Analysis of the development potential of shopping centers in Istanbul

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01 ANALYTICAL CONTEXT

CONTEXT

In the context of an increasingly competitive retail market, M. Investment Fund, with the ambition to expand its business into the shopping mall sector, has tasked the Analyst team with conducting an in-depth study.

The objective of this study is to identify the optimal location, business model and development strategy to maximize opportunities and minimize risks in Istanbul.

The Analyst team is conducting a thorough analysis of factors such as geographical location, customer base, consumption trends and the performance of existing shopping malls.

The results of this study will be an important basis for the management to make the final investment decision.

Treemap

IS ISTANBUL WORTH INVESTING ?

- Geographical location
  - Country situation, market want to hit
  - Location of Malls
    - If investing, which area should the Mall be located in?
      - Descriptive analysis
      - Images, Maps
- Store performance
  - Revenue
  - Sell quantity
    - Exploiting investment potential
      - Descriptive analysis
      - Line & Clustered Chart
- Consumer trends
  - Which products are best sellers?
  - Best selling products by age, gender?
    - Focus on products with customer growth potential by gender and age
      - Descriptive analysis
      - Line & Clustered, Pie, Stacked Chart, Card, Table
- Customer potential research
  - Customer segment?
  - Which customer groups bring in the most revenue?
    - If investing, which customer group should be focused on? Retention plan
      - Descriptive analysis
      - Line & Clustered, Stacked Chart, Card, Table

02 INTRODUCTION & DATA PROCESSING

2.1 GIỚI THIỆU BỘ DỮ LIỆU

This is a dataset containing shopping information from 10 different shopping malls from 2021 to 2023.

We collected data from various age groups and genders to provide a comprehensive view of shopping habits in Istanbul.

The dataset includes essential information such as invoice number, customer ID, age, gender, payment method, product category, quantity, price, order date, and shopping mall location.

DATA DICTIONARY

Invoice_no	Số đơn hàng
Customer_id	Mã khách hàng
Gender	Giới tính
Age	Độ tuổi
Category	Hạng mục sản phẩm
Quantity	Số lượng
Price	Giá
Payment_method	Phương thức thanh toán
Invoice_date	Ngày mua hàng
Shopping_mall	Trung tâm thương mại

2.2 DATA PROCESSING

Data processing tools

 # Processing raw data with Python

Power BI

 # Combine Power BI with Python to find data analysis & visualization directions

2.2 DATA PROCESSING

Python Data Processing

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from matplotlib.text import Text
import seaborn as sns
pd_data = pd.read_csv('/content/customer_shopping_data.csv')
pd_data
```

	invoice_no	customer_id	gender	age	category	quantity	price	payment_method	invoice_date	shopping_mall
0	I138884	C241288	Female	28	Clothing	5	1500.40	Credit Card	5/8/2022	Kanyon
1	I317333	C111565	Male	21	Shoes	3	1800.51	Debit Card	12/12/2021	Forum Istanbul
2	I127801	C266599	Male	20	Clothing	1	300.08	Cash	9/11/2021	Metrocity
3	I173702	C988172	Female	66	Shoes	5	3000.85	Credit Card	16/05/2021	Metropol AVM
4	I337046	C189076	Female	53	Books	4	60.60	Cash	24/10/2021	Kanyon
...	...	...	...	...	...	...	...	...	...	...
99452	I219422	C441542	Female	45	Souvenir	5	58.65	Credit Card	21/09/2022	Kanyon
99453	I325143	C569580	Male	27	Food & Beverage	2	10.46	Cash	22/09/2021	Forum Istanbul
99454	I824010	C103292	Male	63	Food & Beverage	2	10.46	Debit Card	28/03/2021	Metrocity
99455	I702964	C800631	Male	56	Technology	4	4200.00	Cash	16/03/2021	Istinye Park
99456	I232867	C273973	Female	36	Souvenir	3	35.19	Credit Card	15/10/2022	Mall of Istanbul

99457 rows × 10 columns

 # Add library to handler

2.2 DATA PROCESSING

Python Data Processing

```
1 pd_data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 99457 entries, 0 to 99456
Data columns (total 10 columns):
 #   Column          Non-Null Count  Dtype
---  ------          --------------  -----
 0   invoice_no      99457 non-null  object
 1   customer_id     99457 non-null  object
 2   gender          99457 non-null  object
 3   age             99457 non-null  int64
 4   category        99457 non-null  object
 5   quantity        99457 non-null  int64
 6   price           99457 non-null  float64
 7   payment_method  99457 non-null  object
 8   invoice_date    99457 non-null  object
 9   shopping_mall   99457 non-null  object
dtypes: float64(1), int64(2), object(7)
memory usage: 7.6+ MB
None
```

```
5 print(pd_data.describe())
```

	age	quantity	price
count	99457.000000	99457.000000	99457.000000
mean	43.427089	3.003429	689.256321
std	14.990054	1.413025	941.184567
min	18.000000	1.000000	5.230000
25%	30.000000	2.000000	45.450000
50%	43.000000	3.000000	203.300000
75%	56.000000	4.000000	1200.320000
max	69.000000	5.000000	5250.000000

- **Number of transactions: 99457**
- **Average customer age: 43.42**
- **Average number of products per transaction: 3.00**
- **Average value per transaction: 689.26**
- **Youngest customer age: 18**
- **Oldest customer age: 69**
- **Maximum number of products purchased in one transaction: 5**
- **Highest transaction value: 5250**

2.2 DATA PROCESSING

Xử lý dữ liệu Python

```python
# update currency value, add comma to thousands, add $, add new dataframe csv
if "price" in pd_data.columns:
    pd_data["Formatted Price"] = pd_data["price"].apply(lambda x: f"${x:,.2f}")
else:
    print("Column 'Price' not found in the DataFrame.")

print(pd_data[["price", "Formatted Price"]].head())

pd_data.to_csv("Customer Shopping Data Formatted.csv", index=False)

print("Saved into Customer Shopping Data Formatted.csv successed!")

print(pd_data)
```

```
     price Formatted Price
0  1500.40       $1,500.40
1  1800.51       $1,800.51
2   300.08         $300.08
3  3000.85       $3,000.85
4    60.60          $60.60
Saved into Customer Shopping Data Formatted.csv successed!
      invoice_no customer_id  gender  age         category  quantity    price  \
0        I138884     C241288  Female   28         Clothing         5  1500.40
1        I317333     C111565    Male   21            Shoes         3  1800.51
2        I127801     C266599    Male   20         Clothing         1   300.08
3        I173702     C988172  Female   66            Shoes         5  3000.85
4        I337046     C189076  Female   53            Books         4    60.60
...          ...         ...     ...  ...              ...       ...      ...
99452    I219422     C441542  Female   45         Souvenir         5    58.65
99453    I325143     C569580    Male   27  Food & Beverage         2    10.46
99454    I824010     C103292    Male   63  Food & Beverage         2    10.46
99455    I702964     C800631    Male   56       Technology         4  4200.00
99456    I232867     C273973  Female   36         Souvenir         3    35.19

      payment_method invoice_date     shopping_mall Formatted Price
0        Credit Card     5/8/2022           Kanyon       $1,500.40
1         Debit Card    12/12/2021    Forum Istanbul       $1,800.51
2               Cash     9/11/2021         Metrocity         $300.08
3        Credit Card    16/05/2021      Metropol AVM       $3,000.85
4               Cash    24/10/2021           Kanyon          $60.60
...              ...           ...              ...             ...
99452    Credit Card    21/09/2022           Kanyon          $58.65
99453           Cash    22/09/2021    Forum Istanbul          $10.46
99454    Debit Card    28/03/2021         Metrocity          $10.46
99455           Cash    16/03/2021      Istinye Park       $4,200.00
99456    Credit Card    15/10/2022  Mall of Istanbul          $35.19

