Retail Transaction Analytics and Strategic Customer Insights
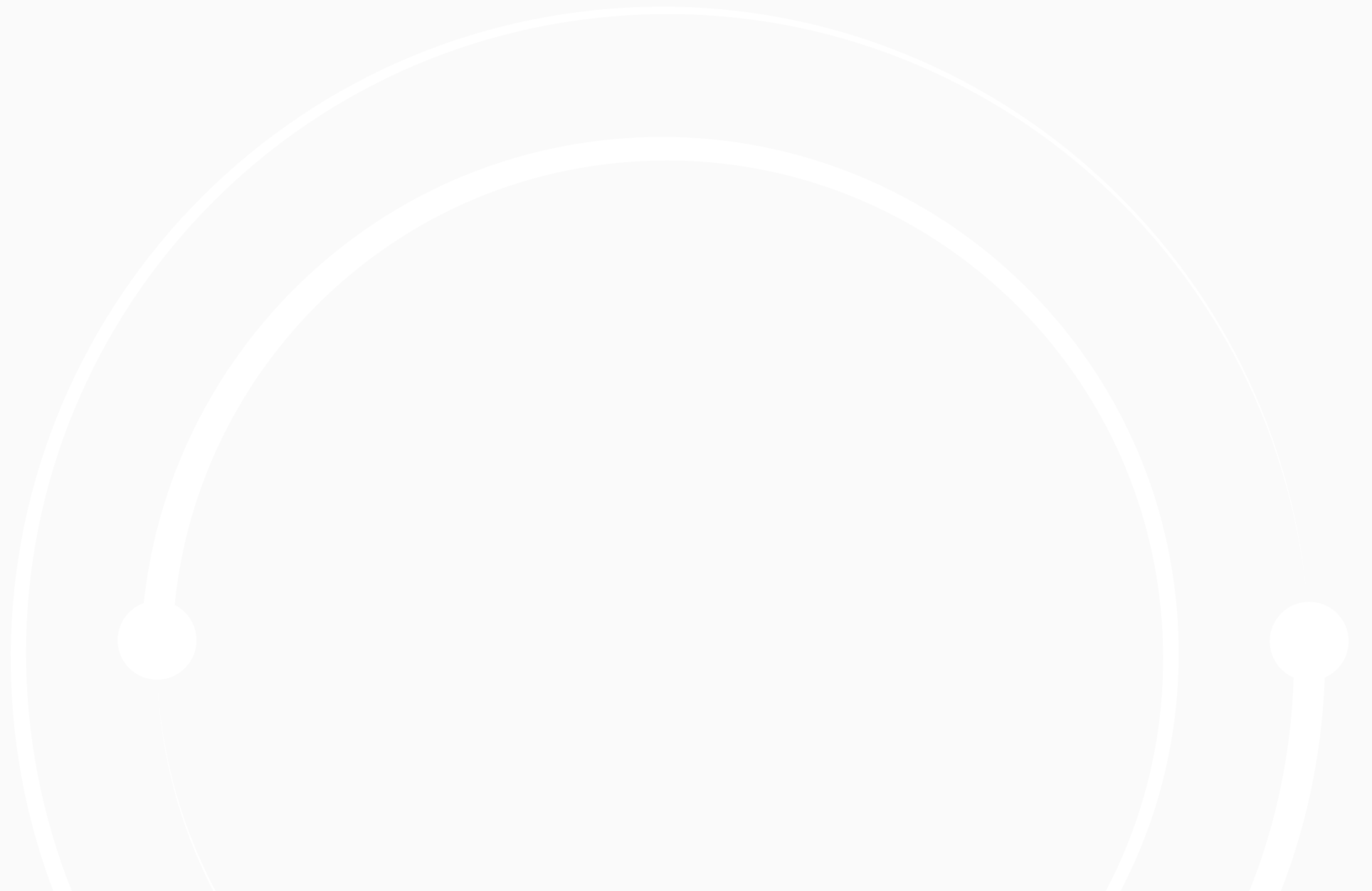
Content

Dataset Overview

Dataset Overview

Feature	Data Type	Description
t_sore_code	obj	store code where the transaction was made
t_date	date	transaction date
t_struk_id	obj	Receipt ID or proof of transaction
t_members	obj	Members ID
t_plu	obj	Product Lookup Unit
t_descp	obj	Product Description
t_category	obj	Product Category
t_net	float	Net transaction value
t_qty	int	Number of units purchased

Data Period

January 2020 —————————————— March 2021

Total Data	Product Category*	Type of Product	Total Transaction
159,355	**311**	**5,027**	**39,874**
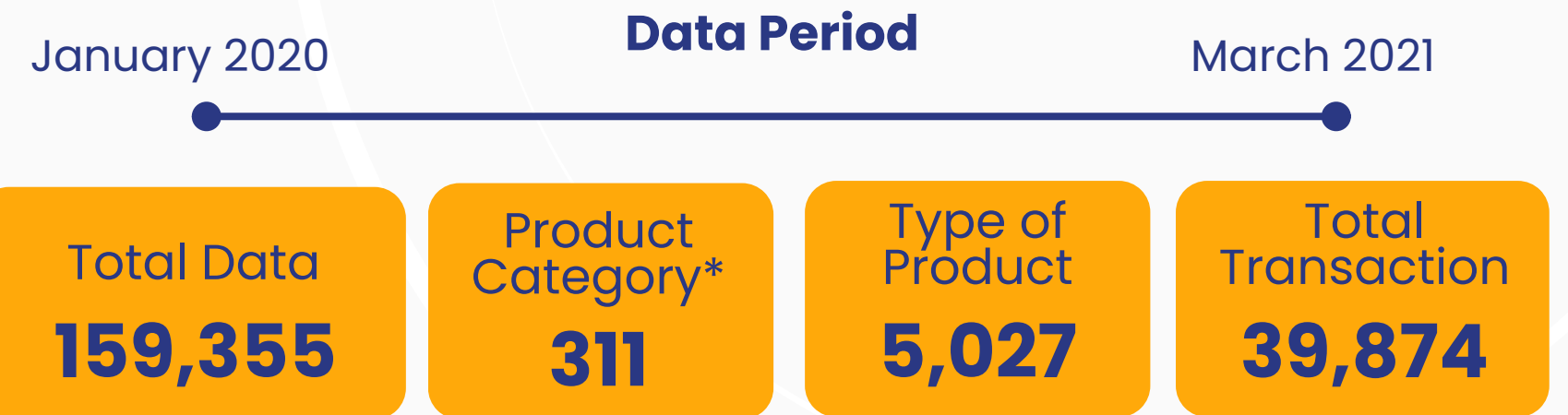
- There are 2 stores, **Q060 (regional store 3 – Bali)** and **J048 (regional store 2 – Bogor)**
- The dataset originally contained 312 product categories, but the *embalase* **category was excluded** as it does not represent a primary consumer product.
- **Three product categories** are considered **promotional items** : *merchandise goods* (<Rp1), *gift card*, and *promotion goods*
- The dataset contains **27 unique customer IDs** and **4 dummy IDs** used to represent non-member transactions: 2.38E+15, 8.89E+15, 9.99E+15, and 1.00E+15.

