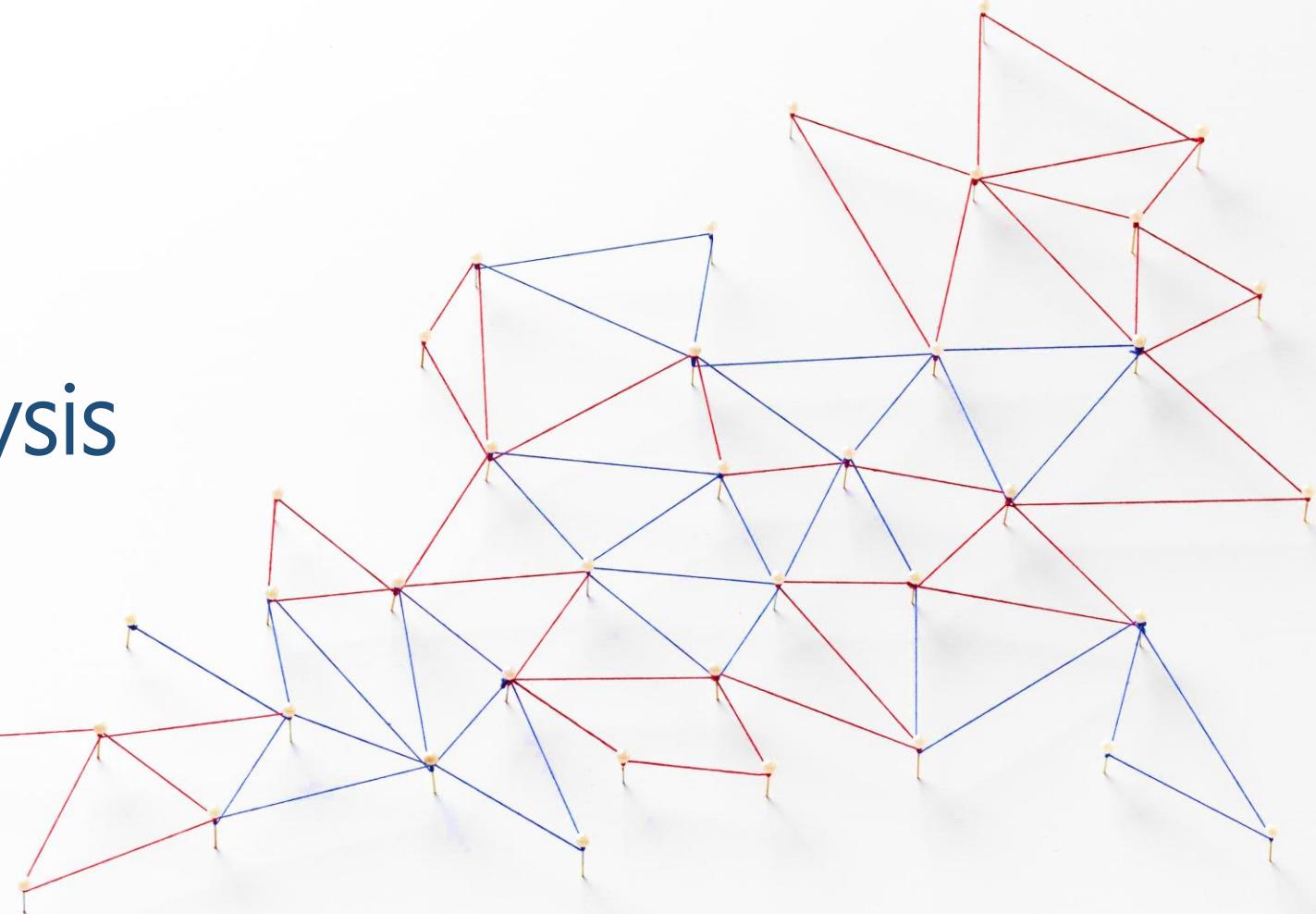


# PRDA-05 Customer Data Segmentation Analysis

[View in Power BI](#)

By: -  
Gujari Sai Milan  
Data Analyst



# Introduction

## Objective:

The aim of this project is to analyze customer shopping behavior from mall data collected between 2021 and 2023. The focus is on understanding customer demographics and behavioral trends, such as gender preferences, age groups, payment methods, and their impact on revenue.

## Key Focus Areas:

- Analyzing customer segmentation by gender and age group.
- Identifying preferred payment methods and their usage trends.
- Studying revenue patterns and seasonal variations over the selected period.

## Tools and Technologies:

- **Excel:** Used for data cleaning and preparation.
- **Power BI:** Employed for visualization and deeper insights through interactive dashboards.

