

CREDIT CARD TRANSACTION ANALYSIS

**BY
DEVANG JETLEY**

OBJECTIVE

UNDERSTAND USER BEHAVIOR, SPENDING PATTERNS, FRAUD RISK, AND MERCHANT-RELATED INSIGHTS BASED ON CREDIT CARD TRANSACTIONS. THE GOAL IS TO IMPROVE OPERATIONAL EFFICIENCY, DETECT POTENTIAL FRAUD, AND ENHANCE CUSTOMER EXPERIENCE.

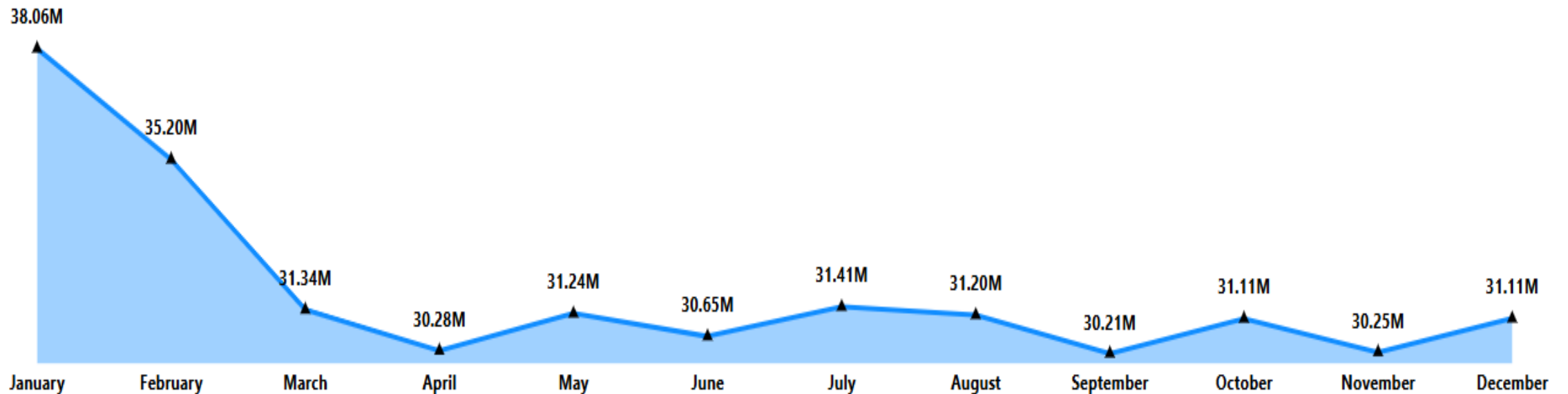
1. **SPENDING BEHAVIOUR ANALYSIS**
2. **CUSTOMER SEGMENTATION AND PATTERNS**
3. **FRAUD DETECTION INSIGHTS**
4. **OPERATIONAL INSIGHTS**

SPENDING BEHAVIOUR ANALYSIS

WHAT ARE THE PEAK SPENDING MONTH?

January sees the highest spending at \$38.06M.

Peak Spending By Month



SPENDING BEHAVIOUR ANALYSIS

WHICH CITIES/STATES SEE THE HIGHEST NUMBER OF TRANSACTION ?

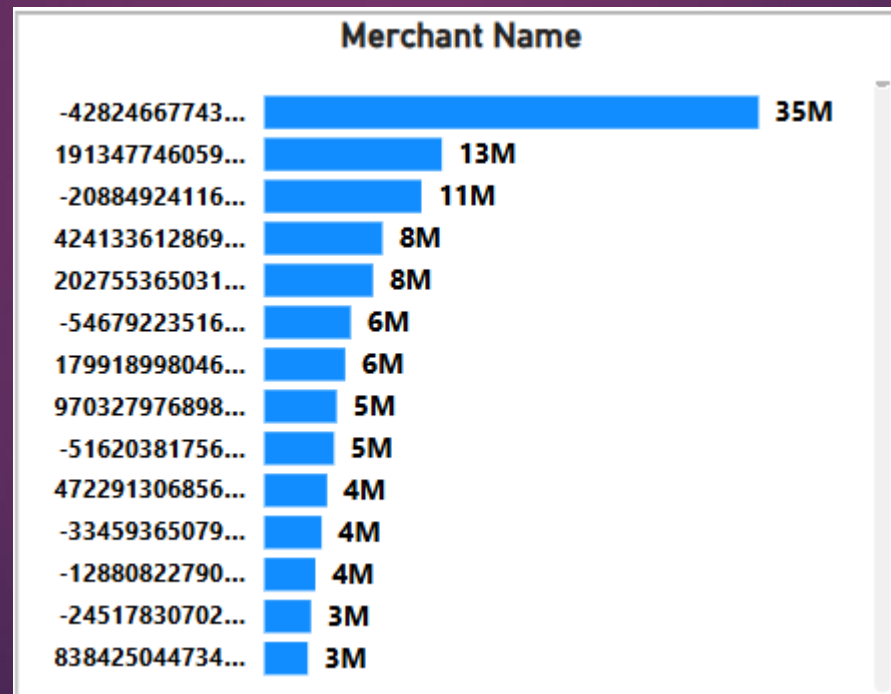
California (CA) with 38.76M transactions.