Dataset Overview

|	A	B	C	D	E	F	G	H	I
1	t_store	t_date	t_struk	t_meml	t_plu	t_descp	t_category	t_net	t_qty
46866	Q060	18/02/2021	Q060QZ01	9.99E+15	416194	NUTRIBOOST CHOCO PET 240ML	ADULT DIAPERS	6818.19	1
46867	Q060	15/03/2020	Q060QZ01	9.99E+15	224207	SEDAAP MIE AYAM BAWANG 70G	ADULT DIAPERS	6818.19	3
46868	J048	15/02/2021	J048XZ012	9.99E+15	220759	HATARI SEEHONGPUFF KLP 245G	ADULT DIAPERS	6818.19	1
46869	J048	30/01/2020	J048XZ012	9.99E+15	230065	KIS CANDY MINT APL PCH 100G	ADULT DIAPERS	6818.19	1
46885	J048	03/04/2020	J048XZ012	9.99E+15	220623	ROMA MALKIST COKELAT 90/105G	ADULT DIAPERS	6818.19	1
46886	J048	10/01/2020	J048XZ012	9.99E+15	220623	ROMA MALKIST COKELAT 90/105G	ADULT DIAPERS	6818.19	1
46911	J048	25/04/2020	J048XZ012	9.99E+15	102273	INDOMIE SOTO SPESIAL KOYA 75G	ADULT DIAPERS	6818.19	3

