

## Project Design Phase-I

### Solution Architecture

Date	27-10-2023
Team ID	Team - 593387
Project Name	Online payments fraud detection using ml
Maximum Marks	4 Marks

#### **Solution architecture:**

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions.

The main goals are to:

- **Find the best tech solution to solve existing business problems.**

It is essential to identify the best tech solution in order to effectively combat online payment fraud. ML is a particularly effective tool for this.

Large volumes of data can be analyzed in real time by ML algorithms, which enables businesses to quickly identify anomalies and fraudulent patterns.

Businesses can continuously modify their fraud detection techniques to stay ahead of ever-evolving fraudsters by utilizing machine learning (ML).

- **Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.**

Describing Software Structure and Characteristics: The software for online payment fraud detection using ML must possess specific structural and behavioral characteristics. It should consist of the following components:

Data Ingestion, Data Preprocessing, ML Model Training, Real-time Monitoring, Alerting System, Reporting and Analysis

- **Define features, development phases, and solution requirements.**

Features: Real-time transaction monitoring, ML models, historical transaction database, anomaly detection, user behavior analysis, integration, alerting, compliance.

Development Phases: Data collection, model development, real-time monitoring, integration, analysis, improvement.

Solution Requirements: High accuracy, low false positive rate, scalability, data security, integration, updates, compliance.

- **Provide specifications according to which the solution is defined, managed, and delivered.**

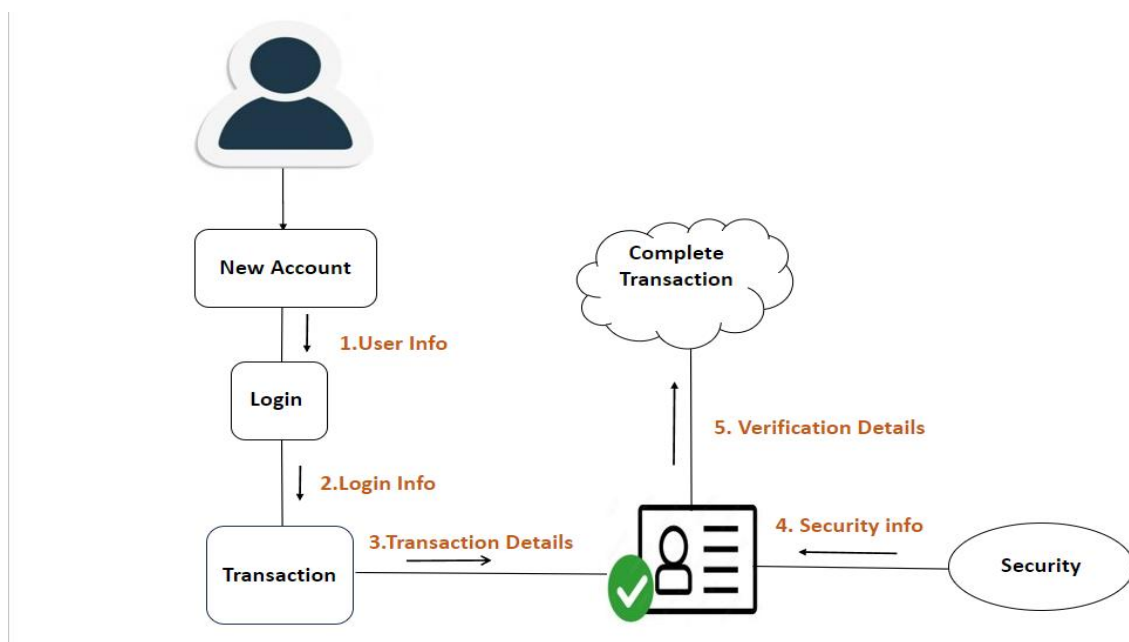
The specifications for the fraud detection solution should be well-documented and managed throughout the project. They should include:

a. Data Sources: Specify the sources from which data will be collected.

b. ML Algorithms: Detail the specific ML algorithms and models that will be used.

- c. Performance Metrics: Define the key performance indicators, such as accuracy, precision, recall, and F1-score.
- d. Integration Plan: Outline how the solution will be integrated into the existing payment processing infrastructure.
- e. Testing Procedures: Describe the testing protocols and criteria for validating the system.
- f. Deployment Plan: Provide a plan for deploying the solution in a production environment.
- g. Maintenance and Updates: Detail the strategy for maintaining and updating the fraud detection system to adapt to evolving threats.

### Solution architecture Diagram:



### Benefits Of using Machine Learning in Fraud detection