Merchant State	Sum of Amount
CA	3,87,61,898.95
TX	2,66,04,693.66
NY	2,35,33,830.97
FL	1,93,72,357.69
PA	1,33,84,236.67
IL	1,27,31,197.58
OH	1,11,10,739.99
NC	1,08,23,489.41
NJ	98,83,870.68
MI	89,51,838.04
GA	86,83,933.51
TN	83,60,557.79
IN	78,46,546.90

SPENDING BEHAVIOUR ANALYSIS

WHICH MERCHANT OR MCC (MERCHANT CATEGORY CODE) ARE THE MOST POPULAR ?

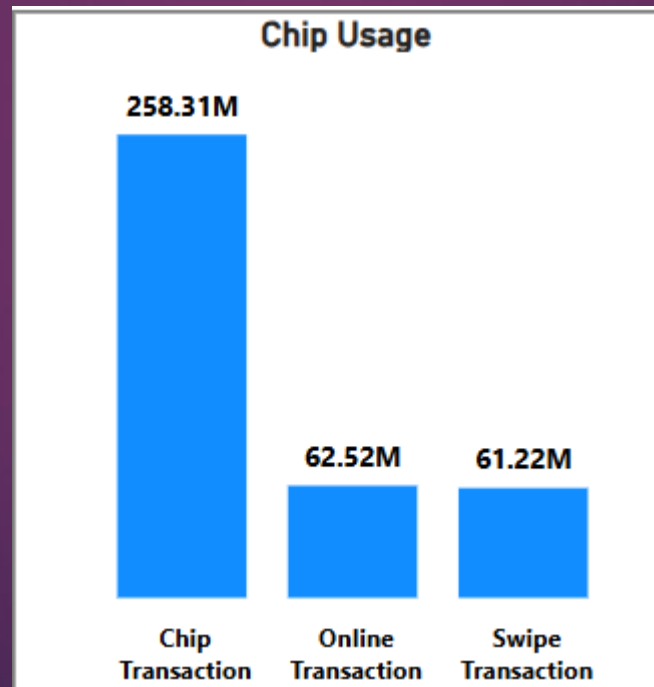
Merchant ID -42822466774399734331 with \$35M in transactions.



SPENDING BEHAVIOUR ANALYSIS

HOW DOES THE CHIP USAGE AFFECT THE TRANSACTION PATTERN ?

