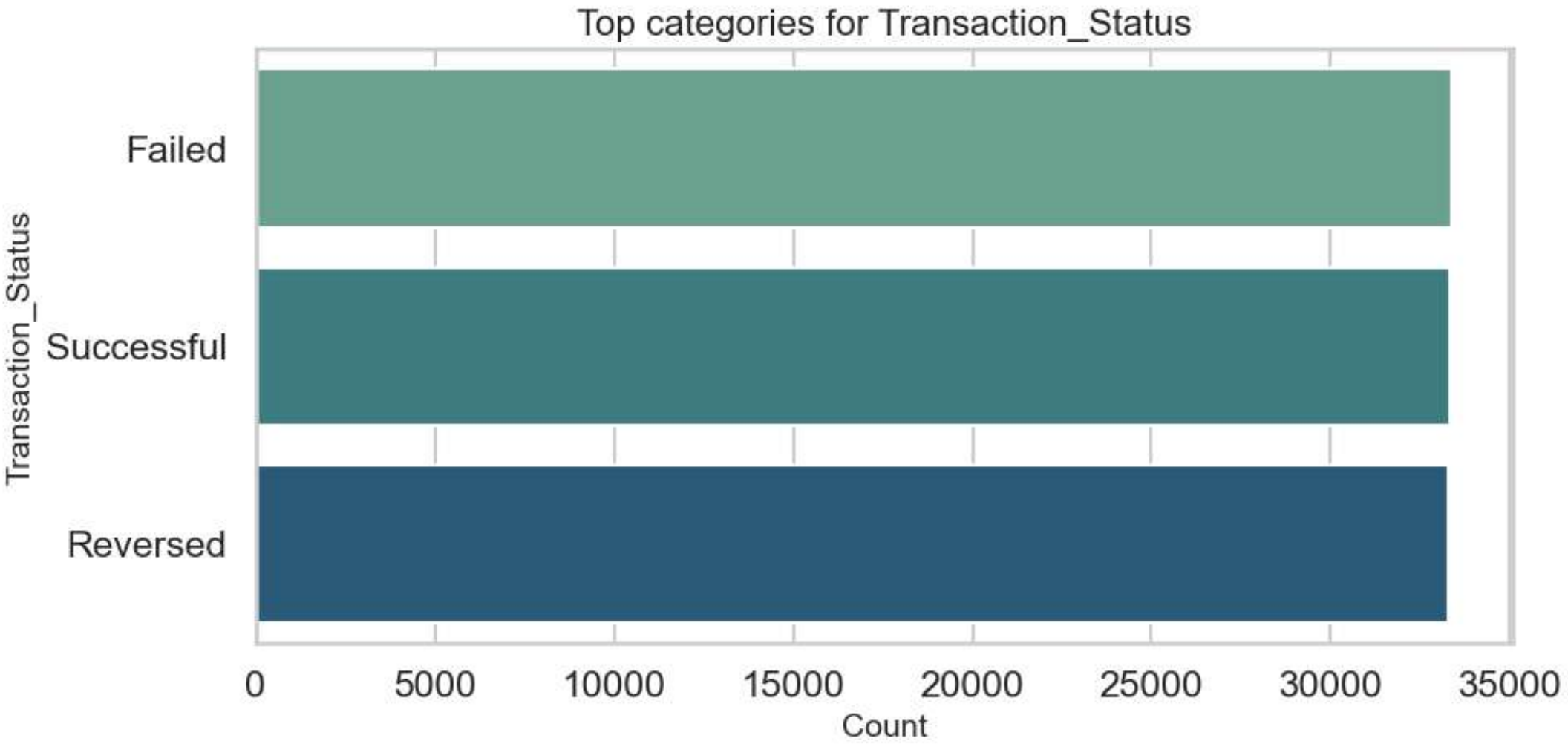
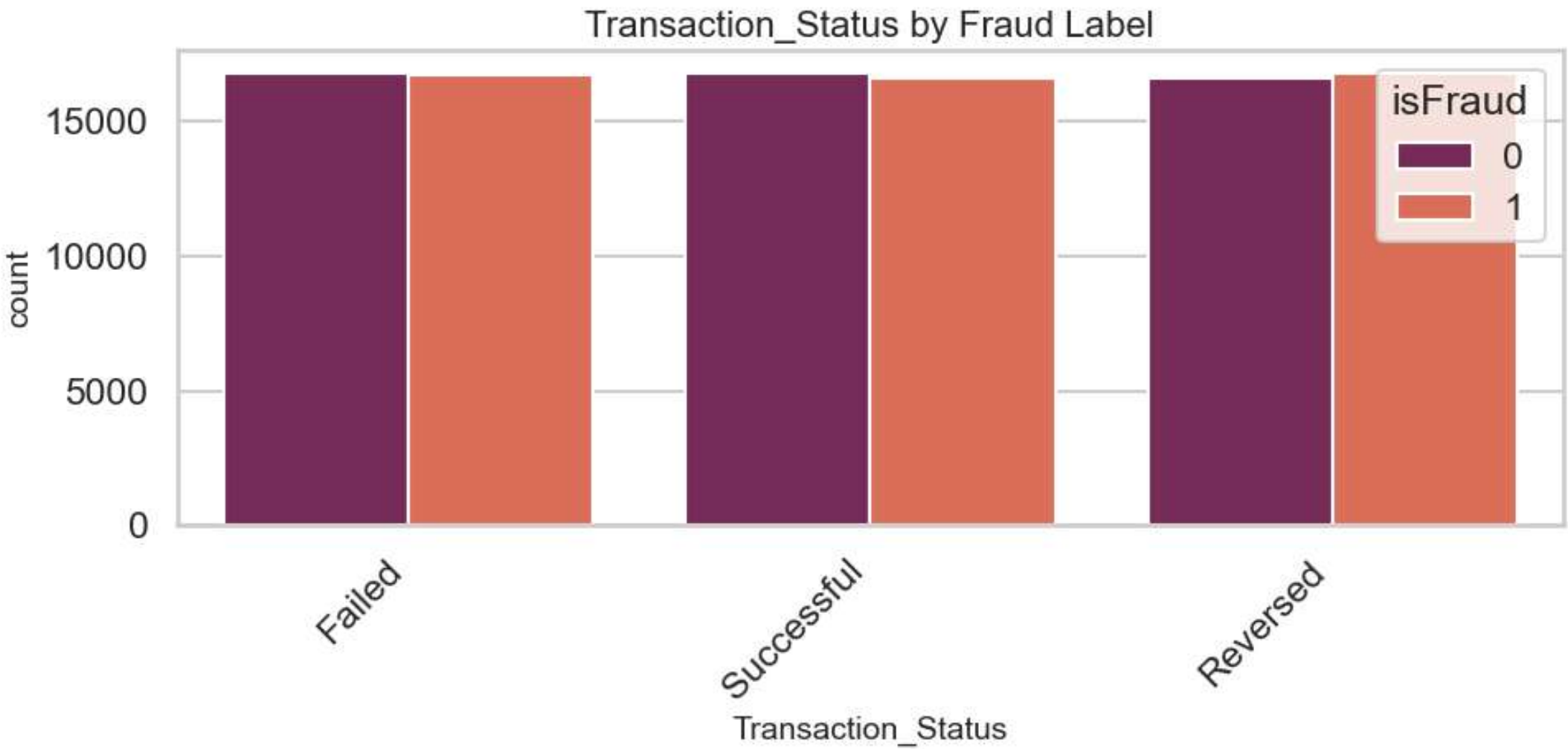