[99457 rows x 11 columns]
```

 # Update currency, re-display data, add to new csv file

2.2 DATA PROCESSING

Python Data Processing

 # Update invoice_date column from object type to date type

```
pd_data['invoice_date'] = pd.to_datetime(pd_data['invoice_date'], format='%d/%m/%Y')

pd_data['invoice_date'] = pd_data['invoice_date'].fillna(pd.to_datetime(pd_data['invoice_date'], format = '%d-%m-%Y', errors = 'coerce'))

pd_data.to_csv('/content/Customer Shopping Data Formatted.csv', index=False)

print("Saved success into Customer Shopping Data Formatted.csv")

print(pd_data)
```

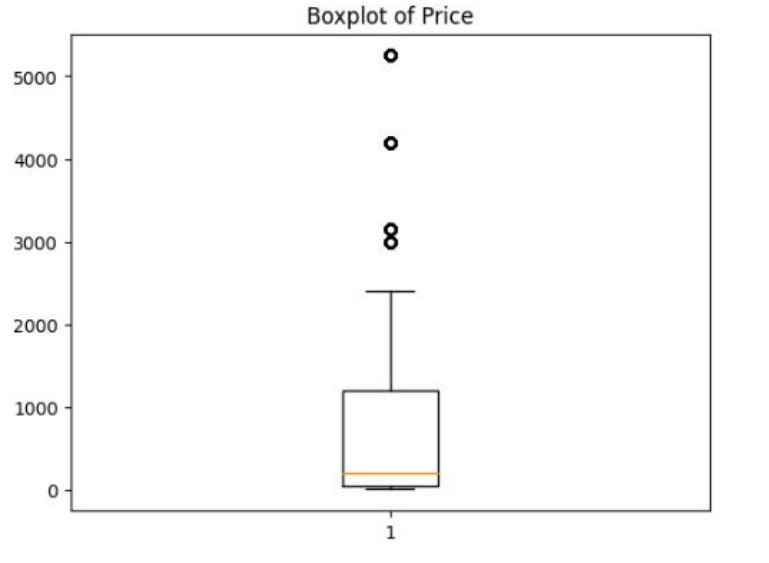
```
Saved success into Customer Shopping Data Formatted.csv
      invoice_no customer_id  gender  age         category  quantity    price  \
0        I138884     C241288  Female   28         Clothing         5  1500.40
1        I317333     C111565    Male   21            Shoes         3  1800.51
2        I127801     C266599    Male   20         Clothing         1   300.08
3        I173702     C988172  Female   66            Shoes         5  3000.85
4        I337046     C189076  Female   53            Books         4    60.60
...          ...         ...     ...  ...              ...       ...      ...
99452    I219422     C441542  Female   45         Souvenir         5    58.65
99453    I325143     C569580    Male   27  Food & Beverage         2    10.46
99454    I824010     C103292    Male   63  Food & Beverage         2    10.46
99455    I702964     C800631    Male   56       Technology         4  4200.00
99456    I232867     C273973  Female   36         Souvenir         3    35.19

      payment_method invoice_date     shopping_mall Formatted Price
0        Credit Card   2022-08-05           Kanyon       $1,500.40
1         Debit Card   2021-12-12    Forum Istanbul       $1,800.51
2               Cash   2021-11-09         Metrocity         $300.08
3        Credit Card   2021-05-16      Metropol AVM       $3,000.85
4               Cash   2021-10-24           Kanyon          $60.60
...              ...          ...              ...             ...
99452    Credit Card   2022-09-21           Kanyon          $58.65
99453           Cash   2021-09-22    Forum Istanbul          $10.46
99454     Debit Card   2021-03-28         Metrocity          $10.46
99455           Cash   2021-03-16      Istinye Park       $4,200.00
99456    Credit Card   2022-10-15  Mall of Istanbul          $35.19

[99457 rows x 11 columns]
```

2.2 DATA PROCESSING

Python Data Processing

 # Boxplot to check for price outliers

```
plt.boxplot(pd_data['price'])
plt.title('Boxplot of Price')
Text(1, 1.5, "Boxplot Price Diff")
plt.show()
```

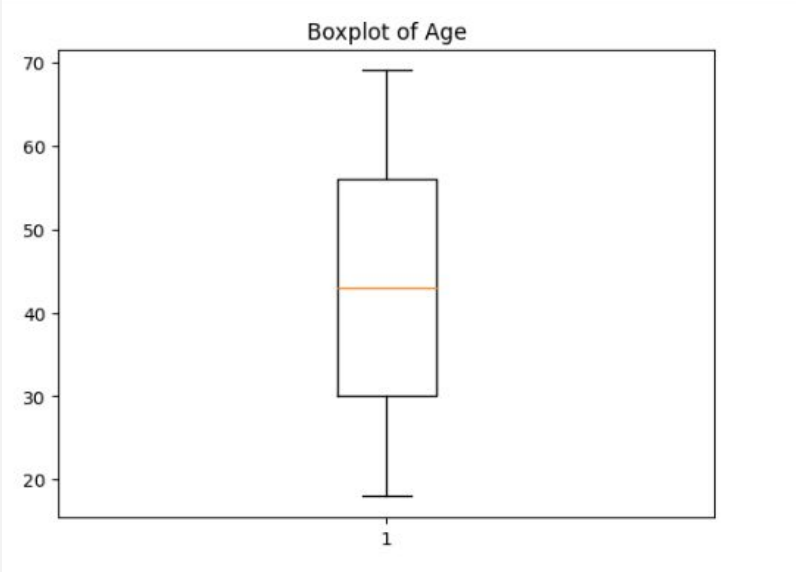


 # Both boxplots show a uniform distribution of price and age of customers

=> No outliers

 # Boxplot to test for age outliers

```
plt.boxplot(pd_data['age'])
plt.title('Boxplot of Age')
Text(1, 1.5, "Boxplot Age Diff")
plt.show()
```



2.2 DATA PROCESSING

Power BI Data Processing

 # 1. Create additional Revenue column

```
1 Revenue = 'Customer Shopping Data'[quantity] * 'Customer Shopping Data'[Formatted Price]
```

invoice_no	customer_id	gender	age	category	quantity	price	payment_method	invoice_date	shopping_mall	Formatted Price	Revenue
I249223	C188064	Female	44	Clothing	2	60016	Cash	Sunday, January 31, 2021	Mall of Istanbul	600.16	$1,200.32
I943432	C141657	Female	30	Clothing	2	60016	Cash	Wednesday, July 7, 2021	Mall of Istanbul	600.16	$1,200.32
I284282	C822515	Female	69	Clothing	2	60016	Cash	Sunday, July 10, 2022	Mall of Istanbul	600.16	$1,200.32
I390879	C196337	Female	54	Clothing	2	60016	Cash	Tuesday, April 19, 2022	Mall of Istanbul	600.16	$1,200.32
I241386	C307477	Female	25	Clothing	2	60016	Cash	Monday, March 29, 2021	Mall of Istanbul	600.16	$1,200.32

#2. Create an RFM function to classify customer segments

```
1 RFM = SUMMARIZE ('Customer Shopping Data' , 'Customer Shopping Data'[customer_id],
2 "R" , DATEDIFF(MAX('Customer Shopping Data'[invoice_date]), DATE(2023, 08, 10), DAY ),
3 "F" , DISTINCTCOUNT('Customer Shopping Data'[invoice_no]),
4 "M", SUM('Customer Shopping Data'[Revenue]))
```

 # 4. Create relationship links