# Insights Based on Gender and Age Group

## Customer Segmentation Analysis

No.of Customer

99.46K

Total Sales

₹251.51M

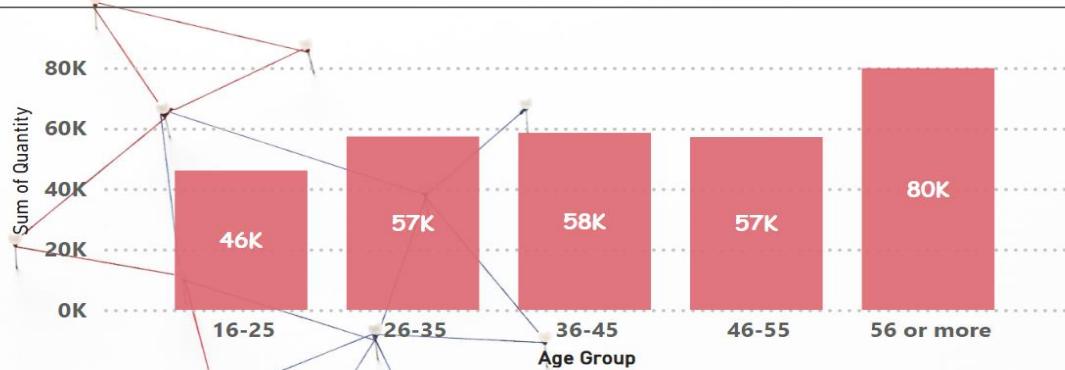
Gender

Select all

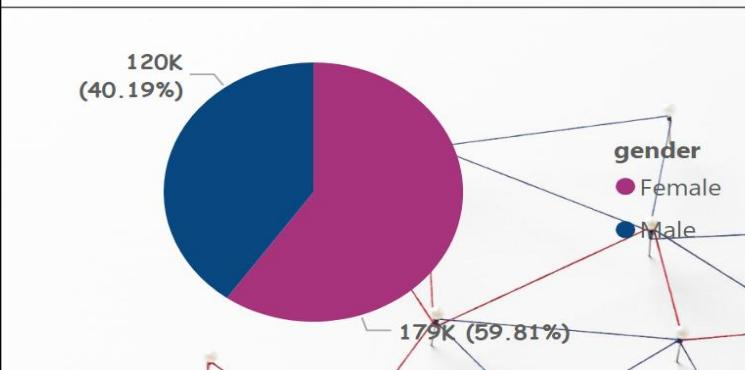
Female

Male

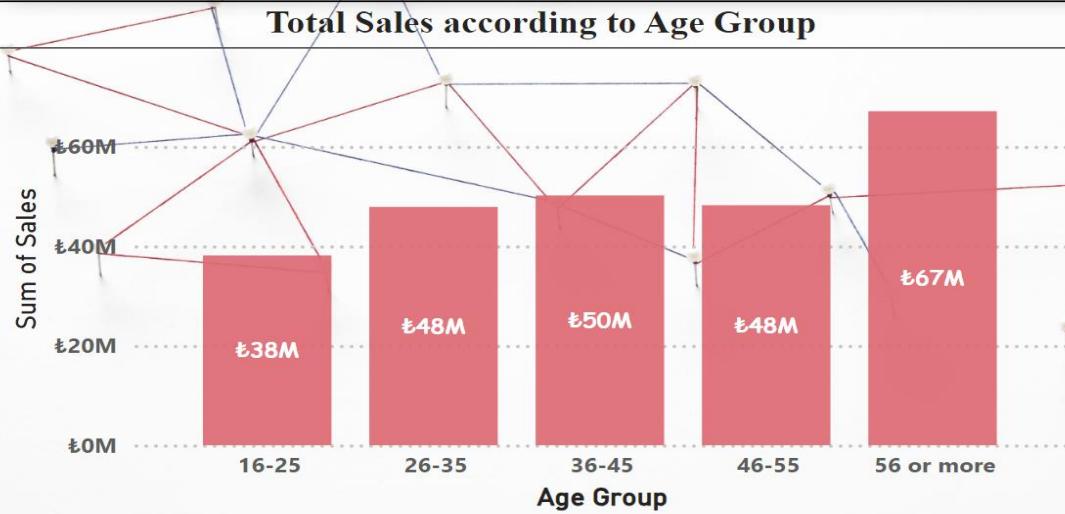
Total No.of Quantity sold by Age Group



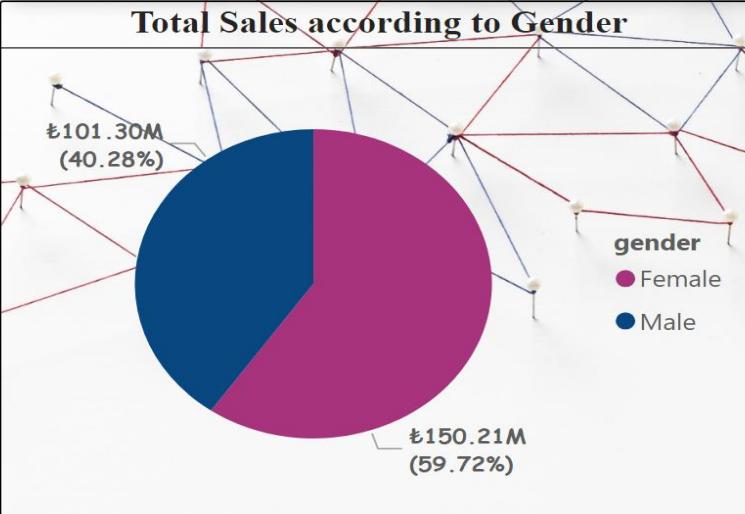
Total no.of Quantity sold according to Gender



