

# **User Behavior Analysis — MySQL + Looker Studio**

Mandiri Sekuritas Technical Test

Aloysius Oky Indrawanto — 21 Agustus 2025

# Executive Summary

## Impact

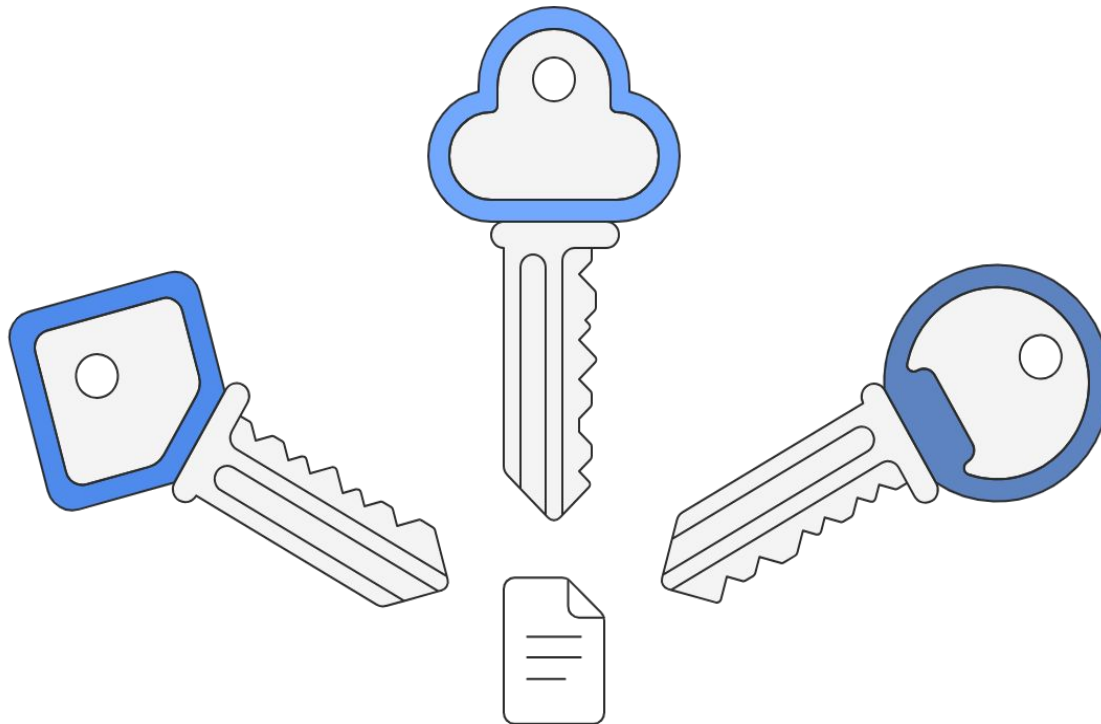
Emphasizes the influence of findings on understanding.

## Key Findings

Highlights significant insights from data analysis.

## Dashboard Importance

Stresses the role of visualization in comprehension.



