

# AI-Driven Financial Fraud Detection in Digital Payments

Student: Vedanth (1147284)

Team members: Paul (1147256), Somnath (1137253)

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## Short Project Summary

We built a machine learning pipeline to detect fraudulent digital payment transactions. Because the fraud class is rare, we focus on recall/F1 for fraud detection, apply SMOTE for balancing, engineer predictive features, and train baseline (Logistic Regression) plus advanced models (XGBoost, LightGBM). We evaluate using classification reports and confusion matrices.

## GitHub Repository Link

<https://github.com/OrienPaxx/ai-fraud-detection>

## Execution Instructions (Reproducibility)

- 1) Clone the repository.
- 2) Create a virtual environment and install dependencies: pip install -r requirements.txt
- 3) Download the dataset (Fraud.csv) and place it in: data/Fraud.csv
- 4) Run: jupyter notebook → open notebooks/Financial Fraud Detection Analysis.ipynb → Run All cells.

## Special Notes (optional)

If the dataset is large, it is not committed to GitHub; instead, the README provides the dataset link.