AI-Driven AML & Financial Crime Command Center

Live monitoring of transaction anomalies, fraud vectors, and geographic risk hotspots.

₹ 25M
Total Volume

₹ 1.17M
Fraud Volume

235
Fraud Transactions

4.63%
Fraud Rate %

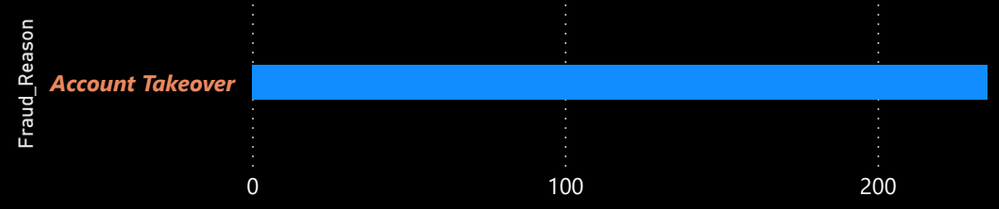
Key influencers | Top segments

What influences Fraud Status to be Fraud ?

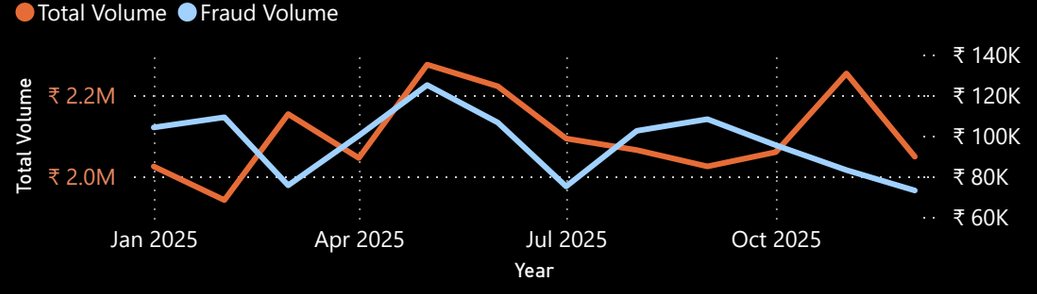
⚠ This visual type is being retired soon. Contact your admin to upgrade.

Fraud Volume by Customer_Location

Fraud Transactions by Fraud_Reason



Total Volume and Fraud Volume by Year, Quarter and Month



TransactionID	Year	Quarter	Month	Day	Name	Customer_Location	Sum of Amount	Fraud_Reason	Sum of Is_Fraud
01aeeb9c-4022-45ad-add3-36c8cced580c	2025	Qtr 1	February	12	Erin Norman	Bennettfort	3,522.35	None	0
09f4d870-c921-4350-9ff3-5d1820b2d014	2025	Qtr 4	November	16	Erin Norman	Bennettfort	7,187.75	None	0
1f095a40-420b-45fa-aeab-581fef17419d	2025	Qtr 4	November	26	Erin Norman	Bennettfort	3,592.84	None	0
23344d11-66eb-472e-8d80-2ec8300f6359	2025	Qtr 1	March	4	Erin Norman	Bennettfort	8,139.00	None	0
306136a0-862c-4fe6-831f-85f805499db0	2025	Qtr 3	August	17	Erin Norman	Bennettfort	1,740.46	None	0
40f85b17-fc93-475f-ab00-039288207023	2025	Qtr 1	January	27	Erin Norman	Bennettfort	7,064.62	None	0
42aa6b0b-796a-47bc-826e-62be8e017507	2025	Qtr 1	January	25	Erin Norman	Bennettfort	9,875.27	None	0
55d69da5-209e-47f2-a1dc-51b3240220a5	2025	Qtr 1	March	13	Erin Norman	Bennettfort	1,001.69	None	0
5627c640-0113-4073-be41-d13bfbb4c09d	2025	Qtr 3	August	4	Erin Norman	Bennettfort	149.81	None	0
67bc1fc4-3c2a-42d9-80ad-84622bff5cd6	2025	Qtr 2	May	18	Erin Norman	Bennettfort	602.75	None	0
6b83270f-ab37-4bd4-921b-f55cd3c36cc1	2025	Qtr 1	January	15	Erin Norman	Bennettfort	7,214.72	None	0
82397025-79d2-4d9d-8e16-5fe53e6cefa5	2025	Qtr 4	December	5	Erin Norman	Bennettfort	2,050.89	None	0
83ac26f9-419e-4bbf-b48f-fdfac5a64018	2025	Qtr 2	April	19	Erin Norman	Bennettfort	3,388.73	None	0
84605219-cb78-44f7-894c-89d3c5308c37	2025	Qtr 2	June	20	Erin Norman	Bennettfort	403.01	None	0
847850b7-1af7-40d4-8a60-8e464fc60201	2025	Qtr 2	June	29	Erin Norman	Bennettfort	6,563.03	None	0
a12301c9-df01-4d79-8c5c-77ff93ed22d1	2025	Qtr 2	May	18	Erin Norman	Bennettfort	7,260.17	None	0
bafa7fba-6738-41b3-b22a-e651f9832908	2025	Qtr 3	September	26	Erin Norman	Bennettfort	3,484.64	None	0
c2d3920c-df58-4454-ac88-fe97294b1e2c	2025	Qtr 3	September	30	Erin Norman	Bennettfort	2,086.69	None	0
d58312cc-570c-493d-b927-2eeca023788c	2025	Qtr 4	November	25	Erin Norman	Bennettfort	9,517.08	None	0
e552da83-a91f-49ad-9633-a04b0cdf0a38	2025	Qtr 2	June	16	Erin Norman	Bennettfort	9,424.29	Account Takeover	1
Total							**94,269.79**		**1**

