

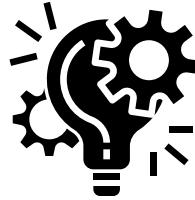
# Final Project

DATA ANALYST  
CUSTOMER SEGMENTATION

Lhedya Monica Ismon



# MAIN PROJECT OUTLINE



1 Overview Project

2 Project Bakground

3 Business Objecttives

4 Data Understanding

5 Data Preprocessing

6 Data Analysis and Insights

7 Actionable Insights and Recommendations

# Background Project



Large transaction volumes during **2022-2024**

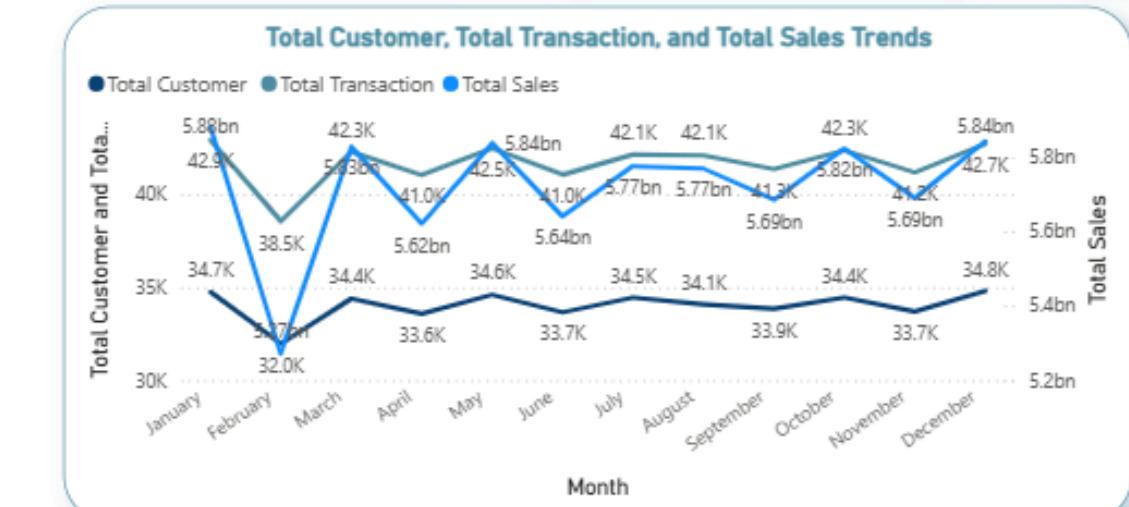


There is a difference in income of around **10 billion** between the initial price and the price after the discount.



Trends in customer behavior cannot yet be explained in terms of **high and low value**.

**Marketing campaigns are not on target**, product categories with high discounts but low revenue, **and unclear dominant products in each group**.





## Primary Objective

Performing **customer segmentation using the RFM Analysis** (Recency, Frequency, Monetary) approach with the Global E-Commerce Sales dataset from Kaggle, in order to help companies understand shopping behavior, identify high-value customers, and provide more targeted marketing strategy recommendations.



## Specific Objective

### **Identifying customer transaction patterns through EDA analysis**

- Identify customers with the highest purchases
- Identify product categories that generate the highest sales and product categories that are in demand
- Product distribution and sales in each region
- Most commonly used payment methods

