

# Fraud Transaction Detection

The dataset ready on your local machine. To proceed with building and integrating the fraud detection model in Power BI, follow these steps:

## 1. Load the Dataset in Power BI

1. Open Power BI Desktop.
2. Go to **Home > Get Data > Text/CSV**.
3. Navigate to C:\power bi\Fraud Transaction Detection\creditcard.csv and load the dataset.

## 2. Preprocess the Data

You can use Power Query to clean and preprocess the data:

1. Remove any unnecessary columns.
2. Handle missing values.
3. Normalize numerical features if needed.

## 3. Run Python Script in Power BI

1. Go to **Home > Transform Data > Run Python Script**.
2. Use the following Python script to build and evaluate the model:

```
import pandas as pd

from sklearn.model_selection import train_test_split

from sklearn.linear_model import LogisticRegression

from sklearn.metrics import classification_report


# Load the dataset

data = pd.read_csv(r'C:\power bi\Fraud Transaction Detection\creditcard.csv')


# Preprocess the data

X = data.drop('Class', axis=1)

y = data['Class']
```

```
# Split the data
```

```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
```

```
# Build the model
```

```
model = LogisticRegression(max_iter=1000, random_state=42)
```

```
model.fit(X_train, y_train)
```

```
# Make predictions
```

```
y_pred = model.predict(X_test)
```

```
# Evaluate the model
```

```
report = classification_report(y_test, y_pred, output_dict=True)
```

```
report_df = pd.DataFrame(report).transpose()
```

```
# Output the evaluation report
```

```
report_df
```

## the Results

	<b>Precision</b>	<b>Recall</b>	<b>F1-score</b>	<b>support</b>
<b>0</b>	<b>0.9991939</b>	0.999807	0.999473	56864.000000
<b>1</b>	<b>0.816667</b>	0.500000	0.620253	98.000000
<b>Accuracy</b>	<b>0.998947</b>	0.998947	0.998947	0.998947
<b>Macro avg</b>	<b>0.907903</b>	0.749903	0.809863	56962.000000
<b>Weighted avg</b>	<b>0.998825</b>	0.998947	0.998820	56962.000000

1. After running the script, the output will be available as a new table in Power BI.
2. Use this table to create visualizations such as:
  - Confusion Matrix
  - Precision, Recall, and F1-Score charts
  - Distribution of predicted fraudulent transactions

## **5. Create Dashboards**

Design interactive dashboards to monitor and analyze the transaction data and model predictions.

If you encounter any issues or need further assistance, feel free to ask!

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply \* New Source \* Recent Sources \* Enter Data Data source settings Manage Parameters \* Refresh Preview \* Manage \* Choose Columns \* Remove Columns \* Keep Rows \* Remove Rows \* Split Column \* Group By \* Replace Values \* Data Type: Whole Number \* Use First Row as Headers \* Merge Queries \* Append Queries \* Combine Files \* Text Analytics \* Vision \* Azure Machine Learning \* AI Insights

Queries [1]