```
1 Segment = RELATED(Segment[Segment])
```

 # 3. Create Table Segments

Segment	Scores
Champions	555
Champions	554
Champions	544
Champions	545
Champions	454
Champions	455
Champions	445
Loyal	543
Loyal	444
Loyal	435
Loyal	355

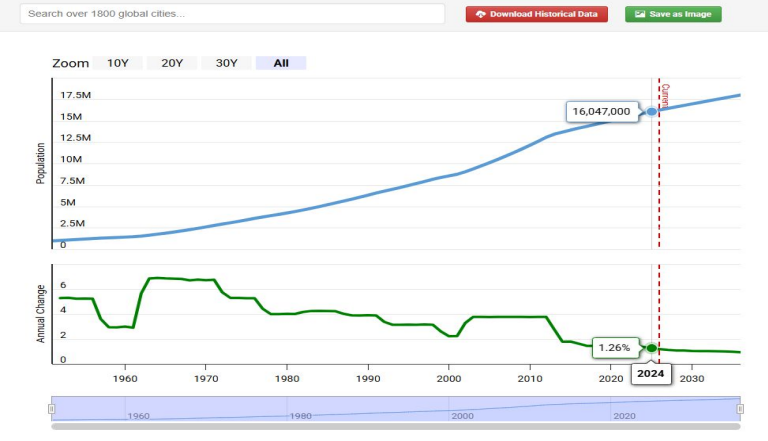
03 GEOGRAPHIC LOCATION

3.1 Population overview and population distribution

The current population of Türkiye is 86,407,881 (according to the United Nations census on November 1, 2024).

The population of Istanbul is 16,237,000 (macrotrends.net)

1.06% of the world's population and is ranked 17th in the world



The population size and average age have great potential for growth in the shopping sector.

The Sophia is an iconic religious structure in Istanbul, Türkiye.

3.2 Sơ lược về thành phố Istanbul

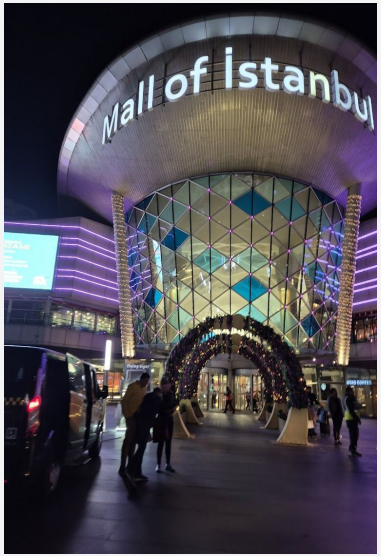
Zorlu Center

Istanbul is the largest city in Türkiye, located on the Bosporus Strait, the boundary between Europe and Asia.

The city is considered the economic, cultural and historical capital of the country.

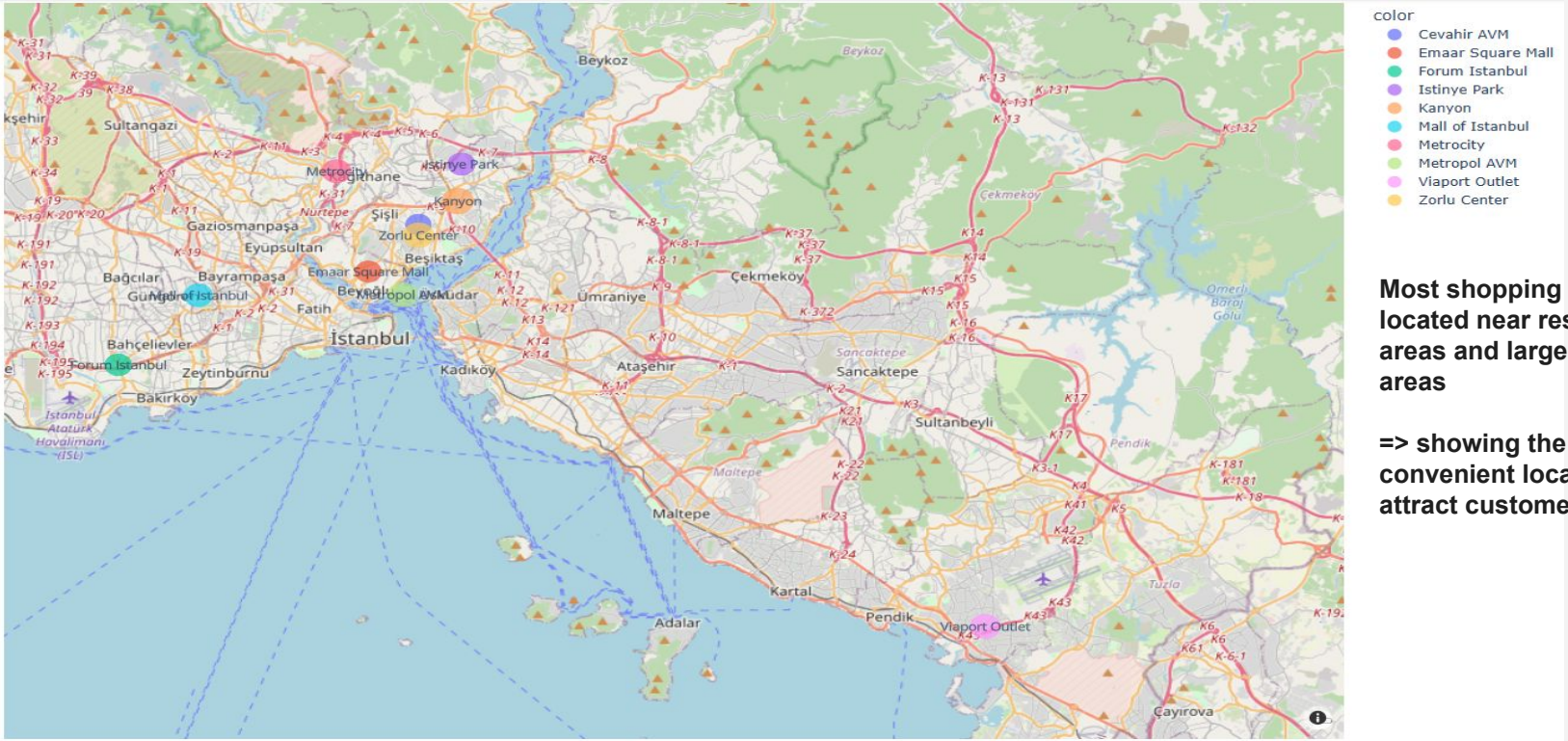
The city has a population of over 15 million people, accounting for 19% of Türkiye's population and is the most populous city in Europe and the 16th largest city in the world.

Viaport Asia Outlet



Mall of Istanbul

3.3 Location distribution chart of major shopping malls operating in Istanbul



Most shopping malls are located near residential areas and large urban areas

=> showing the choice of convenient locations to attract customers.

Overall, Istanbul has a very high potential for development with a population density & average age suitable for exploiting the shopping sector. The best option is to focus on the Centers located within the city - the advantage of attracting customers is higher

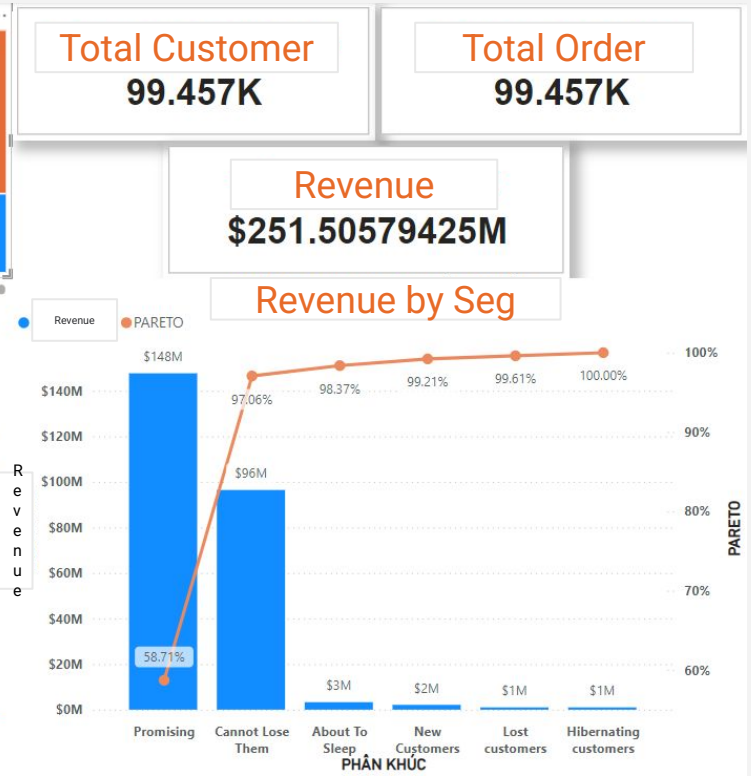
04 TARGET CUSTOMERS

4.1 Identify Customer Segments

4.1 Identify Customer Segments

RFM ANALYSIS - OVERVIEW

ID Customer	Revenue	Regular	RFM Scores	Segment