### **Customer segmentation using the RFM method**

- To determine customer characteristics and distribution based on segments

### **Conducting revenue evaluations for each segment**

- To determine the distribution of income in each segment

### **Identifying sales trends in each segment over time**

- To identify purchasing trends in each segment

### **Providing targeted marketing strategy recommendations**

# DATA UNDERSTANDING

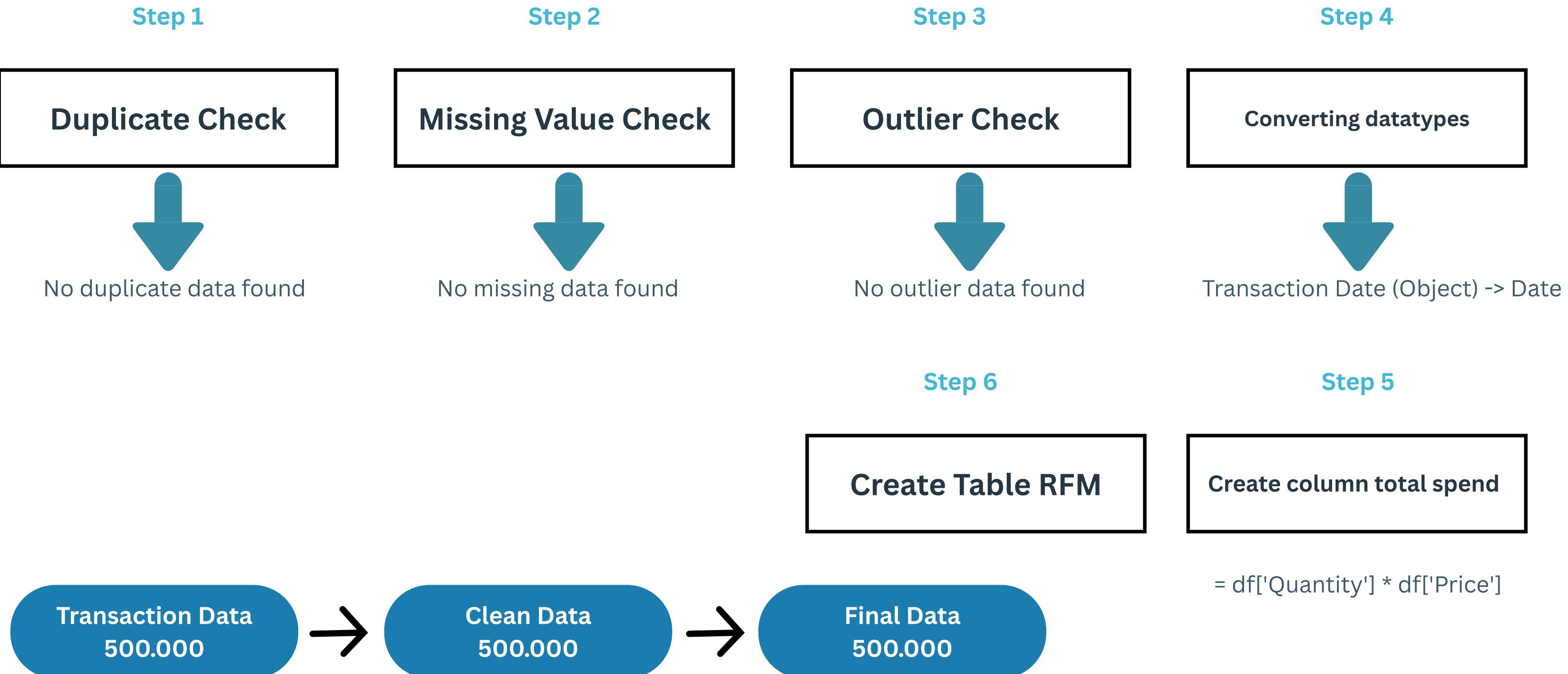


Contains more than 500,000 sales transactions recorded over 2 years in various regions

Collected from  Kaggle

Transaction Date	Purchase date (YYYY-MM-DD)
Customer ID	Unique identifier for each customer
Region	Geographic region (North America, Europe, etc.)
Product & Category	Type of product purchased
Price & Quantity	Product price and units sold
Discount (%)	Discount applied to the purchase
Total Revenue	Final amount after discounts
Payment Method	Credit Card, PayPal, Crypto, etc.

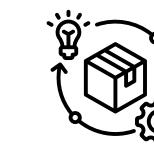
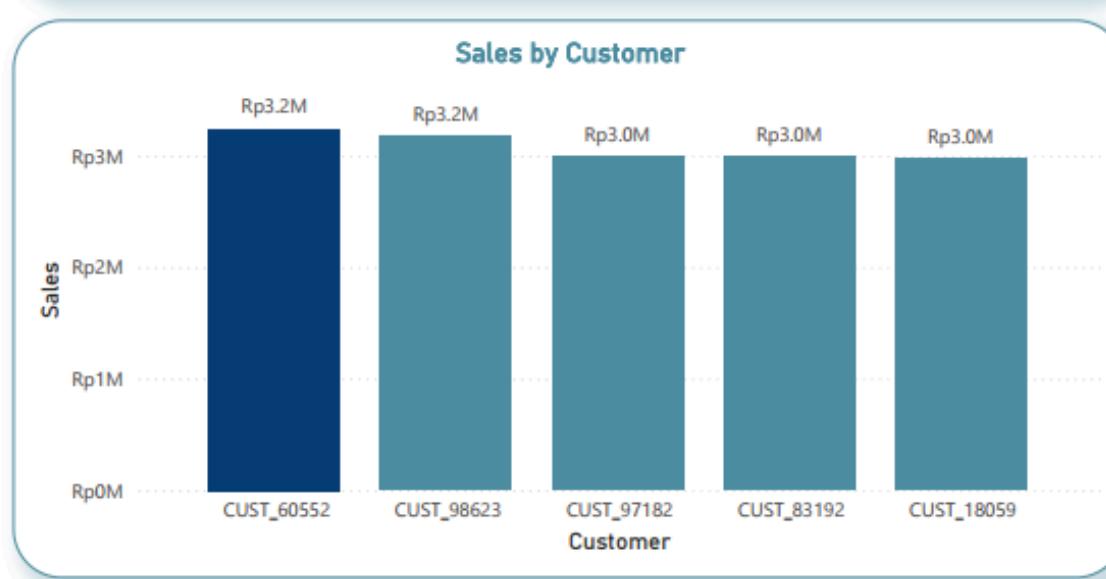
# DATA PREPROCESSING



