Analysis Of Chargebacks and Rate of Card Declination - Recommendations

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Tools used : PGADMIN PostgreSQL, Microsoft Power BI

1. PREPARING THE TABLES IN PG ADMIN /POSTGRES

```
CREATE TABLE globepay_acceptance (
        external_ref  VARCHAR(250) PRIMARY KEY
        status VARCHAR(100),
        source VARCHAR(100),
        ref VARCHAR(100),
        date_time VARCHAR(100),
        state VARCHAR(100),
        CVV_provided VARCHAR(100),
        amount VARCHAR(100),
        country VARCHAR(100),
        currency VARCHAR(100),
        rates VARCHAR(100)
);

--- CREATE THE globepay_chargeback TABLE
CREATE TABLE globepay_chargeback (
        external_ref VARCHAR(200) REFERENCES globepay_acceptance(external_ref),
        status VARCHAR(100),
        source VARCHAR(100),
        chargeback VARCHAR(100)
);
```

2. Then using the IMPORT FUNCTION to load the CSV file to the tables created in the Public Schema

3. Join Both Tables Using Inner Join and Create View As Big_Data

--- Merged the acceptance and chargeback tables to create a single view (INNER JOIN)

```
CREATE OR REPLACE VIEW BIG_DATA AS
SELECT
acr.external_ref,
acr.date_time,
acr.status,
acr.state,
cbr.chargeback,
acr.cvv_provided,
acr.amount,
acr.country,
acr.currency,
acr.rates
FROM globepay_acceptance acr
INNER JOIN globepay_chargeback cbr
ON acr.external_ref = cbr.external_ref
;
```

4. To Determine The % Acceptance Rate

-- To Segment or Show A Table Of Ratio Between Accepted And Declined Transactions

```
select distinct state, count (state) AS transactions FROM BIG_DATA
GROUP BY distinct state
;
```

Data Output | Explain | Messages | Notifications

	state character varying	transactions bigint
1	ACCEPTED	3777
2	DECLINED	1653

ACCEPTANCE RATE = (3777 divided by 5430) * 100 = 69%

5. To Check If Declined Transactions Is Attributed to Certain Currencies

-- To Segment or Show Currencies With Highest Number Of Declined Tranx

```
select distinct currency, count (state) as chargebacks_true,country FROM BIG_DATA
GROUP BY distinct currency, chargeback,country
HAVING chargeback = 'TRUE'
ORDER BY count(state)  DESC
;
```

	currency character varying	country character varying	count_declined bigint
1	USD	US	297
2	USD	AE	291
3	CAD	CA	275
4	EUR	FR	271
5	MXN	MX	261
6	GBP	UK	258

6. Investigate If Chargebacks Are Attributed to Countries or Currency

```
select distinct country, currency, count (state) as chargebacks_true FROM BIG_DATA
GROUP BY distinct currency, chargeback,country
HAVING chargeback = 'TRUE'
ORDER BY count(state)  DESC
;
```

	country character varying	currency character varying	chargebacks_true bigint
1	CA	CAD	41
2	MX	MXN	41
3	AE	USD	40
4	US	USD	35
5	FR	EUR	34
6	UK	GBP	32

7. Months With Highest Number Of Declined Transactions

```
SELECT  DISTINCT TO_CHAR(date_time,'Month') as Month_year, COUNT(state) as count_declined_tranx from BIG_DATA
GROUP BY DISTINCT TO_CHAR(date_time,'Month'),state
HAVING state = 'DECLINED'
ORDER BY count (state) DESC ;
```

	month_year text	count_declined_tranx bigint
1	April	290
2	March	289
3	May	285
4	January	283
5	June	255
6	February	251

8. Investigate Declined Transactions with CVV Provided

```
SELECT CVV_provided, count(state) as transaction_declined  FROM BIG_DATA
GROUP BY CVV_provided,state
HAVING state = 'DECLINED'
ORDER BY count(state) desc
;
```

Data Output | Explain | Messages | Notifications

	cvv_provided character varying	transaction_declined bigint
1	FALSE	1638
2	TRUE	15

