Project Initialization and Planning Phase

Date	07 JULY 2024
Team ID	740014
Project Title	Optimising food delivery
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

To explain an Air Quality Index (AQI) analyzer using machine learning (ML), you can structure it similarly to the project proposal template shown in the image. Here's an outline:

Project Overview	
Objective	Develop a machine learning system to optimize food delivery processes, minimizing delivery times and enhancing customer satisfaction.
Scope	Implement a system that can analyze historical and real-time data to predict optimal delivery routes, estimate delivery times, and allocate resources efficiently. The project will cover data collection, model training, and integration with existing food delivery platforms.
Problem Statement	
Description	Food delivery services often face challenges in predicting delivery times accurately due to various factors such as traffic conditions, weather, and restaurant preparation times. Inefficiencies in route planning can lead to delayed deliveries, increased costs, and unsatisfied customers.
Impact	Optimizing food delivery can significantly enhance customer satisfaction, reduce operational costs, and improve overall efficiency. Accurate predictions and optimized routes can lead to timely deliveries, better resource management, and increased competitiveness in the food delivery market.
Proposed Solution	
Approach	Utilize supervised machine learning techniques, such as regression models, decision trees, and neural networks, to analyze historical and real-time data for optimizing delivery routes and times. The solution will involve data preprocessing, feature engineering, model training, and evaluation.

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	High-performance CPUs/GPUs	e.g., 2 x NVIDIA V100 GPUs
Memory	Sufficient RAM for large datasets	e.g., 32 GB
Storage	Large storage for data, models, and logs.	e.g., 1 TB SSD
Software		
Frameworks	Python frameworks	e.g., Tenser flow, sklearn, keras.
Libraries	Pandas, NumPy, Matplotlib for data manipulation and visualization	e.g., numpy, pandas.
Development Environment	Jupyter Notebooks, IDEs	e.g., Pycharm
Data		
Data	Source: Government and private environmental monitoring agencies, open data	e.g., Kaggle

Data collection:	Sources: Restaurant data, traffic data, weather data, historical delivery times
	Types: Delivery time, traffic conditions, weather conditions, order details CSV, JSON, real-time API feeds
Data preprocessing:	Cleaning: Handle missing values, remove outliers
	Transformation: Normalize/standardize data
	Feature Engineering: Create new features from raw data
Model Training:	Algorithms: Linear regression, random forest, gradient boosting, deep learning models
	Evaluation: Cross-validation, performance metrics (RMSE, MAE, R2 score)
	Integration: Real-time data ingestion and prediction Visualization: Dashboards and alerts for delivery times and route optimization

	platforms (e.g., Kaggle) Size: Varies depending on the region and time span Format: CSV, JSON, real-time API feeds	