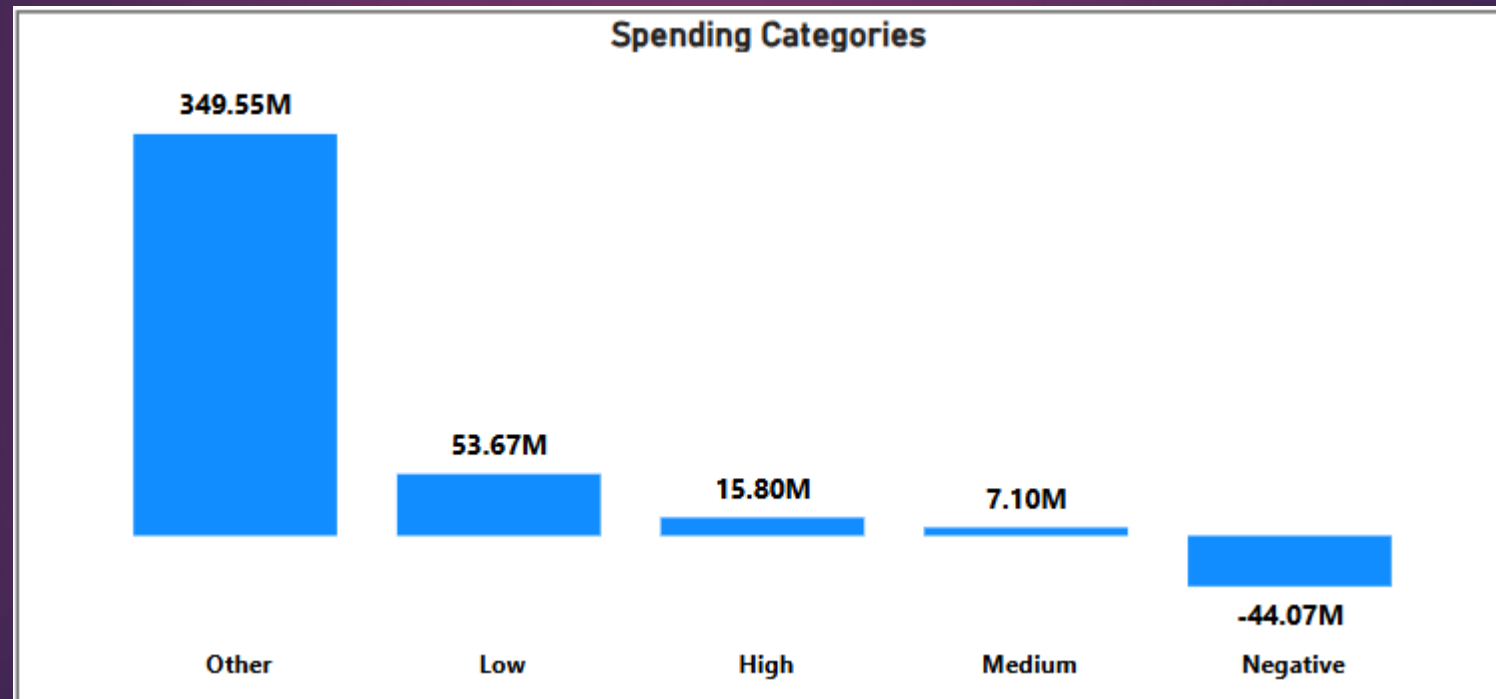
Chip-enabled transactions account for the highest value at \$258.31M.



CUSTOMER SEGMENTATION AND PATTERNS

CLASSIFY USERS INTO SPENDING CATEGORIES ?

The “Others” segment leads with \$349.55M, but includes negative values of -44.07M,



CUSTOMER SEGMENTATION AND PATTERNS

WHICH USER MAKE THE MOST TRANSACTION, AND WHAT IS THEIR AVERAGE TRANSACTION VALUE?

User 1150 has the most transactions (20.8K) and a total spend of \$1.27M (Avg: \$62.32K).