Total Sales according to Age Group



Total Sales according to Gender



Age Group

Select all

26-35

46-55

16-25

36-45

56 or more

Mode of Payment

Select all

Cash

Credit Card

Debit Card

Categories

Select all

Shoes

Books

Souvenir

Clothing

Technology

Cosmetics

Toys

Food & Beverage

# Insights Based on Category

## Customer Segmentation Analysis

No.of Customer

**99.46K**

Total Sales

**₺251.51M**

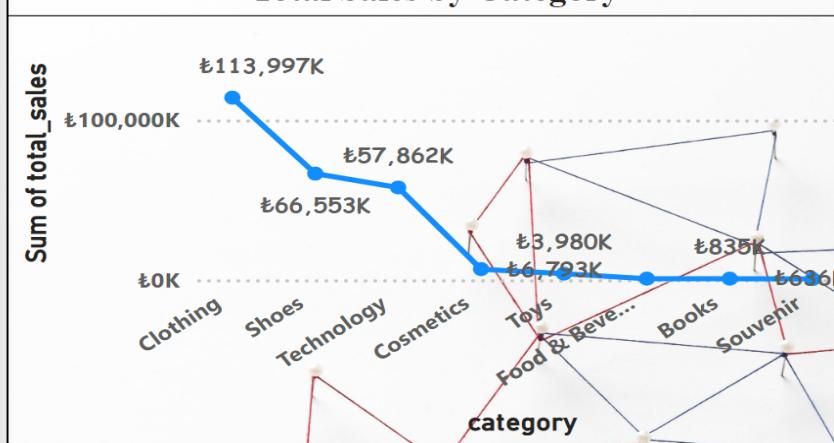
Gender

Select all    Female    Male

### Relation Between Category and Gender

category	Female	Male	Total
Clothing	₺68,251,695.60	₺45,745,095.44	₺113,996,791.04
Shoes	₺39,425,167.30	₺27,128,284.17	₺66,553,451.47
Technology	₺34,669,950.00	₺23,192,400.00	₺57,862,350.00
Cosmetics	₺4,066,772.54	₺2,726,090.36	₺6,792,862.90
Toys	₺2,416,046.08	₺1,564,380.16	₺3,980,426.24
Food & Beverage	₺505,322.60	₺344,212.45	₺849,535.05
Books	₺489,314.70	₺345,238.20	₺834,552.90
Souvenir	₺382,867.20	₺252,957.45	₺635,824.65
Total	₺150,207,136.02	₺101,298,658.23	₺251,505,794.25

### Total Sales by Category



### Relation Between Category and Age Group

category	16-25	26-35	36-45	46-55	56 or more	Total
Clothing	₺17,377,932.88	₺21,785,207.84	₺22,015,069.12	₺22,271,937.60	₺30,546,643.60	₺113,996,791.04
Shoes	₺10,331,926.55	₺12,805,827.29	₺13,297,966.69	₺12,629,977.48	₺17,487,753.46	₺66,553,451.47
Technology	₺8,374,800.00	₺10,780,350.00	₺12,318,600.00	₺10,836,000.00	₺15,552,600.00	₺57,862,350.00
Cosmetics	₺1,029,063.94	₺1,302,827.72	₺1,327,955.60	₺1,314,375.16	₺1,818,640.48	₺6,792,862.90
Toys	₺636,052.48	₺756,080.64	₺774,430.72	₺738,662.40	₺1,075,200.00	₺3,980,426.24
Food & Beverage	₺130,169.47	₺164,582.87	₺170,110.98	₺159,535.92	₺225,135.81	₺849,535.05
Books	₺138,667.95	₺155,999.55	₺159,271.95	₺157,044.90	₺223,568.55	₺834,552.90
Souvenir	₺99,658.08	₺128,783.67	₺120,830.73	₺112,209.18	₺174,342.99	₺635,824.65
Total	₺38,118,271.35	₺47,879,659.58	₺50,184,235.79	₺48,219,742.64	₺67,103,884.89	₺251,505,794.25

### Mode of Payment

Select all    Cash    Credit Card    Debit Card

### Categories

Select all	Shoes
Books	Souvenir
Clothing	Technology
Cosmetics	Toys
Food & Beverage	

# Overall theory based on Age Group, Gender, Category

## Demographic Insights

### Age Groups:

- **56 or More:** Highest spend (**67M TL**, **80k** items).
- **16-25:** Lowest spend (**38M TL**, **46k** items); consider budget-friendly products.

