



USYD-2

How to get away with Fraud

Presentation to Skyline Financial Services



NATHAN, HARSH, MATTHEW,
GORDON, NING

Agenda

Problem Statement	3
Context	4
Visualization	5
Model Selection	9
Recommendations	10

Problem Statement

SFS Financial has faced a significant decline in monthly earnings due to a recent surge in fraudulent activities.



Identify Fraud



Find the root causes

Context

**\$4.5 TRILLION IN
GLOBAL
CORPORATIONS
REVENUE LOST
TO FRAUD
GLOBALLY EACH
YEAR**

Source



**Financial
Impact on
Businesses**

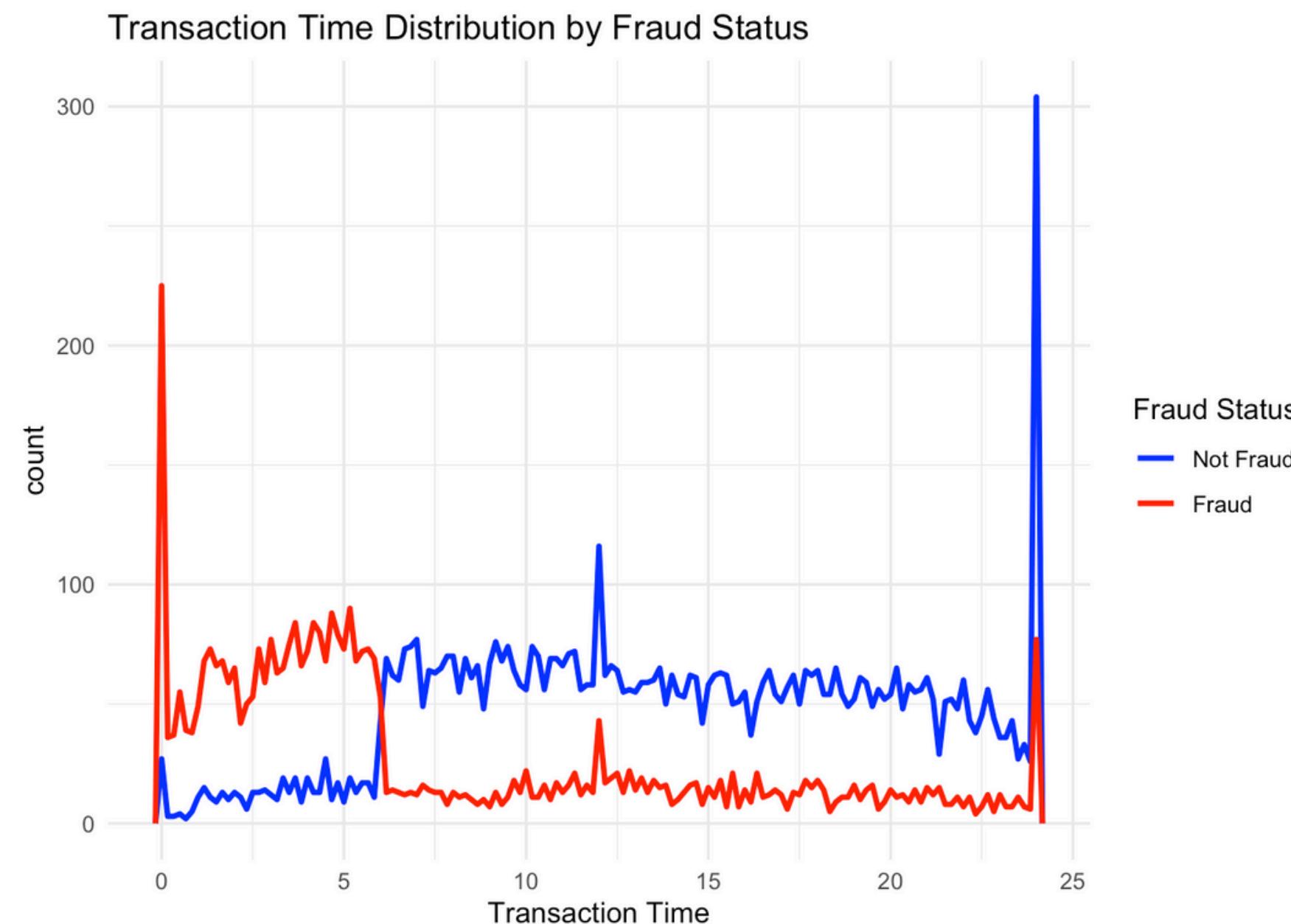


**Impact on
Customers**



**Wider
Economic
Consequences**

Early Morning Transactions



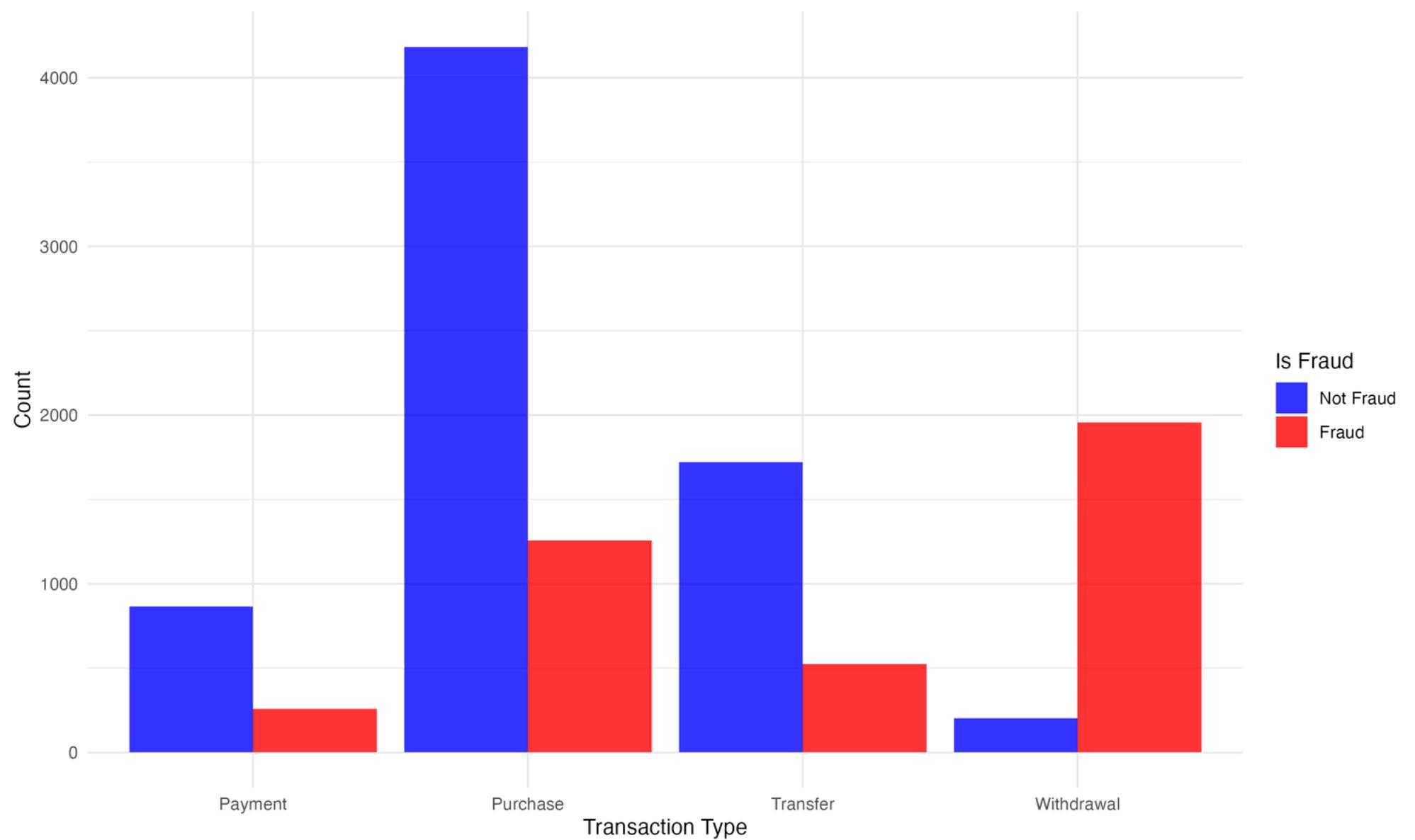
NON-FRAUDULENT TRANSACTIONS

- Automated non-fraudulent transactions typically occur before midnight.
- Standard non-fraudulent transactions generally occur between 6 AM and the rest of the day.

