

Project Design Phase - II

Data Flow Diagram & User Stories

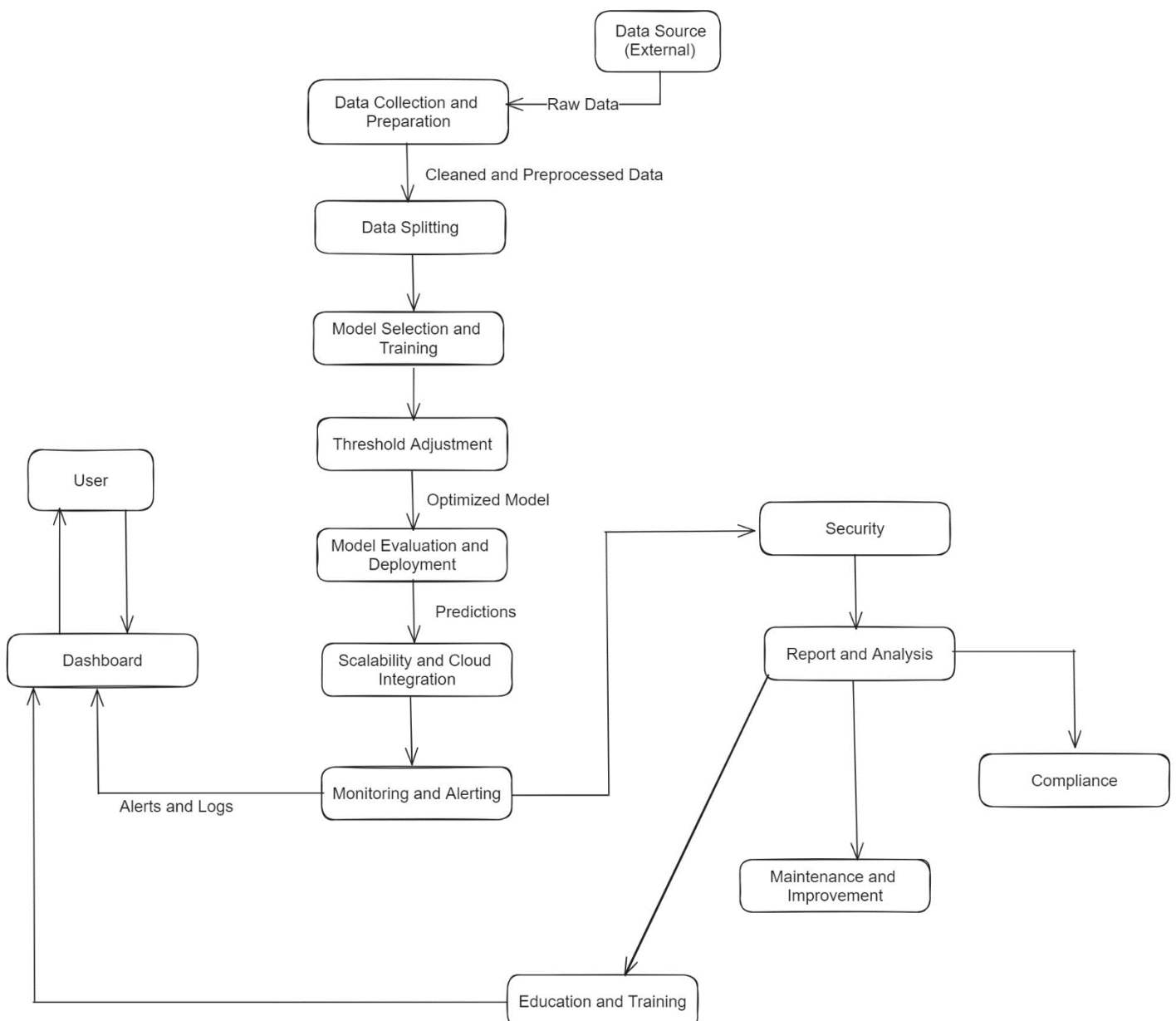
Date	23 October 2023
Team ID	Team-592613
Project Name	Online Payments Fraud Detection Using ML
Maximum Marks	4 Marks
Team Members	Srajal Agarwal (Leader) Deepesh Dhruv Paras Garg

Data Flow

- **Dataset** of historical transactions is the input to the system.
- **Data collection and preparation** step cleans, preprocesses, and converts the dataset to a numerical format.
- **Data splitting** step splits the dataset into training, validation, and test sets.
- **Model selection** step evaluates different machine learning algorithms to select the best model for the fraud detection system.
- **Model training** step trains the selected model on the training dataset using cross-validation to prevent overfitting.
- **Threshold adjustment** step adjusts the threshold for flagging a transaction as fraudulent to balance false positives and false negatives.
- **Model evaluation** step evaluates the model on the test set to assess its performance.
- **Model deployment** step deploys the model using a Flask-based interface with cloud services for real-time predictions.
- Real-time fraud **predictions** are the output of the system.
- **Monitoring and alerting** systems monitor the performance of the system and identify any issues early on.

- **Compliance** monitoring step ensures that the system complies with all legal and regulatory obligations.
- **Reporting and visualization** tools generate reports and analyses on fraud detection findings.
- Insights into **system performance** and fraud detection findings are used to improve the system's fraud detection capabilities.
- **Regular upgrades and model fine-tuning** step upgrades the system and fine-tunes the model to improve its ability to detect emerging fraud strategies and patterns.

Data Flow Diagram



DFD Level 0 (Industry Standard)

User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Fraud Analyst	Online Payment Fraud Detection	USR 1: Monitoring Suspicious Transactions	As a fraud analyst, I want to be able to monitor and review transactions in real-time for any suspicious activity.	The system should provide a real-time dashboard displaying transaction data.	High	Sprint-1
		USR 2: Setting Custom Fraud Rules	As a fraud analyst, I want to define and configure custom fraud detection rules to match specific fraud patterns.	The system should allow me to create, modify, and delete custom rules.	Medium	Sprint-2
Compliance Officer	Regulatory Compliance and Reporting	USR 1: Compliance Reporting:	As a compliance officer, I need the system to generate compliance reports for regulatory authorities and internal audits.	The system should provide a report generation feature for various compliance requirements.	High	Sprint-3
Customer Support Agent	Customer Support Integration	USR 1: Customer Support Integration	As a customer support agent, I need access to the fraud detection system to assist customers with transaction-related inquiries and issues.	The system should provide a user-friendly interface for customer support agents.	Medium	Sprint-2
Machine Learning Engineer	Model Development and Improvement	USR 1: Model Performance Monitoring	As a machine learning engineer, I need the system to provide tools for monitoring and evaluating the performance of the machine learning models.	The system should offer metrics and visualizations to assess model accuracy and effectiveness.	High	Sprint-3

System Administrator	System Management and Configuration	USR 1: System Configuration	As a system administrator, I want the ability to configure and maintain the fraud detection system.	The system should allow me to set system-wide parameters, such as risk thresholds and data retention policies.	High	Sprint-1
End User (Customer)	Secure and Seamless Transactions	USR 1: Safe Transactions	As an end user, I want the assurance that my online payments are secure and protected from fraud.	If a transaction is flagged as potentially fraudulent, I should receive an alert or request for additional authentication.	High	Ongoing
		USR 2: Real-time Alerts	As an end user, I want to receive real-time alerts and notifications if my transaction is flagged for potential fraud.	The alert should include clear instructions on how to verify my identity and complete the transaction.	High	Ongoing