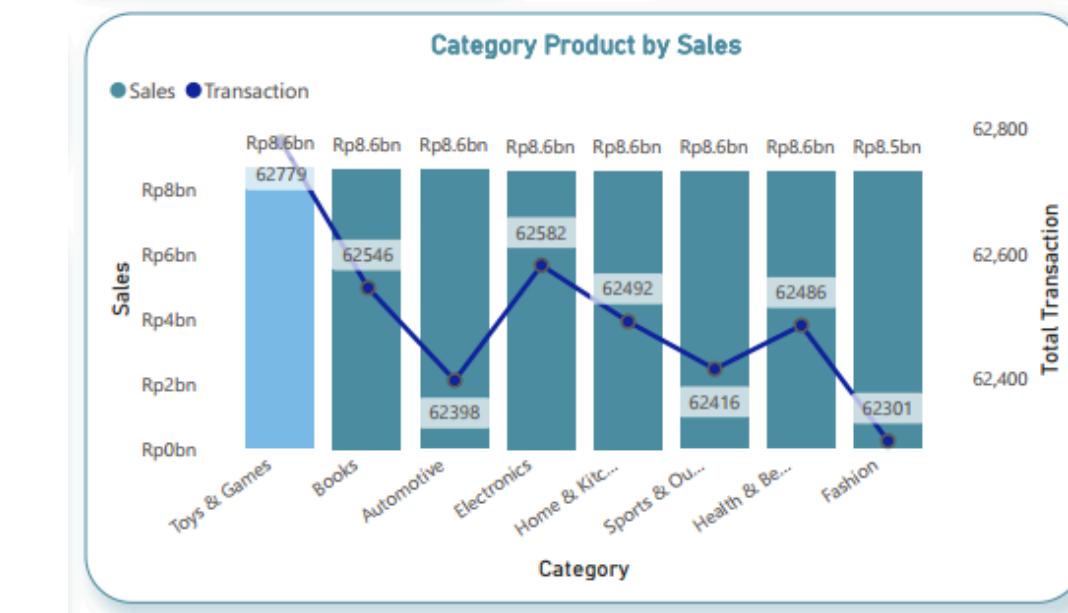
# Findings and Results: Exploratory Data Analysis



## Customer Perspective



## Product Perspective



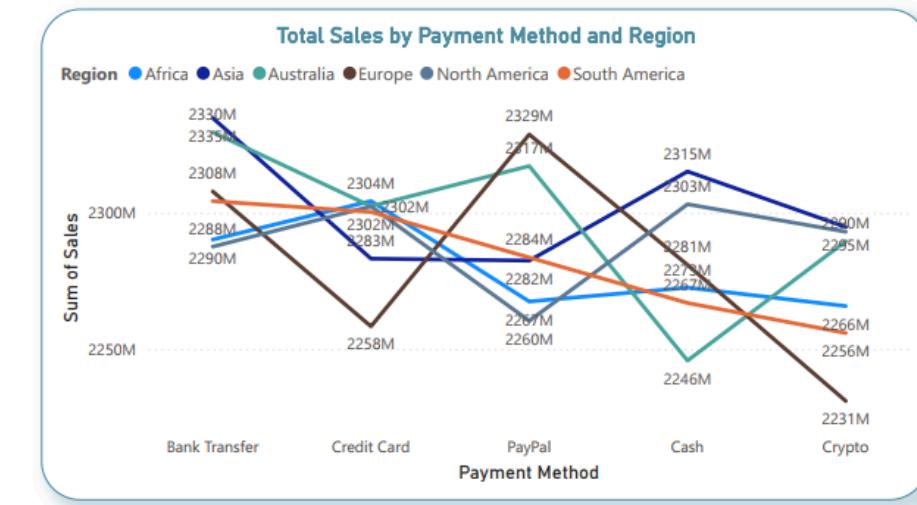
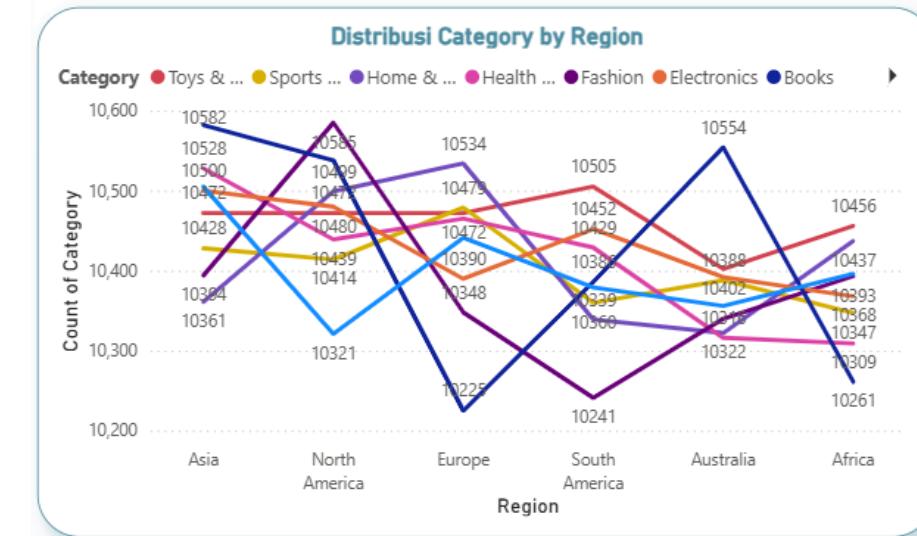
- Customer **CUST\_60552** with the highest sales contribution of approximately **(Rp. 3.2 million)**
- Sales contributions among customers do not vary greatly.