9. Investigate the real acceptance rate excluding chargeback = TRUE

```
-show status of transaction in country and how often chargebacks occur
SELECT distinct chargeback,cvv_provided, count(chargeback) as chargeback_status FROM BIG_DATA
group by chargeback,state,cvv_provided
ORDER BY chargeback
;
```

	chargeback character varying	cvv_provided character varying	chargeback_status bigint
1	FALSE	FALSE	1638
2	FALSE	FALSE	3530
3	FALSE	TRUE	15
4	FALSE	TRUE	24
5	TRUE	FALSE	222
6	TRUE	TRUE	1

10. show status of transaction in country and how often chargebacks occur

```
select distinct acr.country, acr.state, acr.CVV_provided, count(acr.country) Gross_Total_tranx,
count(cbr.chargeback) as Chargebacks, count(acr.country)- count(cbr.chargeback) Net_Total,
(count(cbr.chargeback) / count(acr.country)) *100 as chargeback_rate from globepay_acceptance acr
LEFT JOIN globepay_chargeback cbr on acr.external_ref = CBR.external_ref and cbr.chargeback='TRUE'
group by acr.country, acr.state, acr.CVV_provided
;
```

	country character varying	state character varying	cvv_provided character varying	gross_total_tranx bigint	chargebacks bigint	net_total bigint
1	AE	ACCEPTED	FALSE	613	40	573
2	AE	ACCEPTED	TRUE	1	0	1
3	AE	DECLINED	FALSE	291	0	291
4	CA	ACCEPTED	FALSE	630	41	589
5	CA	DECLINED	FALSE	275	0	275
6	FR	ACCEPTED	FALSE	610	33	577
7	FR	ACCEPTED	TRUE	24	1	23
8	FR	DECLINED	FALSE	257	0	257
9	FR	DECLINED	TRUE	14	0	14
10	MX	ACCEPTED	FALSE	644	41	603
11	MX	DECLINED	FALSE	261	0	261
12	UK	ACCEPTED	FALSE	647	32	615
13	UK	DECLINED	FALSE	258	0	258
14	US	ACCEPTED	FALSE	608	35	573
15	US	DECLINED	FALSE	296	0	296
16	US	DECLINED	TRUE	1	0	1

11. <u>Check the volume of transaction -revenue</u>

SELECT DISTINCT country, state, chargeback, SUM(amount) as sum_of_revenue from big_data
group by country, state, chargeback
order by sum(amount) DESC

	country character varying	state character varying	chargeback character varying (100)	sum_of_revenue numeric
1	AE	ACCEPTED	FALSE	56275443.51
2	FR	ACCEPTED	FALSE	55198954.90
3	MX	ACCEPTED	FALSE	55197141.15
4	CA	ACCEPTED	FALSE	53975283.25
5	UK	ACCEPTED	FALSE	53521091.47
6	US	ACCEPTED	FALSE	52784495.90
7	AE	DECLINED	FALSE	26335152.43
8	CA	DECLINED	FALSE	25583266.66
9	US	DECLINED	FALSE	25125669.78
10	FR	DECLINED	FALSE	24609910.18
11	MX	DECLINED	FALSE	21970362.99
12	UK	DECLINED	FALSE	19713233.74
13	US	ACCEPTED	TRUE	331255.88
14	CA	ACCEPTED	TRUE	324429.82
15	FR	ACCEPTED	TRUE	314811.50
16	MX	ACCEPTED	TRUE	313812.02
17	AE	ACCEPTED	TRUE	304035.94
18	UK	ACCEPTED	TRUE	198278.14

12. <u>Deduce the real value of accepted transactions excluding chargebacks that are true</u>

```
SELECT state as tranx_status,chargeback,
sum
(CASE
WHEN state = 'ACCEPTED' THEN  1
ELSE 0
END) as sum_accepted,
count(state) - (sum
(CASE WHEN state = 'ACCEPTED' THEN  1
```

```
ELSE 0
END)) as sum_declined
FROM big_data
group by state,chargeback
;
```

	tranx_status character varying	chargeback character varying (100)	sum_accepted bigint	sum_declined bigint
1	ACCEPTED	FALSE	3554	0
2	DECLINED	FALSE	0	1653
3	ACCEPTED	TRUE	223	0

KEYNOTE – OUTCOMES (FINDINGS)

Financial Summary

1. From the data it was deduced that a total of 5430 card transaction was processed for the period under review
    a. 3777 Accepted transactions & 1653 (including chargeback = TRUE) declined transactions

2. The acceptance rate is around 65 - 69% (no of accepted tranx / total no of attempted transactions)
    a. To be accurate, the count of declined transactions with attribute chargeback = TRUE was deducted from the total declined transaction count
    b. To be exact : Subtracting the 233 chargebacks from 3777 , that will be 3554
    c. Since chargebacks on the acceptance report will likely be disputed.

