

## Phase-1 Submission Template

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**Department: Electronics and communication engineering**

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### 1.Problem Statement

*With the exponential growth of online transactions, credit card fraud has become increasingly prevalent and sophisticated. Traditional rule-based fraud detection systems often fail to identify new or evolving fraudulent activities, resulting in significant financial losses and reduced consumer confidence. Moreover, high false positive rates in conventional systems lead to inconvenience for legitimate users and strain on fraud investigation teams. Therefore, there is an urgent need for an intelligent, adaptive solution that can detect and prevent fraud efficiently in real-time, while minimizing disruption to genuine users.*

### 2.Objectives of the Project

*The primary objective of this project is to develop an AI-powered system capable of accurately detecting and preventing credit card fraud in real-time. The system aims to reduce false positives, adapt to evolving fraud patterns, and provide a scalable solution that integrates seamlessly into existing financial infrastructures.*

### 3.Scope of the Project

*This project focuses on the detection of fraudulent transactions using supervised machine learning techniques. The scope includes data preprocessing, model training and evaluation, and real-time prediction integration. The system*

*is designed to work with anonymized transaction data and is scalable to various financial platforms*

## **4.Data Sources**

*The dataset used for this project is the publicly available Credit Card Fraud Detection dataset from Kaggle, which contains European cardholders' transactions in September 2013. The dataset includes 284,807 transactions, of which 492 are fraudulent, with features transformed via PCA for confidentiality*

## **5.High-Level Methodology**

- 1. Data Collection and Preprocessing*
- 2. Exploratory Data Analysis (EDA)*
- 3. Feature Engineering*
- 4. Model Selection (e.g., Decision Tree, Random Forest, Neural Network)*
- 5. Model Training and Evaluation*
- 6. Deployment for Real-time Detection*
- 7. Continuous Learning and Updating Models*

## **6.Tools and Technologies**

- 1. Python*
- 2. Scikit-learn*
- 3. Pandas and NumPy*
- 4. Matplotlib and Seaborn*
- 5. Jupyter Notebook*
- 6. Flask or FastAPI (for deployment)*
- 7. Cloud Platforms (optional: AWS, Google Cloud)*

## **7.Team Members and Roles**

- 1.E.Renuka- data preperation and preprocessing*
- 2.A.Varshini- model developing and exploration*

3.K.Sowndarya priya– testing and deploying

4.V.Theerthana- modifying nd checking