Assignment: Restaurant Recommendation System

Overview

Build a Restaurant Recommendation system using the Zomato Bengaluru dataset. The system should recommend similar restaurants based on input restaurant characteristics and user reviews.

Dataset

Source: Zomato Bengaluru Restaurants Dataset (Google Drive)
Size: ~12,000 restaurants with relevant features.

Core Deliverables

1. Exploratory Data Analysis (Notebook: `01_eda.ipynb`)

- Data quality assessment and missing value analysis
- Visualizations of key patterns
- Insights about restaurant characteristics and customer preferences

2. Feature Engineering (Notebook: `02_feature_engineering.ipynb`)

- Data cleaning and preprocessing
- Feature extraction
- Creating similarity features for recommendation
- Feature scaling and encoding strategies

3. Model Development (Notebook: `03_model_training.ipynb`)

- Target output: recommended_restaurants
- Build a recommendation function that takes a restaurant name as input and returns the top-N similar restaurants

4. Model Evaluation (Notebook: `04_evaluation.ipynb`)

- Evaluation metrics for recommendation systems
- Similarity score analysis and validation
- Performance assessment and recommendations quality

Optional Advanced Tasks (Bonus Points)

5. Dockerization

- Create `Dockerfile` for Jupyter environment
- Provide `docker-compose.yml` for easy setup
- Include requirements.txt with all dependencies
- Instructions for running notebooks in a containerized environment

6. Version Control & Documentation

- Clean Git repository structure with meaningful commits
- Comprehensive README.md with setup instructions

7. Additional Enhancements

- Interactive recommendation interface (Streamlit/Gradio)
- API endpoint for recommendations

Submission Guidelines

Required Files:

- 4 Jupyter notebooks (as specified above)
- `README.md` with project overview and setup instructions
- `requirements.txt` with dependencies

Optional Files:

- `Dockerfile` and `docker-compose.yml`
- Additional notebooks for advanced features
- API implementation files

Timeline: 7 days from assignment date

Submit via GitHub repository link or compressed folder with all deliverables.