- During data validation, certain products were **identified in incorrect categories.**
  One example is Indomie, which was mistakenly categorized as Adult Diaper.
  These misclassifications may affect product-level analysis accuracy.
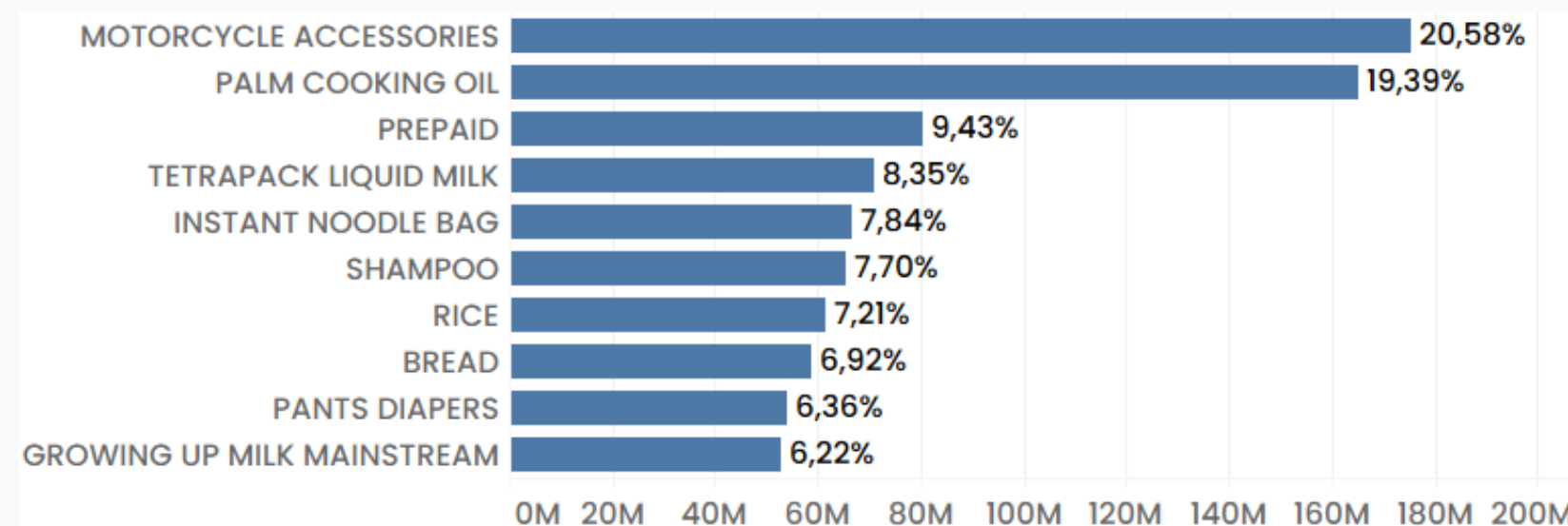
Overall Overview
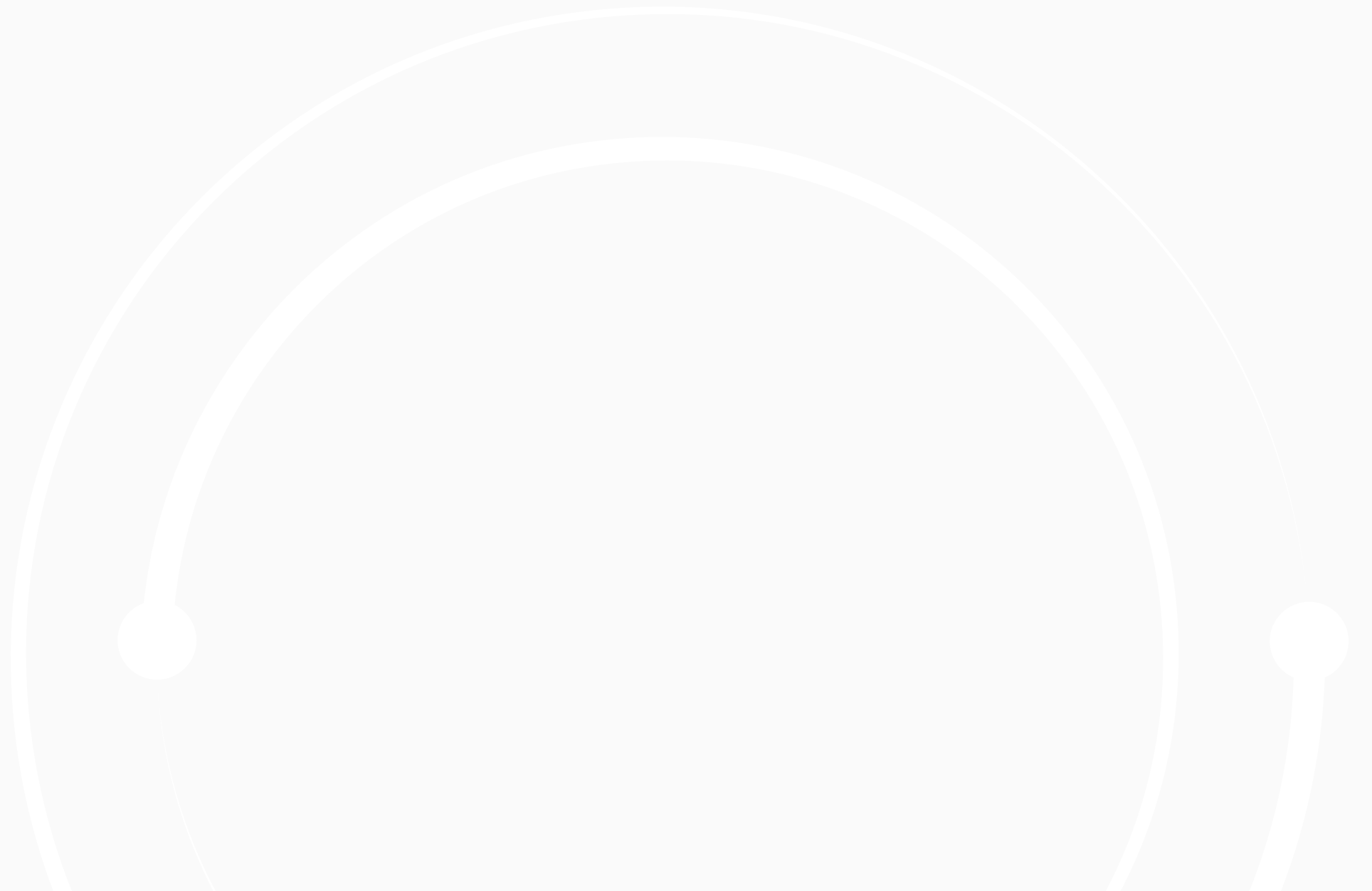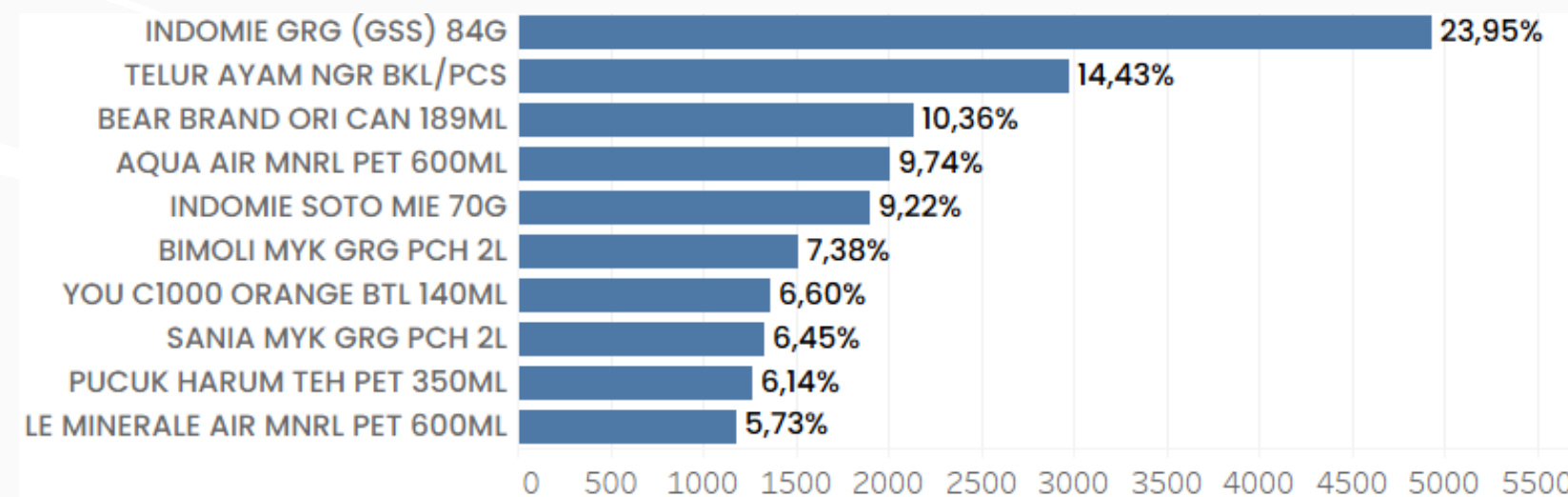
Revenue Trend (Q1 2020 - Q1 2021)
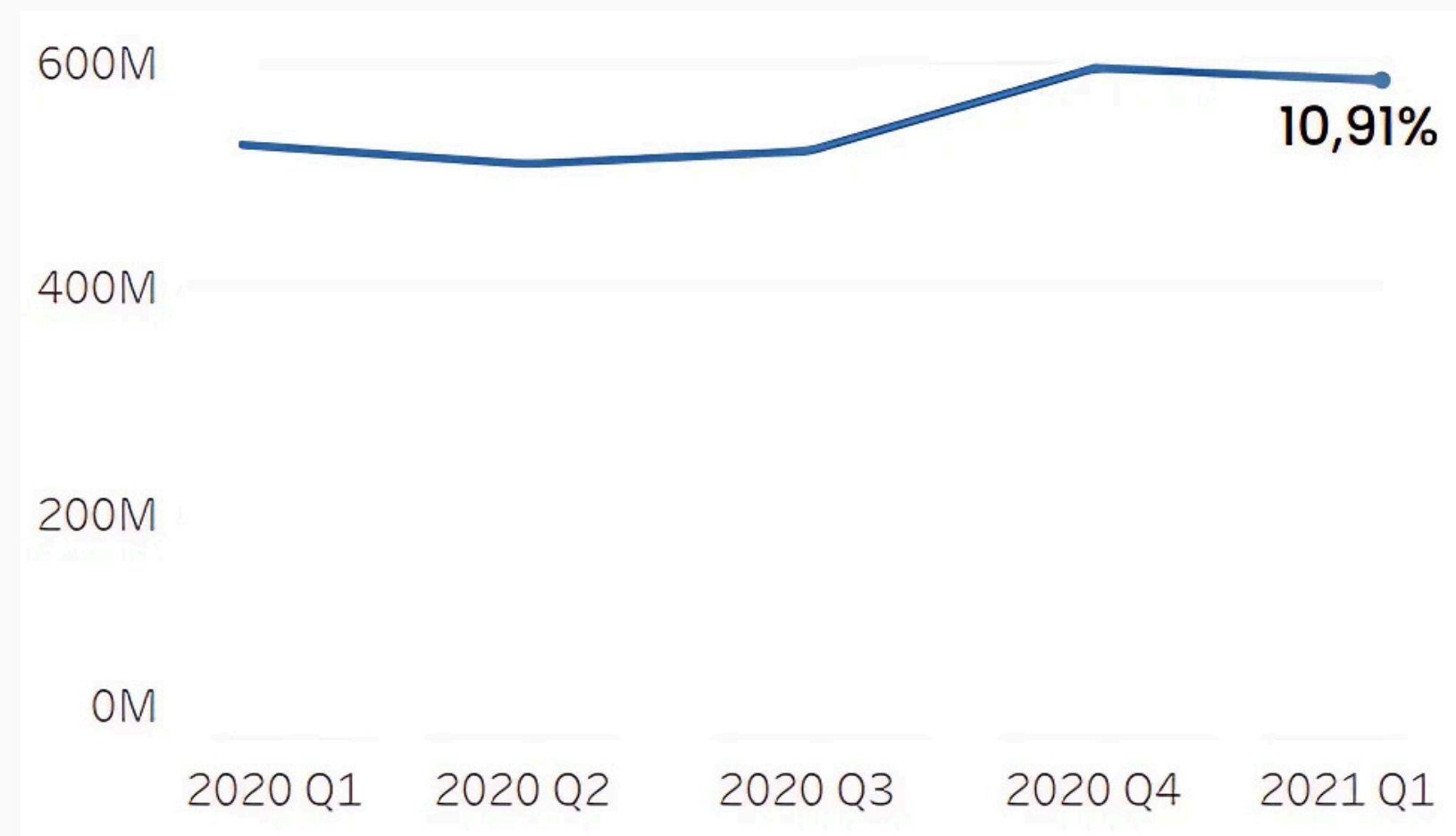
From Q1 2020 to Q1 2021, revenue steadily increased, culminating in a 10.91% Year-over-Year growth in Q1. This upward trend reflects stronger customer engagement and potentially improved product or promotion strategies.

