

# Fraud Detection Dashboard

## Purpose

This document outlines how the frontend dashboard will present fraud detection insights. It defines the metrics to display, chart types to use, interaction features, and the data required from the backend/ML pipeline. The goal is to provide users with clear, actionable information about flagged transactions while validating data availability with the AI/ML team.

## Dashboard

The frontend will serve as the primary interface for fraud detection monitoring. It should:

- Highlight fraud confidence levels (high, medium, low).
- Provide visual summaries (charts, metrics).
- Allow deeper investigation into flagged transactions.
- Be intuitive and easy to navigate for both technical and non-technical users.

## Key Metrics to Display

- Total Transactions Processed (overall volume).
- Total Fraud-Flagged Transactions (absolute count + percentage).
- Top Features Contributing to Flags (from ML explainability layer)
- List of flagged Transactions

## Chart Types & Visualizations

- Fraud Confidence Distribution (Pie/Donut Chart)
  - Slice proportions showing high/medium/low fraud confidence cases.
  - Provides quick insight into severity distribution.
  - Slice proportions by type of fraud
  - Provides insight into what types of fraud are trending
- Trend Over Time (Line or Bar Chart)
  - Number of fraud-flagged transactions per day/week.
  - Helps identify spikes or unusual periods.
- Fraud Transaction Counts by Category (Bar Chart)
  - Optional segmentation by transaction type, merchant, geography, etc.
- Transaction Table View (Interactive Grid)
  - List of individual flagged rows
  - Columns: Transaction ID, Amount, Date/Time, Explanation/Key Features.

## User Interaction Features

- Filters:
  - Filter data by month
  - Filter by type of fraud
- Export:
  - Download flagged transactions as CSV/Excel.
- Import:
  - Upload csv files of transactions

### **Data Requirements**

To build the above frontend, the backend/ML pipeline must provide:

- CSV fields:
  - Transaction ID, Amount, Timestamp, Category/Type.
- Fraud detection outputs:
  - Fraud Confidence Score (0–1 or percentage).
  - Fraud Confidence Label (High/Medium/Low).
  - Top Contributing Features (list or short explanation).
- Other Metrics:
  - Counts per fraud level.
  - Historical fraud counts over time.

### **Design Ideas & Tech Stack**

- UI Framework: React with Vite
- UI Library: Carbon or AntDesign
- Charting Libraries: AntDesign Charts, Rechart
- Testing: Playwright