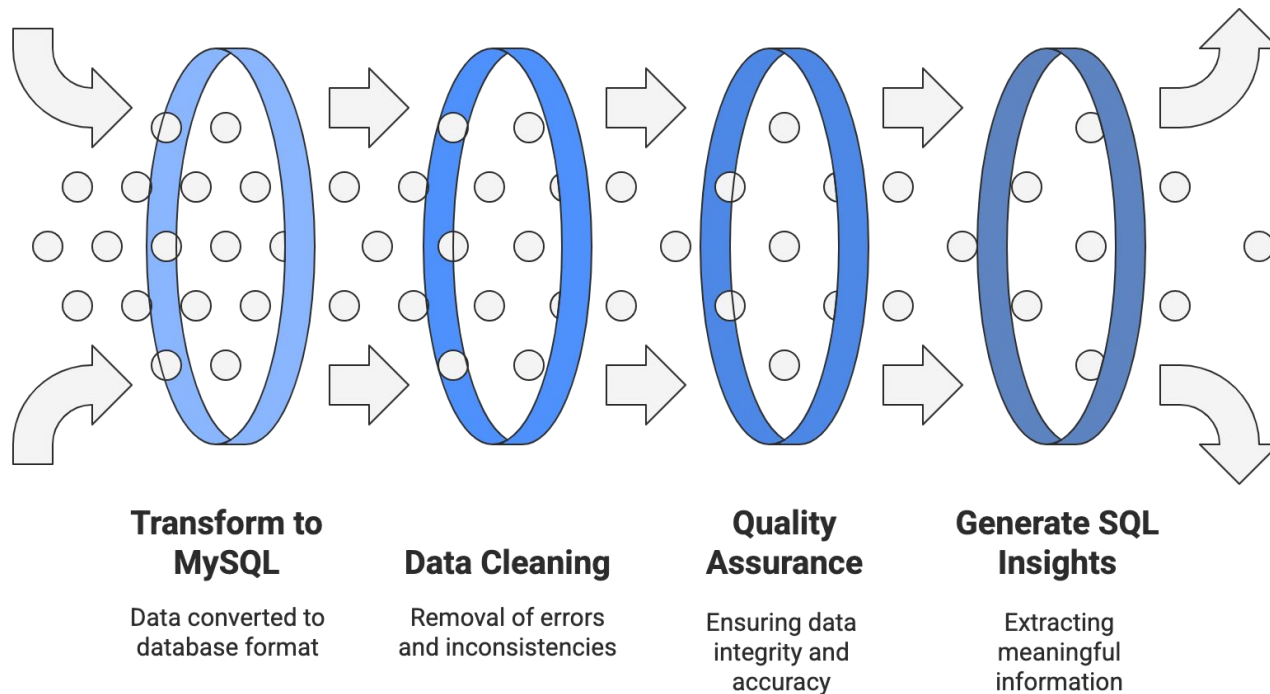
## Executive Summary

# Objectives & Data

Objective: understand where spend happens, who drives value, and where risks concentrate.

Data: users (demographics), cards (brand/type/limit), transactions (amount, channel, merchant).

## Data Transformation Process



# Data Cleaning Steps

## Unique Key

**A unique key is created using transaction IDs. Chunked loading avoids disconnection issues.**



## Standardized Names

**Names converted to lowercase with underscores. This ensures consistency.**



## Parsed Amounts

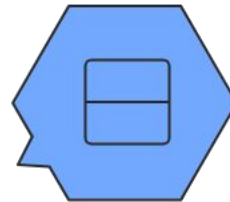
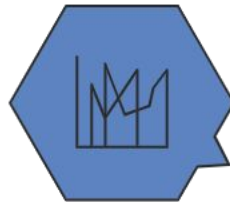
**Datetime values are made robust, handling invalid inputs. Numeric values are coerced.**

**Monetary amounts parsed, handling various formats. Negative values are represented correctly.**

# Data Validation Checks

## Null Diagnostics

Tracks unparseable dates, ZIP codes, and MCCs, without impacting insights.



## Row Count

Checks if the row count is the same between raw and clean data, focusing on non-NULL IDs.