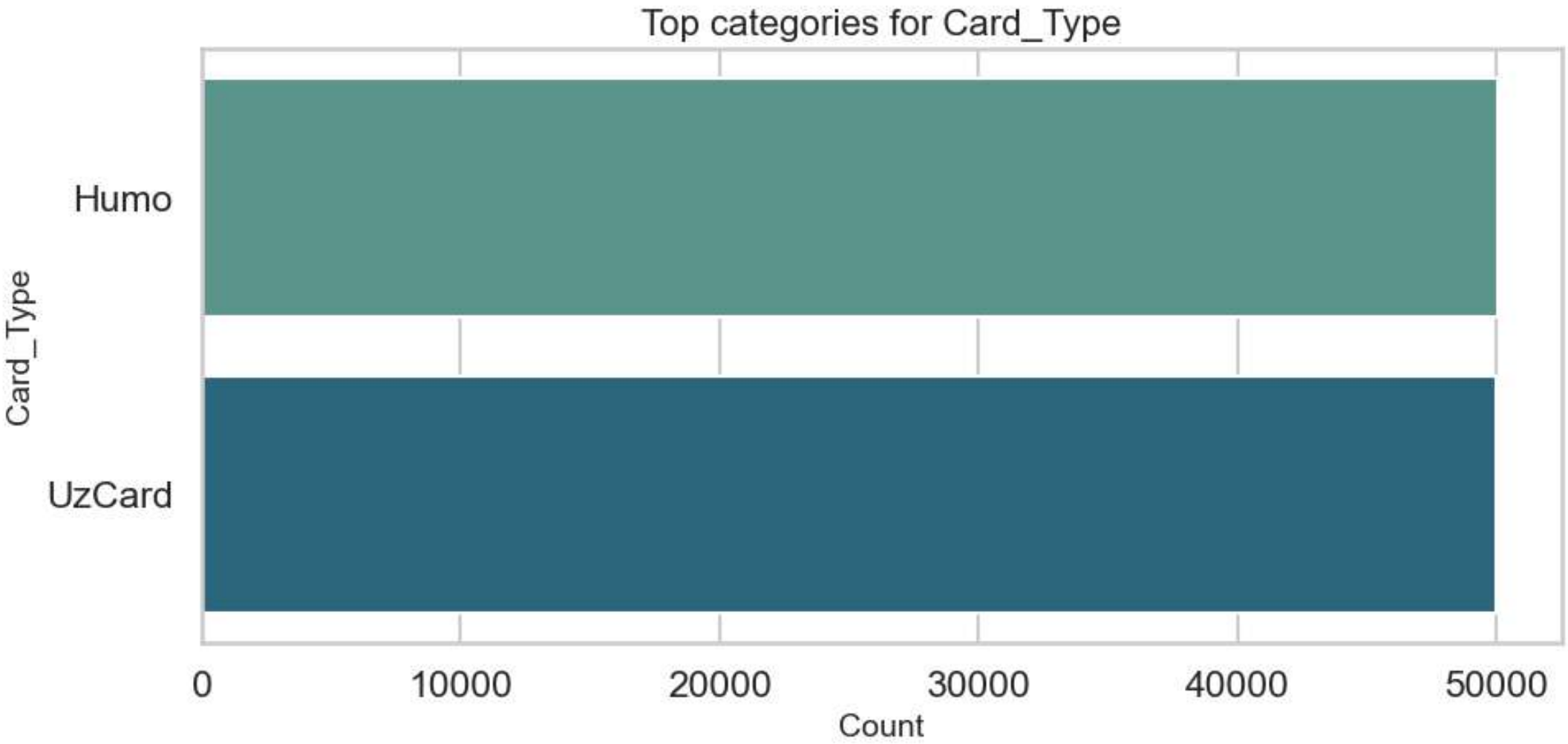
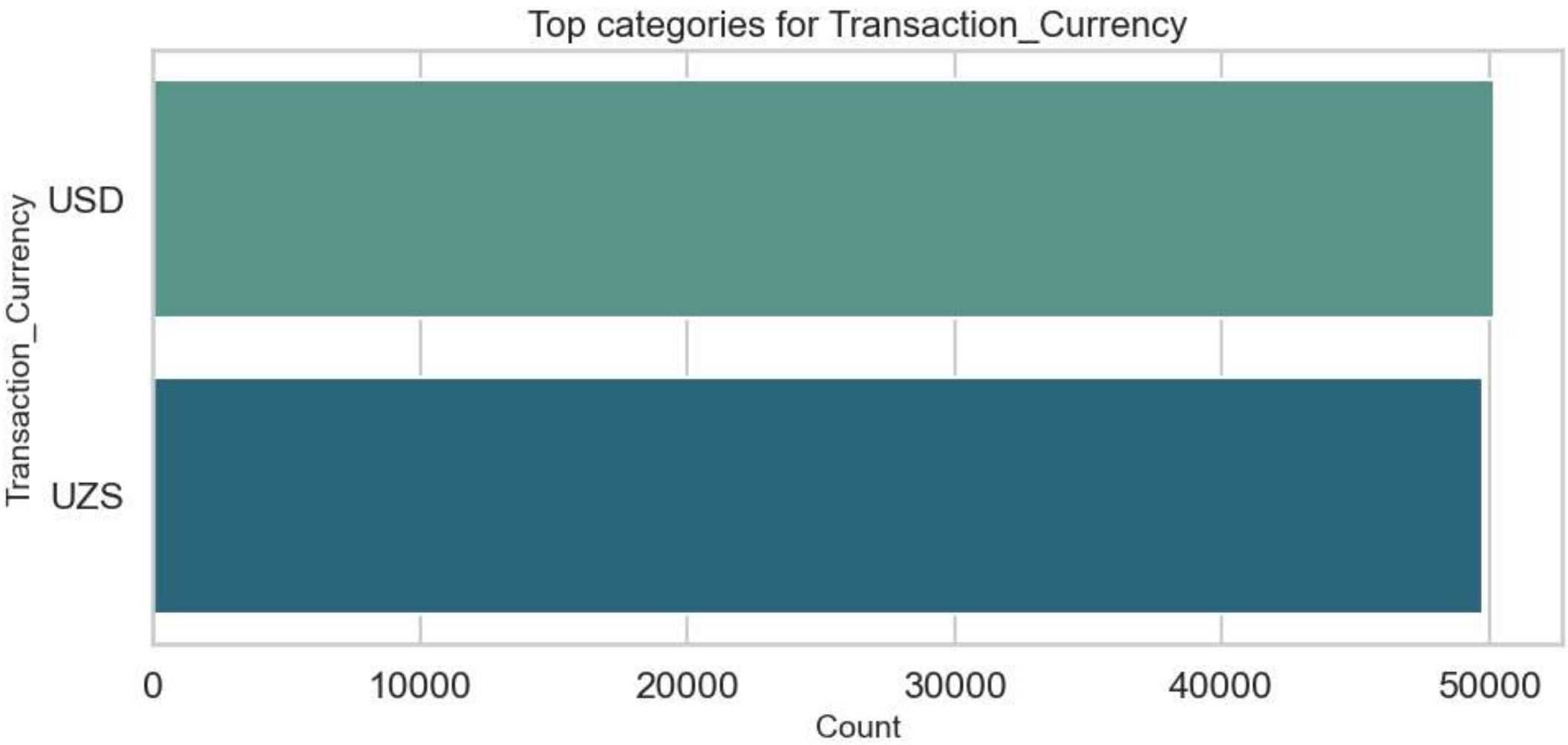