Top 10 Product Categories by Net Revenue

Category	%
MOTORCYCLE ACCESSORIES	20,58%
PALM COOKING OIL	19,39%
PREPAID	9,43%
TETRAPACK LIQUID MILK	8,35%
INSTANT NOODLE BAG	7,84%
SHAMPOO	7,70%
RICE	7,21%
BREAD	6,92%
PANTS DIAPERS	6,36%
GROWING UP MILK MAINSTREAM	6,22%

Top 10 Purchased Products by Quantity

Product	%
INDOMIE GRG (GSS) 84G	23,95%
TELUR AYAM NGR BKL/PCS	14,43%
BEAR BRAND ORI CAN 189ML	10,36%
AQUA AIR MNRL PET 600ML	9,74%
INDOMIE SOTO MIE 70G	9,22%
BIMOLI MYK GRG PCH 2L	7,38%
YOU C1000 ORANGE BTL 140ML	6,60%
SANIA MYK GRG PCH 2L	6,45%
PUCUK HARUM TEH PET 350ML	6,14%
LE MINERALE AIR MNRL PET 600ML	5,73%

Total Revenue	Total Promotional Products Taken	Total Quantity of Products Sold
Rp2,733,876,510	**1,895**	**216,910**

Product Affinity

| Rule	Confidence	Lift
Bar Soap ➜ Tooth Paste	39.1%	5.84
Chilli ➜ Instant Noodle Bag	35.9%	2.95
Shampoo ➜ Tooth Paste	29.5%	4.40
Potatoes ➜ Extruded Snack	25.6%	3.32
Powder Detergen ➜ Tooth Paste	23.6%	3.52

Several strong associations were identified between commonly purchased items, indicating potential bundling or cross-selling opportunities:

- Customers who **purchased Bar Soap** had a 39.1% likelihood of **also buying Tooth Paste**. This rule has the highest lift of 5.84, meaning the association is nearly 6× stronger than random chance.
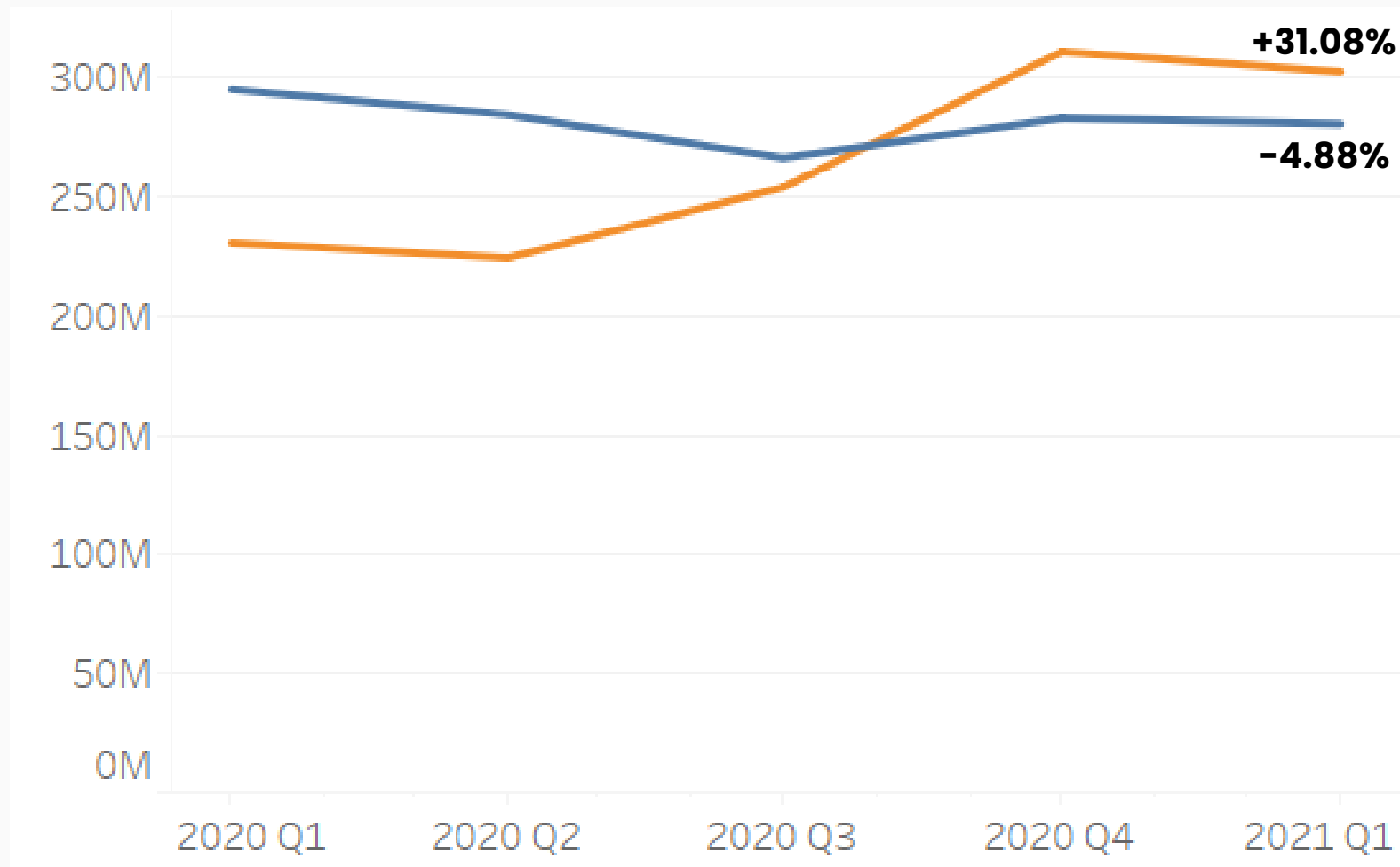
→ Great opportunity for bundling or co-promotion.

Store-Level Performance
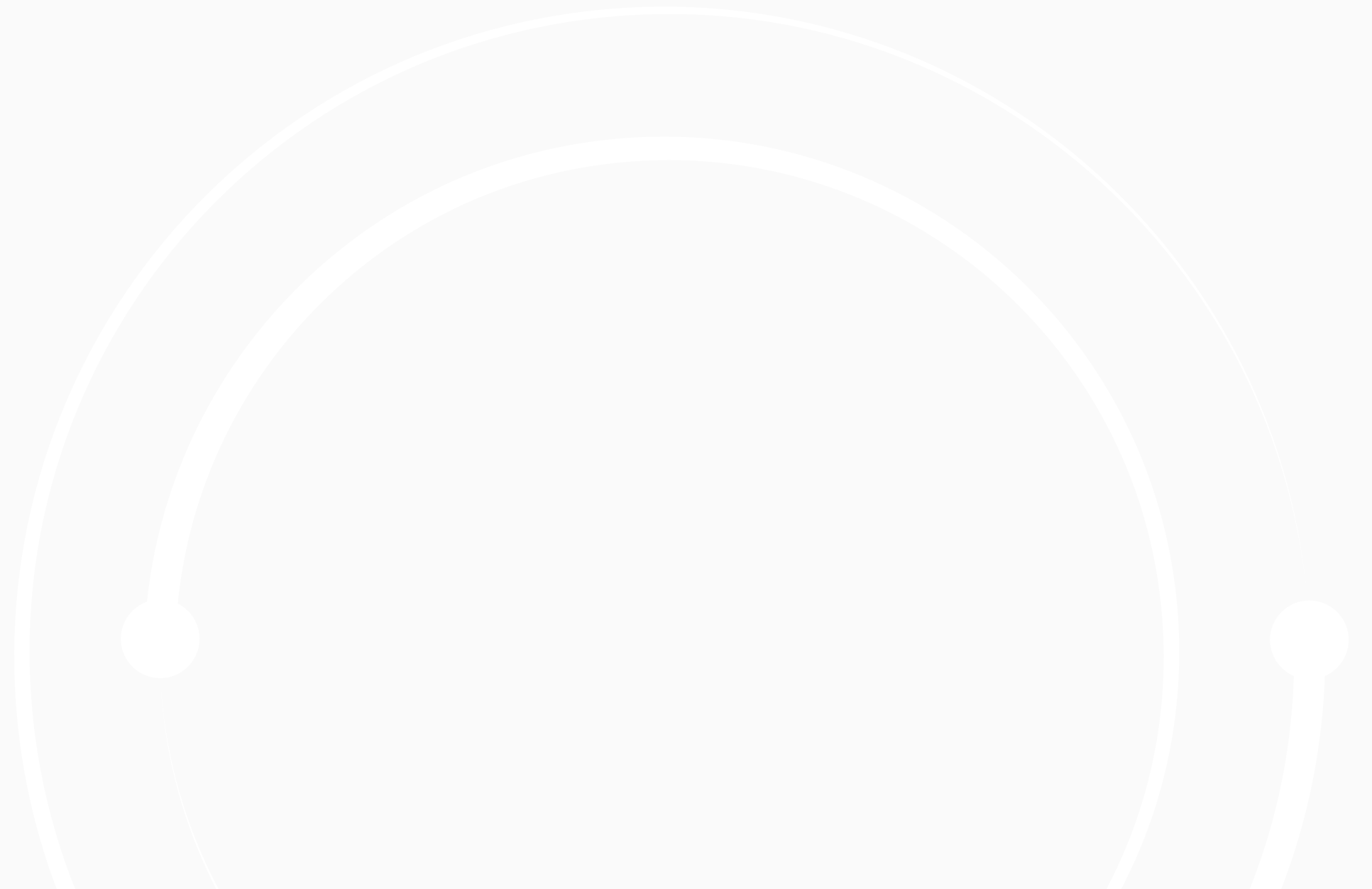
Revenue Trend per Store (Q1 2020 - Q1 2021)