- The product category with the highest sales and best-selling items was **Toys & Games (Rp. 8.6 billion) and (62,779)** purchases.

# Findings and Results: Exploratory Data Analysis



## Geographical Perspective



- The region with the highest number of customers is **Asia with (56,527)** customers.
- The highest sales contribution is also in Asia with around **(Rp. 11.5 billion)**.
- The product category with the highest purchases in **Asia is Books (10,582)**, but purchases for each product category are **almost equal at around 10,000**.
- The most widely used payment method is bank transfer, with a total **of 2,230 in Asia**, but almost all payment methods are equal.
- The visualization shows that the number of customers and total sales are almost equal in each region.

# CUSTOMER SEGMENTATION RFM



	Score	Score	Score
Champions	4	4	4
Loyal	3	3	3
Potential Royalists	3	2	2
At Risk	2	3	3
Hibernating	2	2	2
Lost	1	1	1

# CUSTOMER SEGMENTATION RFM



☆☆☆

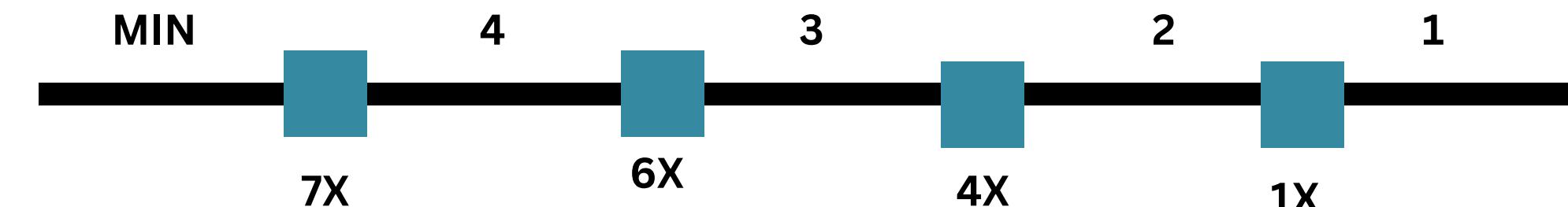
Recency Score



Recency Cutoff

42 Days      100 Days      198 Days      731 Days

Frequency Score



Frequency Cutoff

7X      6X      4X      1X

Monetary Score



Monetary Cutoff

Rp10.282.070      Rp7.137.130      Rp4.454.270      Rp7.020

# Findings and Results: RFM Segmentation Analysis



## RFM Metrics

Average of Recency

140.42

Average of Frequency

5.08

Average of Monetary

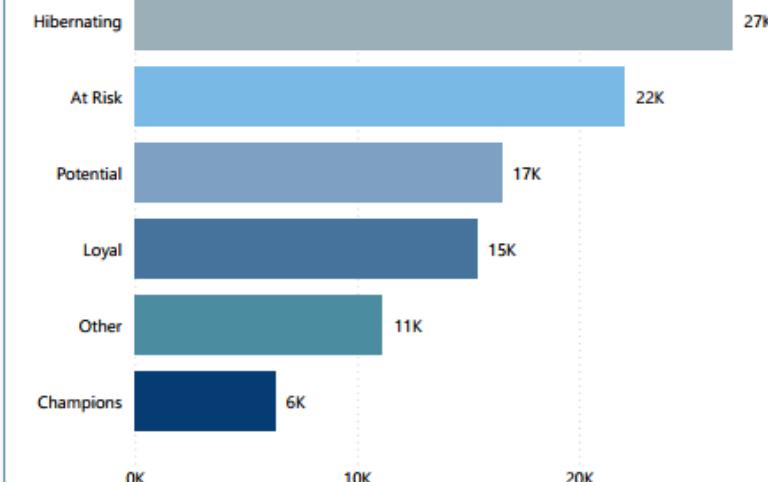
137.32K

- The average purchase value for customers with a **recency** of 140 days, a **frequency** of 5 times, and a **monetary** value of 137 thousand.