Top categories for Transaction_Status
Transaction_Status
Failed
Successful
Reversed
0
5000
10000
15000
20000
25000
30000
35000
Count

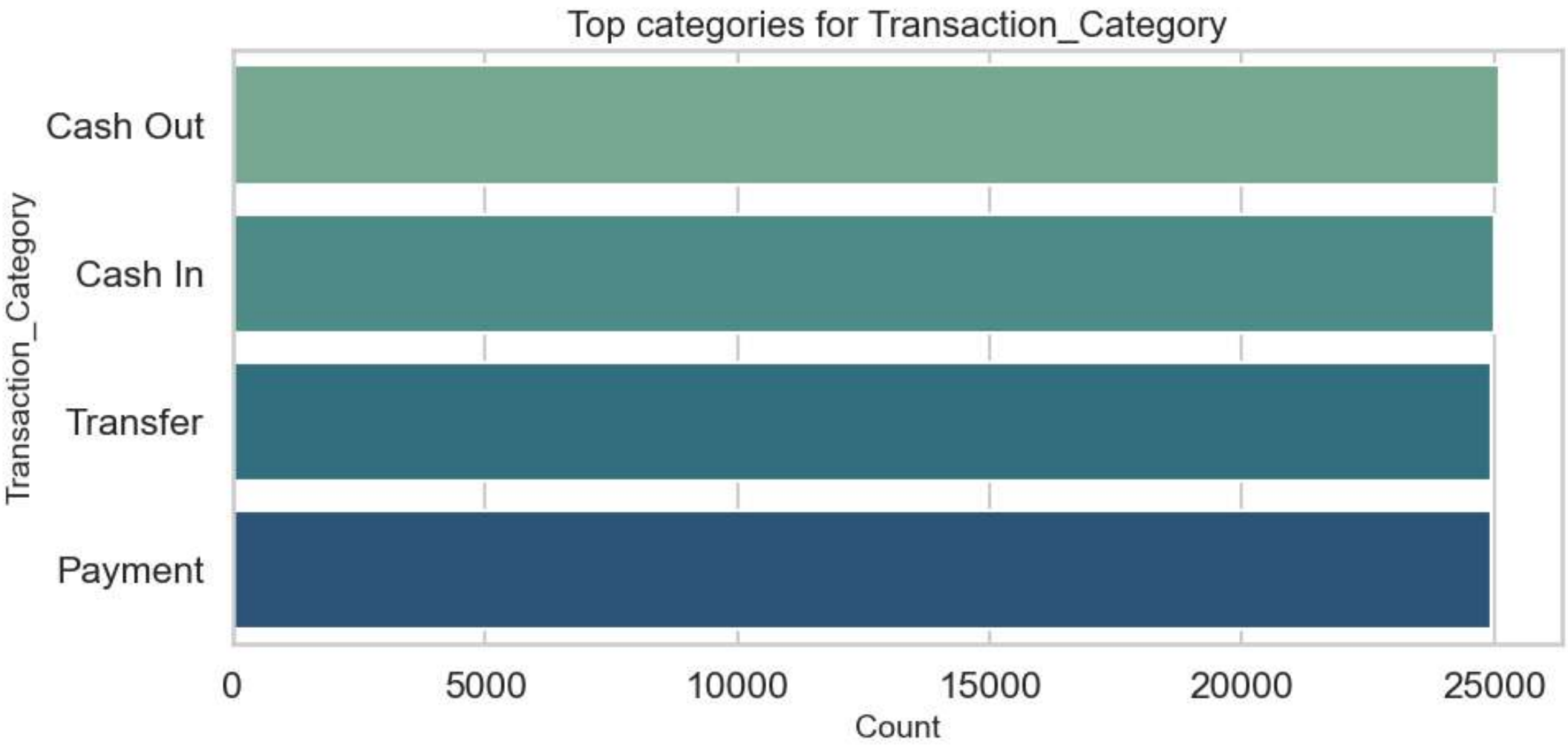

Transaction_Status by Fraud Label
isFraud
0
1
count
15000
10000
5000
0
Failed
Successful
Reversed
Transaction_Status

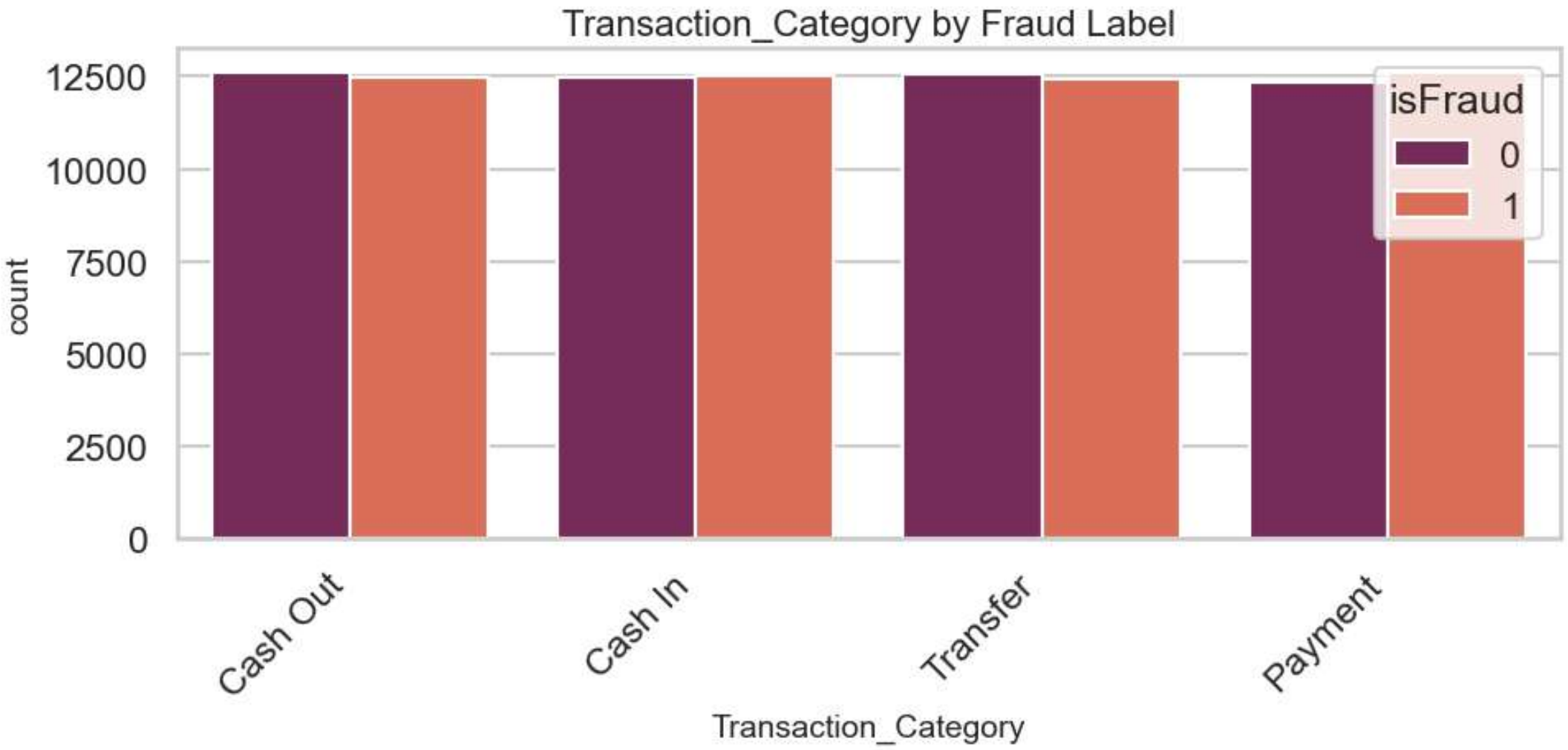

Top categories for Card_Type
Card_Type
Humo
UzCard
0
10000
20000
30000
40000
50000
Count

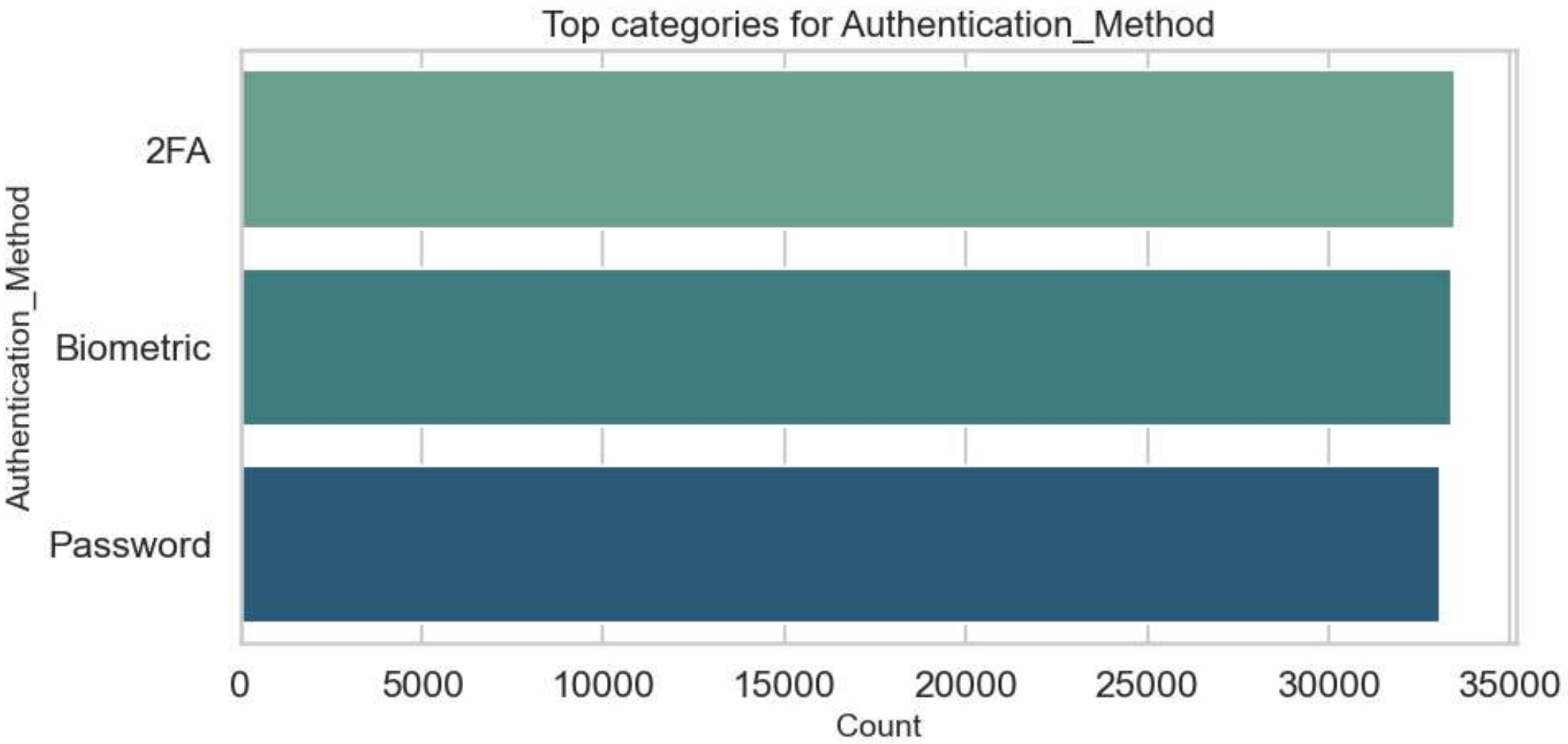
Card_Type by Fraud Label
25000
20000
15000
10000
5000
0
count
isFraud
0
1
Humo
UzCard
Card_Type