C100004	$7,502	1	315	Promising
C100005	$2,400.68	1	514	Promising
C100006	$322.56	1	513	Promising
C100012	$130.75	1	212	Hibernating customers
C100019	$35.84	1	211	Hibernating customers
C100025	$143.36	1	112	Lost customers
C100028	$15.15	1	311	New Customers
C100030	$4,801.28	1	514	Promising
C100034	$1,200.32	1	214	Cannot Lose Them
C100041	$2,700.72	1	114	Cannot Lose Them
C100042	$650.56	1	313	Promising
C100045	$5.23	1	311	New Customers
Total	$251,505,794.2498789	99457	31139924	



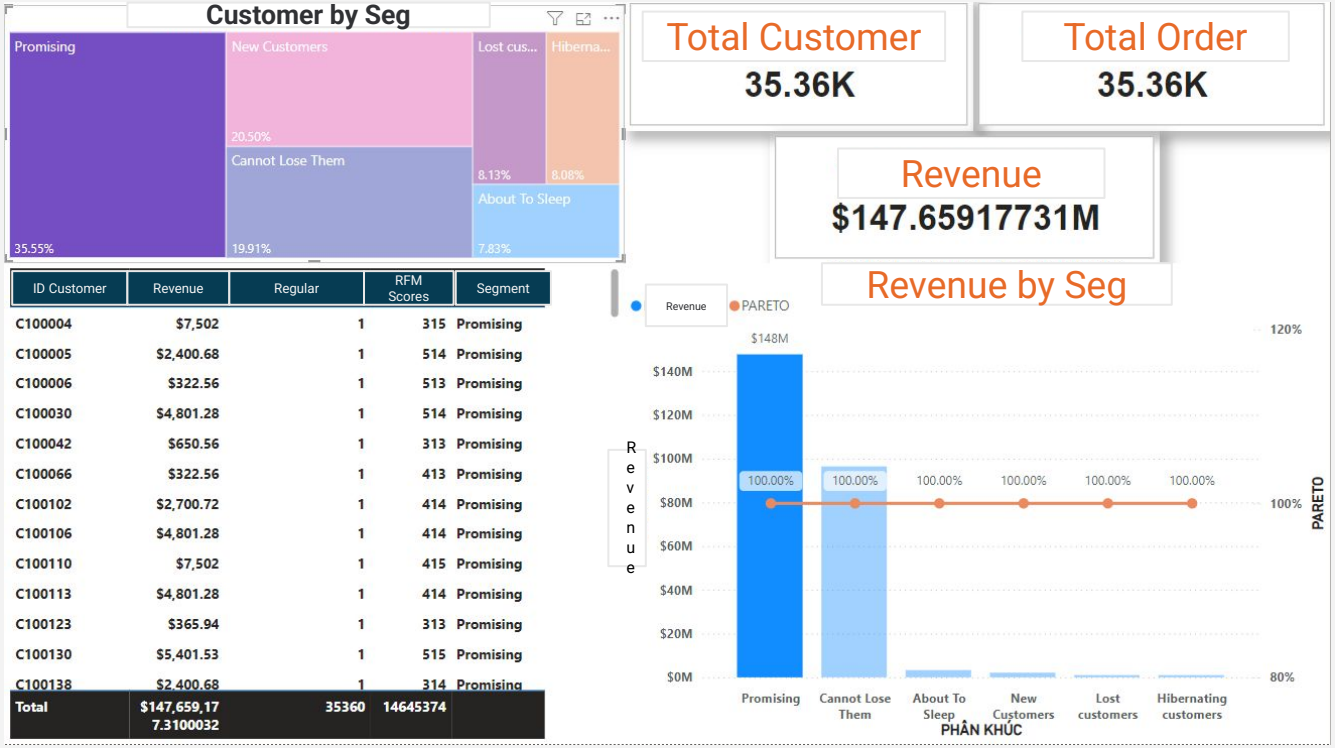
- **Total Customers: 99,457**
- **Total Revenue: $251,505,794.25.**

- **Customer Segmentation**: Divided into 6 main groups:
- Promising
- Cannot Lose Them:
- About To Sleep
- New Customers
- Lost Customers
- Hibernating Customers

4.1 Identify Customer Segments

Nhóm Promising - RFM Score *313 - 314 - 315 - 413 - 414 - 415 - 513 - 514 - 515*

(Potential customers, frequent buyers and high order value)



ID Customer	Revenue	Regular	RFM Scores	Segment
C100004	$7,502	1	315	Promising
C100005	$2,400.68	1	514	Promising
C100006	$322.56	1	513	Promising
C100030	$4,801.28	1	514	Promising
C100042	$650.56	1	313	Promising
C100066	$322.56	1	413	Promising
C100102	$2,700.72	1	414	Promising
C100106	$4,801.28	1	414	Promising
C100110	$7,502	1	415	Promising
C100113	$4,801.28	1	414	Promising
C100123	$365.94	1	313	Promising
C100130	$5,401.53	1	515	Promising
C100138	$2,400.68	1	314	Promising
Total	$147,659,17 7.3100032	35360	14645374	

35.5%(about 35K customers)

~$148M - equivalent to more than 50% of total revenue

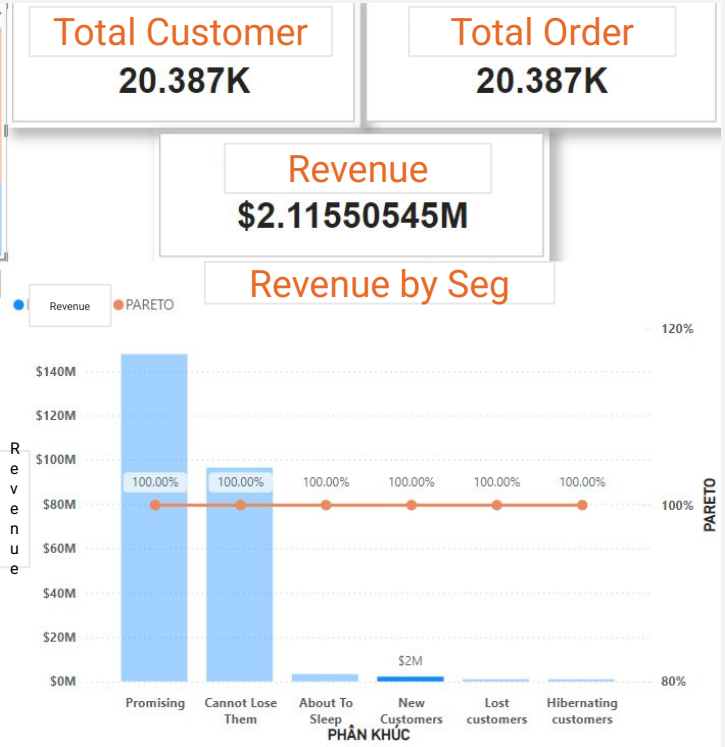
=> shows that this is an important customer segment with high growth potential.

=> This is the most important customer group that needs to be cared for and retained.

4.1 Identify customer segments

Nhóm New Customers - RFM Score *311 - 411 - 412 - 511 - 512 - 515*

(New customers need to be nurtured to become loyal customers)



ID Customer	Revenue	Regular	RFM Scores	Segment
C100028	$15.15	1	311	New Customers