## Segment Distributions

Distribusi Segment

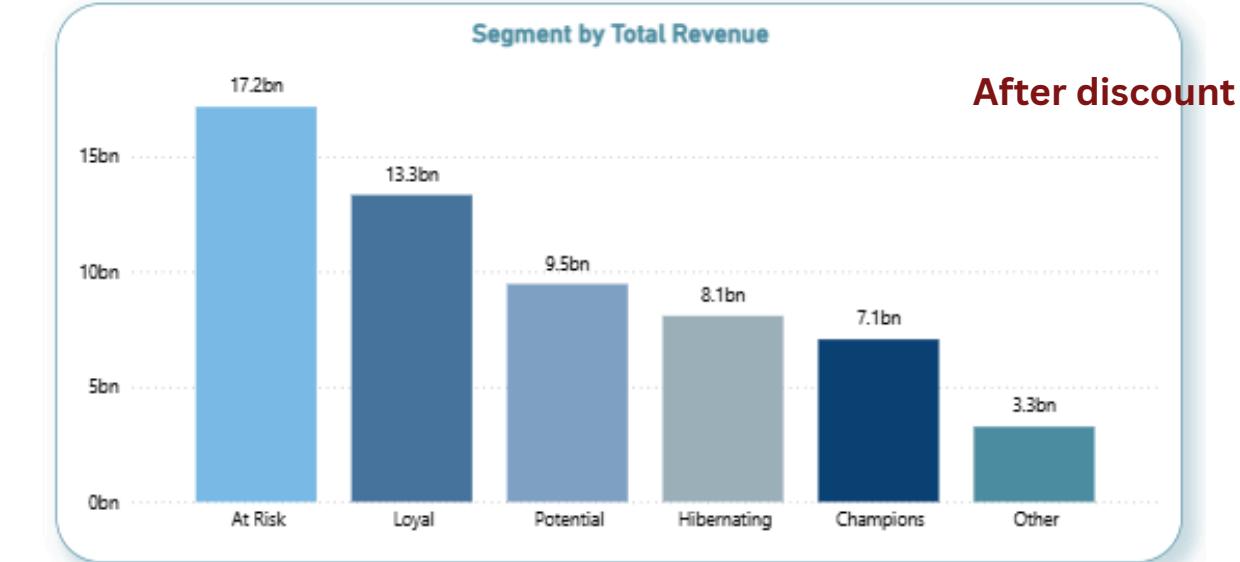
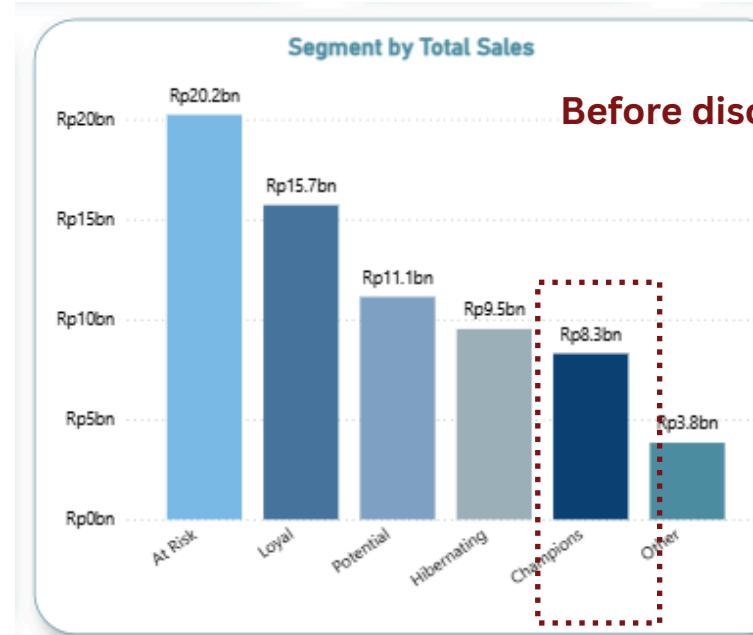
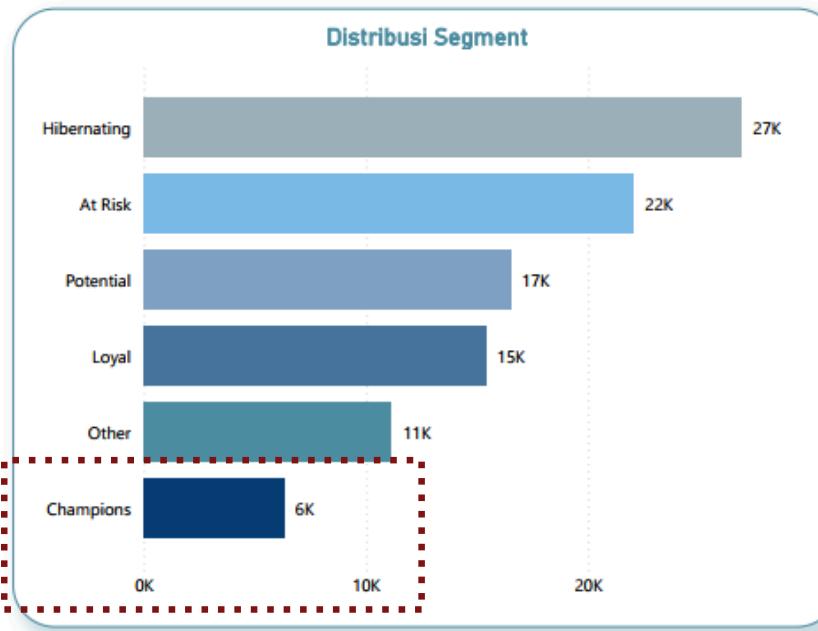


