Credit Card Fraud Detection - Project Summary

Dataset Info

File Name: creditcard_2023.csv

Shape: 568,630 rows × 31 columns

Target Column: Class (0 = Normal, 1 = Fraud)

Features

V1 to V28: anonymized features

Amount: transaction amount

id: removed during preprocessing

Steps Followed

1. Data loading and null value check
2. Preprocessing (id removed, scaling with StandardScaler)
3. Train-test split (80/20)
4. SMOTE applied to balance classes
5. Logistic Regression Model with GridSearchCV
6. Evaluation with Accuracy, Precision, Recall, F1, ROC-AUC
7. Model saved as fraud_model.pkl

Results

Accuracy: 96.49%

Precision (fraud class): 98%

Recall (fraud class): 95%

F1 Score: 96%

ROC-AUC: 0.96

Files in the Project

creditcard_2023.csv

fraud_detection.ipynb

fraud_model.pkl

README.md

Presentation (this file)

Libraries Used

pandas, numpy, matplotlib, seaborn

scikit-learn, imbalanced-learn (SMOTE), joblib

Future Improvements

Try other models (XGBoost, Random Forest)

Deploy via Flask/FastAPI

Add real-time dashboard

Status

Project Completed and Ready for GitHub/Kaggle/Fiverr