Legend:
- Q060 Store (Regional 3-Bali)
- J048 Store (Regional 2-Bogor)

Chart labels: +31.08%, −4.88%

X-axis: 2020 Q1, 2020 Q2, 2020 Q3, 2020 Q4, 2021 Q1
Y-axis: 0M, 50M, 100M, 150M, 200M, 250M, 300M

From Q1 2020 to Q1 2021, **Q060 Store (Regional 3-Bali)** experienced a 31% increase in sales, while **J048 Store (Regional 2-Bogor)** saw a 5% decline.

J048 Store (Regional 2-Bogor)

Total Revenue
Rp1,410,549,034

Total Promotional Products Taken
934

Total Quantity of Products Sold
102,961
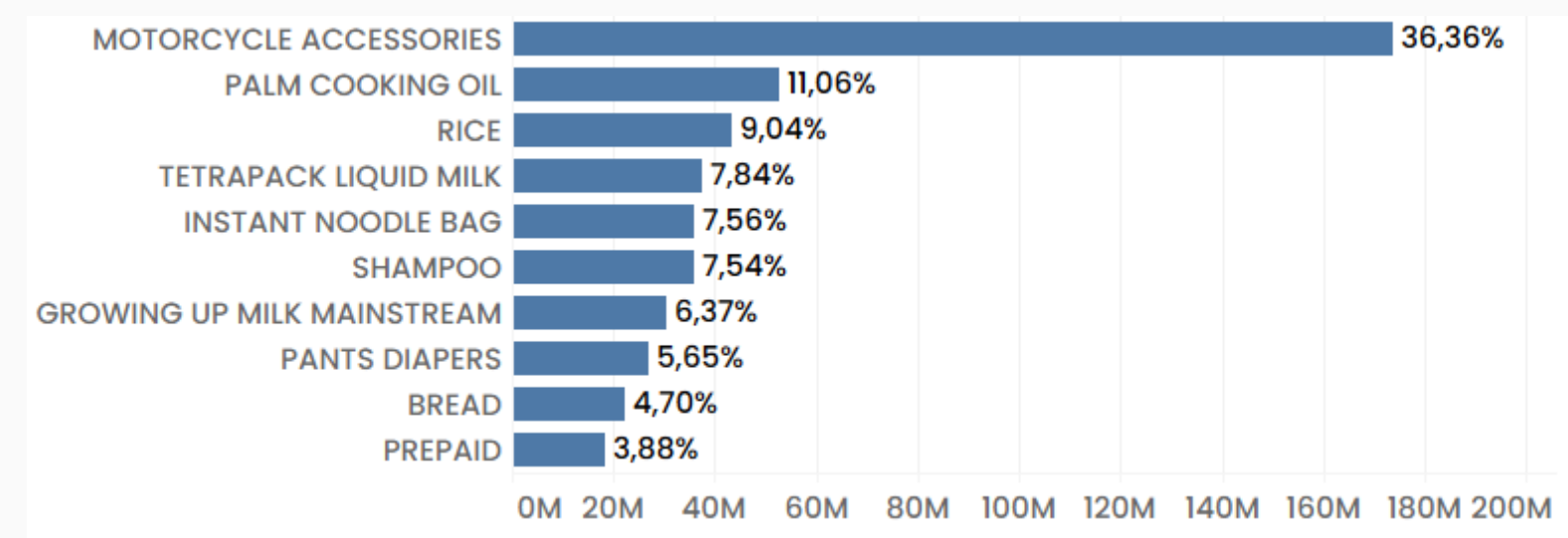
Total Members
12

Q060 Store (Regional 3-Bali)

Total Revenue
Rp1,323,599,294

Total Promotional Products Taken
881
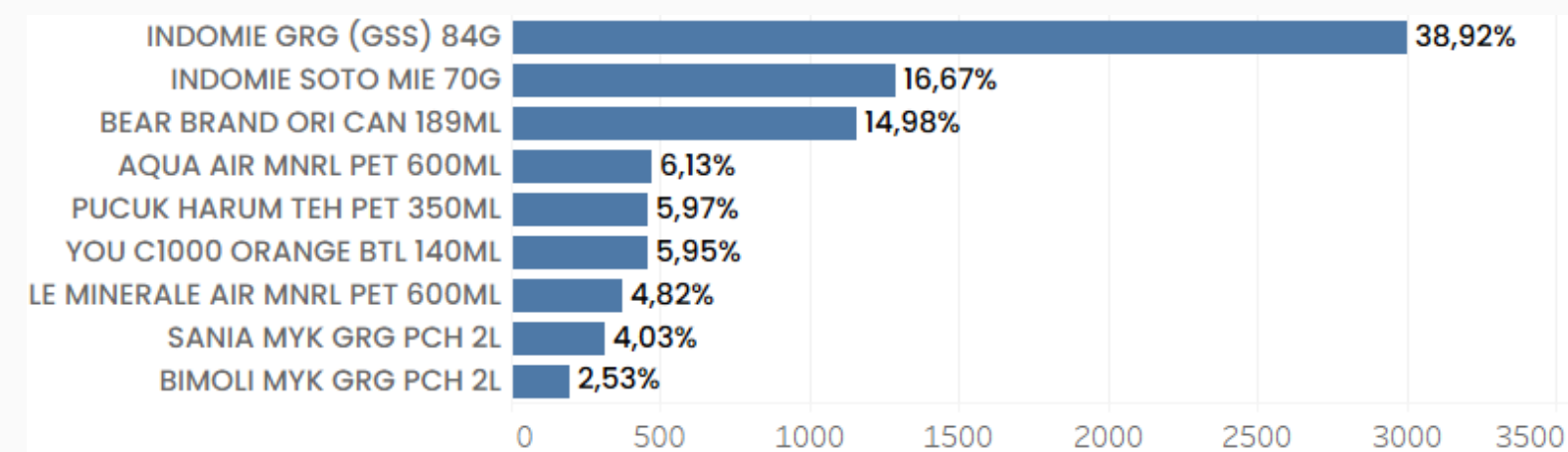
Total Quantity of Products Sold
113,959