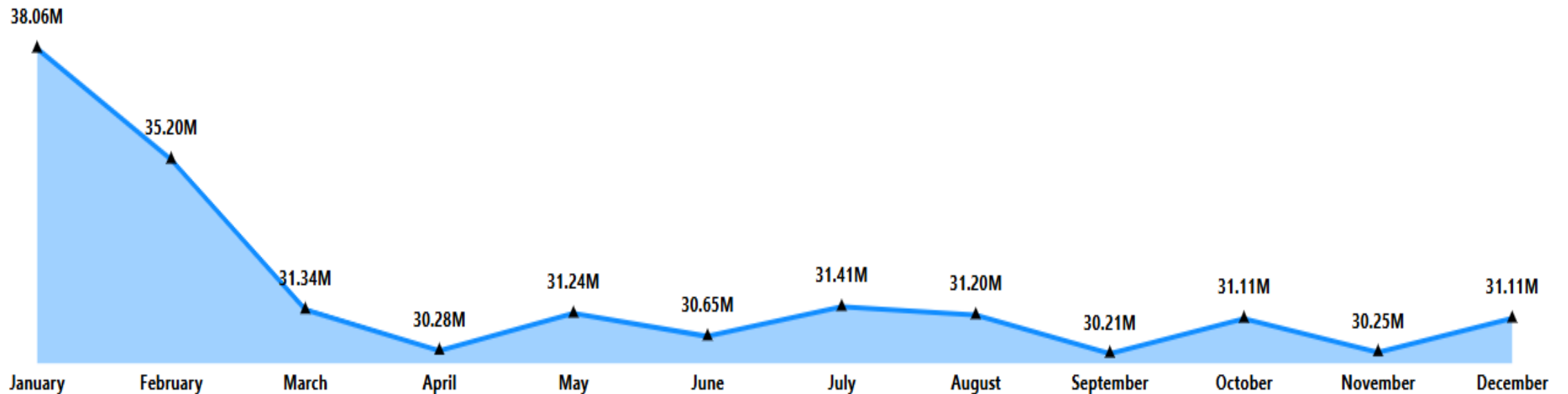
User	Sum of Amount	Count of Amount	Average of Amount
1150	12,74,227.87	20448	62.32
39	11,86,898.13	14391	82.48
458	11,39,055.74	10545	108.02
331	10,65,019.91	11637	91.52
319	10,32,159.47	8051	128.20
1671	9,82,077.90	14330	68.53
658	8,71,734.05	11334	76.91
588	8,67,101.30	11244	77.12
1888	8,54,921.72	16145	52.95
486	8,51,612.93	16785	50.74
1974	8,44,390.17	12577	67.14
648	8,41,286.96	16370	51.39
1880	8,15,462.13	6432	126.78
1006	8,07,969.09	11101	72.78

CUSTOMER SEGMENTATION AND PATTERNS

ARE THERE SEASONAL TRENDS IN TRANSACTIONS PER USER?

Transactions peak in January with \$38.06M, indicating possible holiday/seasonal influence.