FRAUDULENT TRANSACTIONS

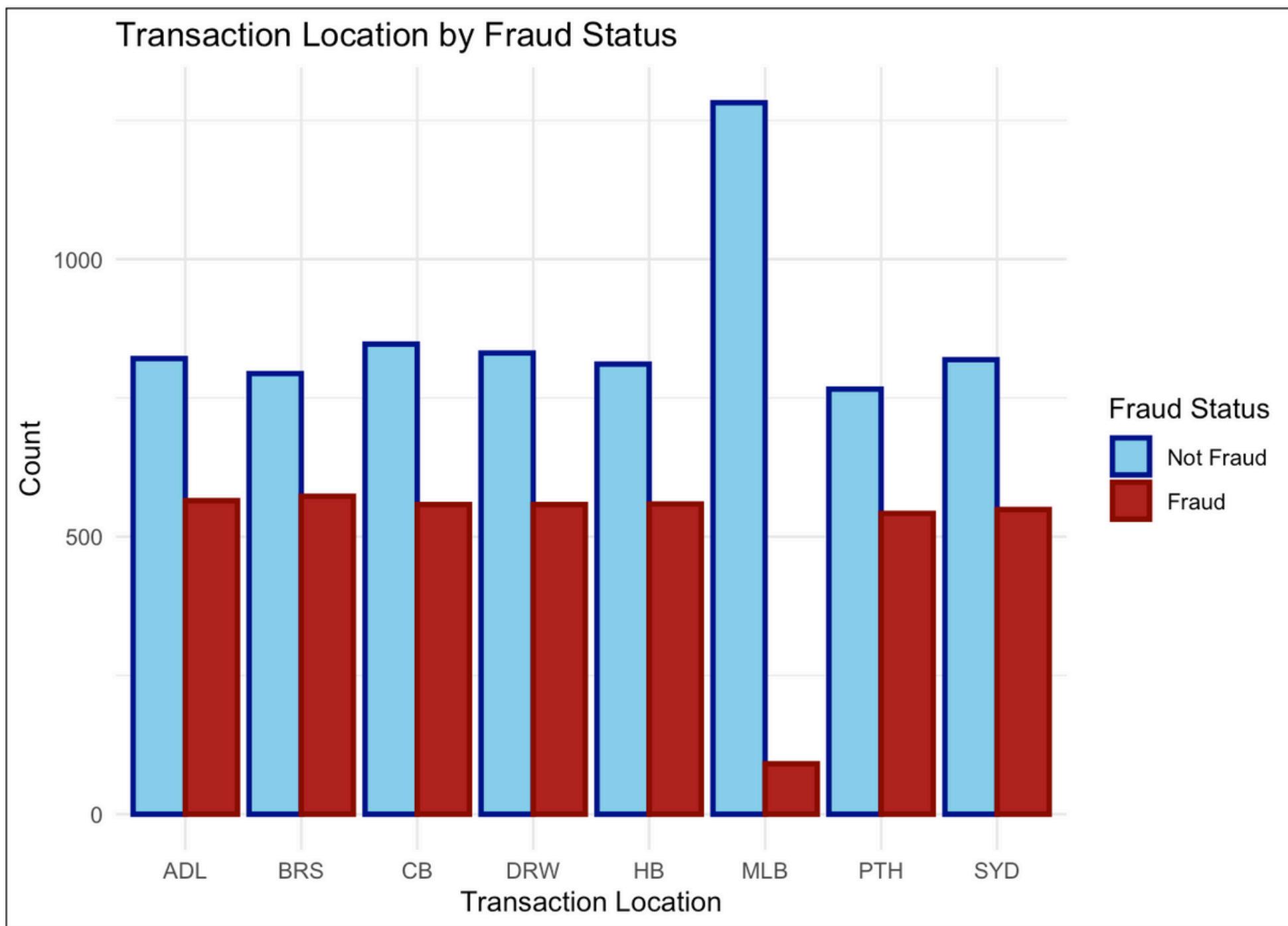
- Likely automated fraudulent transactions tend to occur after midnight.
- Non-automated fraudulent transactions are more likely to happen before 5:30 AM.

