Project Initialization and Planning Phase

Date	30 April 2024
Team ID	738286
Project Title	Online Payments Fraud Detection Using Machine Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

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	The main objective of the project is to develop a system that can effectively detect fraudulent credit card transactions using machine learning algorithms.
Scope	The scope of my credit card fraud detection project focuses on developing and deploying a machine learning system to identify fraudulent transactions, but it has some well-defined boundaries:
Problem Statement	
Description	Credit card fraud is rising with the increase in online transactions. Existing detection methods lack accuracy. This project aims to develop a machine learning model to analyze transaction data and identify fraudulent activities, improving financial security for users and institutions.
Impact	This project's machine learning-based fraud detection system can significantly reduce financial losses from credit card fraud for both users and financial institutions. By improving security and transaction monitoring, it fosters trust and wider adoption of online payments.
Proposed Solution	
Approach	The proposed solution tackles credit card fraud by training various machine learning models, including Decision Trees and XGBoost, on

	historical transaction data. The best performing model will be chosen to analyze future transactions and identify fraudulent patterns, enhancing security in the online payment system.
Key Features	The project hinges on two key features: analyzing transaction details (amount, time, location) and understanding user behavior (frequency, average transaction amount). This combined approach helps identify fraudulent patterns that deviate from a user's normal spending habits.

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware		
Computing Resources	CPU: A recent Intel Core i5 or AMD Ryzen 5 processor with 4 cores or more should be sufficient. GPU: While not essential for smaller datasets, a dedicated GPU with a few hundred cores (e.g., NVIDIA GTX 1650) can accelerate training if you choose computationally intensive algorithms like XGBoost.	NVIDIA GTX 1650 , 5 Processor
Memory	Aim for at least 8GB of RAM. This should be enough to handle training on public datasets and experimenting with various classification algorithms.	8 GB
Storage	The storage requirements for my credit card fraud detection project will depend on a few factors(Data Size, Model Size, Intermediate Results)	1 TB SSD
Software		
Frameworks	Python frameworks	Flask

Libraries	Additional libraries	e.g., scikit-learn, pandas, numpy
Development Environment	IDE, version control	e.g., Jupyter Notebook, Git
Data		
Data	Source, size, format	e.g., Kaggle dataset, 10,000 images