### Gender:

- **Male:** **101.30M TL** (40.19% of quantity sold).
- **Female:** **150.21M TL** (59.81% of quantity sold); stronger engagement in fashion and beauty.

### Top Categories:

- **Females:** Clothing (**68.25M TL**), Cosmetics (**4.07M TL**).
- **Males:** Shoes (**139.43M TL**), Technology (**134.67M TL**).
- **Clothing:** Popular across ages; 56+ spend **30.55M TL**.
- **16-25:** Low spending on shoes and technology.

## Category Preferences

## Age Group Trends:

# Overall Insights Based on Payment Method

## Customer Segmentation Analysis

No.of Customer

**99.46K**

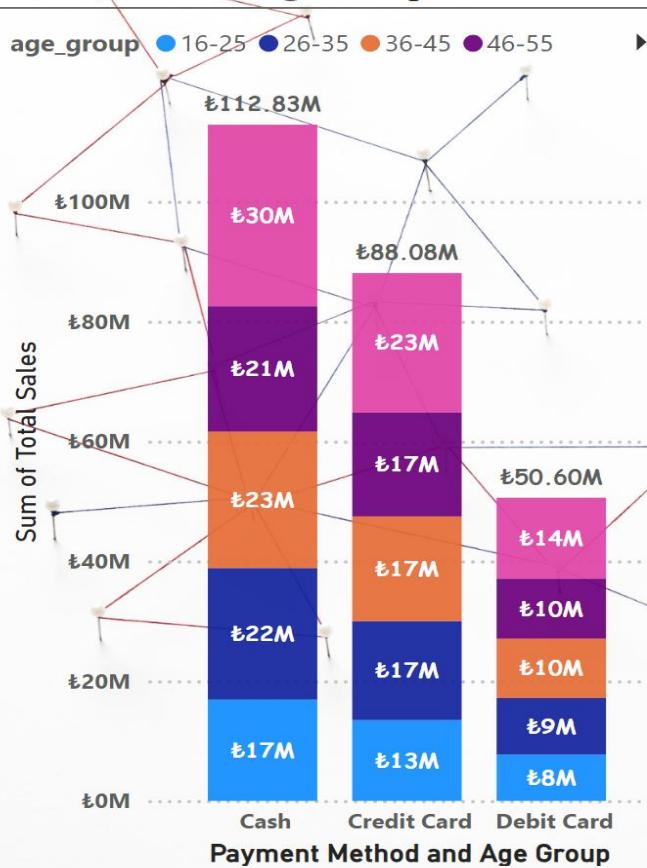
Total Sales

**₮251.51M**

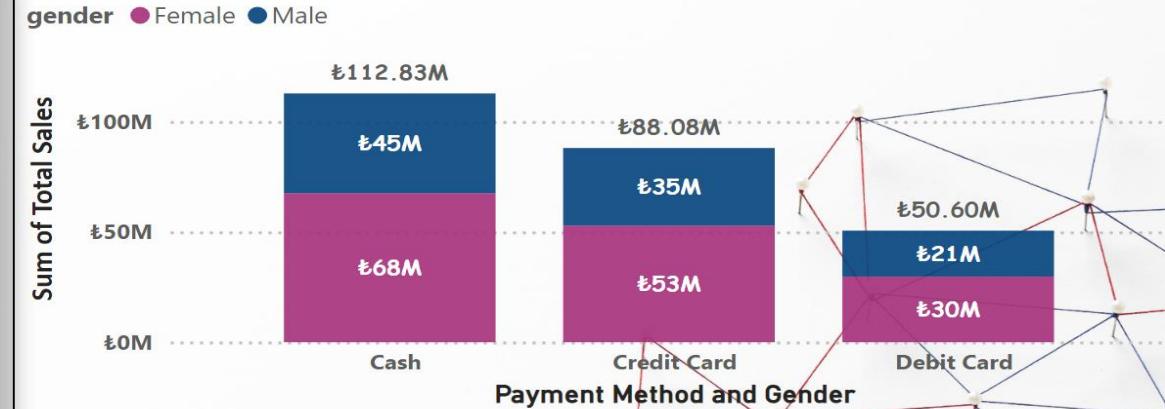
Gender

Select all    Female    Male

Relation Between Payment Method and Age Group



Relation Between Payment Method and Gender



Age Group

Select all    26-35    46-55  
16-25    36-45    56 or more

Mode of Payment

Select all    Cash    Credit Card    Debit Card

Categories

Select all    Shoes  
Books    Souvenir  
Clothing    Technology  
Cosmetics    Toys  
Food & Beverage

