mandiri sekuritas

TECHNICAL TEST

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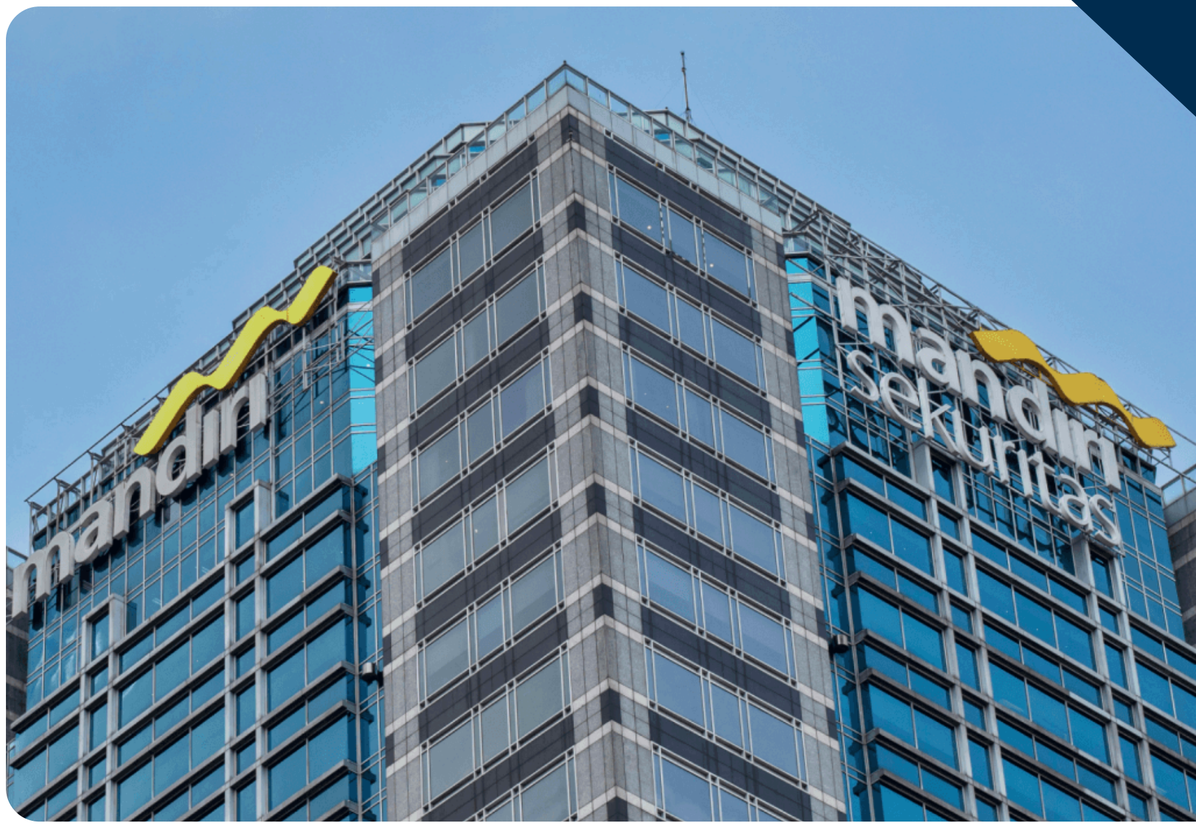

DATASET

User Data

Provides demographic and financial information of each customer, including age, gender, income, debt, and credit score. This helps us understand user profiles and segmentation.

Card Data

Contains details of the cards issued to users, such as card brand, type, credit limit, chip usage, and security indicators (e.g., last PIN change, cards found on the dark web). This allows us to analyze card adoption and security behavior.

Transaction Data

Records user activities with their cards, including transaction amount, date, merchant details, location, chip usage, and errors. This forms the basis for studying spending behavior, purchasing trends, and risk patterns.

TOOLS

MySQL

Github

Looker Studio

DATA CLEANING

Problem

	123 duplicate_transactions
1	2,571,648

Query

```
create table mandiri.transactions_data_new as
select distinct *
from mandiri.transactions_data;

drop table mandiri.transactions_data;

alter table mandiri.transactions_data_new
rename to transactions_data;
```

Result

	123 duplicate_transactions
1	0

DATA CLEANING

Problem

	errors	total_errors
1		5,060,512
2	Bad Card Number	2,778
3	Bad Card Number,Bad CVV	16
4	Bad Card Number,Bad Expiration	10
5	Bad Card Number,Insufficient Balance	38
6	Bad Card Number,Technical Glitch	8
7	Bad CVV	2,246
8	Bad CVV,Insufficient Balance	18

Query

```
UPDATE mandiri.transactions_data
SET errors = 'None'
WHERE TRIM(errors) = '';
```

Result

Grid Text

	errors	total_errors
1	Bad Card Number	2,778
2	Bad Card Number,E	16
3	Bad Card Number,E	10
4	Bad Card Number,I	38
5	Bad Card Number,T	8
6	Bad CVV	2,246
7	Bad CVV,Insufficier	18
8	Bad CVV,Technical	4
9	Bad Expiration	2,138
10	Bad Expiration,Bad	6
11	Bad Expiration,Insu	10
12	Bad Expiration,Tech	10
13	Bad PIN	12,504
14	Bad PIN,Insufficien	128
15	Bad PIN,Technical (	24
16	Bad Zipcode	428
17	Bad Zipcode,Insuffi	4
18	Insufficient Balance	50,596
19	Insufficient Balance	102
20	None	5,060,512