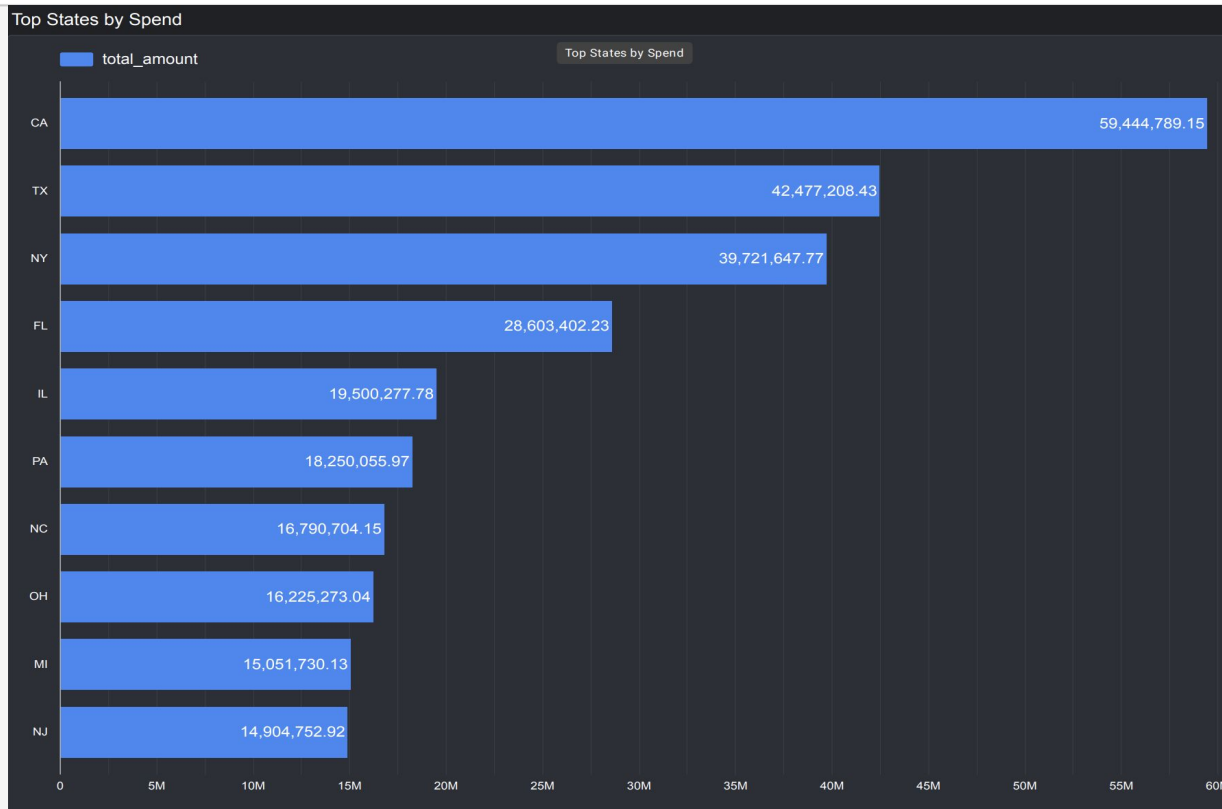
## Money Parity

Verifies that the sum of parsed monetary values in the raw data matches the sum in the clean data.

# CORE Insight 1 — Top States by Spend

Why it matters: Focus sales/marketing where spend is concentrated.

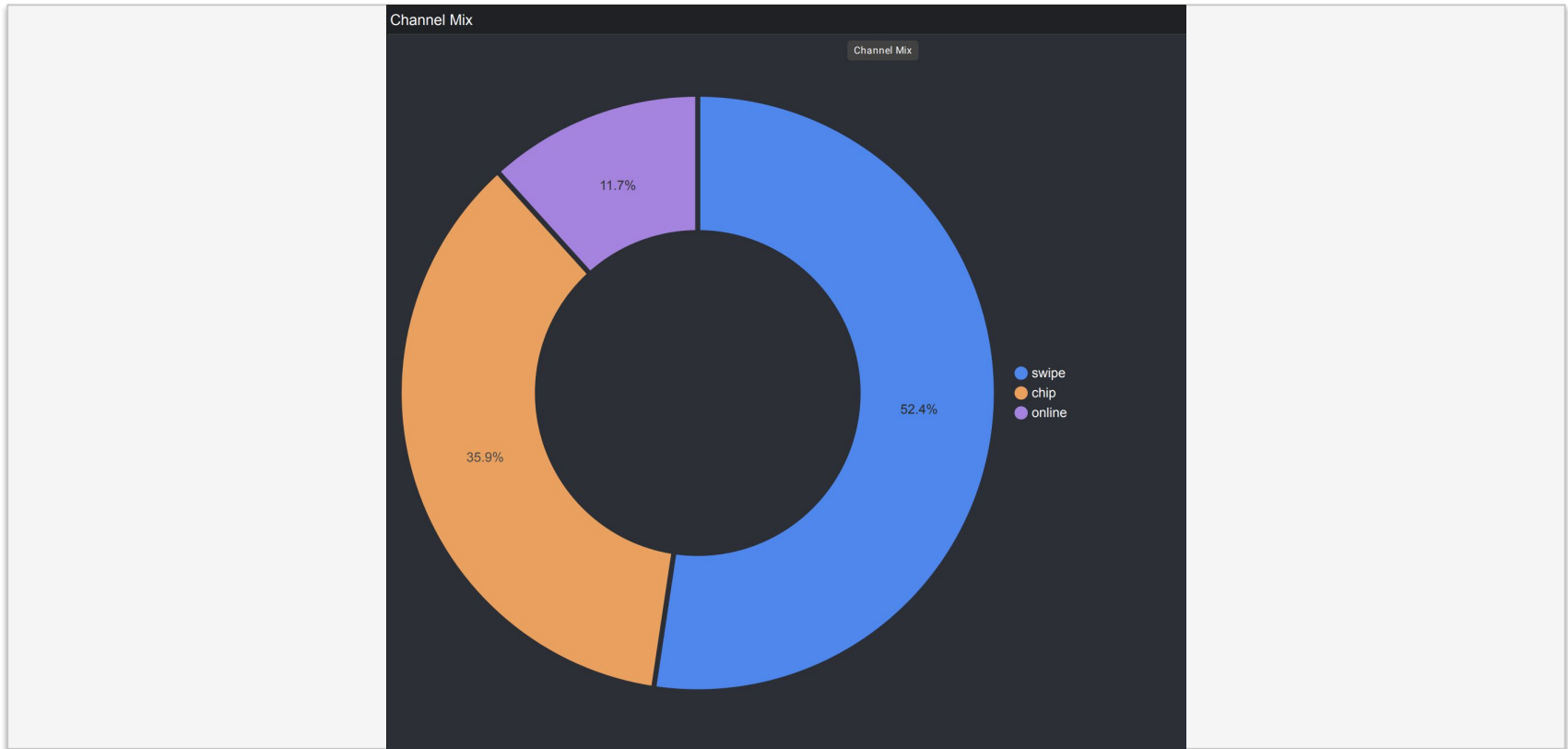
Action: Prioritize partnerships & capacity in the top 5–10 states.