Relation Between Payment Method and Category

category	Cash	Credit Card	Debit Card	Total
Clothing	₮51,308,878.72	₮39,351,590.96	₮23,336,321.36	₮113,996,791.04
Shoes	₮29,782,836.08	₮23,560,873.69	₮13,209,741.70	₮66,553,451.47
Technology	₮25,937,100.00	₮20,493,900.00	₮11,431,350.00	₮57,862,350.00
Cosmetics	₮2,962,690.90	₮2,454,603.54	₮1,375,568.46	₮6,792,862.90
Toys	₮1,810,600.96	₮1,403,494.40	₮766,330.88	₮3,980,426.24
Food & Beverage	₮375,707.51	₮302,942.52	₮170,885.02	₮849,535.05
Books	₮379,946.85	₮280,608.30	₮173,997.75	₮834,552.90
Souvenir	₮274,482.00	₮229,110.36	₮132,232.29	₮635,824.65
Total	₮112,832,243.02	₮88,077,123.77	₮50,596,427.46	₮251,505,794.25

# Overall theory based on Age Group, Gender and Category

## Payment Method and Gender

### Total Sales:

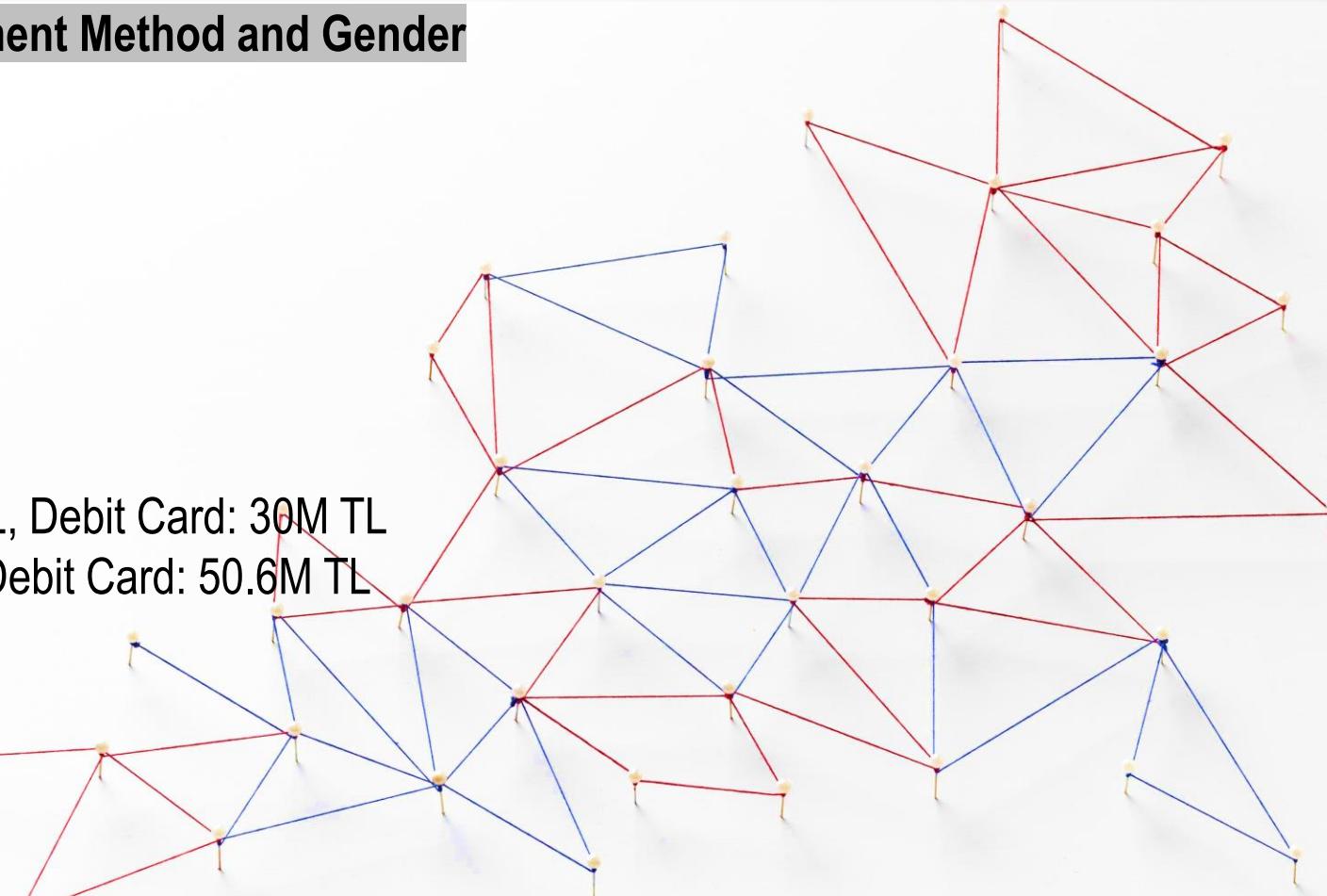
- Male: 101.30M TL
- Female: 150.21M TL

### Payment Preferences:

- Females: Cash: 68M TL, Credit Card: 53M TL, Debit Card: 30M TL
- Males: Cash: 45M TL, Credit Card: 35M TL, Debit Card: 50.6M TL

