Project Initialization and Planning Phase

Date	6/18/2025
Team ID	SWTID1749841176
Project Title	Online Payments Fraud Detection using Machine Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) report:

To address the challenges of online fraud and improve the accuracy of detection systems, we propose developing a machine learning-based fraud detection model that analyses real-time transaction data to identify suspicious patterns. The system will leverage supervised learning algorithms trained on historical transaction datasets to classify activities as fraudulent or legitimate. Key features such as transaction amount, location, time, device type, and user behaviour will be used to train the model. The proposed solution aims to reduce false positives, minimize unnecessary user interruptions, and enhance overall transaction security by continuously learning and adapting to new fraud techniques.

Project Overview	
Objective	To build a machine learning model that accurately detects fraudulent transactions while minimizing false positives and user disruption.
Scope	The system will focus on detecting fraud in online transactions such as digital banking, e-commerce payments, and wallet services. It will process structured transactional data for fraud classification.
Problem Statement	
Description	The project involves collecting and preprocessing transaction data, selecting relevant features, and applying ML algorithms (e.g., Logistic Regression, Random Forest, XGBoost) to build a fraud detection model.
Impact	Reduces false alarms, improves user trust, ensures seamless digital transactions, and strengthens the organization's fraud prevention capabilities.
Proposed Solution	
Approach	Use supervised learning techniques on labelled datasets, evaluate multiple models, perform feature engineering, and deploy the best-performing model with a feedback loop for continuous improvement.

Key Features		Real-time fraud detection, adaptive learning, minimal false positives, behavioural pattern analysis, dashboard for flagged transactions.

Resource Requirements

Resource Type	Description	Specification
Hardware		
Computing Resources	CPU/GPU specification, number of cores	8 core CPU/GPU
Memory	RAM specification	16 GB
Storage	Disk space for data, models, logs	100 GB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional Libraries	pandas, numpy, matplotlib, seaborn, sklearn, xgboost
Development Environment	IDE	Jupyter Notebook, VS Code with Python 3.8+
Data		
Data	Source, Size, Format	Online Payments Fraud Detection Dataset (Kaggle)