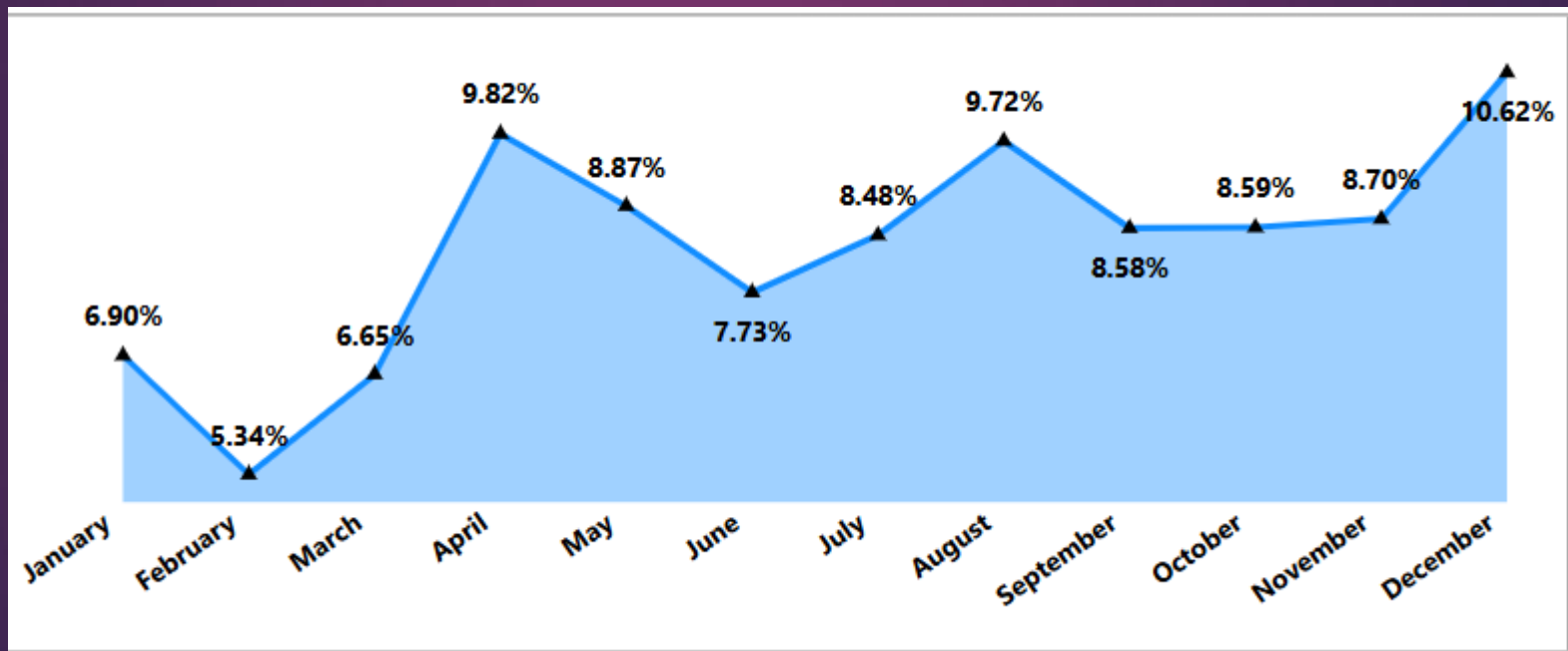
Peak Spending By Month



FRAUD DETECTION INSIGHTS

ARE THERE SPECIFIC PATTERNS IN TIME, LOCATION OR MERCHANT FOR FRAUDULENT TRANSACTION ?

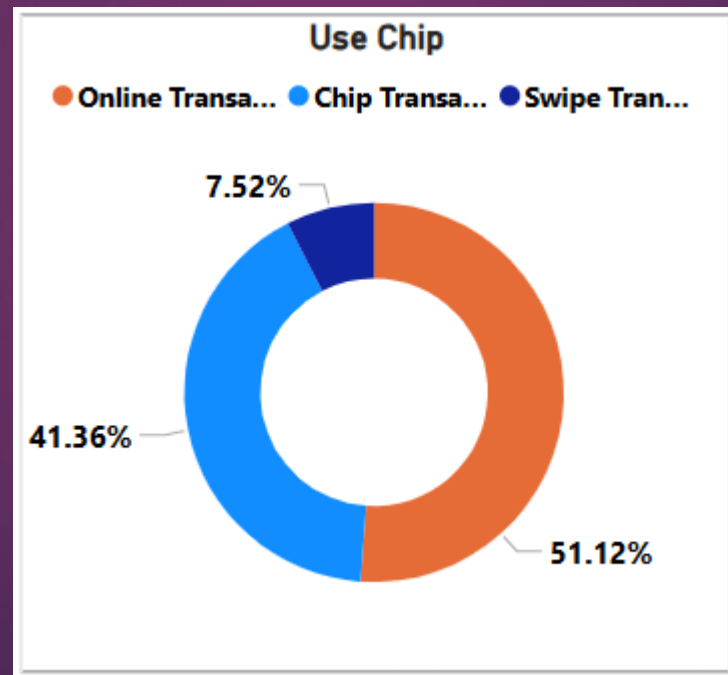
December has the highest fraud activity (10.62% of all fraud cases).



FRAUD DETECTION INSIGHTS

IS THERE A CORRELATION BETWEEN CHIP USAGE AND FRAUD ?

Chip transactions account for most of the fraud cases — a potential security red flag.



FRAUD DETECTION INSIGHTS

DO CERTAIN MCC'S OR CITIES HAVE A HIGHER FRAUD RATE ?

MCC 5311 shows the highest fraud rate at 17.28%.

Fraud by MCC	
MCC	Yes
5311	17.28%
5310	6.56%
5300	6.20%
4829	5.87%
5411	4.46%
5912	3.75%
5651	3.34%
4121	2.40%
5815	2.39%
5732	2.33%
5094	2.14%
5541	2.13%
5211	1.87%
5719	1.76%
5045	1.68%
5499	1.64%
5814	1.52%
5712	1.48%
5813	1.31%
5812	1.26%
4814	1.24%
4411	1.21%
3389	1.13%

OPERATIONAL INSIGHTS

ARE THERE ERRORS IN TRANSACTION ? HOW OFTEN AND UNDER WHAT CIRCUMSTANCES ?

Most transaction errors are labeled "not found", making up 98.41% of all errors — may indicate logging or data input issues.

Type of errors	Total errors ▼
Not Found	98.41%
Insufficient Balance	0.97%
Bad PIN	0.24%
Technical Glitch	0.20%
Bad Card Number	0.06%
Bad Expiration	0.05%
Bad CVV	0.05%
Bad Zipcode	0.01%
Bad PIN,Insufficient Balance	0.00%
Insufficient Balance,Technical Glitch	0.00%
Bad Card Number,Insufficient Balance	0.00%
Bad PIN,Technical Glitch	0.00%

OPERATIONAL INSIGHTS

WHAT LOCATIONS OR MERCHANT CATEGORY FREQUENTLY CAUSES TRANSACTION ISSUES ?