DATA CLEANING

More Query

```sql
UPDATE mandiri.transactions_data
SET merchant_state = 'ONLINE'
WHERE TRIM(merchant_state) = '';

UPDATE mandiri.transactions_data
SET zip = 0
WHERE zip is null;
```

```sql
update mandiri.cards_data
    set credit_limit = replace(credit_limit , '$', '');
alter table mandiri.cards_data
    modify column credit_limit decimal(15,2);

update mandiri.users_data
set per_capita_income = replace(per_capita_income, '$', ''),
    yearly_income = replace(yearly_income, '$', ''),
    total_debt = replace(total_debt, '$', '');
alter table mandiri.users_data
    modify column per_capita_income decimal(15,2),
    modify column yearly_income decimal(15,2),
    modify column total_debt decimal(15,2);

update mandiri.transactions_data
    set amount = replace(amount, '$', '');
alter table mandiri.transactions_data
    modify column amount decimal(15,2);
```

DATA ANALYSIS

Query

```sql
select current_age, count(*) as user_count
from mandiri.users_data
group by current_age
order by current_age;
```

Result

SELECT current_age, COUNT(*) AS user_ | Enter a SQL exp

Grid | Text

	123 current_age	123 user_count
1	18	77
2	19	34
3	20	40
4	21	40
5	22	43
6	23	32
7	24	37
8	25	34

```sql
select gender, count(*) as user_count
from mandiri.users_data
group by gender;
```

	A-Z gender	123 user_count
1	Female	1,016
2	Male	984

DATA ANALYSIS

Query

```sql
select
    id,
    yearly_income,
    total_debt,
    round(total_debt / nullif(yearly_income,0),2) as debt_to_income_ratio
from mandiri.users_data;
```

Result

	id	yearly_income	total_debt	debt_to_income_ratio
1	825	59,696	127,613	2.14
2	1746	77,254	191,349	2.48
3	1718	33,483	196	0.01
4	708	249,925	202,328	0.81
5	1164	109,687	183,855	1.68
6	68	41,997	0	0
7	1075	51,500	102,286	1.99
8	1711	54,623	114,711	2.1
9	1116	42,509	2,895	0.07
10	1752	38,190	81,262	2.13
11	192	56,164	15,224	0.27
12	640	45,727	94,016	2.06
13	1679	69,149	89,214	1.29
14	1094	41,442	78,833	1.9
15	1590	20,513	32,509	1.58
16	1660	23,123	5,079	0.22
17	1747	36,497	38,333	1.05
18	153	27,484	16,803	0.61

```sql
select card_brand, count(*) as total_cards
from mandiri.cards_data
group by card_brand;
```

	card_brand	total_cards
1	Amex	402
2	Discover	209
3	Mastercard	3,209
4	Visa	2,326

DATA ANALYSIS

Query

```sql
select mcc, count(*) as total_transactions, sum(amount) as total_spent
from mandiri.transactions_data
group by mcc
order by total_spent desc
```

Result

	mcc	total_transactions	total_spent
1	4,829	234,624	21,109,484.66
2	5,411	614,363	15,883,357.61
3	5,300	235,516	14,815,118.24
4	5,912	300,480	13,830,781.62
5	5,541	561,019	11,697,295.26
6	4,900	94,078	10,783,621.3
7	5,311	186,059	10,670,696.91
8	5,812	385,166	10,245,326.1
9	4,814	85,232	9,753,664.2
10	7,538	182,994	9,580,833.9

```sql
select
    t.merchant_id,
    c.has_chip,
    count(*) as total_transaksi,
    round(avg(cast(t.amount as decimal(15,2))),2) as avg_amount
from mandiri.transactions_data t
join mandiri.cards_data c
    on t.card_id = c.id
group by t.merchant_id, c.has_chip
order by total_transaksi desc
limit 20;
```

	merchant_id	has_chip	total_transaksi	avg_amount
	59935	YES	110,638	14.62
	27092	YES	108,220	90.14
	61195	YES	99,749	21.23
	39021	YES	70,489	35.18
	43293	YES	62,280	16
	22204	YES	60,284	21.44
	14528	YES	55,292	1.29
	60569	YES	52,774	62.48
	50783	YES	51,873	25.6
0	75781	YES	47,112	24.43
1	20519	YES	40,393	19.63
2	20561	YES	35,656	44.53
3	26810	YES	29,602	21.59
4	75936	YES	26,125	24.08

LOOKER DASHBOARD

Link click here!

CONCLUSION

Overall, the market is dominated by Mastercard and Visa, with a gender-balanced user base concentrated in North America, but there are signs of risk such as negative transactions and slow technology adoption. Key insights recommend strategies to improve security (upgrading chip/PIN), target middle-age segments, and pursue regional expansion while mitigating fraud.

THANK YOU

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