Total Members
15

Top 10 Product Categories by Net Revenue

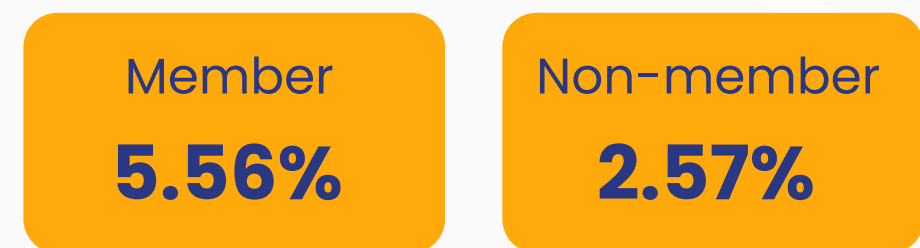| Category	Percentage
MOTORCYCLE ACCESSORIES	36,36%
PALM COOKING OIL	11,06%
RICE	9,04%
TETRAPACK LIQUID MILK	7,84%
INSTANT NOODLE BAG	7,56%
SHAMPOO	7,54%
GROWING UP MILK MAINSTREAM	6,37%
PANTS DIAPERS	5,65%
BREAD	4,70%
PREPAID	3,88%

Store J048 shows a highly concentrated revenue distribution, where Motorcycle Accessories dominate over 36% of net revenue. This indicates that **the store may serve a niche or targeted customer group.**

While Motorcycle Accessories generate the highest revenue, Indomie GRG 84G accounts for nearly 39% of items sold.

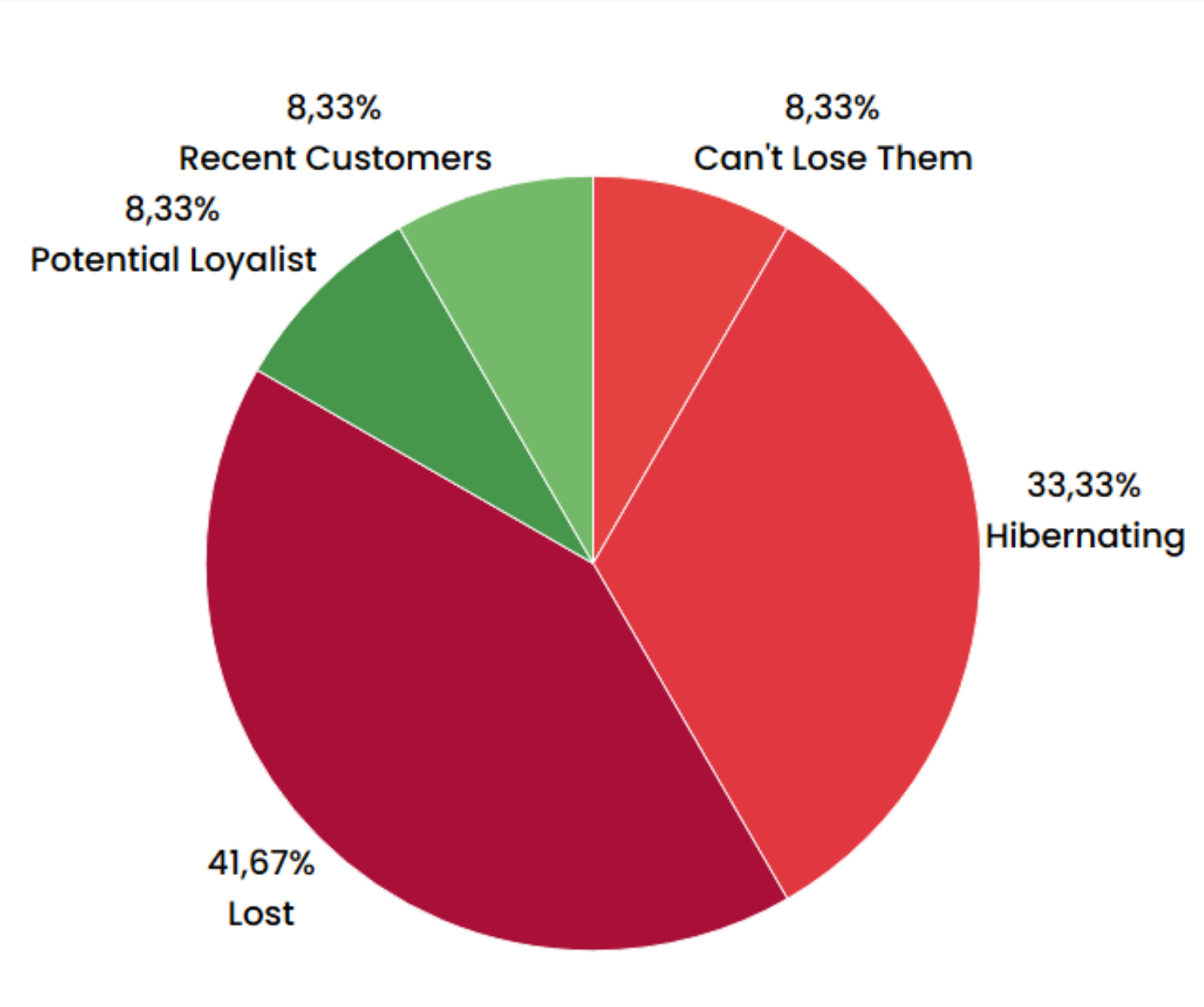## Top 10 Purchased Products by Quantity

Product	Percentage
INDOMIE GRG (GSS) 84G	38,92%
INDOMIE SOTO MIE 70G	16,67%
BEAR BRAND ORI CAN 189ML	14,98%
AQUA AIR MNRL PET 600ML	6,13%
PUCUK HARUM TEH PET 350ML	5,97%
YOU C1000 ORANGE BTL 140ML	5,95%
LE MINERALE AIR MNRL PET 600ML	4,82%
SANIA MYK GRG PCH 2L	4,03%
BIMOLI MYK GRG PCH 2L	2,53%

Promotional Products Uptake Rate

Member	Non-member
5.56%	2.57%

Member customers are more likely to **engage with promotional products** compared to non-members.

RFM Analysis

8,33% Recent Customers

8,33% Potential Loyalist

8,33% Can't Lose Them

33,33% Hibernating

41,67% Lost

Segment	Total Costumer
Potential Loyalist	1
Recent Customers	1
Can't Lose Them	1
Hibernating	4
Lost	5

The majority of customers are in the Hibernating and Lost categories (9 out of 12 customers in total), indicating that most customers have been inactive for a significant period of time and have low purchase value. This highlights the challenge of maintaining long-term customer engagement.