Transaction Type



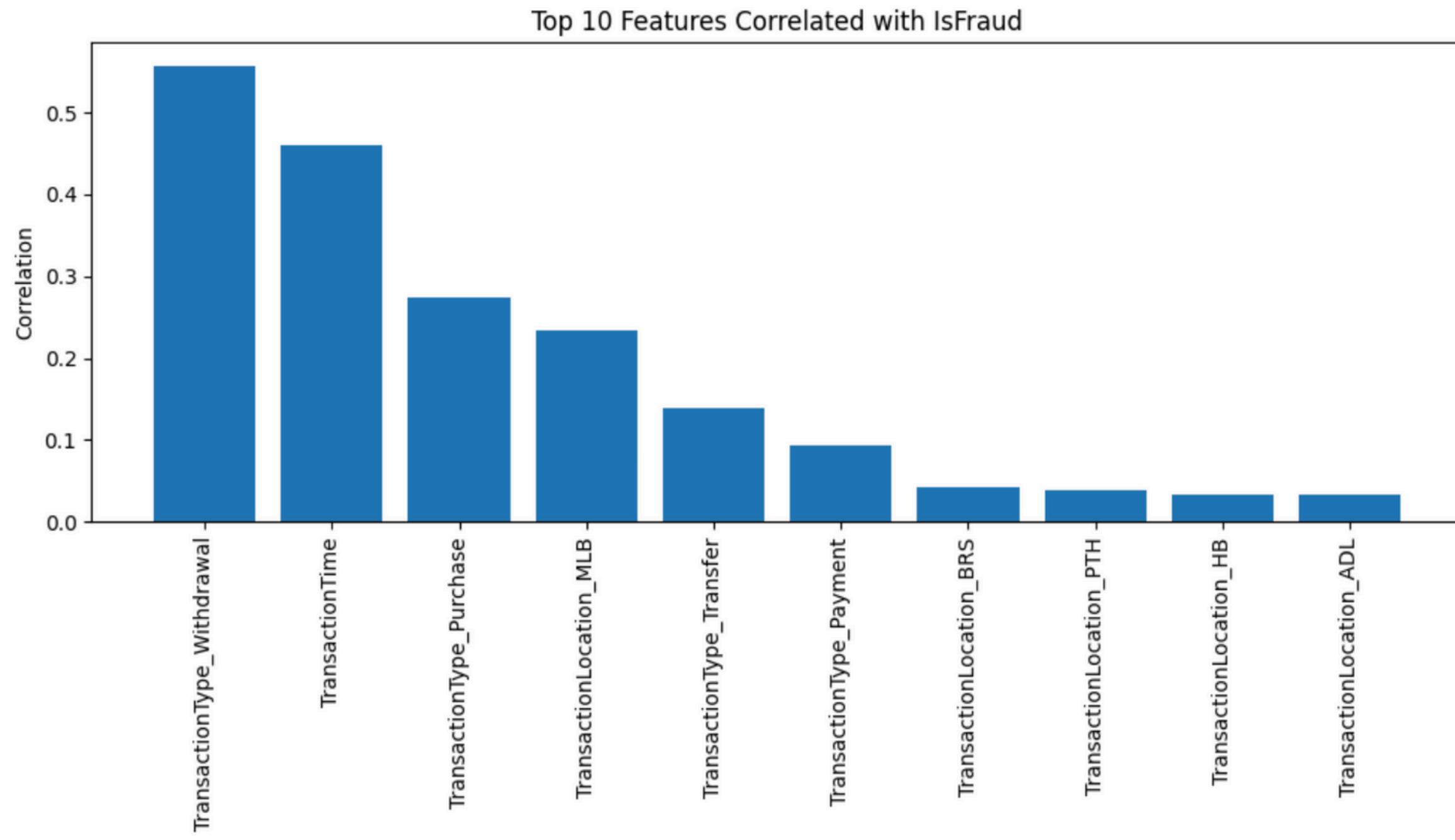
90.6%
of
Withdrawals
are flagged as
fraud

Transaction Location



~5%
of
Transactions
in Melbourne
are Fraudulent

Key Indicators of Fraud



1. Withdrawals
2. Transaction Time
3. Purchases
4. Transactions in Melbourne
5. Transfers

Model Selection

Logistic Regression

- **Finds Hidden Patterns:** The model can spot unexpected connections, like unusual payment methods or amounts, that might indicate fraud.
- **Focuses on Important Details:** It pays special attention to key factors, like specific account behaviors, to better catch suspicious activity.
- **Good with Rare Fraud:** It's built to detect rare fraud cases without getting lost in the many normal transactions.

XGBoost

Random Forest

LightGBM

Naive Bayes

Recommendations

- ◆ **Ditch ATMs:** When was the last time you used one?
- ◆ **Two-Factor Authentication Early in the Morning:** Implement it for added security.
- ◆ **Weekly Fraud Monitoring:** Rerun tests each week to track changes in fraud patterns.
- ◆ **Learn from Melbourne:** See what's working well there!

Thank You!