The city labeled "Online Transaction" causes the most errors (1.1M+ cases), pointing to potential virtual transaction processing challenges.

Merchant City	Total Errors ▼
ONLINE	1116271
Houston	92590
Los Angeles	65672
Miami	64180
Brooklyn	55340
Chicago	50298
Dallas	46771
San Antonio	43100
Philadelphia	40174
Atlanta	39055
Orlando	38817
Indianapolis	38757

DASHBOARD

SPENDING BEHAVIOUR ANALYSIS

Year

2015

2020

Total Amount

382.05M

Total Cards

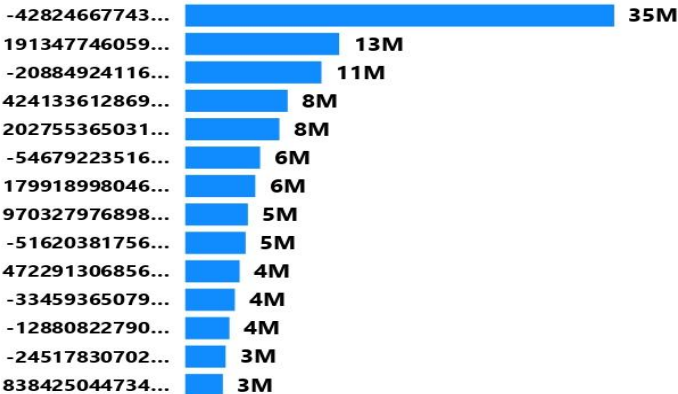
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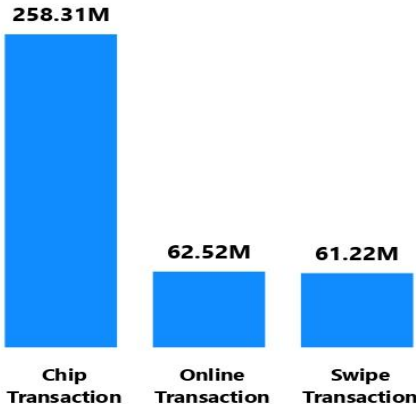
Merchant State



