

Project Initialization and Planning Phase

Project Title	Restaurant Recommendation System
Maximum Marks	3 Marks

Project Proposal (Proposed Solution)

This document presents a proposed solution aimed at tackling a particular issue. The proposal clearly defines the objective, project scope, and problem description, while outlining the solution approach, essential features, and required resources—including hardware, software, and data components.

Project Overview	
Objective	To design and build a system capable of delivering customized and effective restaurant recommendations by evaluating users' tastes, dietary needs, geographic location, and spending capacity.
Scope	The system will cater to users looking for dining options that align with their personal preferences and lifestyle habits. It is designed to work across multiple regions, leveraging real-time data inputs and qualitative review sources.
Problem Statement	
Description	Locating restaurants that align with specific individual needs can often be a slow and frustrating process. Many users tend to stick with familiar choices, missing out on alternatives that may be more suitable to their tastes.
Impact	Addressing this challenge will enhance user experience, promote the discovery of new restaurants, and minimize the time spent on making dining decisions.
Proposed Solution	
Approach	The system will utilize advanced recommendation algorithms that consider both user-provided preferences and external sources like ambiance, ratings, and customer reviews. It will continuously refine suggestions based on ongoing user feedback and dynamic data updates.

Key Features	<ul style="list-style-type: none">• Tailored restaurant suggestions• Analysis of live data inputs• Attention to dietary restrictions and budget limits• Scalable system architecture• Scalable system architecture
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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