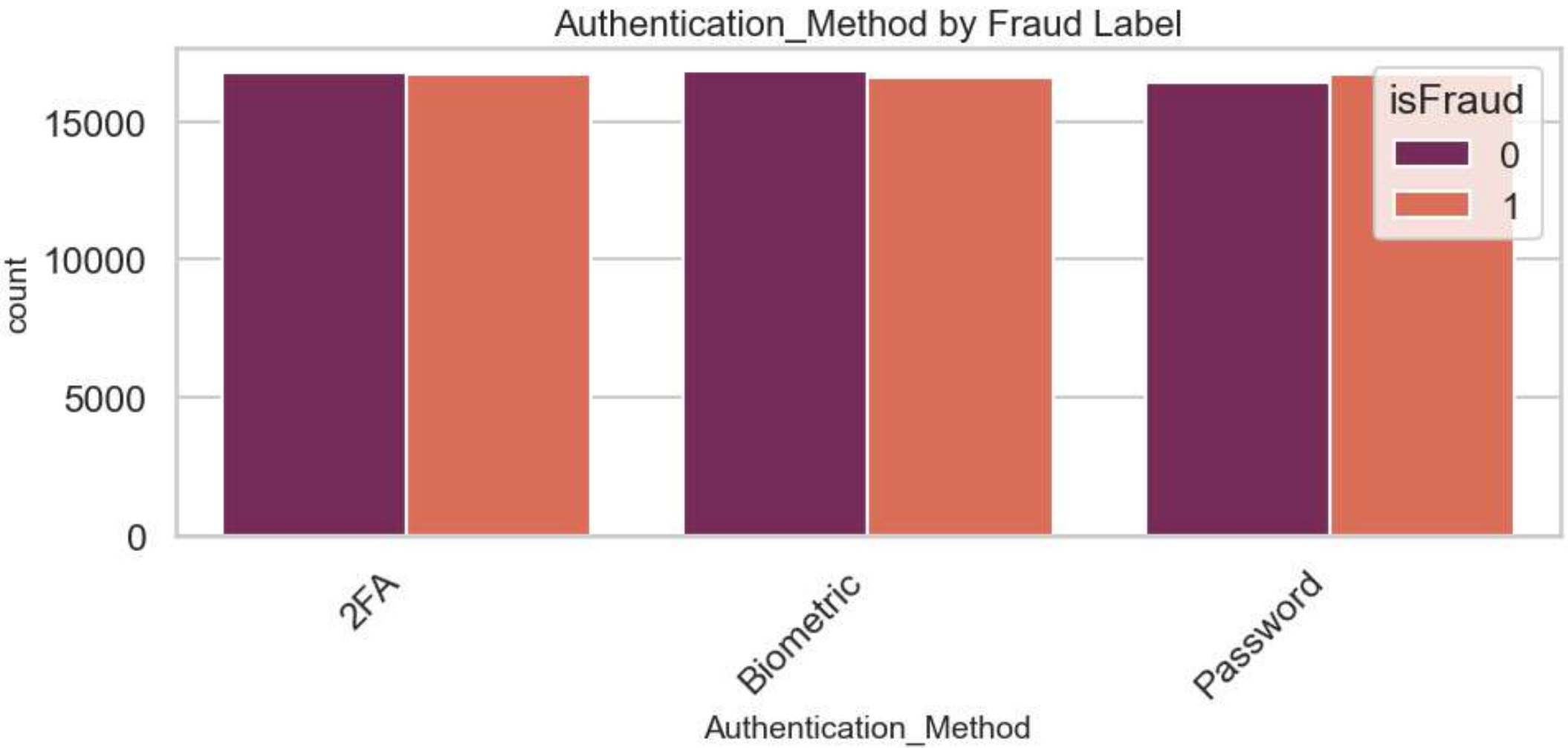

Top categories for Transaction_Currency
Transaction_Currency
USD
UZS
0
10000
20000
30000
40000
50000
Count

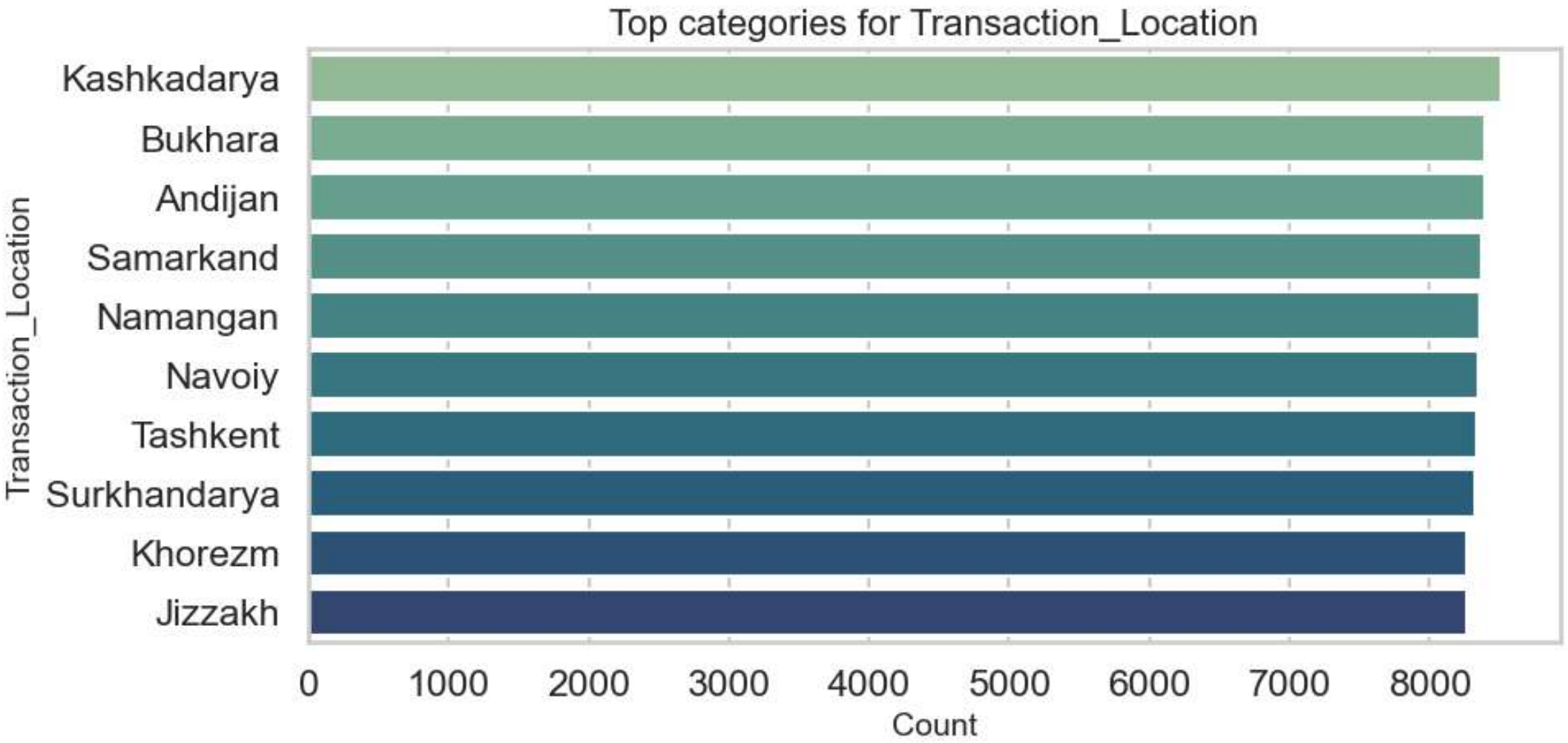
Transaction_Currency by Fraud Label
25000
20000
15000
10000
5000
0
count
isFraud
0
1
USD
UZS
Transaction_Currency