C100045	$5.23	1	311	New Customers
C100078	$60.6	1	511	New Customers
C100095	$130.75	1	512	New Customers
C100105	$5.23	1	411	New Customers
C100112	$300.08	1	412	New Customers
C100115	$40.66	1	411	New Customers
C100121	$11.73	1	311	New Customers
C100132	$47.07	1	511	New Customers
C100141	$60.6	1	311	New Customers
C100154	$15.15	1	511	New Customers
C100155	$300.08	1	512	New Customers
C100190	$35.84	1	511	New Customers
Total	**$2,115,505.4 49999801**	**20387**	**8779856**	

20.50% of total customers

=> Shows that the business is constantly attracting **new customers.**

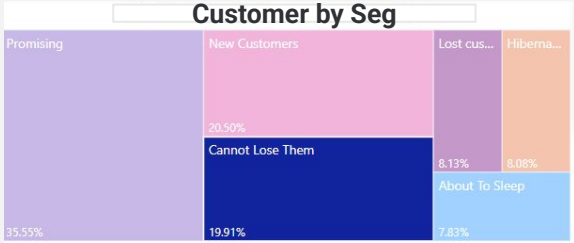
Although accounting for a large proportion in terms of quantity, revenue and the average value from new customer groups is not high.

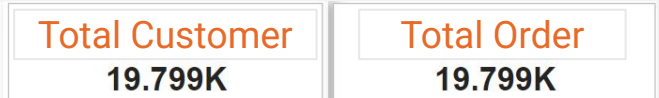
=> Is the target segment for the center to implement programs to attract new customers and convert them into loyal customers. (offers / promotions, customer experience)

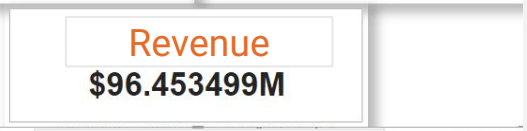
4.1 Identify customer segments

Nhóm Cannot Lose Them - RFM Score *113 - 114 - 115 - 214 - 215*

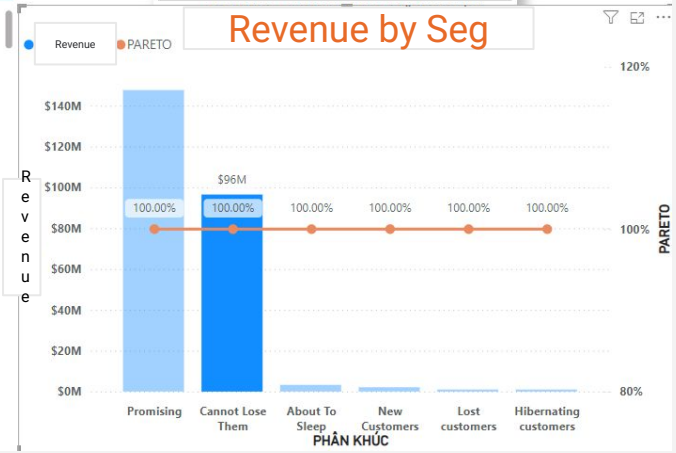
(Loyal customers, frequent buyers and high order value)







ID Customer	Revenue	Regular	RFM Scores	Segment
C100034	$1,200.32	1	214	Cannot Lose Them
C100041	$2,700.72	1	114	Cannot Lose Them
C100067	$600.17	1	113	Cannot Lose Them
C100096	$2,700.72	1	214	Cannot Lose Them
C100139	$1,050	1	113	Cannot Lose Them
C100148	$2,700.72	1	214	Cannot Lose Them
C100175	$9,602.72	1	215	Cannot Lose Them
C100176	$2,700.72	1	214	Cannot Lose Them
C100218	$7,502	1	215	Cannot Lose Them
C100221	$9,602.72	1	115	Cannot Lose Them
C100254	$16,800	1	115	Cannot Lose Them
C100282	$1,200.32	1	214	Cannot Lose Them
C100283	$1,200.32	1	214	Cannot Lose Them
Total	$96,453,498.99999914	19799	3061436	



19.91% of total customers

About 38% of total revenue

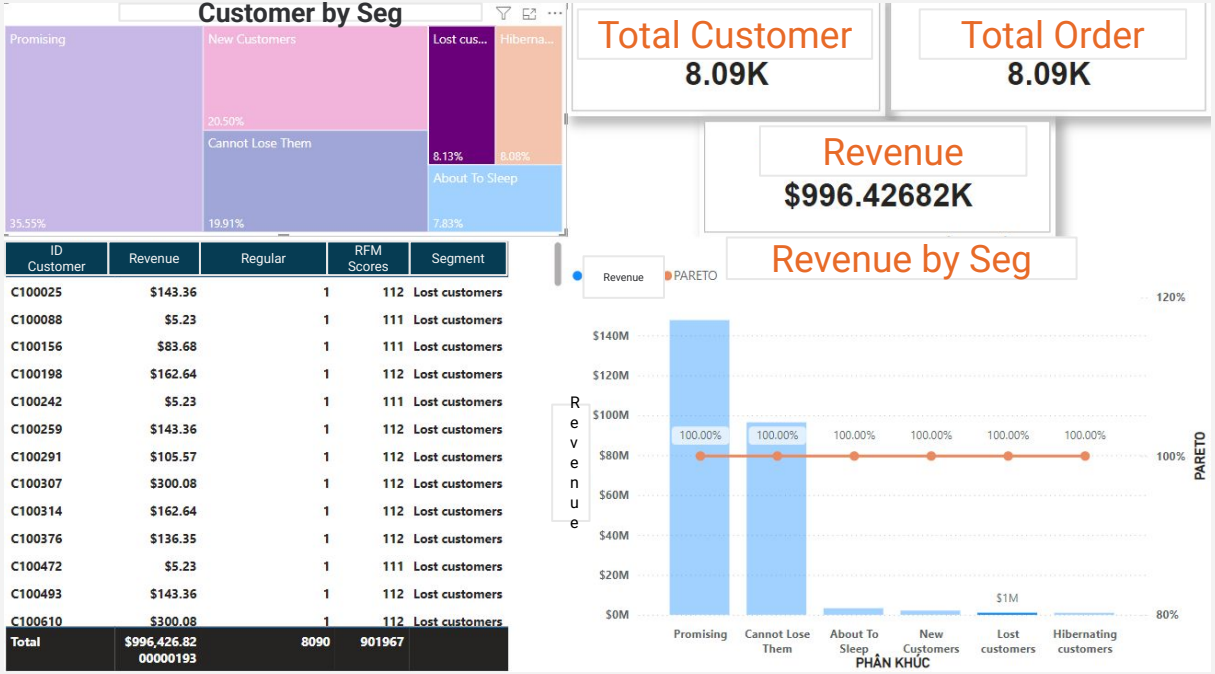
This shows that each customer in this group is very high value.