3. Deel earned 326m in revenue , of which 143m were declined transactions & 1.8m are chargebacks.

WHY ARE THE ACCEPTANCE RATE DROPPING ? FINDING !

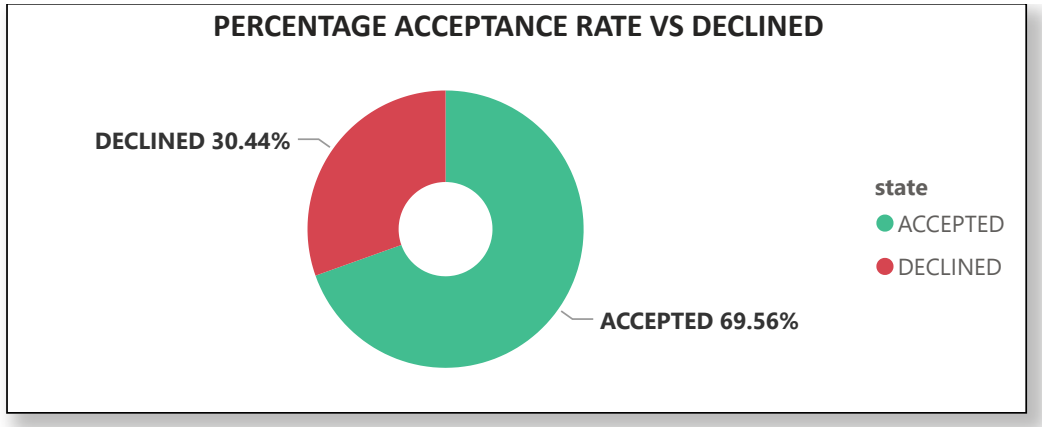
4. An unusual High declined transactions seems to occur where CVV was not inputted by customer
    a. 99% of declined card transactions don't have CVV input = FALSE
    b. 0.91% of declined card transactions have CVV input = TRUE
    c. Product team/ Engineering development team would be required to investigate a possible payment gateway issue, technical debt, or bug with the API codes.
    d. A significant percentage of the declined transaction could have been because of insufficient funds on the user's card
    e. Sales & customer support would be required to contact customers so to find out what issues they are facing.
    f. Digital marketing would also need to send target ads to clients to compel them to complete purchase.

Other Findings

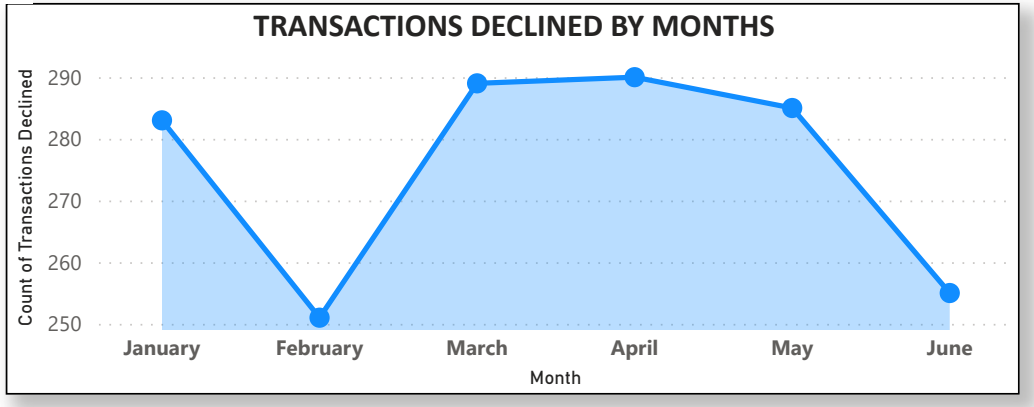
5. The month of April had the highest number of declined transactions