Top 10 Product Categories by Net Revenue

Category	%
PALM COOKING OIL	30,01%
PREPAID	16,51%
BREAD	9,75%
TETRAPACK LIQUID MILK	9,00%
INSTANT NOODLE BAG	8,19%
SHAMPOO	7,90%
PANTS DIAPERS	7,26%
GROWING UP MILK MAINSTREAM	6,03%
RICE	4,87%
MOTORCYCLE ACCESSORIES	0,47%

(0M – 120M scale)

Top 10 Purchased Products by Quantity

Product	%
TELUR AYAM NGR BKL/PCS	23,07%
INDOMIE GRG (GSS) 84G	14,97%
AQUA AIR MNRL PET 600ML	11,91%
BIMOLI MYK GRG PCH 2L	10,28%
SANIA MYK GRG PCH 2L	7,91%
BEAR BRAND ORI CAN 189ML	7,60%
YOU C1000 ORANGE BTL 140ML	7,00%
LE MINERALE AIR MNRL PET 600ML	6,27%
PUCUK HARUM TEH PET 350ML	6,24%
INDOMIE SOTO MIE 70G	4,76%

(0 – 3500 scale)

Unlike J048, Store Q060 has a more balanced product category distribution, led by essential items like Palm Cooking Oil (30%), Prepaid credits, and Bread. This reflects a **consumer base focused on household and daily consumption**, suitable for regular necessity-driven campaigns.

Eggs dominate the volume of sales, accounting for over 23% of items sold. This aligns with the product category trend, suggesting that daily food staples are core to this store's performance.

Promotional Products Uptake Rate

Member	Non-member
5.75%	**1.58%**

Similar to Store J048, **member customers** are more likely to **engage with promotional products** compared to non-members. This suggests that promotional campaigns may be more effective when targeted toward loyal or registered customers.
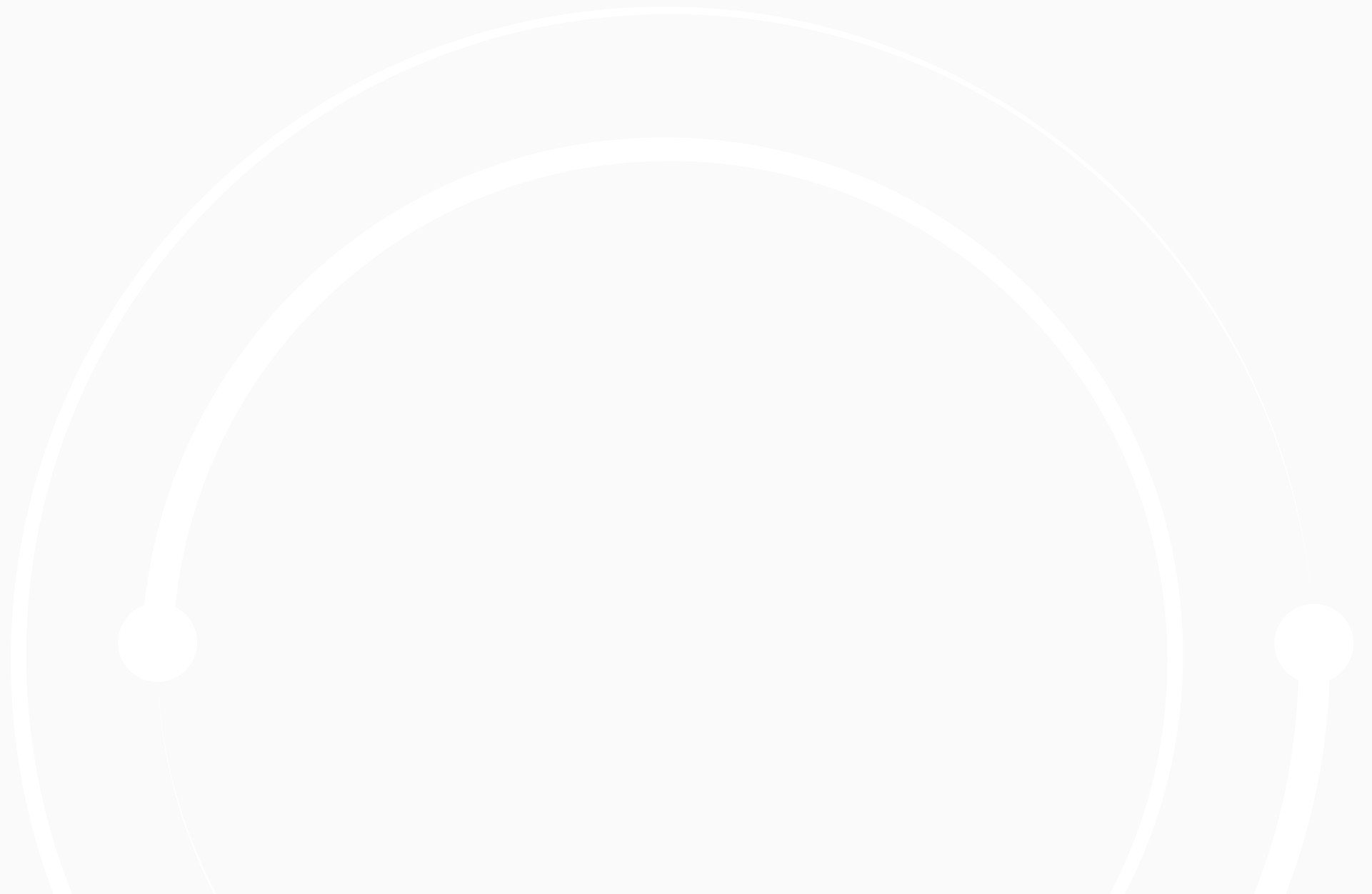
RFM Analysis
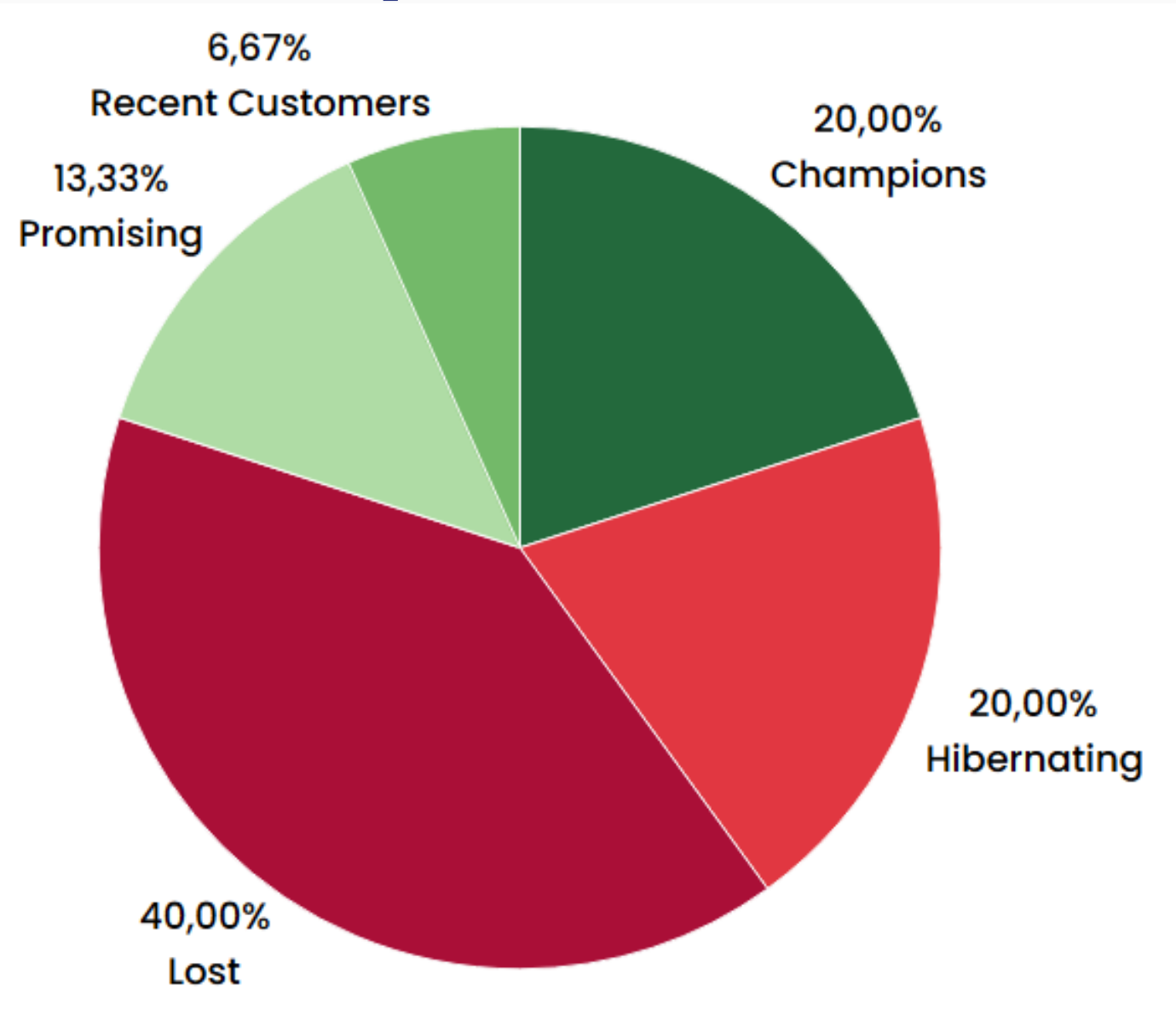
Segment	Total Costumer
Champions	3
Recent Customers	1
Promising	2
Hibernating	3
Lost	6