# CORE Insight 2 — Channel Mix (online/chip/swipe)

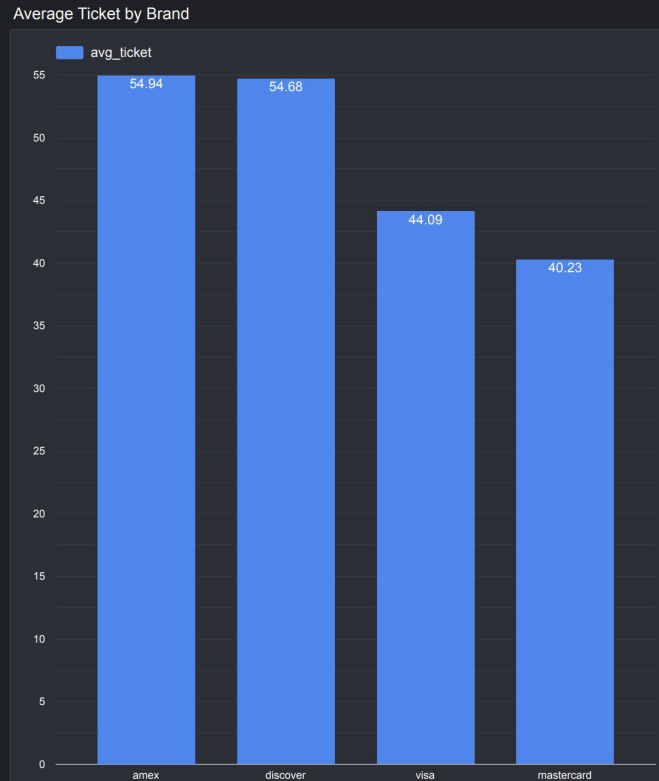
Why it matters: Understand adoption of secure/modern channels.

Action: Encourage channels with fewer errors/chargebacks; design incentives.



# CORE Insight 3 — Average Ticket by Card Brand

Why it matters: Identify brands with higher average spend for co-marketing.  
Action: Negotiate campaigns with high-ticket brands (ensure adequate volume).





# CORE Insight 4 — Top Customers by Spend

Why it matters: Retention & cross-sell opportunities.

Action: Create a VIP list for outreach, rewards, personalized offers.