=> The Centers themselves need to take good care to maintain the loyalty and increase the purchasing frequency of this customer group.

4.1 Identify customer segments

Nhóm Lost Customers - RFM Score *111 - 112*

(Customer made a purchase a long time ago and has not interacted at all)



ID Customer	Revenue	Regular	RFM Scores	Segment
C100025	$143.36	1	112	Lost customers
C100088	$5.23	1	111	Lost customers
C100156	$83.68	1	111	Lost customers
C100198	$162.64	1	112	Lost customers
C100242	$5.23	1	111	Lost customers
C100259	$143.36	1	112	Lost customers
C100291	$105.57	1	112	Lost customers
C100307	$300.08	1	112	Lost customers
C100314	$162.64	1	112	Lost customers
C100376	$136.35	1	112	Lost customers
C100472	$5.23	1	111	Lost customers
C100493	$143.36	1	112	Lost customers
C100610	$300.08	1	112	Lost customers
Total	$996,426.82 00000193	8090	901967	

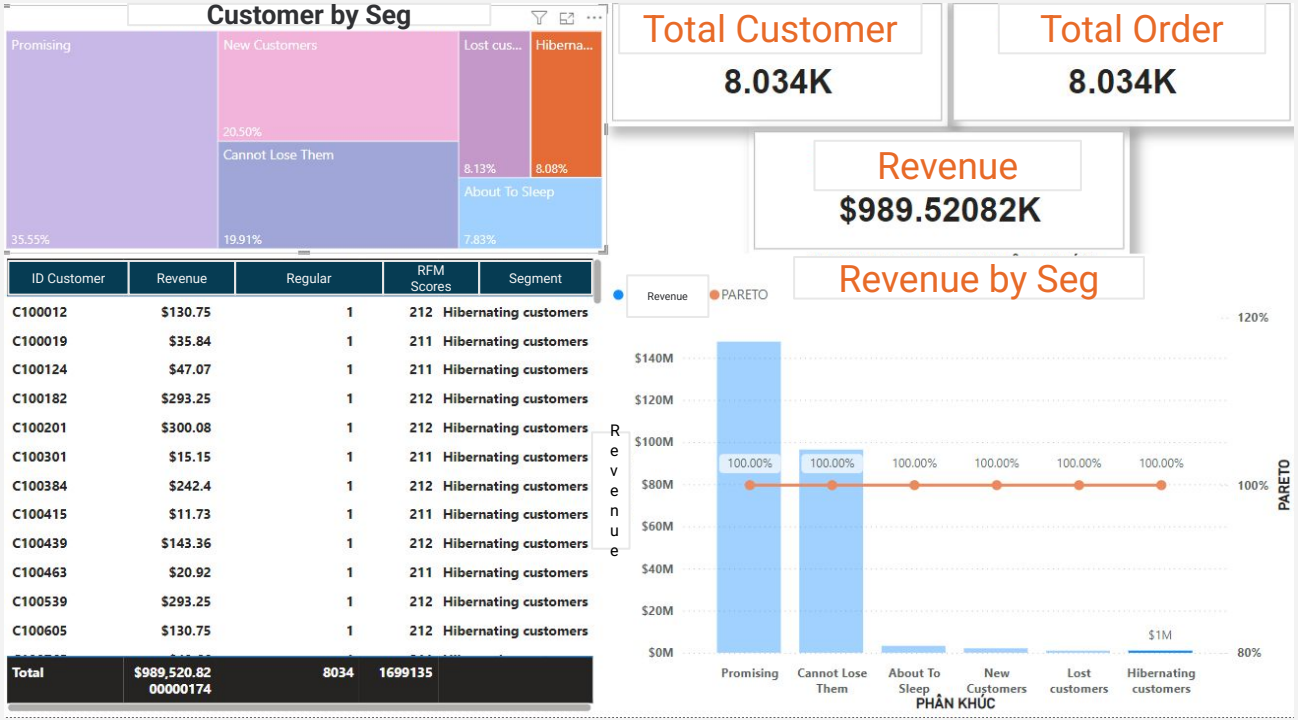
- This customer group accounts for **more than 8% of total customers**.
- This is not a significant number but it should be noted.

=> There should be a plan to provide customer care methods, attract and retain customers to avoid increasing this type of customer which can affect revenue, profit, credibility and other costs.

4.1 Identify customer segments

Nhóm Hibernating Customers - RFM Score *211- 212*

(Customers who have temporarily stopped buying but still have the potential to return)



ID Customer	Revenue	Regular	RFM Scores	Segment
C100012	$130.75	1	212	Hibernating customers
C100019	$35.84	1	211	Hibernating customers
C100124	$47.07	1	211	Hibernating customers
C100182	$293.25	1	212	Hibernating customers
C100201	$300.08	1	212	Hibernating customers
C100301	$15.15	1	211	Hibernating customers
C100384	$242.4	1	212	Hibernating customers
C100415	$11.73	1	211	Hibernating customers
C100439	$143.36	1	212	Hibernating customers
C100463	$20.92	1	211	Hibernating customers
C100539	$293.25	1	212	Hibernating customers
C100605	$130.75	1	212	Hibernating customers
Total	$989,520.82 00000174	8034	1699135	