This store has a Champion, Recent Customers, and Promising customers (6 out of 15 in total), the majority still falls into the Hibernating and Lost categories (9 out of 15 customers).

The store has an opportunity to re-engage these inactive customers through targeted promotions or personalized offers, while also nurturing the growing relationship with its Champions and Promising segments.

Key-Insight Finding

Key-Insight Finding

- **Revenue grew by 10.91% YoY**, driven mainly by Q060 (Regional 3 - Bali), while J048 saw a decline.
- **Product affinity analysis** reveals cross-sell potential e.g., Bar Soap ➜ Tooth Paste
- **Member customers engage more with promotional goods in both stores**, suggesting loyalty programs amplify promotion effectiveness.
- **J048 has high reliance on a niche category** (motorcycle accessories), while **volume is driven by instant noodles**.
- **Q060** shows broader product appeal, with **essential items** like oil, bread, and eggs **leading both in revenue and quantity**, reflecting a more household-focused basket
- **High percentage of inactive customers** (Hibernating and Lost) found in both stores, indicating potential churn risk.
- **Store J048 (Bogor)** shows no Champion segment and is dominated by Lost and Hibernating customers, suggesting low retention and potential churn risk. **In contrast, Store Q060 (Bali)** has a healthier mix, with 20% of customers being Champions or Promising, indicating stronger engagement and loyalty potential.

Summary & Recommendation
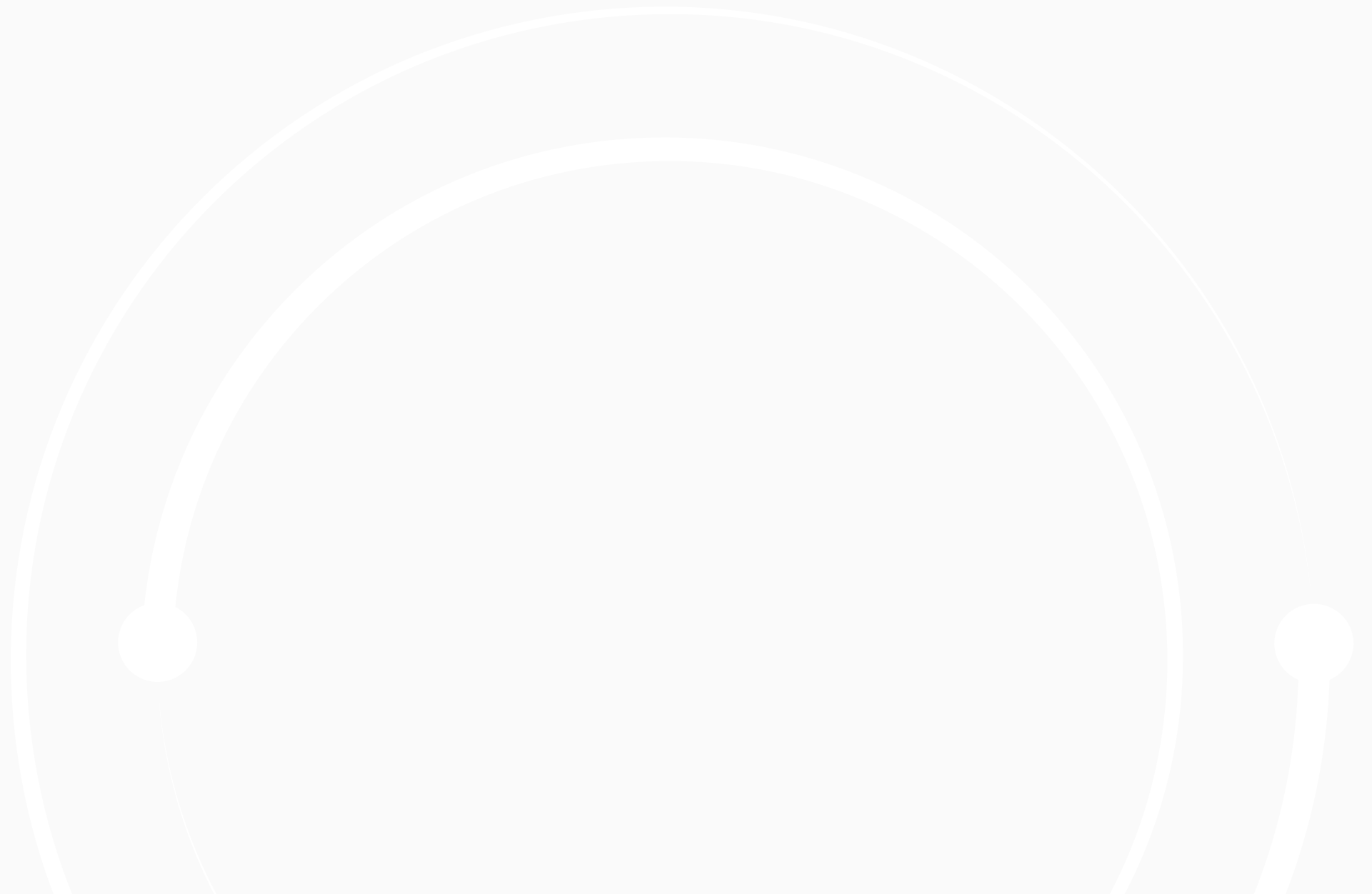
Overall Summary

- The analysis revealed purchasing trends, key product categories, and customer behavior across two stores.
- Both stores show room for improvement in customer retention and promotional targeting.

Recommendation

- **For bundling strategy**, use product affinity rules to create effective bundles (e.g., Bar Soap + Tooth Paste)
- **For customer retention**, re-engage Hibernating and Lost segments through personalized offers or reminders.
- **For customer development**, nurture Promising and Recent Customers into Champion via increase awareness by offering free trials.
- **For store J048 focus**, improve declining sales with aggressive reactivation campaigns and loyalty efforts.
- **For store Q060 focus**, maintain growth by rewarding Champions and expanding from Promising and Recent Customers

Thank You