PROJECT REPORT

Title

Automated Financial Data Cleaning & Reporting System

Tools Used: Excel (Power Query), SQL, Power BI

1. Project Objective

The objective of this project was to build an automated financial reporting system that can clean raw transaction data, perform business analysis and generate an interactive dashboard for decision making.

The focus was to reduce manual data cleaning effort and create a workflow where new data can be refreshed and automatically updated in the dashboard.

2. Dataset Description

The dataset contains financial transaction records including:

- Customer details
- Merchant & category
- Transaction amount
- Fraud indicator

The dataset initially contained raw structured data which required cleaning and transformation before analysis.

3. Data Cleaning & Preparation (Excel Power Query)

Data cleaning and preparation were performed using Excel Power Query:

- Removed unnecessary columns
- Cleaned text formatting
- Standardized category names
- Converted coded age values into meaningful age groups
- Created structured clean dataset

Power Query was used to automate repetitive cleaning steps so that new data can be refreshed and cleaned automatically.

4. SQL Data Analysis

Cleaned data was imported into SQL for business analysis.

Key analysis performed:

- Total transactions and revenue
- Fraud transaction analysis
- Category-wise revenue and transactions
- Age group and gender spending analysis
- Fraud distribution by category

SQL queries were designed for reusable reporting and quick business insights.

5. Power BI Dashboard

An interactive dashboard was created in Power BI including:

- KPI cards (Revenue, Transactions, Fraud count, Fraud %)
- Category-wise revenue visualization
- Fraud analysis by category
- Age group and gender spending insights
- Interactive filters for analysis

The dashboard provides a clear overview of transaction behavior and risk areas.

6. Automation Workflow

An end-to-end automated workflow was built:

Raw Data → Power Query Cleaning → SQL Analysis → Power BI Dashboard

When new transaction data is added and refreshed:

- Data cleaning runs automatically
- SQL analysis updates
- Dashboard refreshes automatically

This reduces manual effort and improves reporting efficiency.

7. Key Insights

- Transportation category generated highest revenue
- 18–25 age group contributed highest spending
- Female customers showed slightly higher spending
- Fraud rate was around 1.2%
- Highest fraud observed in sports & health categories

8. Conclusion

This project demonstrates the ability to build an automated reporting system using Excel, SQL and Power BI.
It showcases skills in data cleaning, analysis, visualization and automation suitable for data analyst roles.