Credit Card Fraud Analytics – Detailed Case Study

Python • SQL • Power BI

Executive Summary

The dataset contains 1000 transactions with 31 fraudulent cases, resulting in a fraud rate of 3.1%. The total financial loss due to fraud is 118702.46. This report summarizes cleaning, SQL analytics and dashboard insights.

Key Metrics

Metric	Value
Total Transactions	1000
Fraud Transactions	31
Fraud Rate (%)	3.1
Total Fraud Loss	118702.46
Average Transaction Amount	4062.86

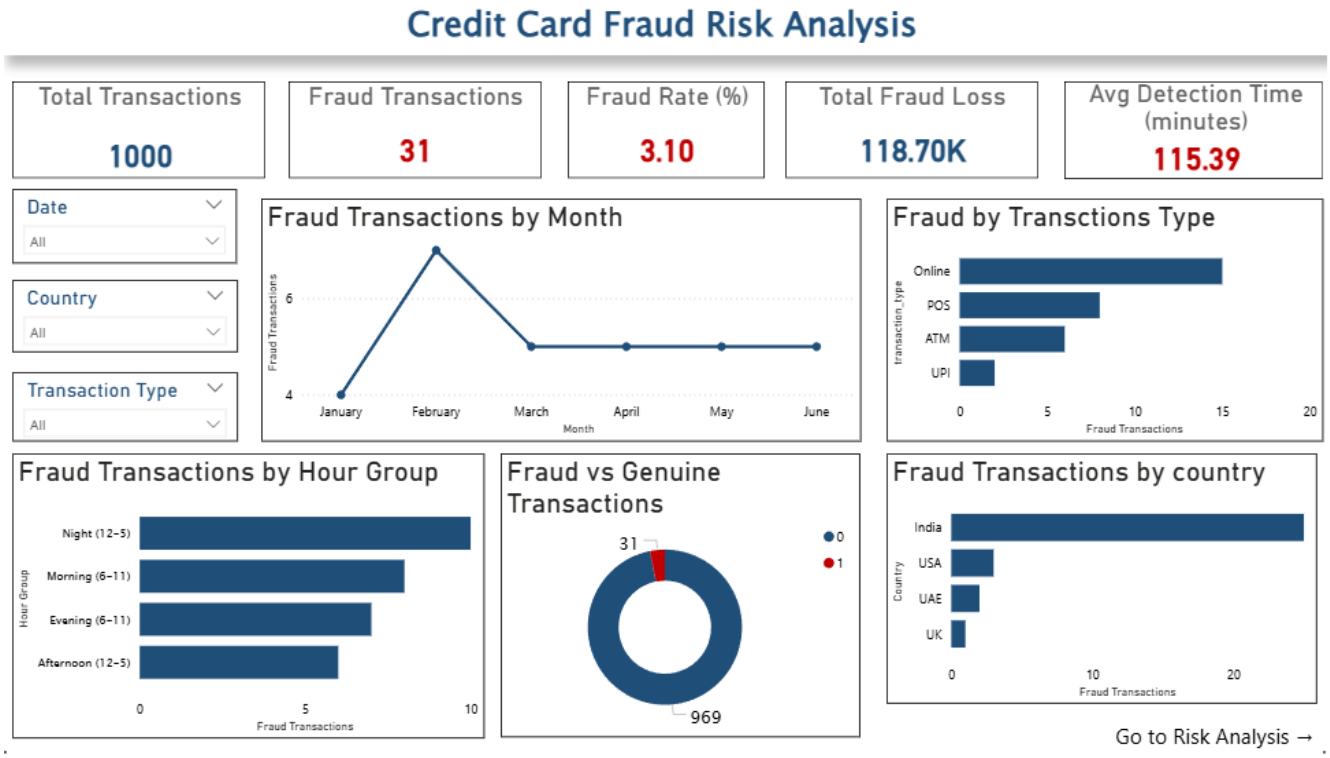
EDA using Python

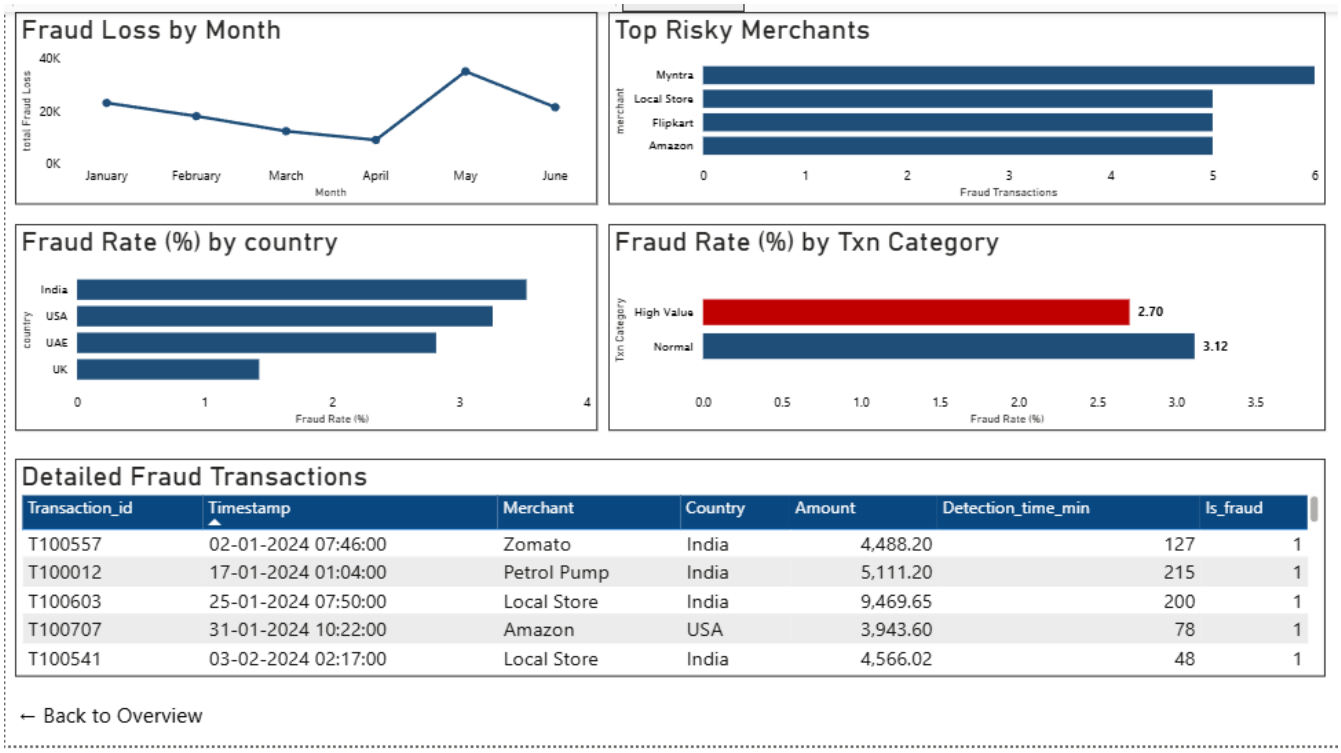
- Loaded raw transaction dataset
- Handled datatypes and timestamps
- Created fraud_amount and high_value indicators
- Exported cleaned dataset for analysis

SQL Analysis

- Calculated fraud KPIs and loss metrics
- Identified risky merchants and countries
- Monthly and hourly trend analysis using GROUP BY
- Generated business-focused insights

Power BI Dashboard





Detailed Fraud Transactions

Transaction_id	Timestamp	Merchant	Country	Amount	Detection_time_min	Is_fraud
T100557	02-01-2024 07:46:00	Zomato	India	4,488.20	127	1
T100012	17-01-2024 01:04:00	Petrol Pump	India	5,111.20	215	1
T100603	25-01-2024 07:50:00	Local Store	India	9,469.65	200	1
T100707	31-01-2024 10:22:00	Amazon	USA	3,943.60	78	1
T100541	03-02-2024 02:17:00	Local Store	India	4,566.02	48	1

← Back to Overview

Key Insights

- Fraud rate is 3.1% which is small but financially impactful.
- Total fraud loss recorded: 118702.46.
- Top risky merchants: Myntra, Local Store, Amazon.
- Fraud concentration observed during specific hours and high-value transactions.

Business Recommendations

- Add additional verification for high-value payments
- Monitor peak fraud hours closely
- Flag suspicious merchants automatically
- Adopt predictive ML models for future fraud prevention