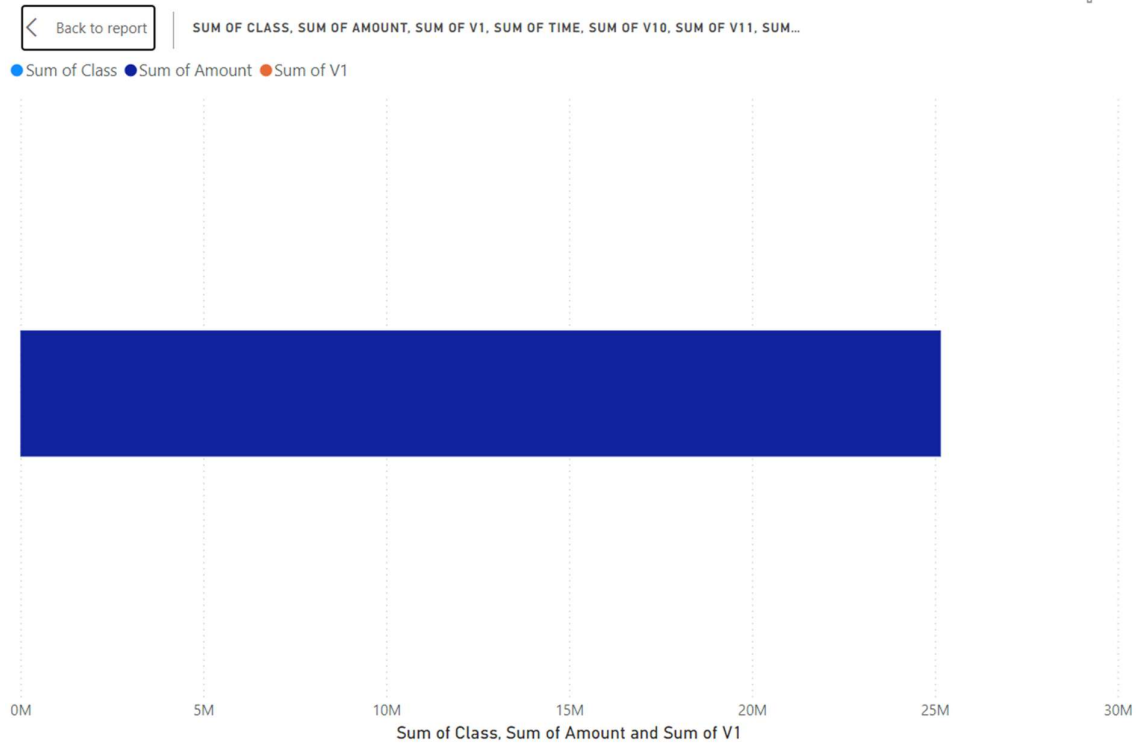
creditcard

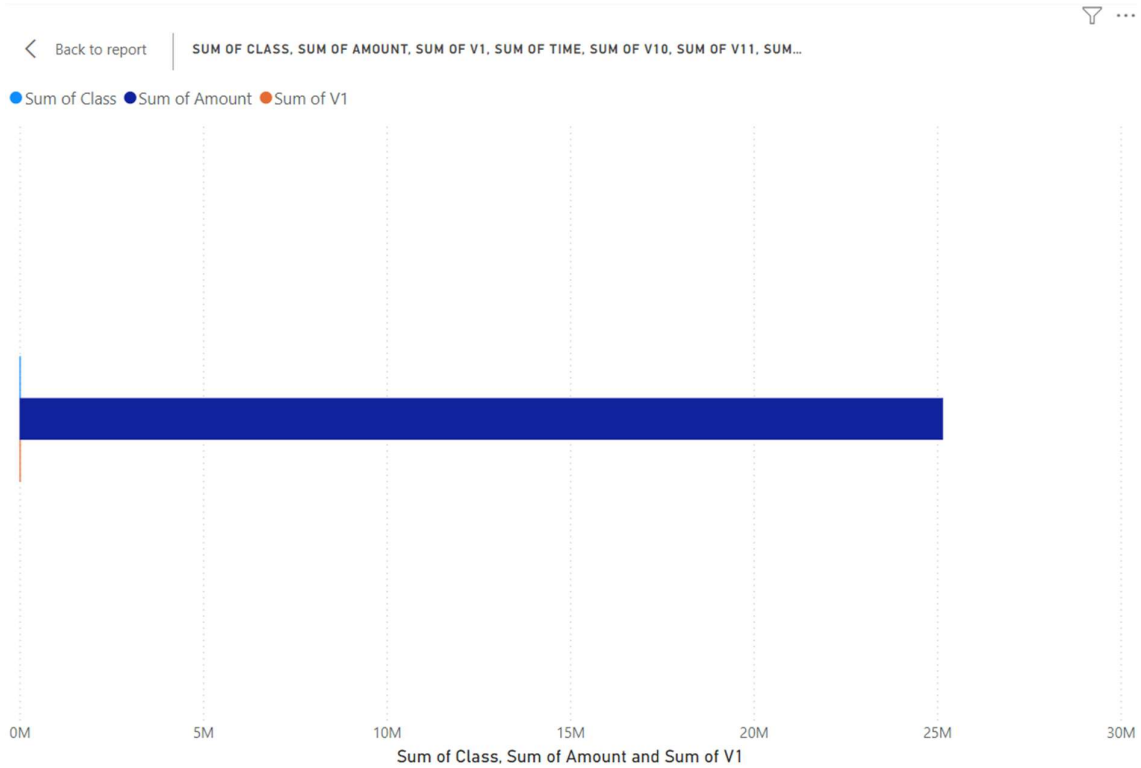
Table.TransformColumnTypes(#"Promoted Headers",{{"Time", Int64.Type}, {"V1", type number}, {"V2", type number}, {"V3", type number}, {"V4", type number}, {"V5", type number})

