

## Project Initialization and Planning Phase

|               |                                  |
|---------------|----------------------------------|
| Date          | 31 May 2025                      |
| Member ID     | Yadnesh Sanjay Budukh            |
| 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"> <li>• Personalized recommendations</li> <li>• Real-time data analysis</li> <li>• Integration of user reviews</li> <li>• Consideration of dietary and budget constraints</li> <li>• Scalable infrastructure</li> </ul> |

## Resource Requirements

| Resource Type           | Description  | Specification/Allocation   |
|-------------------------|--|--|
| <b>Hardware</b>         |  |  |
| 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   |
| <b>Software</b>         |  |  |
| 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   |
| <b>Data</b>             |  |  |
| 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 |