Project Initialization and Planning Phase

Date	18 June 2025
Team ID	SWTID1749631993
Project Title	Restaurant Recommendation System
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) report

The proposal report focuses on improving the dining experience through a machine learning-based personalized restaurant recommendation system. The system assists users in finding restaurants based on their cuisine preferences, ratings, and budget. At the same time, it enables restaurant owners and food delivery platforms to gain insights about customers and refine their offers. It includes a TF-IDF and Nearest Neighbors-based recommendation engine, user-specific recommendations, and scenario-based insights for visitors, owners, and delivery platforms.

Project Overview	
Objective	The primary objective is to develop a restaurant recommendation system that helps users discover restaurants based on their preferences
Scope	The project aims to implement a personalized restaurant recommendation system using machine learning techniques like TF-IDF and Nearest Neighbors, integrated with a web-based user interface.
Problem Statement	
Description	Many users face difficulty in discovering new restaurants that align with their preferences due to the overwhelming number of options and lack of personalization in traditional search methods. This leads to poor user engagement.
Impact	By solving this problem, the recommendation system will improve customer satisfaction, help users make informed and better dining decisions. It also offers value to restaurant owners and delivery platforms by targeting the right audience, contributing to higher engagement.
Proposed Solution	

Approach	Employing machine learning techniques such as TF-IDF vectorization and Nearest Neighbors to analyze restaurant attributes and user preferences.
Key Features	-Implement a content-based recommendation model using TF-IDF and cosine similarity -Real-time restaurant suggestions based on user input of restaurant name -User friendly web interface developed using Flask for quick access to personalized results

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	Intel i3 or i5 CPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	256 GB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy, matplotlib, seaborn
Development Environment	IDE, version control	Jupyter Notebook, Git, VS Code
Data		
Data	Source, size, format	Kaggle Zomato dataset ~51,000 rows