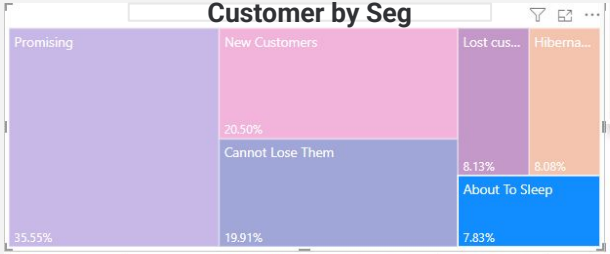
- **8.03% of the total number of customers.**
- The number & total contribution of this group is quite similar to Lost Customers - not much impact on total revenue.

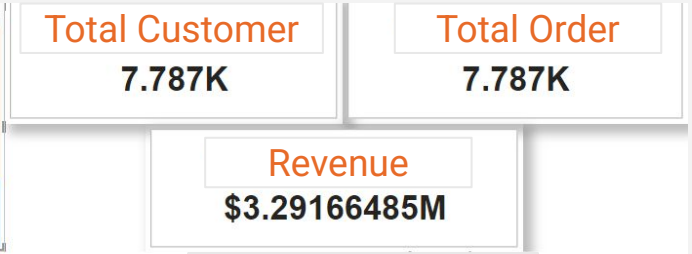
=> If possible, find out the cause and solution early to avoid customers of this group turning into Lost Customers.

4.1 Identify customer segments

Nhóm About to Sleep - RFM Score *213- 312*

(Khách hàng có dấu hiệu giảm tần suất mua hàng hoặc giá trị đơn hàng)





ID Customer	Revenue	Regular	RFM Scores	Segment
C100090	$162.64	1	312	About To Sleep
C100099	$136.35	1	312	About To Sleep
C100225	$143.36	1	312	About To Sleep
C100241	$650.56	1	213	About To Sleep
C100253	$600.17	1	213	About To Sleep
C100273	$300.08	1	312	About To Sleep
C100285	$300.08	1	312	About To Sleep
C100305	$300.08	1	312	About To Sleep
C100355	$162.64	1	312	About To Sleep
C100400	$300.08	1	312	About To Sleep
C100402	$300.08	1	312	About To Sleep
C100421	$600.17	1	213	About To Sleep
C100467	$130.75	1	312	About To Sleep
Total	$3,291,664.849999985	7787	2052156	

7.787K customer.

least in all segments

-> Low revenue

-> Small quantity but avoid increasing

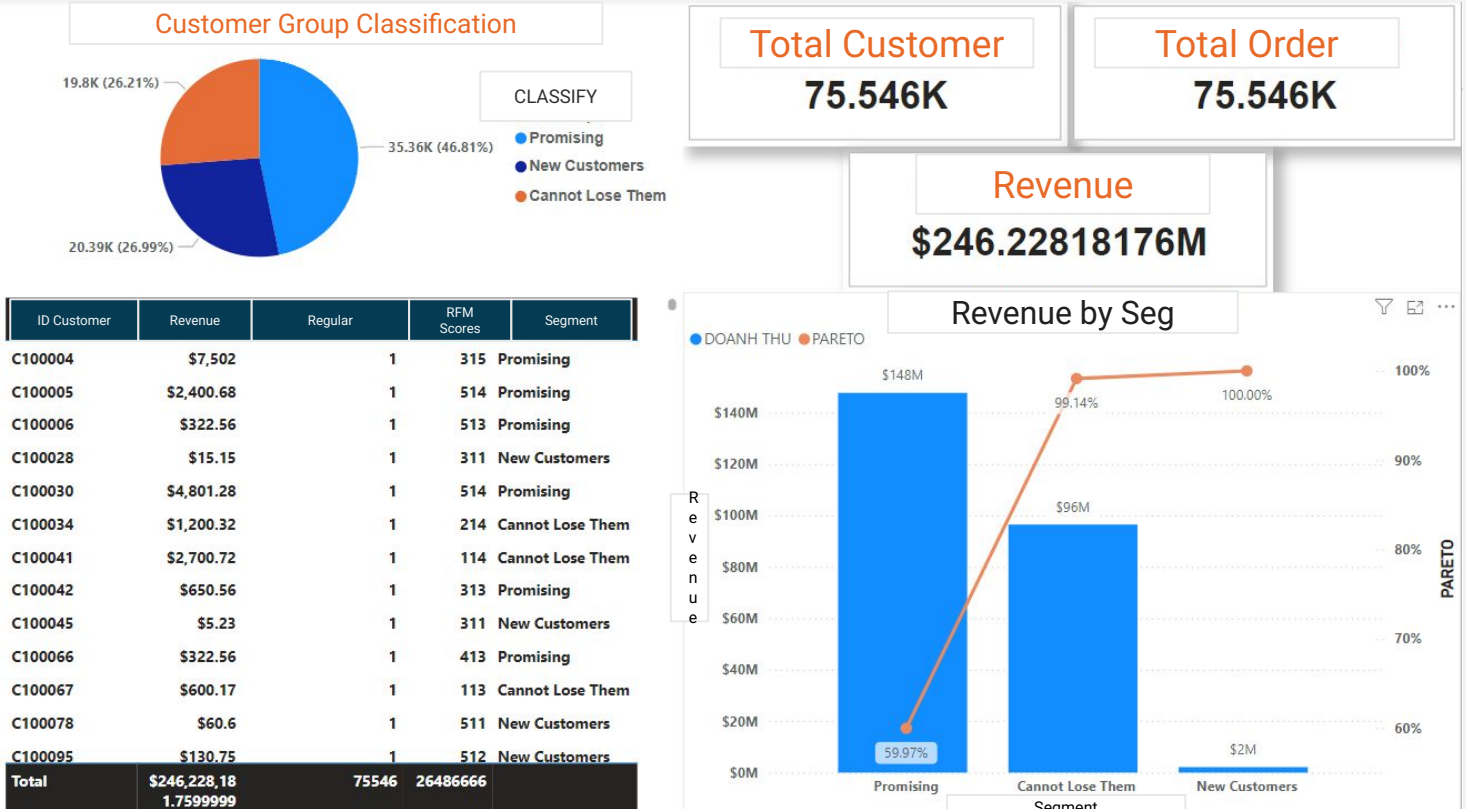
=> There should be special customer care or attention programs to encourage them to come back.

4.2 Customer Classification

4.2 Customer Classification

Potential Customer Group (Promising)

(Customer group that brings in almost all revenue for Malls)



ID Customer	Revenue	Regular	RFM Scores	Segment
C100004	$7,502	1	315	Promising
C100005	$2,400.68	1	514	Promising
C100006	$322.56	1	513	Promising
C100028	$15.15	1	311	New Customers
C100030	$4,801.28	1	514	Promising
C100034	$1,200.32	1	214	Cannot Lose Them
C100041	$2,700.72	1	114	Cannot Lose Them
C100042	$650.56	1	313	Promising
C100045	$5.23	1	311	New Customers
C100066	$322.56	1	413	Promising
C100067	$600.17	1	113	Cannot Lose Them
C100078	$60.6	1	511	New Customers
C100095	$130.75	1	512	New Customers
