating, map link
- Optional: map view, dynamic filtering

4. Evaluation Metrics

Knowledge-Based Restaurant Recommender System

- Use user surveys and A/B testing
- Metrics: satisfaction score, relevance, usability feedback

Deliverables

- Data Processing Scripts
- User Interface in Streamlit
- Recommendation Engine Logic
- Evaluation Report
- Deployment on Streamlit Cloud/Render

Resources

Zomato Dataset: <https://www.kaggle.com/datasets/shrutimehta/zomato-restaurants-data>