Created by - **Prajwal Bharad**

PROJECT TITLE: AI-Driven Financial Crime & AML Command Center

OBJECTIVE: To build an end-to-end detection system that identifies fraudulent transaction patterns, visualizes geographic risk hotspots, and uses AI for root cause analysis.

TECH STACK:

- **Python (ETL):** Used Pandas and Faker to generate 5,000+ realistic synthetic banking transactions with specific fraud scenarios (Smurfing, Account Takeover).
- **Power Query:** Performed data cleaning, type casting, and schema normalization.
- **Data Modeling:** Built a Star Schema with a dedicated Date Table for time-intelligence analysis.
- **DAX (Advanced):** Created measures for Fraud Rate %, Risk Ratios, and Conditional Formatting logic.
- **AI Integration:** Implemented the "Key Influencers" Machine Learning visual to detect drivers of fraud.

KEY FEATURES:

- **Drill-Through Architecture:** Navigation from global map view to granular transaction evidence.
- **Dynamic Alerts:** Conditional formatting (Red Flags) for high-risk activity.
- **Interactive UI:** Dark mode design optimized for Security Operations Centers (SOC).

Column 1: The Data Engineering (Python)

1. The Foundation: Synthetic Data Engine
"I started by asking: '*How can I analyze fraud if I don't have sensitive bank data?*'
Instead of downloading a static CSV, I wrote a **Python script** to generate my own. I used the Faker library to create 200 realistic customers and random logic to inject specific fraud patterns—like **Account Takeovers** (sudden IP changes) and **Money Laundering** (large round sums)."
The Code Snippet: (I used this logic to flag 'Account Takeover' fraud)
Python

```
# Simulating an attack vector
if random.random() < 0.05:
   tx_ip = fake.ipv4()  # New IP Address
   is_fraud = 1
   fraud_type = 'Account Takeover'
```

Column 2: The Analytics (DAX & Modeling)

2. The Logic: Modeling Risk with DAX
"Raw data doesn't tell a story until you model it. I imported the data into Power Query to clean types and built a **Star Schema**, connecting the transactions to a Master_Calendar for time intelligence.
Then, I wrote **DAX Measures** to quantify risk. I didn't just want to see 'Total Fraud'; I wanted to see the *intensity* of the attack."
Key Formula: Fraud Rate % (This tells us how prevalent the attacks are relative to normal traffic)
Code snippet

```
Fraud Rate % =
DIVIDE(
    CALCULATE(COUNTROWS(Fact_Transactions), Fact_Transactions[Is_Fraud] = 1),
    COUNTROWS(Fact_Transactions),
    0
```

2. DAX Formulas (The Analytics)

A. The Risk Ratio (Fraud Rate %) *(This measure calculates the intensity of fraud relative to total traffic. It is the most important KPI on the dashboard.)*
Code snippet

```
Fraud Rate % =
DIVIDE(
    CALCULATE(COUNTROWS(Fact_Transactions), Fact_Transactions[Is_Fraud] = 1),
    COUNTROWS(Fact_Transactions),
    0
)
```

B. The AI Helper Column (Fraud Status) *(I created this Calculated Column to translate binary 0/1 data into text labels for the Machine Learning visual.)*
Code snippet

Column 3: The Insights (AI & UI)

3. The Experience: AI & Drill-Through
"A dashboard is useless if it's hard to use. I designed this with a **'investigative flow'** in mind:

- **Global View:** The Main Page uses a **Dark Mode** aesthetic (inspired by SOC Command Centers) to reduce eye strain.
- **AI Analysis:** I integrated the **'Key Influencers'** visual, which runs a logistic regression in the background. It told me that '*Electronics*' category transactions are **2.5x more likely** to be fraudulent than any other category.
- **Deep Dive:** I built a **Drill-Through** architecture. If you right-click a red bubble on the map, it instantly filters the 'Transaction Detail' page to show you the evidence for that specific city."

The Result: "This isn't just a report; it's an end-to-end detection app."