### Older Consumers (56 and Above):

- Cash: 30M TL
- Credit Card: 23M TL
- Debit Card: 14M TL



# Insights based on the overall revenue throughout the years 2021,22,23

## Customer Segmentation Analysis

### Age Group

Select all	36-45
16-25	46-55
26-35	56 or more

### No.of Customer

**99.46K**

### Mode of Payment

Select all	Credit Card
Cash	Debit Card

### Total Sales

**₺251.51M**

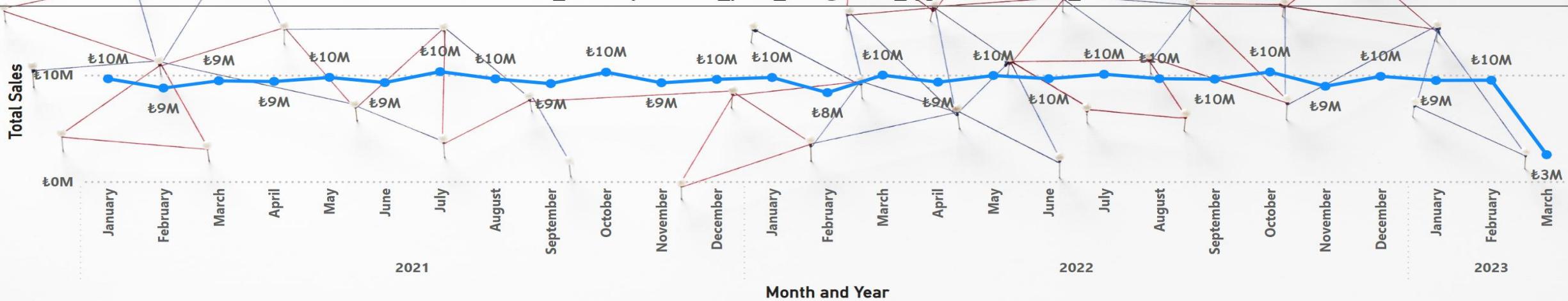
### Gender

Select all	Female	Male
------------	--------	------

### Categories

Select all	Cosmetics	Souvenir
Books	Food & Beverage	Technology
Clothing	Shoes	Toys

### Sum of total\_sales by invoice\_year\_categorical\_type and invoice\_month



# Insights Based on Shopping Mall and their Overall Revenue

## Customer Segmentation Analysis

No.of Customer

**99.46K**

Total Sales

**₺251.51M**

Gender

Select all

Female

Male

Age Group

Mode of Payment

Categories

Select all

36-45

Select all

Credit Card

16-25

46-55

Cash

Debit Card

26-35

56 or more

Select all

Cosmetics

Souvenir

Books

Food & Beverage

Technology

Clothing

Shoes

Toys

Relationship Between Shopping Mall and Category

shopping_mall	Books	Clothing	Cosmetics	Food & Beverage	Shoes	Souvenir	Technology	Toys	Total
Mall of Istanbul	₺172,240.35	₺22,947,417.68	₺1,367,517.78	₺171,177.90	₺13,467,814.80	₺127,540.29	₺11,828,250.00	₺790,522.88	₺50,872,481.68
Kanyon	₺163,029.15	₺22,609,527.60	₺1,369,550.78	₺166,497.05	₺13,383,190.83	₺127,399.53	₺11,944,800.00	₺790,236.16	₺50,554,231.10
Metrocity	₺125,911.65	₺17,226,692.56	₺991,860.04	₺129,902.74	₺9,519,296.37	₺94,227.09	₺8,608,950.00	₺605,946.88	₺37,302,787.33
Metropol AVM	₺83,718.90	₺11,568,084.00	₺680,770.38	₺88,638.04	₺7,149,825.21	₺67,869.78	₺5,327,700.00	₺413,306.88	₺25,379,913.19
Istinye Park	₺76,083.30	₺11,253,900.24	₺655,357.88	₺85,918.44	₺6,641,481.22	₺68,925.48	₺5,436,900.00	₺400,261.12	₺24,618,827.68
Zorlu Center	₺45,343.95	₺5,697,318.88	₺367,037.82	₺41,955.06	₺3,535,601.47	₺28,996.56	₺2,987,250.00	₺197,550.08	₺12,901,053.82
Cevahir AVM	₺44,541.00	₺5,706,321.28	₺321,214.00	₺44,010.45	₺3,243,918.85	₺29,723.82	₺3,051,300.00	₺204,108.80	₺12,645,138.20
Viaport Outlet	₺39,632.40	₺5,604,594.16	₺347,439.70	₺41,662.18	₺3,194,704.91	₺27,319.17	₺3,066,000.00	₺199,987.20	₺12,521,339.72
Emaar Square Mall	₺41,995.80	₺5,590,490.40	₺338,941.76	₺40,610.95	₺3,089,675.16	₺30,943.74	₺3,094,350.00	₺179,092.48	₺12,406,100.29
Forum Istanbul	₺42,056.40	₺5,792,444.24	₺353,172.76	₺39,162.24	₺3,327,942.65	₺32,879.19	₺2,516,850.00	₺199,413.76	₺12,303,921.24
Total	₺834,552.90	₺113,996,791.04	₺6,792,862.90	₺849,535.05	₺66,553,451.47	₺635,824.65	₺57,862,350.00	₺3,980,426.24	₺251,505,794.25