Top Customers

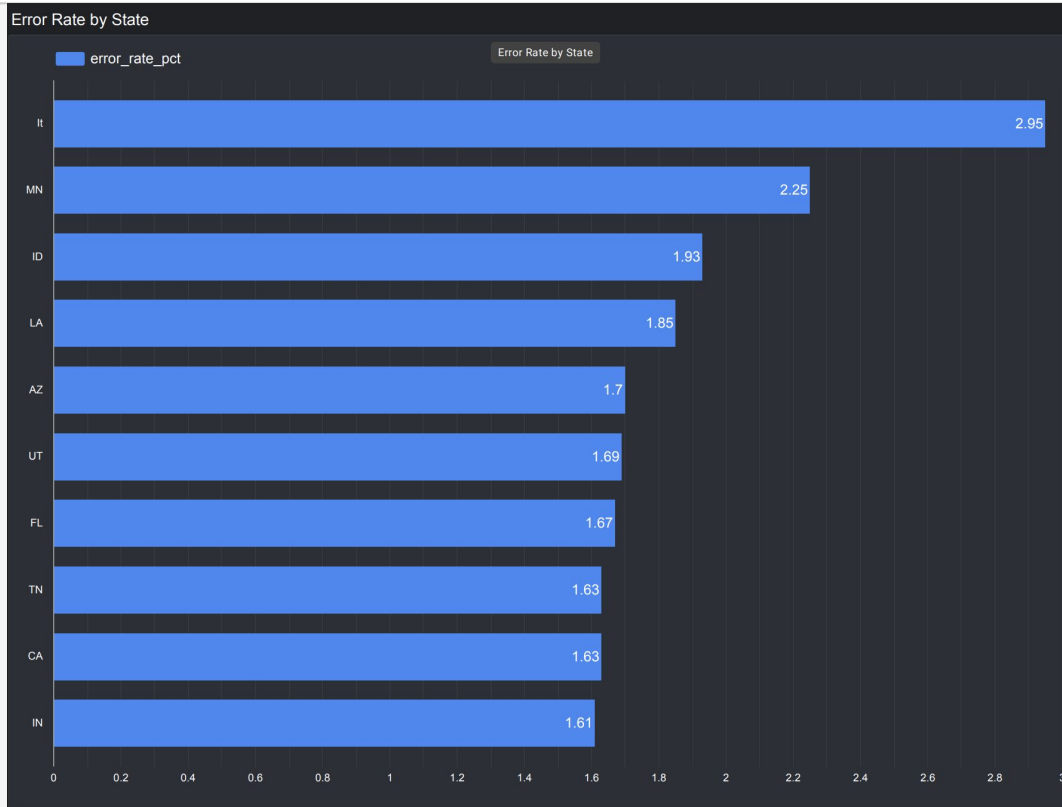
	client_id	total_amount	txn_count
1.	96	2,445,773.25	38,617
2.	1686	2,167,880.9	19,810
3.	1340	2,039,921.23	22,023
4.	840	1,956,340.84	15,095
5.	464	1,882,901.35	27,619
6.	490	1,711,482.69	21,831
7.	704	1,635,022.05	20,748
8.	285	1,615,458.99	32,032
9.	488	1,611,114.42	23,990
10.	1168	1,590,822.75	30,520
11.	989	1,538,980.35	12,069
12.	52	1,535,007.8	20,949
13.	630	1,467,776.27	19,619
14.	1098	1,460,166.8	48,479
15.	1888	1,436,784.28	40,105
16.	1575	1,425,880.4	28,314
17.	1066	1,402,519.67	18,250
18.	1651	1,367,892.24	16,983
19.	1797	1,353,263.37	30,326
20.	371	1,345,198.29	18,429

## CORE Insight 5 —

### Risk by State (Error % & Dark-Web Share %)

Why it matters: Pinpoint fraud/operational hotspots.

Action: Add verification/limits in high-risk states; review top offending merchants.



# BONUS Insight 6 — High-Error Merchants

Why it matters: Identify merchants driving the most failed/error transactions.

Action: Audit processes; implement targeted support/rules; monitor closely.