- The **Hibernating** segment has the highest number of customers at **2,700**, followed by the At Risk segment with 22,000 customers.
- The **Champions** segment has the lowest number of customers at **6,000**.

# Findings and Results: RFM Segmentation Analysis



## Distributions Income by Segment

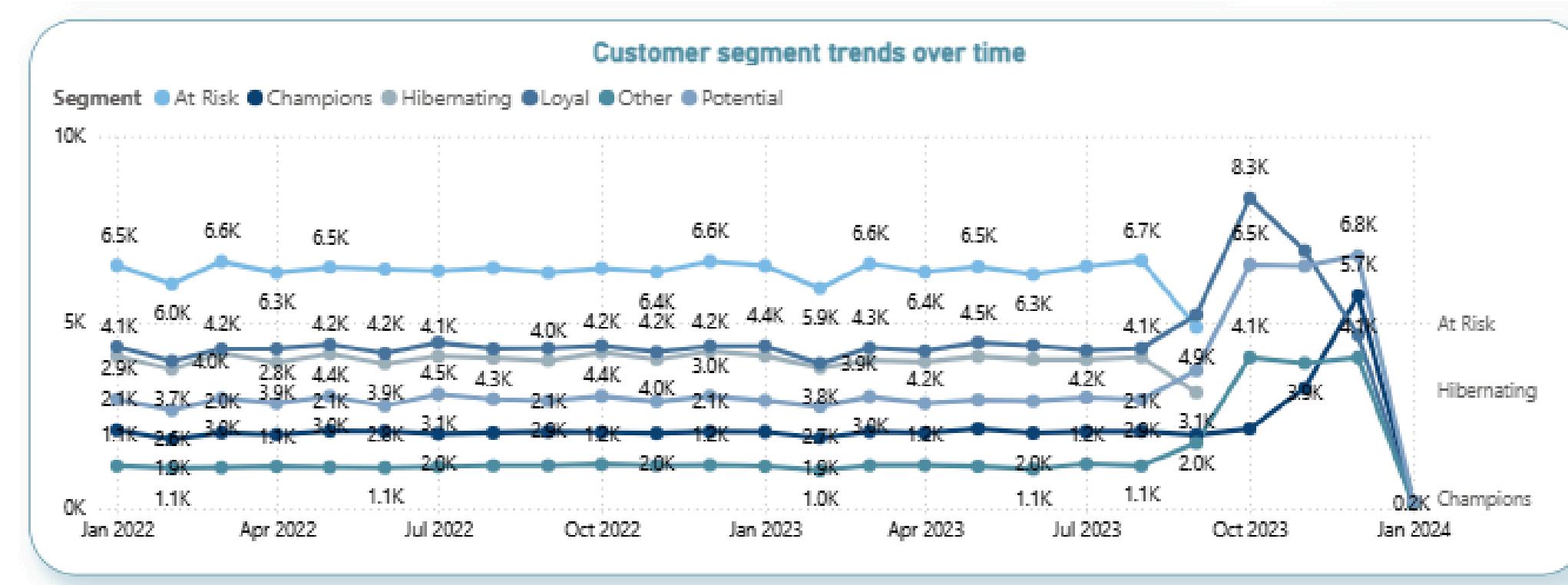


- The **At Risk** segment contributed the **highest income** based on total **sales (Rp. 20.2 billion)** and **revenue (Rp. 17.2 billion)**.
- In the **champions segment**, it can be seen that even with **a low number** of customers, it can generate fairly **high total sales and revenue**, which means that the number of **customers is not always directly proportional to sales and revenue contributions**.
- In terms of total revenue for each segment, it can be seen that **discounts are not very effective in maintaining revenue**.

# Findings and Results: RFM Segmentation Analysis



## Segment Trends



- Dominance of the **At Risk & Hibernating segments**: the majority of customers are in the passive area.
- **Champions** declined dramatically at the end of the period: high-value customers were not retained.
- **Loyal stagnant**: no significant growth, indicating that the retention strategy has not been maximized.
- **Potential not optimized**: stagnant even though it could be a source of new customers to move up the ladder.