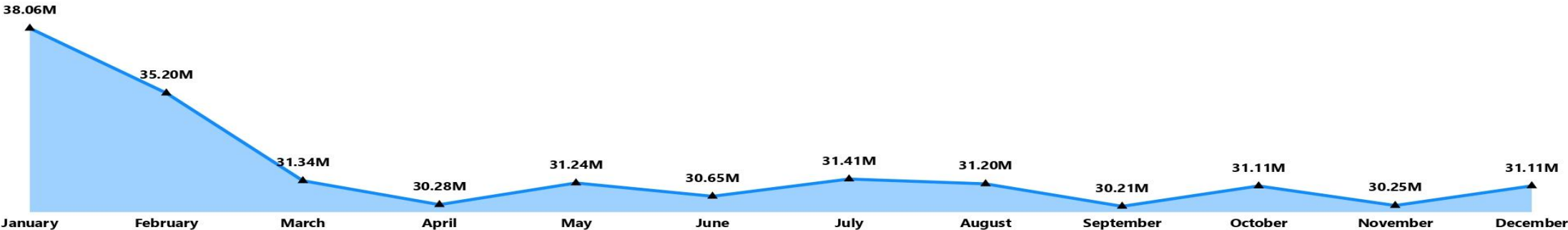
Merchant Name



Chip Usage



Peak Spending By Month



DASHBOARD



CUSTOMER SEGMENTATION AND PATTERNS

Year

2015

2020

User

All

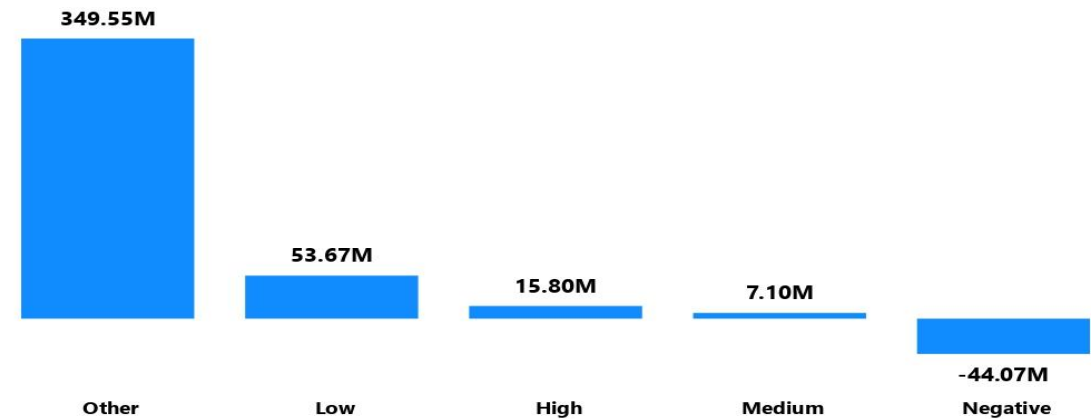
Total Amount

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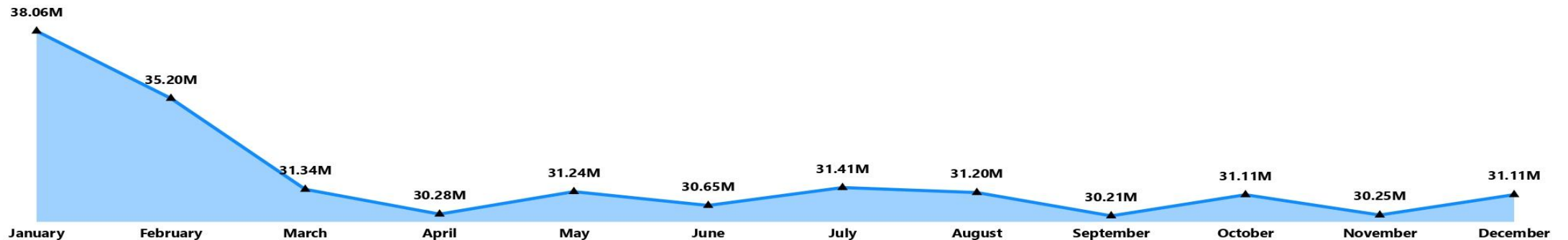


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1006	8,07,969.09	11101	72.78
Total	38,20,53,381.52	8910730	42.88