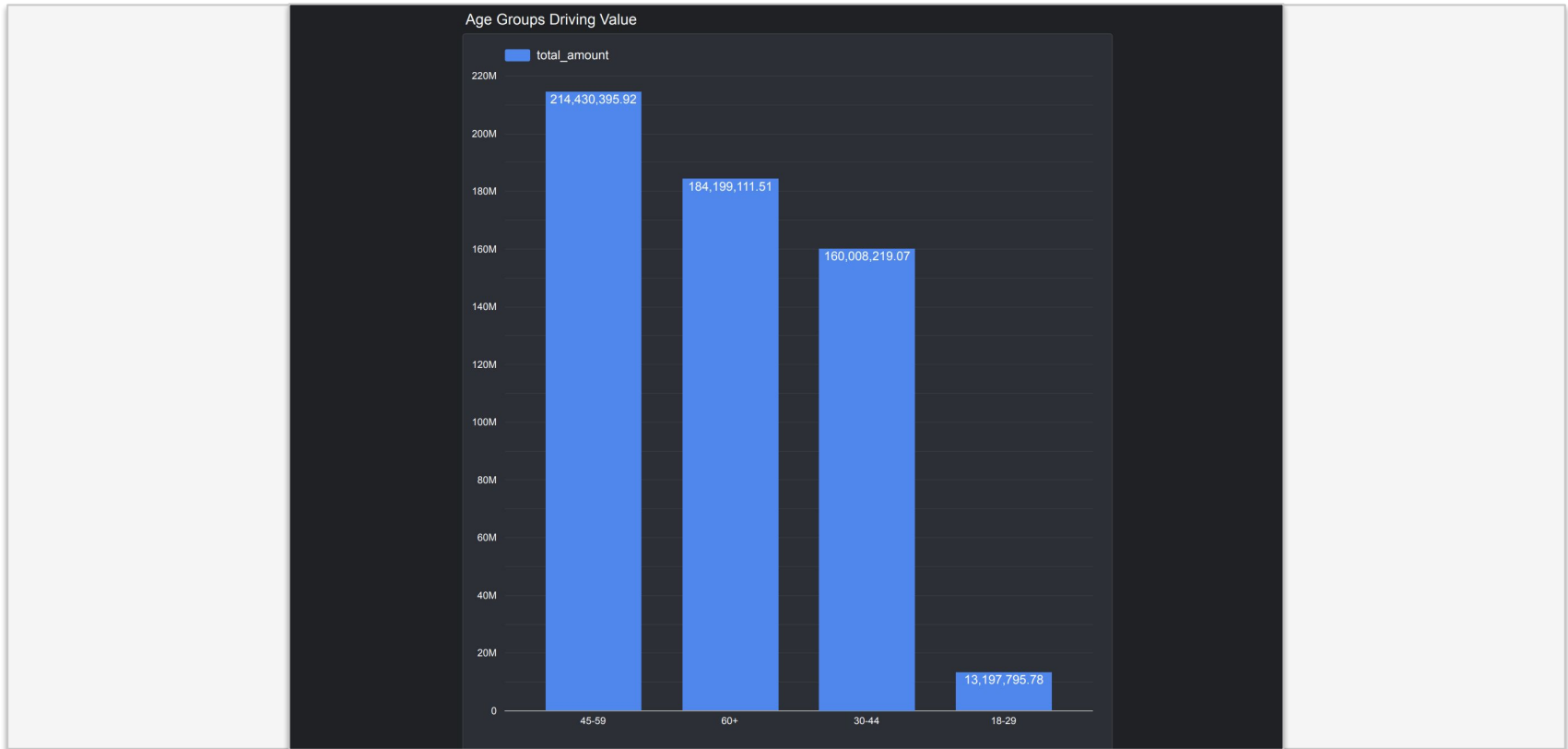
## High-Error Merchants

	merchant_id	merchant_state	txn_count	error_rate_pct ▾
1.	78312	TX	830	6.63
2.	17540	PA	650	6.31
3.	9296	OH	570	6.14
4.	20561	ID	626	6.07
5.	26810	AZ	5,974	5.96
6.	82981	ME	560	5.89
7.	58125	NC	1,224	5.8
8.	79860	CA	588	5.78
9.	26810	MN	11,780	5.77
10.	3238	NC	804	5.72
11.	26039	NC	509	5.7
12.	17493	LA	1,370	5.62
13.	49010	VA	547	5.48
14.	27092	CA	78,887	5.42
15.	27092	NULL	1,055	5.4
16.	12639	PA	639	5.32
17.	10186	LA	1,284	5.3
18.	58332	WA	586	5.29
19.	92764	IA	551	5.26
20.	49789	TX	6,928	5.25

# BONUS Insight 7 — Age Groups Driving Value

Why it matters: Targeting and messaging by life stage.

Action: Prioritize the highest-value cohorts with tailored offers.