# Final Insights regarding all the other Information

## Customer Segmentation Analysis

No.of Customer

**99.46K**

Total Sales

**₺251.51M**

Gender

Select all	Female	Male
------------	--------	------

### Relationship Between Shopping Mall and Payment Method

shopping_mall	Cash	Credit Card	Debit Card	Total
Mall of Istanbul	₺22,922,033.40	₺17,761,603.43	₺10,188,844.85	₺50,872,481.68
Kanyon	₺22,961,634.27	₺16,930,328.25	₺10,662,268.58	₺50,554,231.10
Metrocity	₺16,638,495.21	₺13,425,279.88	₺7,239,012.24	₺37,302,787.33
Metropol AVM	₺11,380,488.87	₺9,000,522.12	₺4,998,902.20	₺25,379,913.19
Istinye Park	₺11,017,198.50	₺8,775,194.29	₺4,826,434.89	₺24,618,827.68
Zorlu Center	₺5,621,714.40	₺4,744,868.13	₺2,534,471.29	₺12,901,053.82
Cevahir AVM	₺5,627,933.28	₺4,371,572.48	₺2,645,632.44	₺12,645,138.20
Viaport Outlet	₺5,683,963.38	₺4,467,260.30	₺2,370,116.04	₺12,521,339.72
Emaar Square Mall	₺5,731,275.97	₺4,247,912.74	₺2,426,911.58	₺12,406,100.29
Forum Istanbul	₺5,247,505.74	₺4,352,582.15	₺2,703,833.35	₺12,303,921.24
<b>Total</b>	<b>₺112,832,243.02</b>	<b>₺88,077,123.77</b>	<b>₺50,596,427.46</b>	<b>₺251,505,794.25</b>

### Top 5 Shopping Mall according to Sales

shopping_mall	Sum of total_sales
Mall of Istanbul	₺50,872,481.68
Kanyon	₺50,554,231.10
Metrocity	₺37,302,787.33
Metropol AVM	₺25,379,913.19
Istinye Park	₺24,618,827.68
<b>Total</b>	<b>₺188,728,240.98</b>

category	2021	2022	2023	Total
Clothing	₺52,604,924.24	₺51,753,897.36	₺9,637,969.44	₺113,996,791.04
Shoes	₺30,125,533.15	₺30,944,765.20	₺5,483,153.12	₺66,553,451.47
Technology	₺25,951,800.00	₺26,651,100.00	₺5,259,450.00	₺57,862,350.00
Cosmetics	₺3,033,723.92	₺3,150,499.44	₺608,639.54	₺6,792,862.90
Toys	₺1,796,444.16	₺1,861,888.00	₺322,094.08	₺3,980,426.24
Food & Beverage	₺390,848.36	₺386,852.64	₺71,834.05	₺849,535.05
Books	₺369,008.55	₺391,945.65	₺73,598.70	₺834,552.90
Souvenir	₺288,288.21	₺295,865.79	₺51,670.65	₺635,824.65
<b>Total</b>	<b>₺114,560,570.59</b>	<b>₺115,436,814.08</b>	<b>₺21,508,409.58</b>	<b>₺251,505,794.25</b>

### Age Group

Select all	26-35	46-55
16-25	36-45	56 or more

### Mode of Payment

Select all	Cash	Credit Card	Debit Card
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### Categories

Select all	Shoes
Books	Souvenir
Clothing	Technology
Cosmetics	Toys
Food & Beverage	

# Overall theory based on Shopping Mall, Payment Method and Category

## Shopping Mall Sales by Category

- **Mall of Istanbul:** Leads with total sales of **€50.87M**, with strong performances in clothing (€22.95M) and food & beverage (€13.47M).
- **Kanyon:** Close behind with **€50.55M**, primarily in clothing (€22.61M).
- **Metrocity:** Records **€37.30M**, with technology sales of **€19.52M**.
- **Metropol AVM and İstinye Park** follow, generating **€25.38M** and **€24.62M**, respectively.
- **Clothing:** Total sales of **€113.99M**.
- **Shoes:** Sales reach **€66.55M**.
- **Technology:** Contributes **€57.86M** to total sales.
- **Total Sales by Payment Method:**
  - **Cash:** **€112.83M**
  - **Credit Card:** **€88.08M**
  - **Debit Card:** **€50.60M**

## Top Categories

## Payment Method Distribution

## Insights on Payment Methods

- Malls favor cash transactions, particularly in **Mall of Istanbul** and **Kanyon**.
- Credit and debit card usage is significant in technology and higher-value categories.

# Final Recommendations for Growth

## •Optimize Inventory:

- Tailor product offerings by mall based on top-selling categories, focusing on clothing and food in the Mall of Istanbul and technology in Metrocity.