# ACTIONABLE INSIGHTS AND RECOMMENDATIONS



## Marketing campaigns are not on target

Insight:

- Offering high discounts on every product category, especially books, does not actually generate the highest revenue.
- Offering discounts almost equalizes every product without considering the characteristics of each customer.

Recommendation:

- Use discounts as a way to attract customers in low or vulnerable segments so that they remain subscribers.
- For high-end customers, provide exclusive access or purchase rewards so that they feel valued.

## Lack of Marketing Differentiation Based on Category and Region

Insight:

- Category vs. payment method and total revenue per region show a relatively even distribution. This means that the current marketing approach is not specifically tailored to category preferences or purchasing patterns in certain regions.

Recommendations:

- Create more targeted marketing campaigns. Target the 'Champions' segment in Asia, which generates the highest revenue, with new products.
- Target the 'Potential' segment in Africa, which has low revenue, with special offers on the most popular product categories in that region (Toys & Games).

# ACTIONABLE INSIGHTS AND RECOMMENDATIONS



## Difficult to identify high-value customers

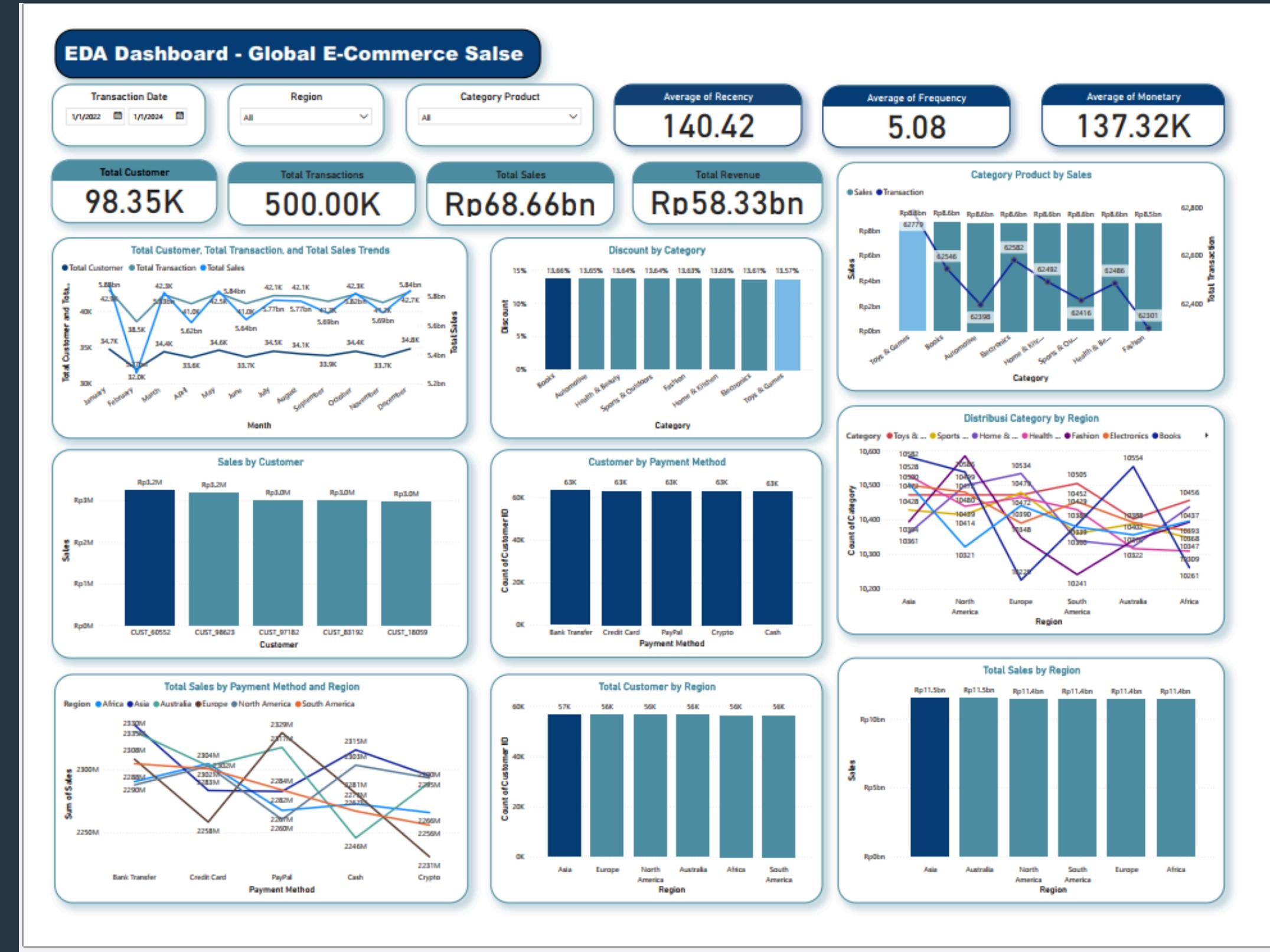
Insight:

- Champions are a small segment but contribute significantly to revenue. However, they are not being maximized, resulting in a drastic decline at the end of the period.
- Loyal Customers are the second highest purchasing customers after At Risk, but when viewed from the segment trend, they are not experiencing growth. This indicates that the marketing strategy has not been maximized in this area to increase purchasing power.
- The Hibernating and At Risk segments have a high number of customers, which indicates that the marketing strategy is not able to attract customers to move up a level.