## Strategic Recommendations

### Allocate Resources to Top States

Focus investment on high-performing regions



### Migrate Volume to Lower-Risk Channels

Shift transactions to safer platforms



### Partner with High-AOV Brands

Collaborate with brands to optimize revenue



### Establish VIP Retention Program

Create a program to retain top customers



### Strengthen Controls in High-Risk States

Enhance security measures in risky areas



### Audit and Remediate High-Error Merchants

Review and fix issues with problematic merchants

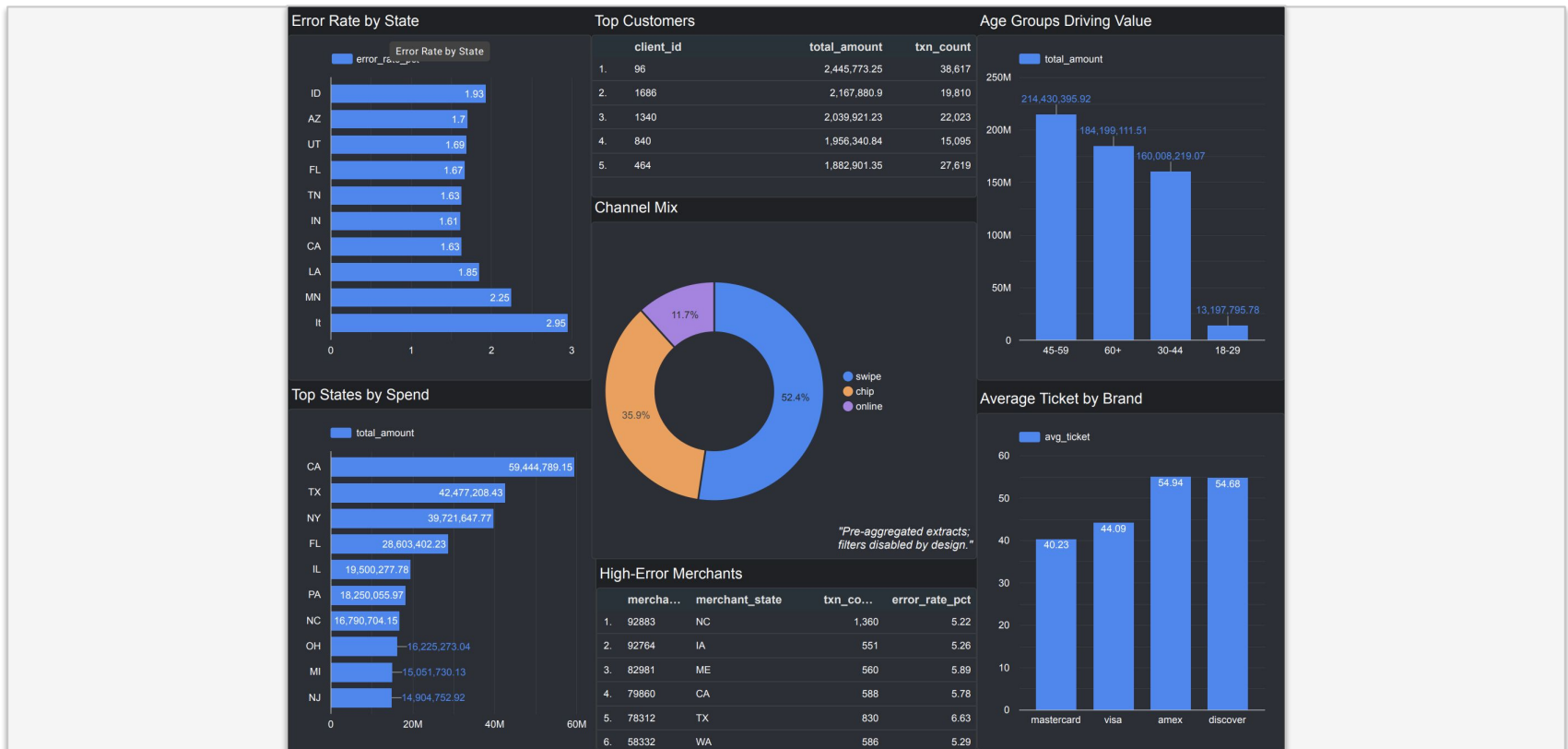


### Target High-Value Age Cohorts

Tailor offers to specific age groups



# Dashboard Preview (Looker Studio)



After publishing, paste a dashboard screenshot here

# Appendix — SQL & Data Notes

SQL files in /sql (01–07) map to each insight.

Schema: devdb.clean\_transactions, devdb.clean\_cards, devdb.clean\_users.