

Project Design Phase-II

Technology Stack (Architecture & Stack)

Date	31 January 2025
Team ID	
Project Name	Online Payments Fraud Detection Using Machine Learning
Maximum Marks	4 Marks

Technical Architecture:

The system uses a Machine Learning-based architecture where transaction data flows from the user interface to the processing layer, is analyzed using ML algorithms, and produces fraud detection results stored in the database.

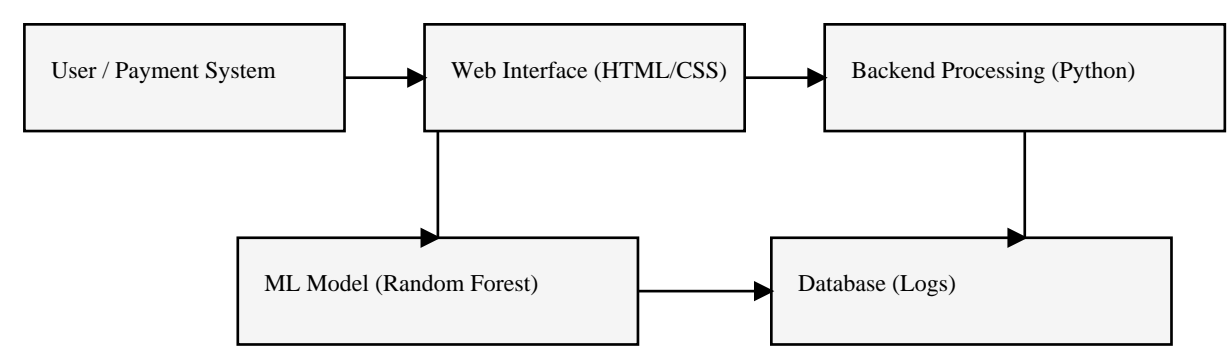


Table-1: Components & Technologies

S.No	Component	Description	Technology
1	User Interface	User interacts with system	HTML, CSS, Bootstrap
2	Application Logic	Controls workflow	Python
3	Machine Learning Model	Detects fraud patterns	Scikit-learn
4	Data Processing	Cleaning & feature engineering	Pandas, NumPy
5	Visualization	Shows analysis results	Matplotlib, Seaborn
6	Database	Stores transaction data	CSV / SQLite
7	Model Storage	Stores trained model	Pickle (.pkl)

Table-2: Application Characteristics

S.No	Characteristics	Description	Technology
1	Security	Protect transaction data	Validation Techniques
2	Scalability	Handles large transactions	Modular Python
3	Availability	System accessible when needed	Local Deployment
4	Performance	Fast fraud prediction	Optimized ML Model

References

- 1. Scikit-learn Documentation – <https://scikit-learn.org>
- 2. Pandas Documentation – <https://pandas.pydata.org>
- 3. NumPy Documentation – <https://numpy.org>
- 4. Credit Card Fraud Detection Dataset – Kaggle
- 5. Machine Learning Concepts – <https://towardsdatascience.com>
- 6. Data Visualization – Matplotlib & Seaborn Official Docs