Top categories for Transaction_Category
Cash Out
Cash In
Transfer
Payment
Transaction_Category
0
5000
10000
15000
20000
25000
Count

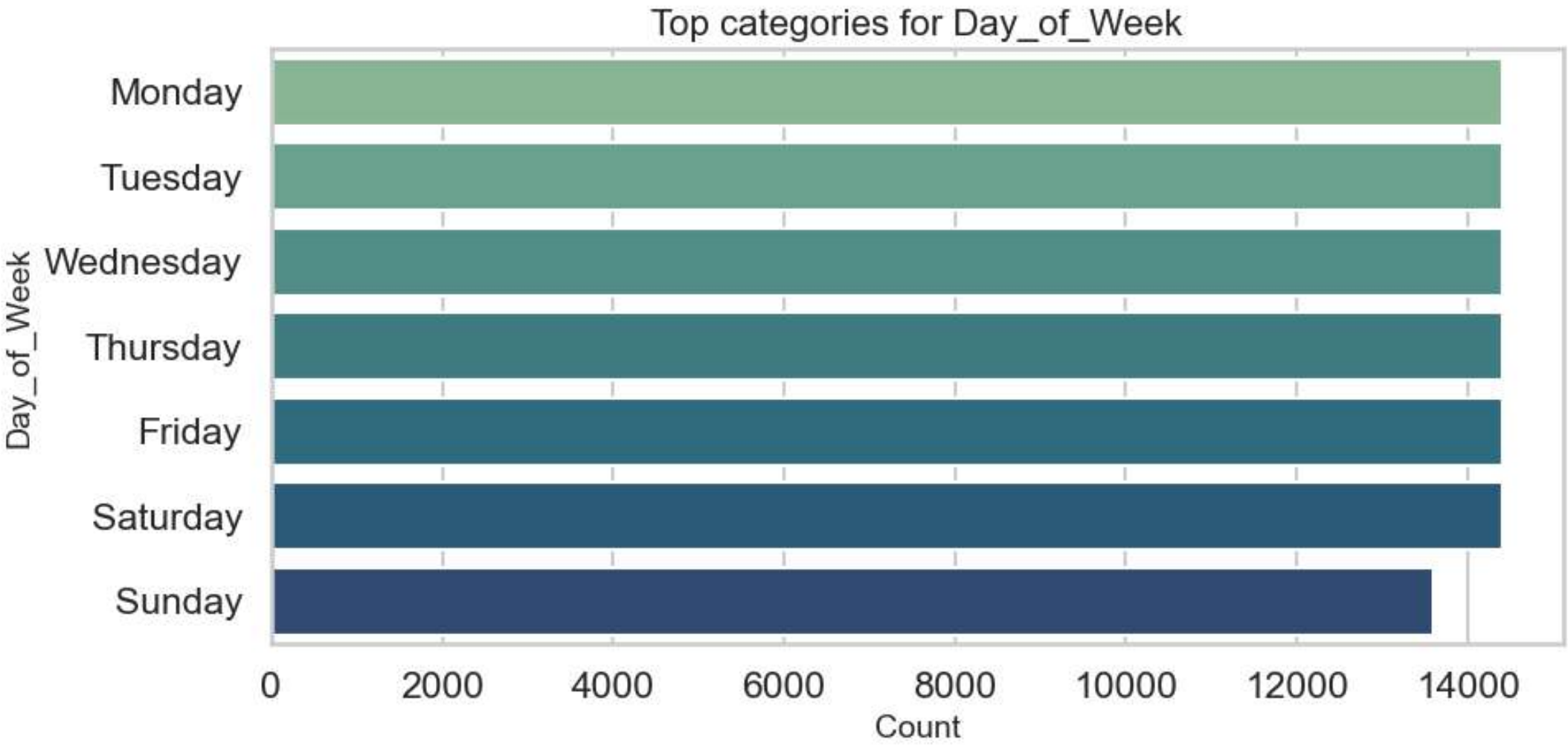

Transaction_Category by Fraud Label
12500
10000
7500
5000
2500
0
count
isFraud
0
1
Cash Out
Cash In
Transfer
Payment
Transaction_Category

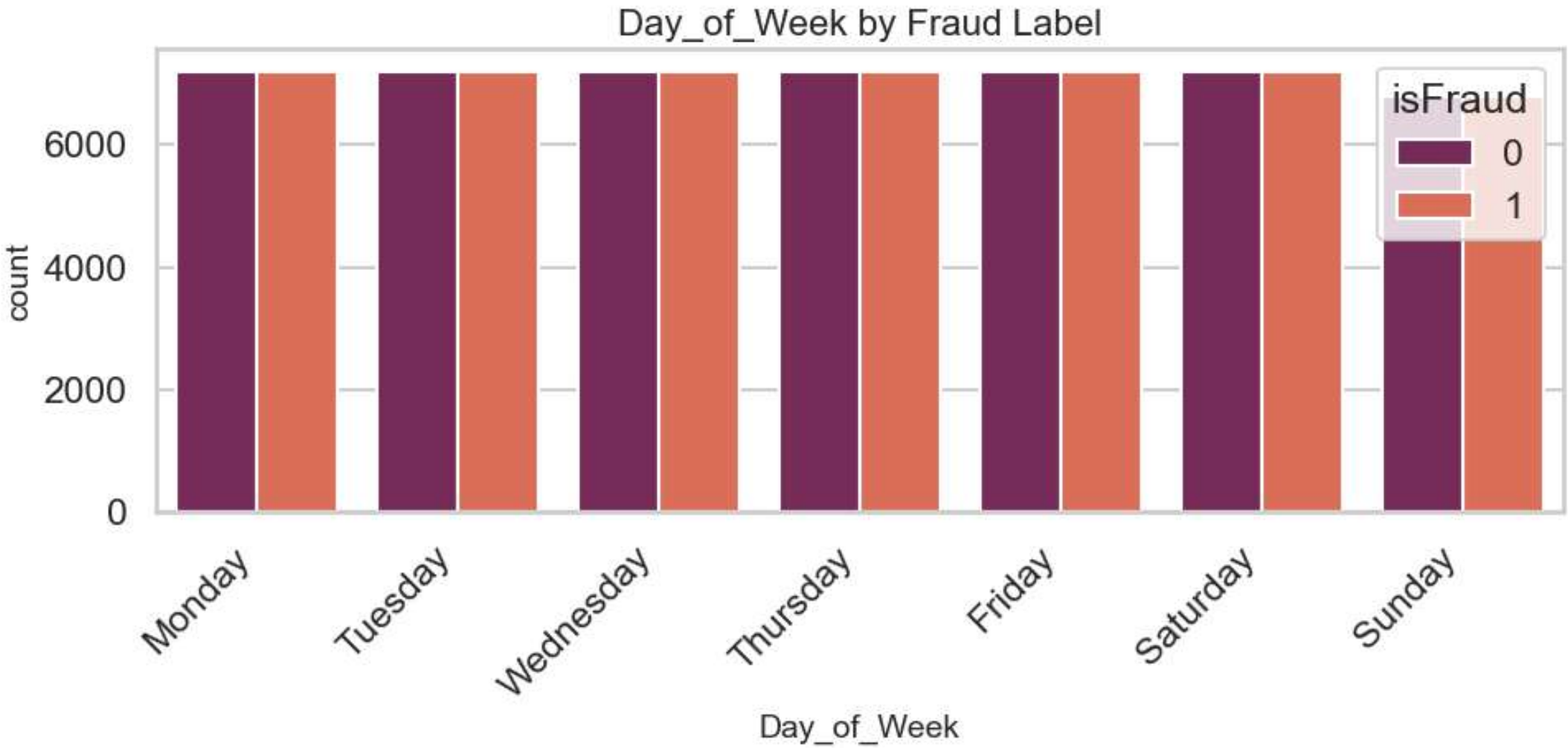

Top categories for Authentication_Method
Authentication_Method
2FA
Biometric
Password
0
5000
10000
15000
20000
25000
30000
35000
Count

