

**Project Design Phase
Solution Architecture**

Date	23 October 2023
Team ID	Team-592699
Project Name	Online payment fraud detection using ML
Maximum Marks	4 Marks

Solutional Architectural Diagram:

Growth in Internet and E-commerce: Describes the growth in internet and e-commerce as a backdrop for the problem.

Increase in credit/debit card transactions: Highlights the increasing use of credit/debit card transactions.

Rise in fraud cases: Indicates the resulting rise in fraud cases due to increased transactions.

Detect Fraud?: A decision point to check if fraud is detected.

Various Approaches: Represents the use of different methods for fraud detection with a focus on accuracy and drawbacks.

Accuracy and Drawbacks: A sub-process highlighting the need to balance accuracy and the limitations of various fraud detection methods.

Changes in Transaction Behavior?: A decision point to identify changes in transaction behavior.

Predict Fraud: Indicates the prediction of fraud when unusual behavior is detected.

Further Processing: Describes the follow-up steps when fraud is predicted.

No Fraud Detected: The alternative outcome when no fraud is detected.

No Fraud Detected: Represents the same outcome as the previous "No Fraud Detected" block.

Large Amount of Data: Indicates the presence of a substantial volume of data for fraud detection.

Classification Algorithms: Lists the machine learning classification algorithms used, including Decision Tree, Random Forest, SVM, Extra Tree Classifier, and XGBoost Classifier.

Train and Test Data: A decision point to check if data is trained and tested.

Select Best Model: The process of selecting the best model for fraud detection.

Save as .pkl file: Highlights the step where the best model is saved in a .pkl format.

No Data Training Done: The alternative outcome when no data training is performed.

Flask Integration: Describes the integration of the system with Flask for deployment.

IBM Deployment: Represents the final deployment of the system on the IBM platform.

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