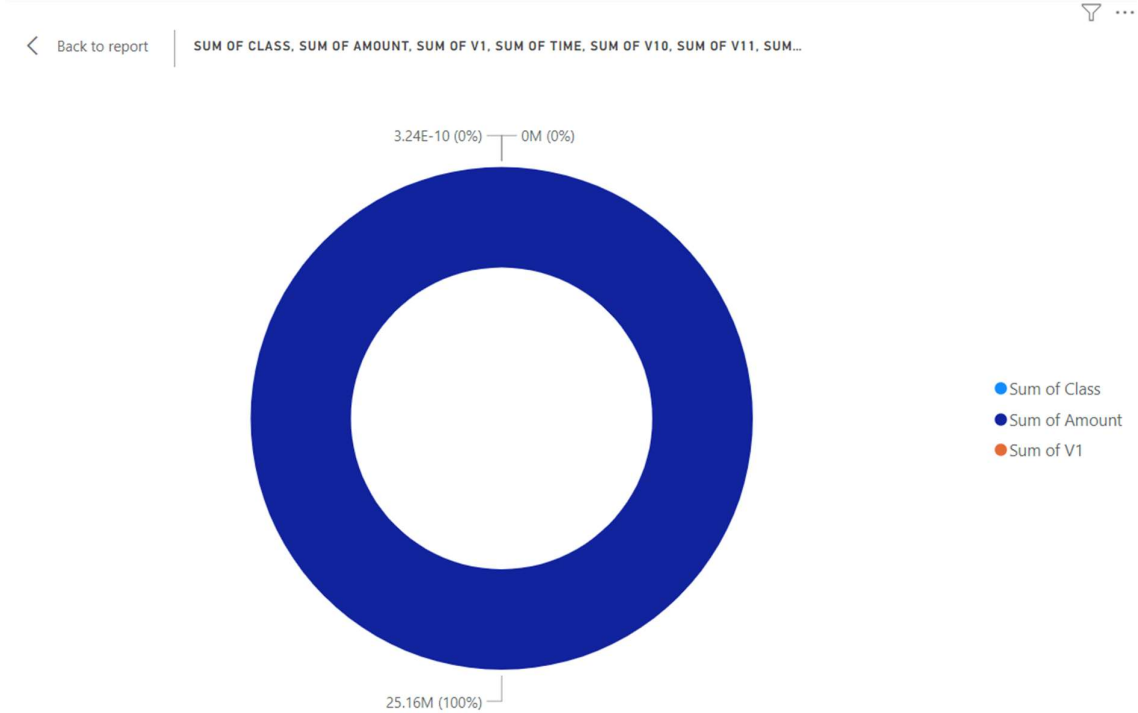
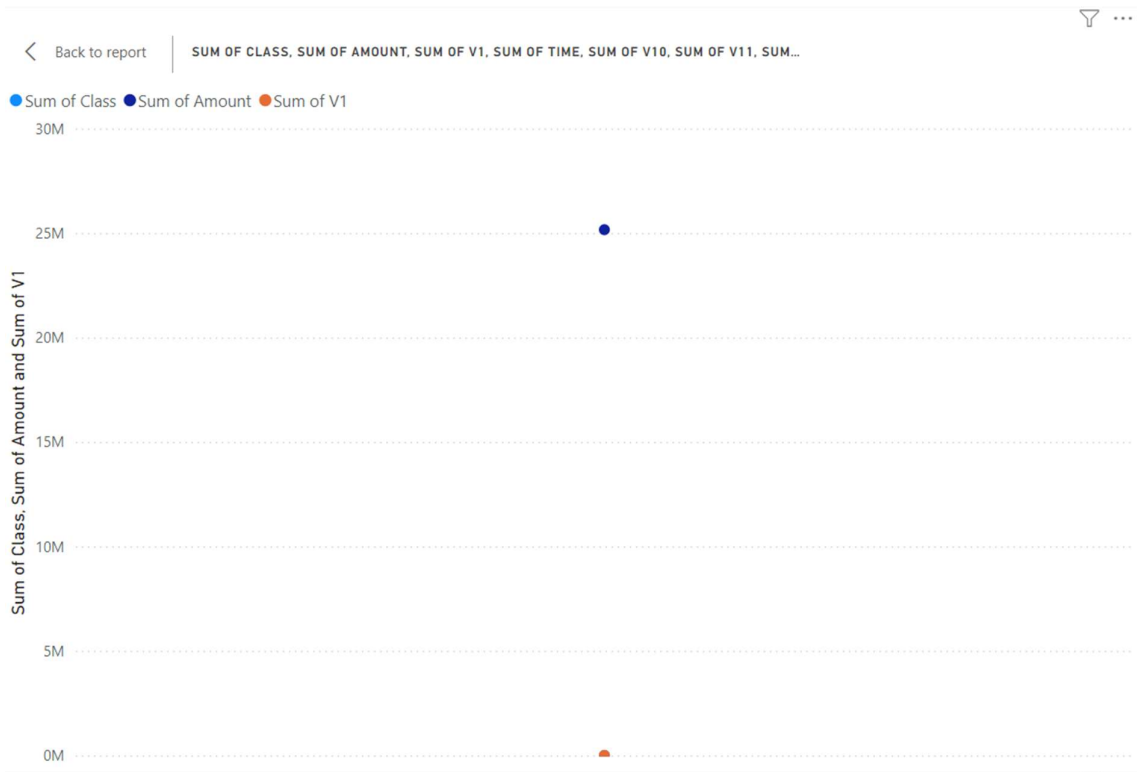
	Time	V1	V2	V3	V4	V5
1	0	-1.359807134	-0.072781173	2.536346738	1.378155224	
2	0	1.191857111	0.266150712	0.166480113	0.448154078	
3	1	-1.358354062	-1.340163075	1.773209343	0.379779593	
4	1	-0.966271712	-0.185226008	1.79299334	-0.863291275	
5	2	-1.158233093	0.877736755	1.548717847	0.403033934	
6	2	-0.425965884	0.960523045	1.141109342	-0.16825208	
7	4	1.229657635	0.141003507	0.045370774	1.202612737	
8	7	-0.644269442	1.417963545	1.074380376	-0.492199018	
9	7	-0.894286082	0.286157196	-0.113192213	-0.27152613	
10	9	-0.338261752	1.119593376	1.044366552	-0.222187277	
11	10	1.449043781	-1.176338825	0.913859833	-1.375666655	
12	10	0.384978215	0.616109459	-0.874299703	-0.094018626	
13	10	1.249998742	-1.221636809	0.383930151	-1.234898688	
14	11	1.069373588	0.287722129	0.828612727	2.71252043	
15	12	-2.791854766	-0.327770757	1.641750161	1.767472744	
16	12	-0.752417043	0.345485415	2.057822913	-1.468643298	
17	12	1.103215435	-0.040296215	1.267332089	1.28909147	
18	13	-0.436905071	0.918966213	0.924590774	-0.727219054	
19	14	-5.401257663	-5.450147834	1.186304631	1.7362388	
20	15	1.401020077	1.010247237	0.454784724	1.428071000	