## •Enhance Customer Engagement:

- Implement loyalty programs to reward frequent cash shoppers.
- Use personalized marketing based on purchasing history.

## •Leverage Payment Methods:

- Offer incentives for cash transactions.
- Promote digital payments through discounts.

## •Increase Foot Traffic:

- Host events and collaborate with local businesses. Use social media to promote special offers and events.

## •Analyze Consumer Behavior:

- Regularly review sales data to identify trends and adjust strategies.
- Collect customer feedback to refine offerings.

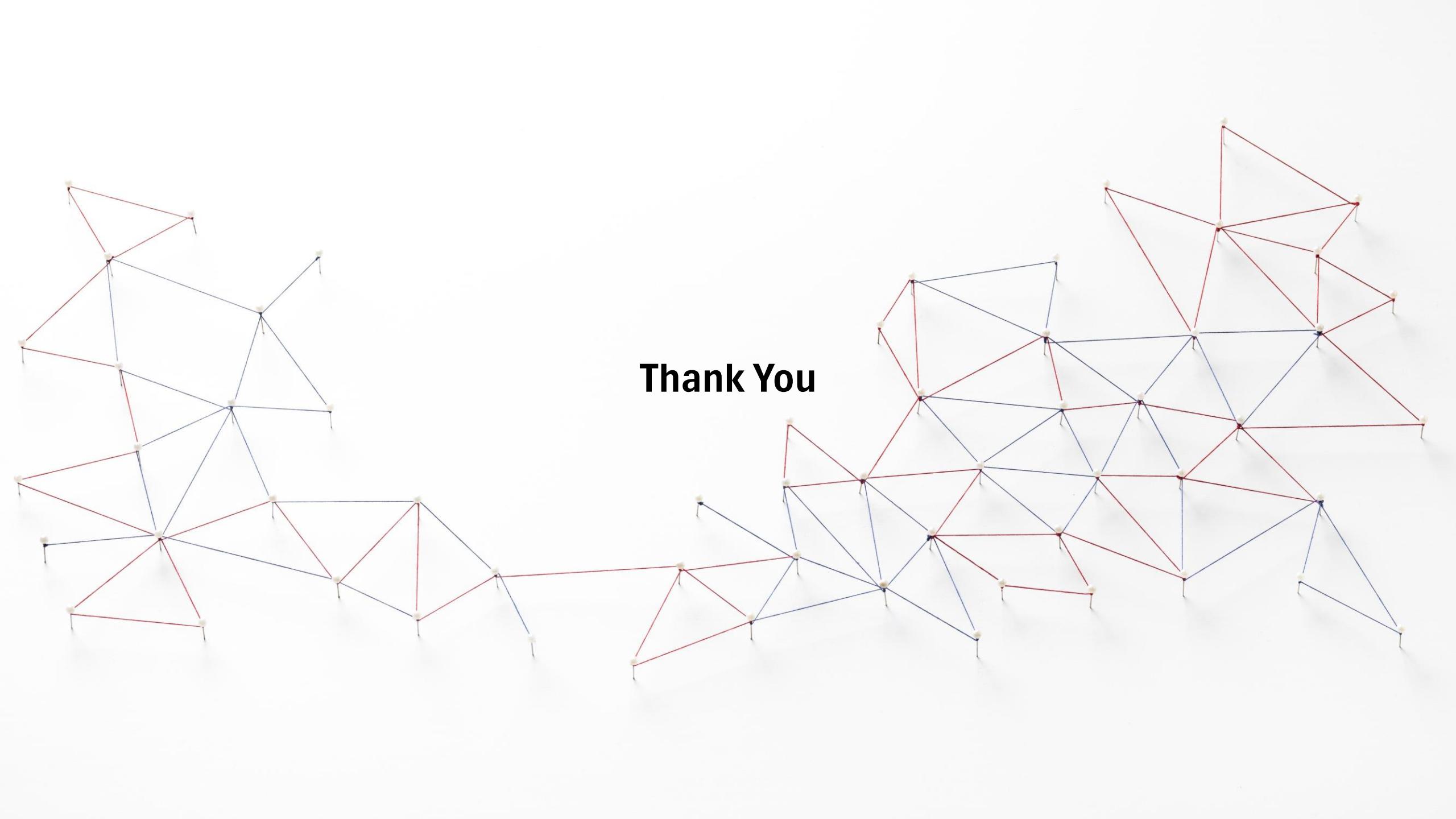
## •Expand Product Range:

Introduce new products in underperforming categories like cosmetics and toys.

## •Strengthen Vendor Partnerships:

Collaborate with vendors for exclusive promotions to enhance customer experiences.





A complex network graph is displayed across the entire image. It consists of numerous small, irregularly shaped clusters of nodes. Each cluster is composed of several white circular nodes connected by thin lines. Some clusters are primarily red, while others are primarily blue, suggesting different communities or data types. The clusters are interconnected by a web of lines, creating a large, organic-looking network structure.

**Thank You**