6. AE is the country with the highest number of accepted transaction worth 57m & also the highest declined transactions at 26m

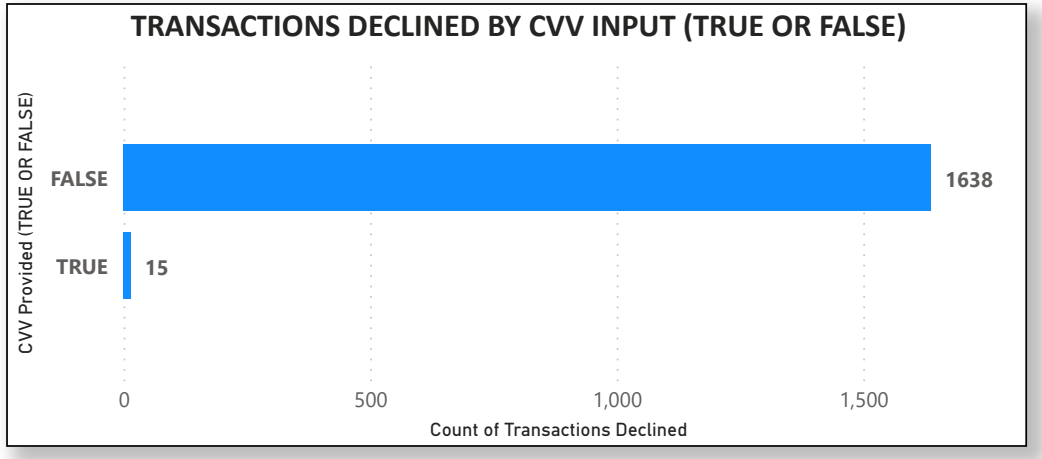
DATA VISUALIZATION - KEY TRENDS



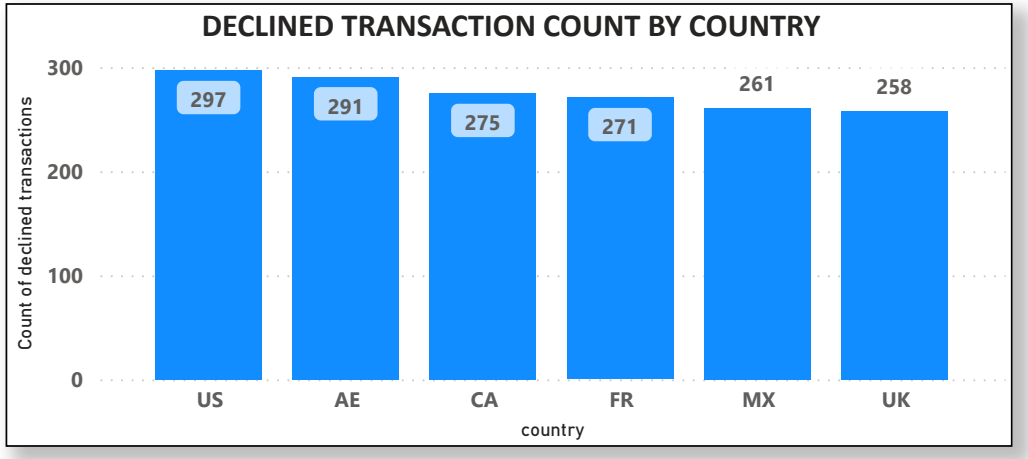
Count of state for ACCEPTED (3,777) was higher than DECLINED (1,653).
ACCEPTED accounted for 69.56% of Count of state.



At 290, April had the highest Count of Transactions Declined and was 15.54% higher than February, which had the lowest Count of Transactions Declined at 251.
April accounted for 17.54% of Count of Transactions Declined.



Count of Transactions Declined for FALSE (1,638) was higher than TRUE (15).
FALSE accounted for 99.09% of Count of Transactions Declined.
FALSE had 1,638 Count of Transactions Declined and TRUE had 15.



US accounted for 17.97% of Count of declined transactions.