

Project Initialization and Planning Phase

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| Date | 31 May 2025 |
| Member ID | Kalyani Sunil Dharmadhikari |
| Project Title | Restaurant Recommendation System |
| Maximum Marks | 3 Marks |

Project Proposal (Proposed Solution)

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

| Project Overview | |
|-------------------|--|
| Objective | To develop a system that provides personalized and efficient restaurant recommendations by analyzing user preferences, dietary requirements, location, and budget. |
| Scope | The project aims to serve users seeking restaurant suggestions that match their individual lifestyle choices and dining preferences. It will operate across various regions, considering real-time data and qualitative reviews. |
| Problem Statement | |
| Description | Finding restaurants tailored to specific needs is often time-consuming and inefficient. Users frequently revisit the same places, missing diverse options that better match their preferences. |
| Impact | Solving this problem improves user satisfaction, encourages exploration of new dining options, and reduces time spent on decision-making. |
| Proposed Solution | |
| Approach | The solution employs innovative recommendation algorithms that factor in both user input and external data like ambiance, ratings, and reviews. It adapts dynamically to user feedback and real-time changes. |
| Key Features | <ul style="list-style-type: none"> • Personalized recommendations • Real-time data analysis • Integration of user reviews • Consideration of dietary and budget constraints • Scalable infrastructure |

Resource Requirements

| Resource Type | Description | Specification/Allocation |
|-------------------------|--|--|
| Hardware | | |
| Computing Resources | 8-core CPUs and optional GPU | 2 x NVIDIA V100 GPUs |
| Memory | RAM | Minimum 8 GB RAM |
| Storage | SSD | 1 TB SSD for storing user data and restaurant metadata |
| Software | | |
| Frameworks | Python frameworks | Python, Flask |
| Libraries | Additional libraries | Pandas, NumPy, Scikit-learn, TensorFlow, BeautifulSoup (for scraping), and NLTK (for review analysis) |
| Development Environment | IDE, version control | Jupyter Notebook |
| Data | | |
| Data | <p>Size: - Approx. 50,000–100,000 records initially; scalable based on user growth,</p> <p>Format: - CSV for tabular datasets, Text/HTML for scraped reviews</p> | Aggregated from crowdsourced restaurant platforms (e.g., Yelp, Zomato APIs), user feedback, and public review datasets |