Spending Categories



Peak Spending By Month



DASHBOARD



FRAUD DETECTION INSIGHTS

Year

2015

2020

Total Amount

382.05M

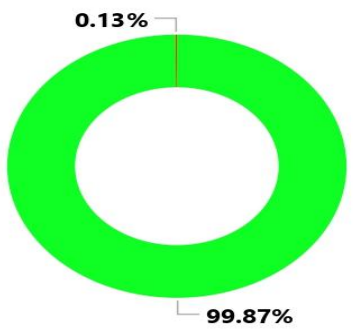
Fraud Rate

0.13%



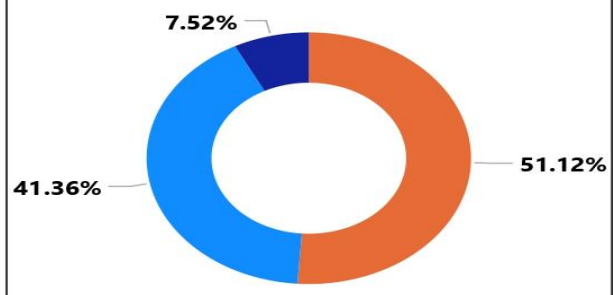
Fraud Transaction

No Yes



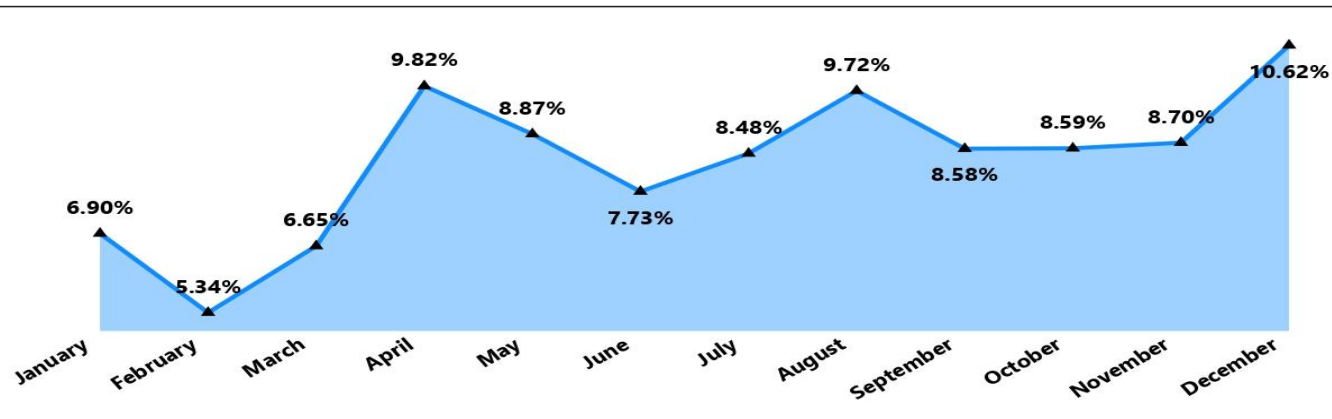
Use Chip

Online Transa... Chip Transa... Swipe Tran...



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DASHBOARD



OPERATIONAL INSIGHTS

Year

2015

2020

Total Errors

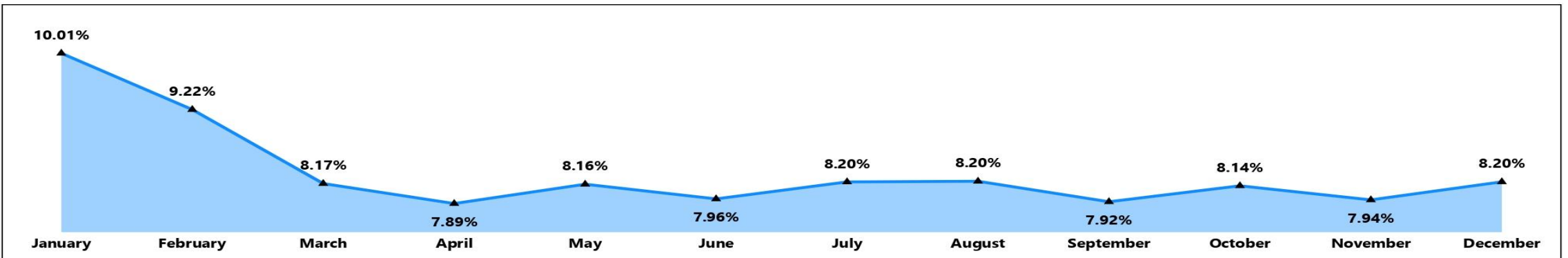
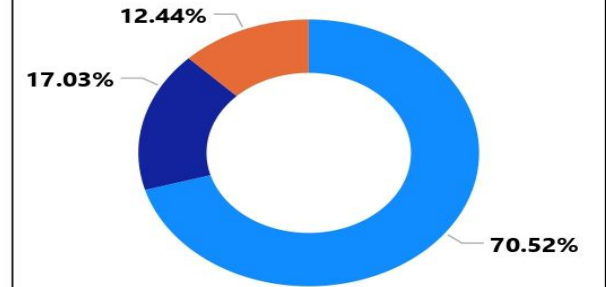
22

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Bad PIN,Insufficient Balance	0.00%
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Bad Card Number,Insufficient Balance	0.00%
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Bad PIN,Insufficient Balance	0.00%

Use Chip

● Chip Transaction ● Swipe Tran... ● Online Tra...



RECOMMENDATIONS

- INVESTIGATE CHIP FRAUD FURTHER: HIGH VOLUME + HIGH FRAUD = SECURITY RISK.
- CLEAN OR INVESTIGATE “OTHER” CATEGORY AND NEGATIVE SPEND VALUES.
- LOOK DEEPER INTO MCC 5311 AND ONLINE TRANSACTION ERRORS.
- CONSIDER TARGETED FRAUD MITIGATION AROUND DECEMBER.
- OPTIMIZE SYSTEMS OR VERIFICATION FOR ONLINE/VIRTUAL MERCHANTS.