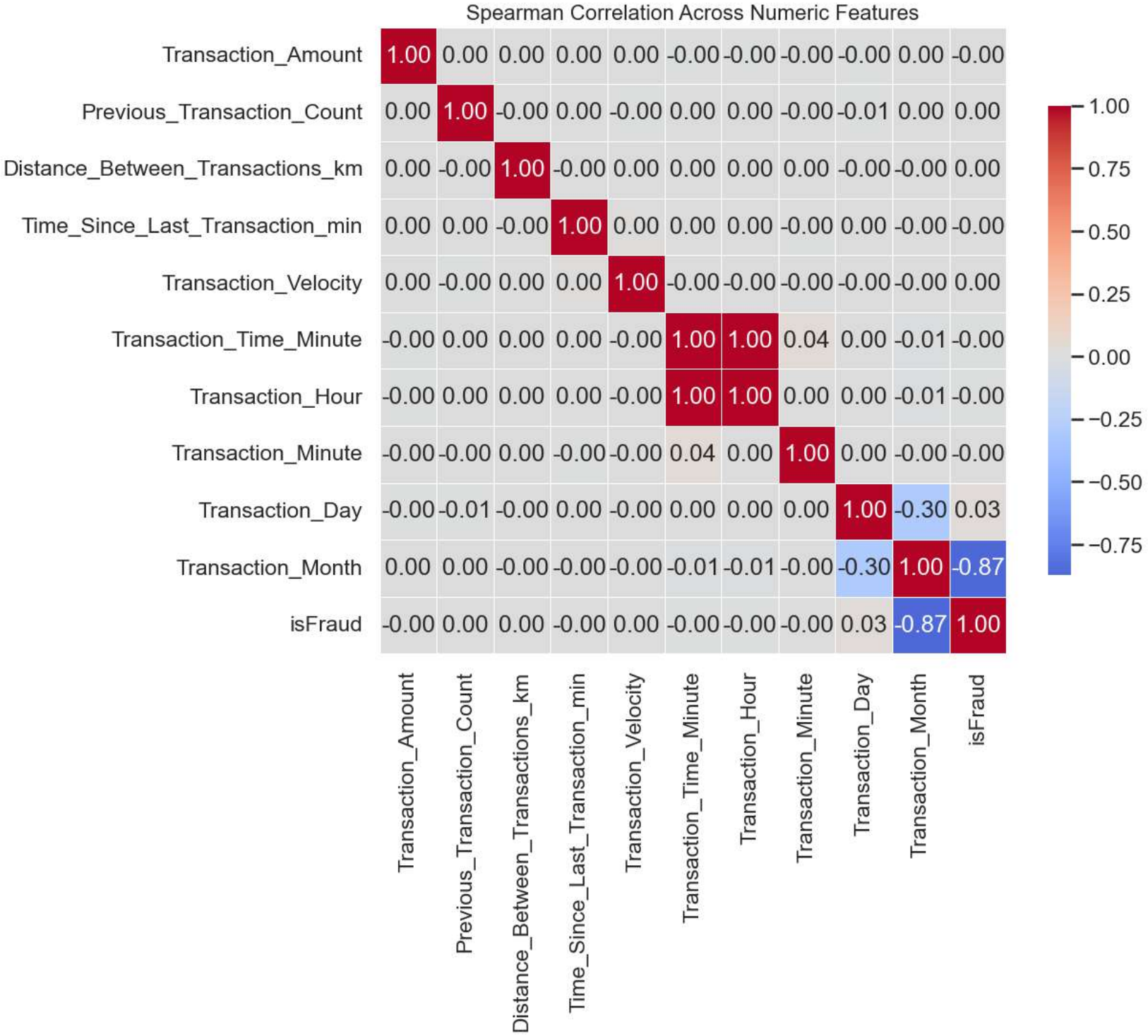

Authentication_Method by Fraud Label
isFraud
0
1
count
15000
10000
5000
0
2FA
Biometric
Password
Authentication_Method

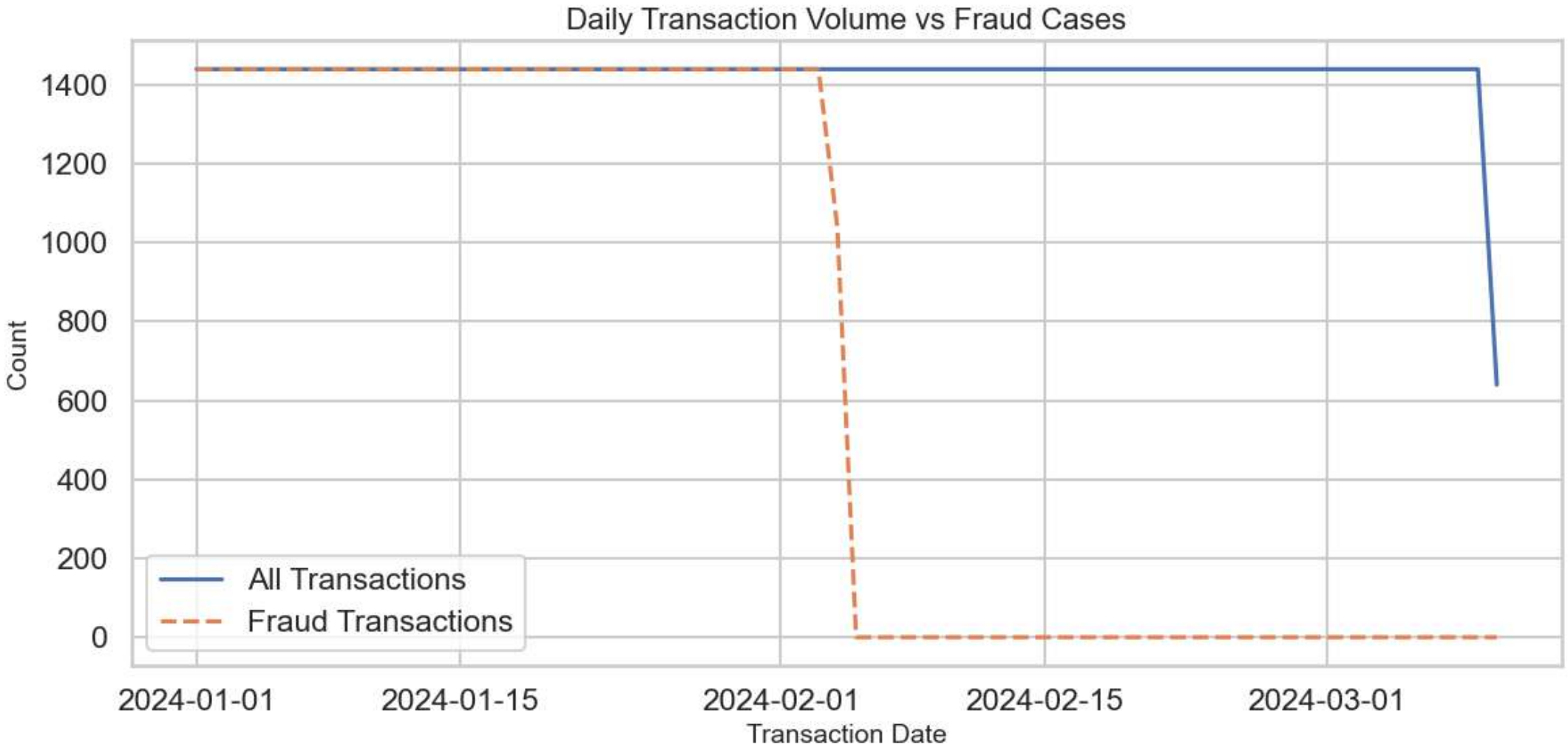

Top categories for Transaction_Location
Transaction_Location
Kashkadarya
Bukhara
Andijan
Samarkand
Namangan
Navoiy
Tashkent
Surkhandarya
Khorezm
Jizzakh
0
1000
2000
3000
4000
5000
6000
7000
8000
Count