Recommendations:

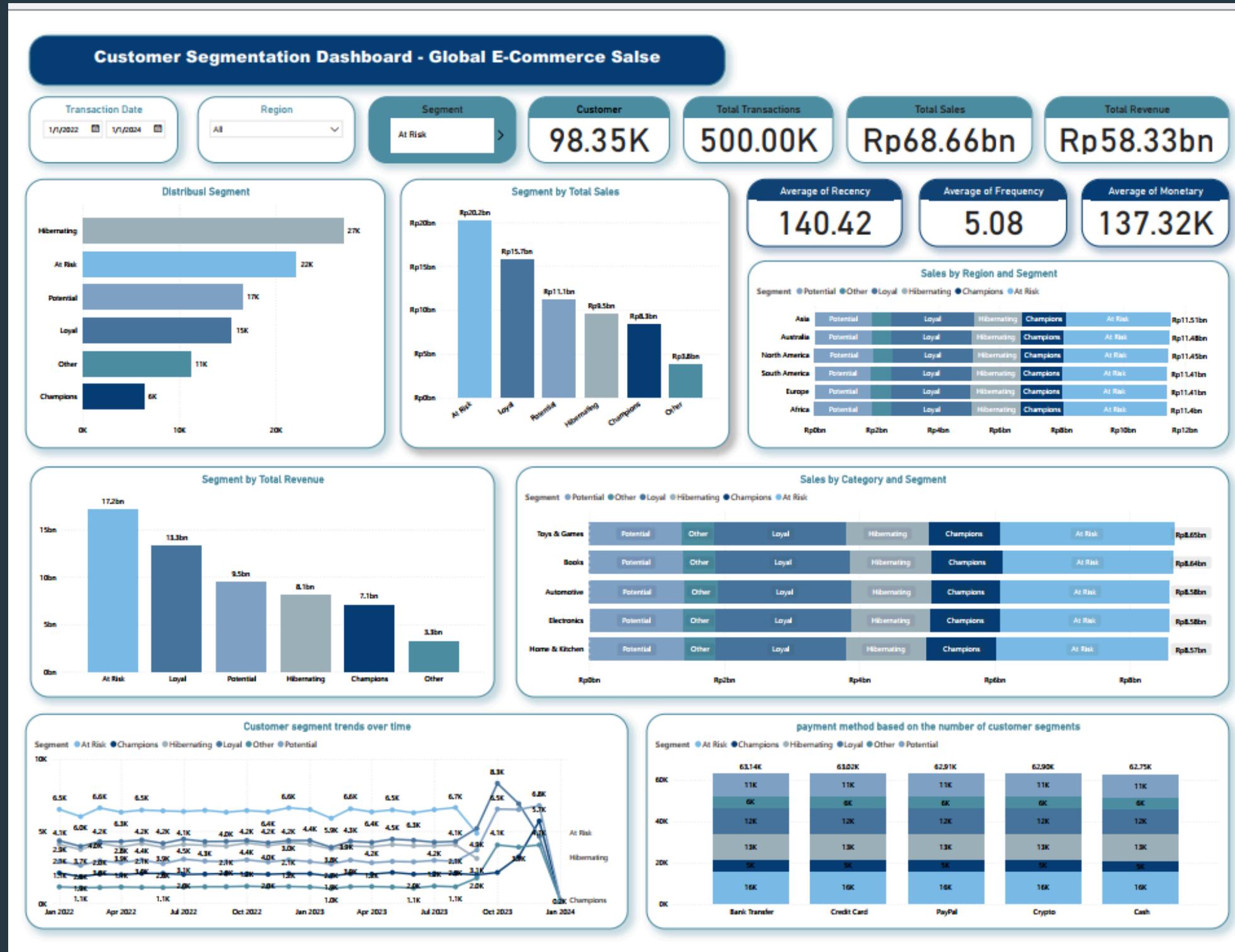
- Create a VIP customer list for priority services (faster delivery, dedicated customer service).
- Conduct upselling/cross-selling to the Loyal and Potential segments to help them advance to Champions.
- Use predictive analytics to identify customers with the potential to move up segments and focus marketing strategies on them.

# EDA DASHBOARD



# CUSTOMER SEGMENTATION DASHBOARD

bimbing



Providing insight into customer segmentation based on the RFM (Recency, Frequency, Monetary) model.



# THANK YOU FOR YOUR NICE ATTENTION



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