31 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 13:15

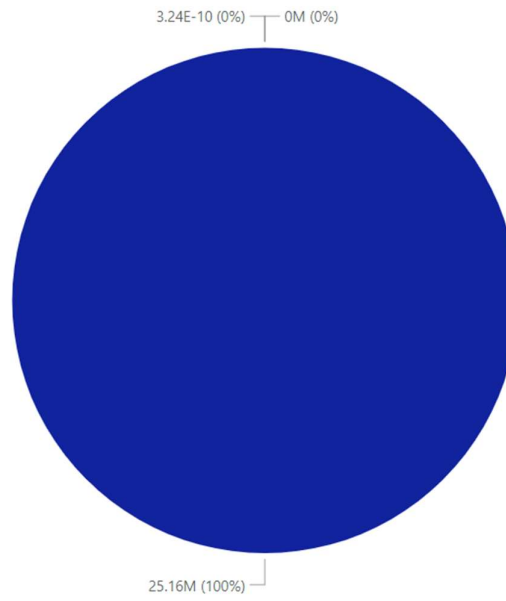






< Back to report

SUM OF CLASS, SUM OF AMOUNT, SUM OF V1, SUM OF TIME, SUM OF V10, SUM OF V11, SUM...



- Sum of Class
- Sum of Amount
- Sum of V1

< Back to report

SUM OF CLASS, SUM OF AMOUNT, SUM OF V1, SUM OF TIME, SUM OF V10, SUM OF V11, SUM...



Sum of Class, Sum of Amount, Sum of V1