Transaction_Location by Fraud Label
isFraud
0
1
count
4000
3000
2000
1000
0
Kashkadarya
Bukhara
Andijan
Samarkand
Namangan
Navoiy
Tashkent
Surkhandarya
Khorezm
Jizzakh
Transaction_Location


Top categories for Day_of_Week
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Day_of_Week
0
2000
4000
6000
8000
10000
12000
14000
Count


Day_of_Week by Fraud Label
isFraud
0
1
count
6000
4000
2000
0
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Day_of_Week


Spearman Correlation Across Numeric Features
Transaction_Amount 1.00 0.00 0.00 0.00 0.00 -0.00 -0.00 -0.00 -0.00 0.00 -0.00
Previous_Transaction_Count 0.00 1.00 -0.00 0.00 -0.00 0.00 0.00 -0.00 -0.01 0.00 0.00
Distance_Between_Transactions_km 0.00 -0.00 1.00 -0.00 0.00 0.00 0.00 0.00 -0.00 -0.00 0.00
Time_Since_Last_Transaction_min 0.00 0.00 -0.00 1.00 0.00 0.00 0.00 -0.00 0.00 -0.00 -0.00
Transaction_Velocity 0.00 -0.00 0.00 0.00 1.00 -0.00 -0.00 -0.00 -0.00 -0.00 0.00
Transaction_Time_Minute -0.00 0.00 0.00 0.00 -0.00 1.00 1.00 0.04 0.00 -0.01 -0.00
Transaction_Hour -0.00 0.00 0.00 0.00 -0.00 1.00 1.00 0.00 0.00 -0.01 -0.00
Transaction_Minute -0.00 -0.00 0.00 -0.00 -0.00 0.04 0.00 1.00 0.00 -0.00 -0.00
Transaction_Day -0.00 -0.01 -0.00 0.00 -0.00 0.00 0.00 0.00 1.00 -0.30 0.03
Transaction_Month 0.00 0.00 -0.00 -0.00 -0.00 -0.01 -0.01 -0.00 -0.30 1.00 -0.87
isFraud -0.00 0.00 0.00 -0.00 0.00 -0.00 -0.00 -0.00 0.03 -0.87 1.00
Transaction_Amount
Previous_Transaction_Count
Distance_Between_Transactions_km
Time_Since_Last_Transaction_min
Transaction_Velocity
Transaction_Time_Minute
Transaction_Hour
Transaction_Minute
Transaction_Day
Transaction_Month
isFraud
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75


Daily Transaction Volume vs Fraud Cases
Count
1400
1200
1000
800
600
400
200
0
All Transactions
Fraud Transactions
2024-01-01
2024-01-15
2024-02-01
2024-02-15
2024-03-01
Transaction Date

Transaction_Amount by Fraud Label
1e8
1.0
0.8
0.6
0.4
0.2
0.0
Transaction_Amount
0
1
isFraud

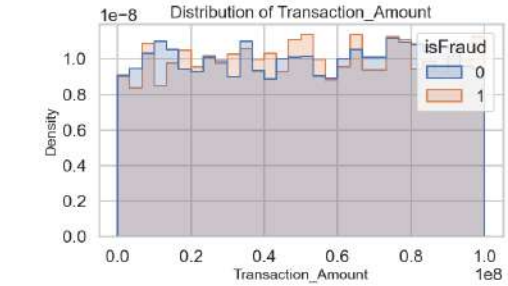
Distance_Between_Transactions_km by Fraud Label
Distance_Between_Transactions_km
5000
4000
3000
2000
1000
0
0
1
isFraud

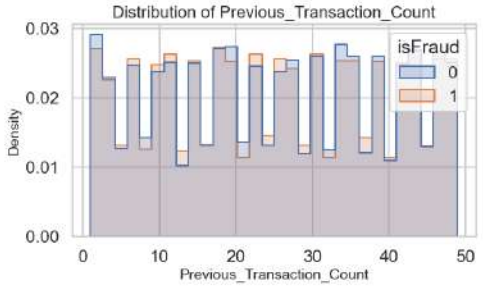
Time_Since_Last_Transaction_min by Fraud Label
Time_Since_Last_Transaction_min
1500
1250
1000
750
500
250
0
0
1
isFraud

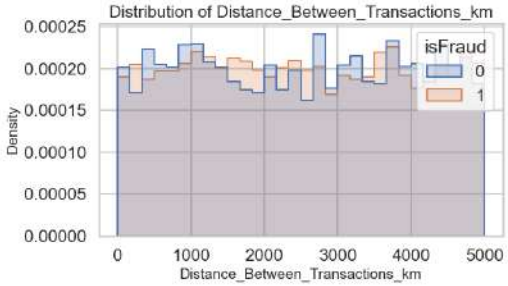
Transaction_Velocity by Fraud Label
Transaction_Velocity
8
6
4
2
0
1
isFraud

Transaction_Time_Minute by Fraud Label
Transaction_Time_Minute
1500
1250
1000
750
500
250
0
0
1
isFraud

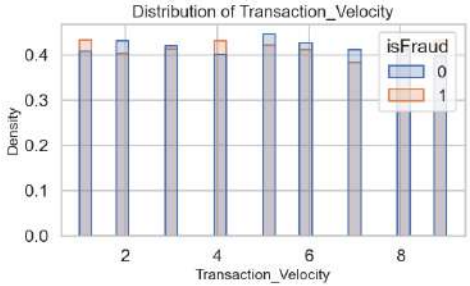
Fraud Label Distribution
50000
40000
30000
20000
10000
0
Number of Transactions
0
1
isFraud

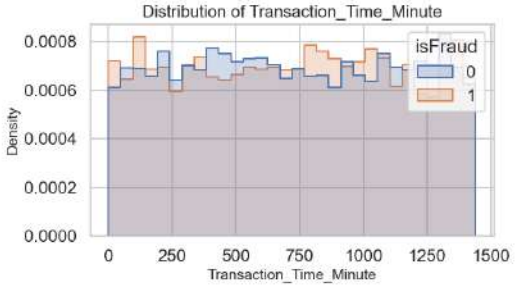

Distribution of Transaction_Amount
1e−8
1e8
Transaction_Amount
Density
isFraud
0
1

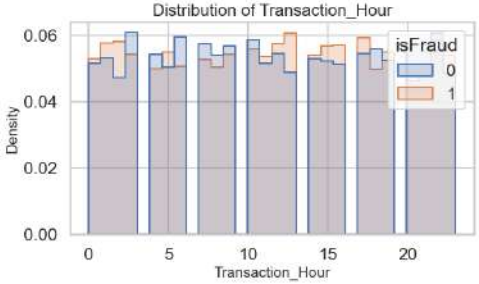

Distribution of Previous_Transaction_Count
Previous_Transaction_Count
Density
isFraud
0
1

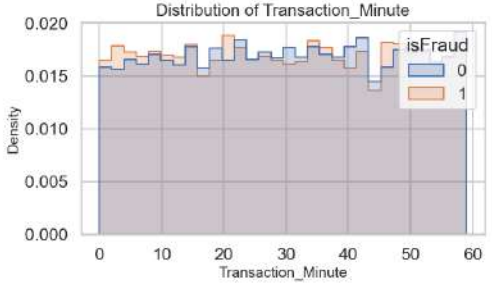

Distribution of Distance_Between_Transactions_km
Distance_Between_Transactions_km
Density
isFraud
0
1

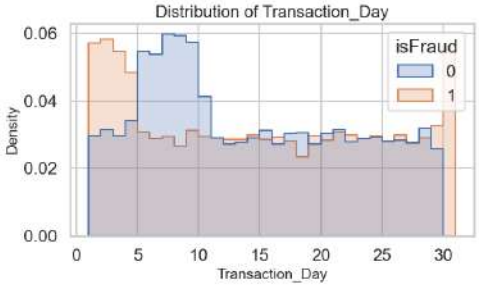
Distribution of Time_Since_Last_Transaction_min
Time_Since_Last_Transaction_min
Density
isFraud
0
1

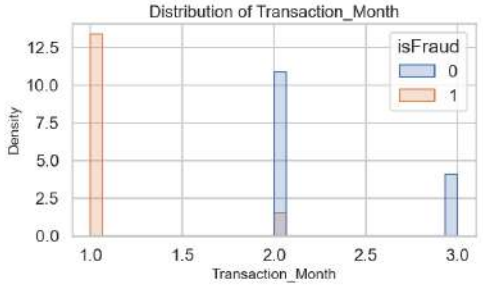

Distribution of Transaction_Velocity
Transaction_Velocity
Density
isFraud
0
1

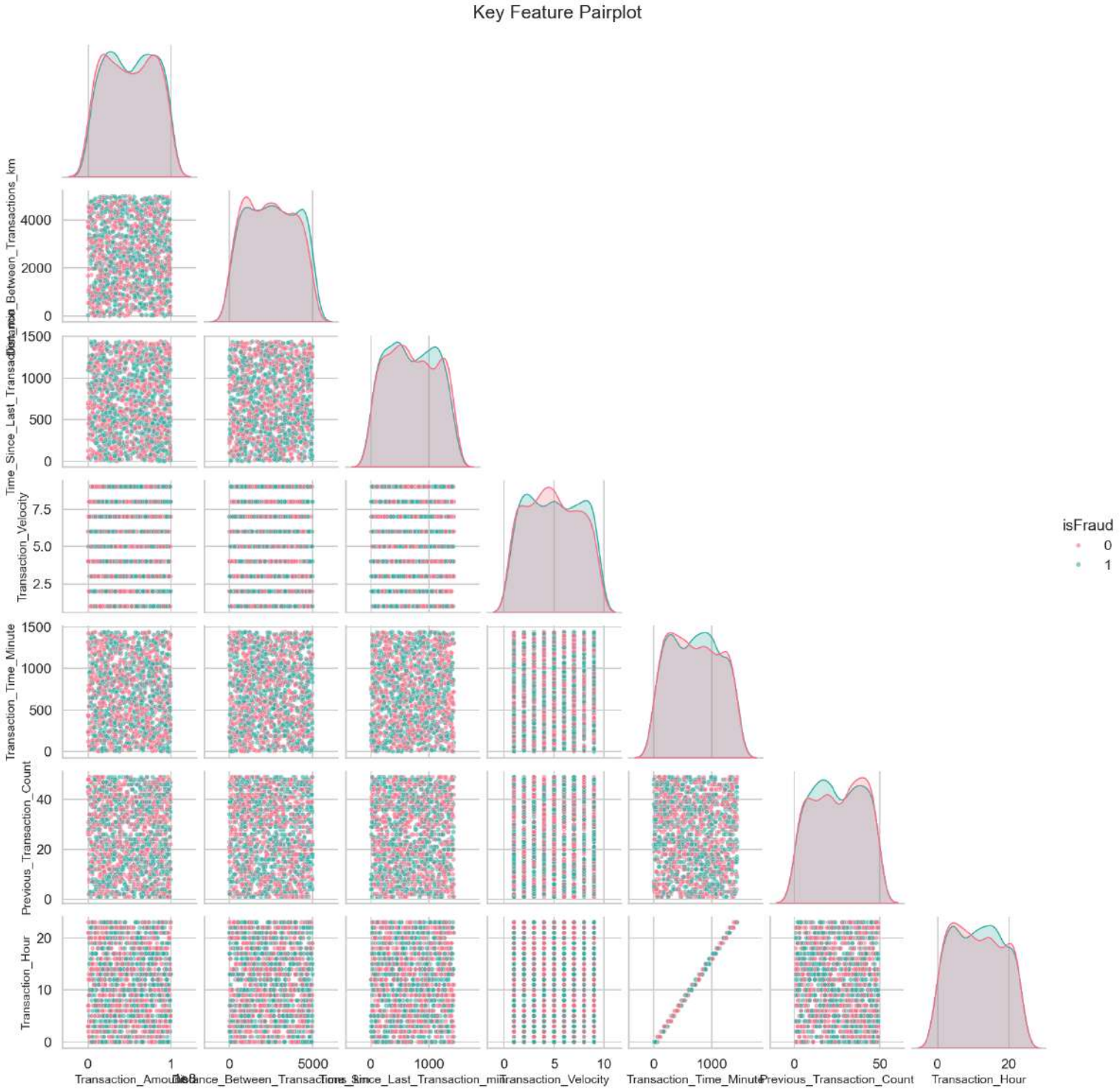

Distribution of Transaction_Time_Minute
Transaction_Time_Minute
Density
isFraud
0
1

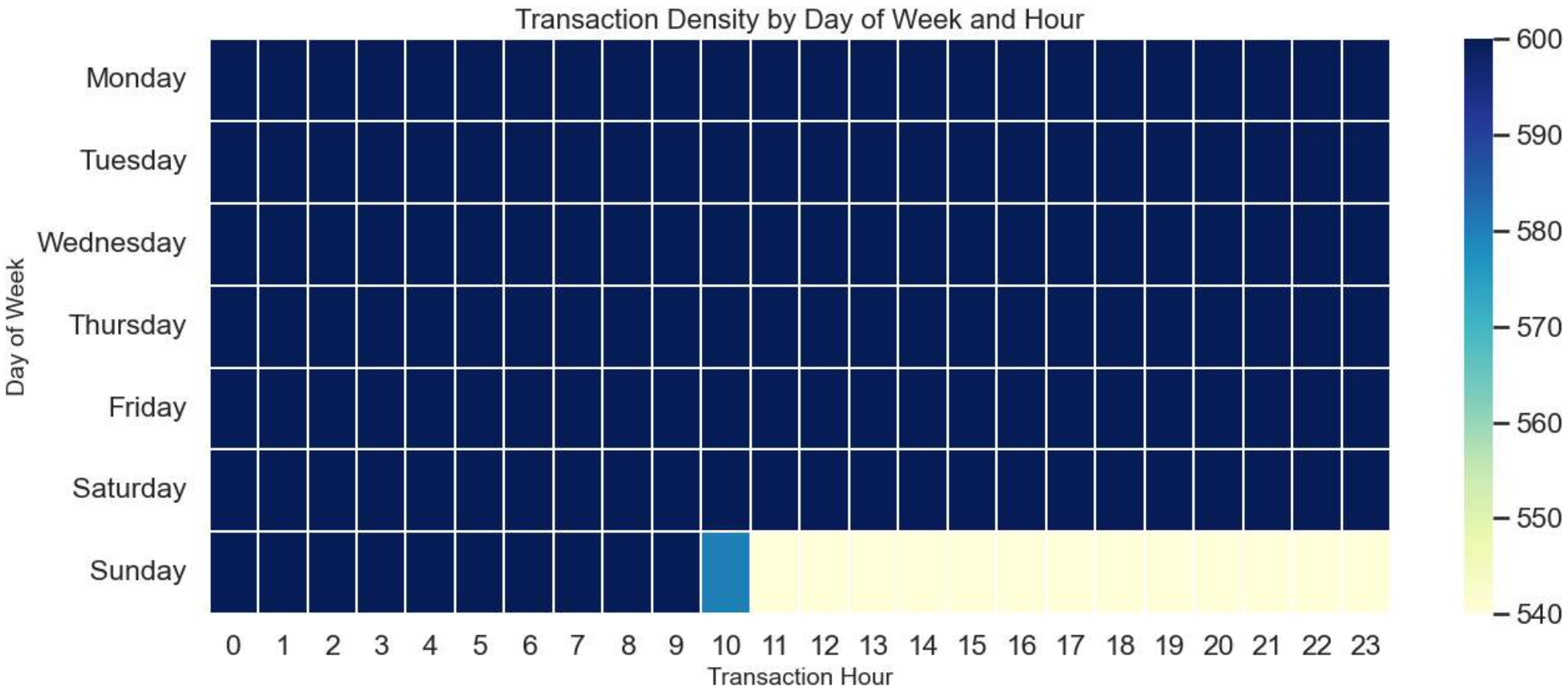

Distribution of Transaction_Hour
Transaction_Hour
Density
isFraud
0
1


Distribution of Transaction_Minute
Transaction_Minute
Density
isFraud
0
1


Distribution of Transaction_Day
Transaction_Day
Density
isFraud
0
1


Distribution of Transaction_Month
Transaction_Month
Density
isFraud
0
1


Key Feature Pairplot
isFraud
0
1
Transaction_Amount
Distance_Between_Transactions_km
Time_Since_Last_Transaction_min
Transaction_Velocity
Transaction_Time_Minute
Previous_Transaction_Count
Transaction_Hour


Transaction Density by Day of Week and Hour
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Day of Week
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Transaction Hour
600
590
580
570
560
550
540