Total	$246,228,181.7599999	75546	26486666	

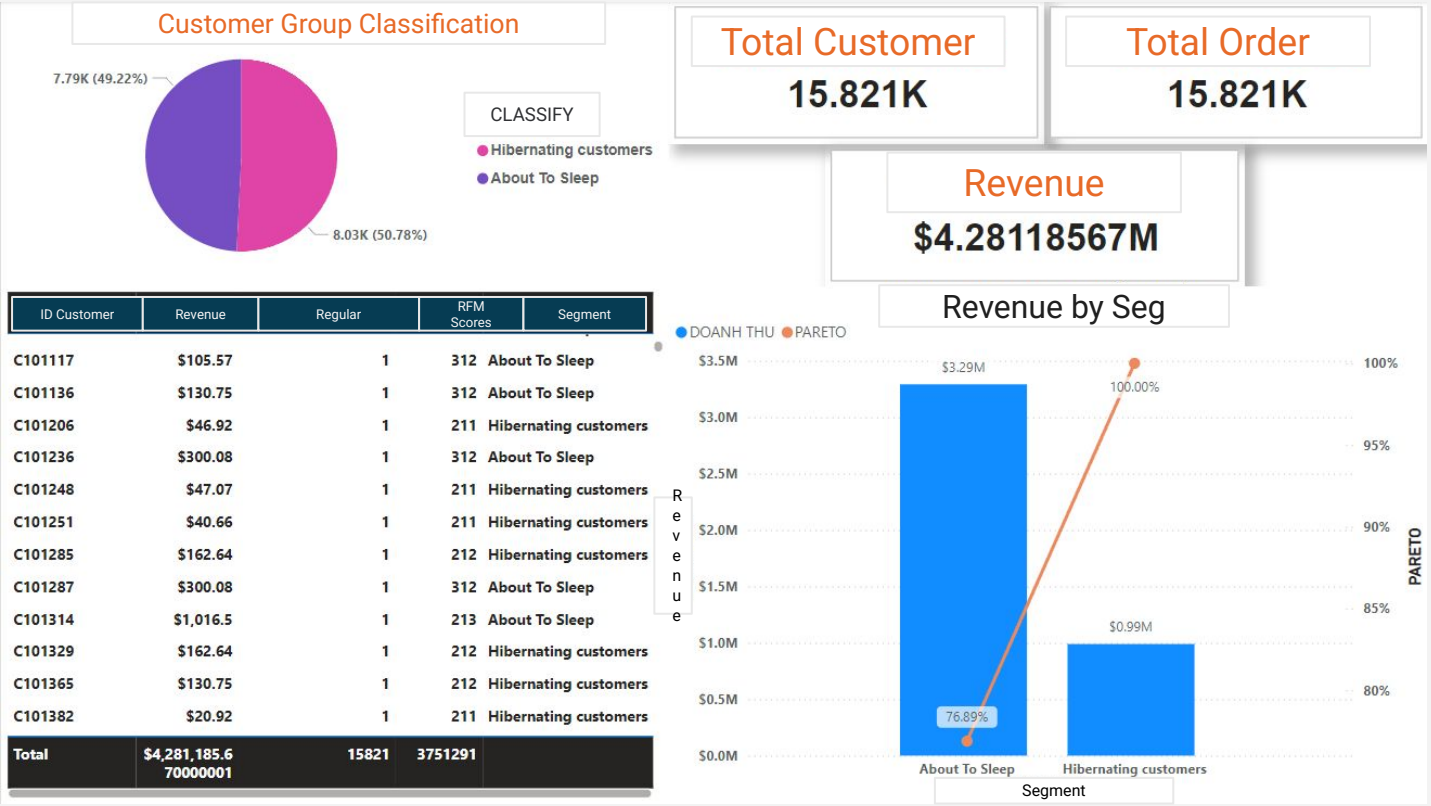
Potential Customer Group:

- **Number of Customers 75,546k/ 99,457k and Revenue 246M$/ 251M$**
- This shows that almost all revenue comes from this customer group.

4.2 Customer Classification

Nhóm khách hàng đáng chú ý(Need attention)

(Nhóm khách hàng chiếm phần ít nhưng cần hạn chế và có giải pháp giảm thiểu)



ID Customer	Revenue	Regular	RFM Scores	Segment
C101117	$105.57	1	312	About To Sleep
C101136	$130.75	1	312	About To Sleep
C101206	$46.92	1	211	Hibernating customers
C101236	$300.08	1	312	About To Sleep
C101248	$47.07	1	211	Hibernating customers
C101251	$40.66	1	211	Hibernating customers
C101285	$162.64	1	212	Hibernating customers
C101287	$300.08	1	312	About To Sleep
C101314	$1,016.5	1	213	About To Sleep
C101329	$162.64	1	212	Hibernating customers
C101365	$130.75	1	212	Hibernating customers
C101382	$20.92	1	211	Hibernating customers
Total	$4,281,185.670000001	15821	3751291	

Attention customer groups:

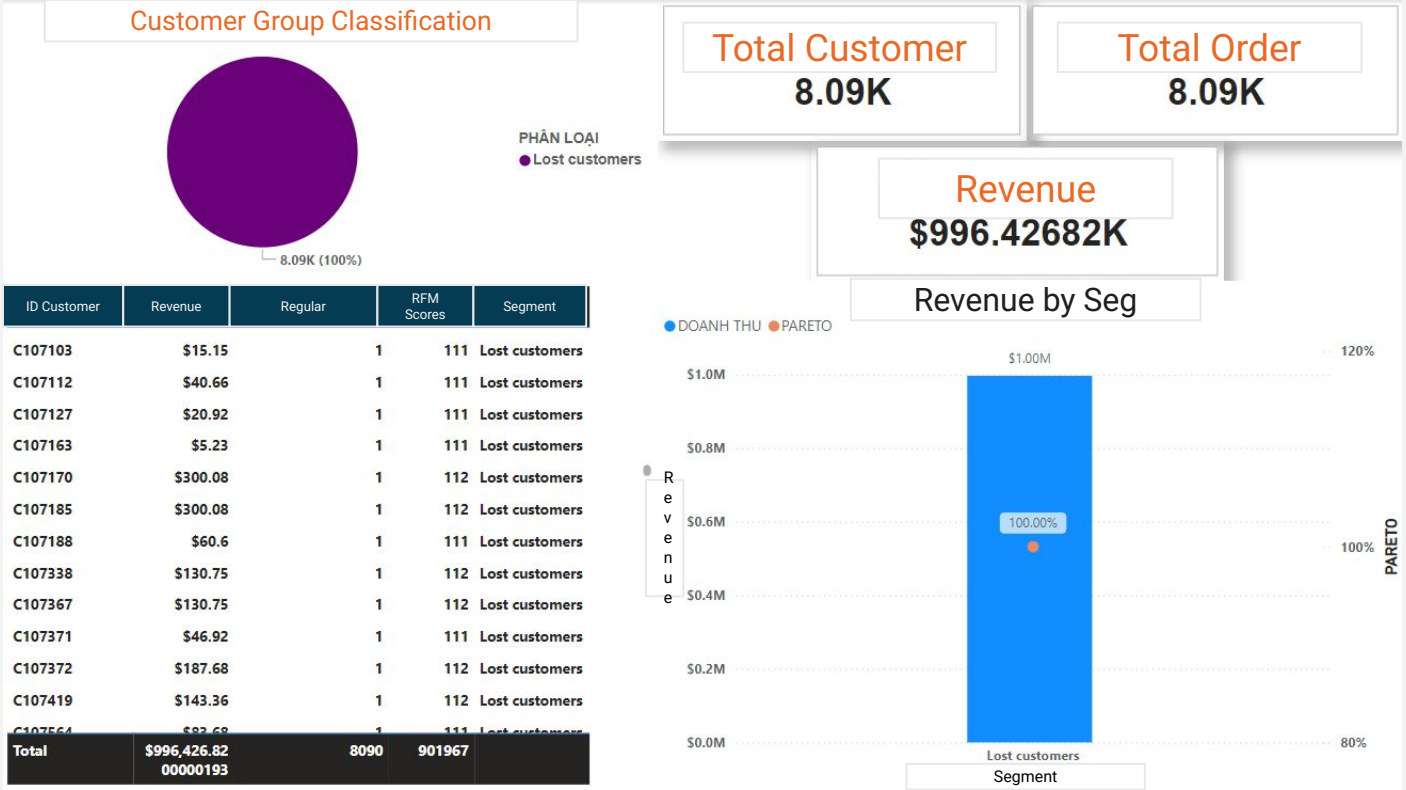
- Number of Customers **15,821k/ 99,457k** and **Revenue 4.28M$/ 251M$**

=> Although it accounts for a small portion and does not bring in much revenue, it is necessary to increase and research these members to come back.

4.2 Customer Classification

Nhóm khách hàng rời bỏ(Lost Customer)

(Tương tự nhóm trên nhóm khách hàng chiếm phần ít nhưng cần hạn chế và có giải pháp giảm thiểu)



ID Customer	Revenue	Regular	RFM Scores	Segment
C107103	$15.15	1	111	Lost customers
C107112	$40.66	1	111	Lost customers
C107127	$20.92	1	111	Lost customers
C107163	$5.23	1	111	Lost customers
C107170	$300.08	1	112	Lost customers
C107185	$300.08	1	112	Lost customers
C107188	$60.6	1	111	Lost customers
C107338	$130.75	1	112	Lost customers
C107367	$130.75	1	112	Lost customers
C107371	$46.92	1	111	Lost customers
C107372	$187.68	1	112	Lost customers
C107419	$143.36	1	112	Lost customers
Total	$996,426.82 00000193	8090	901967	

Customer Churn:

- Number **8.09k/ 99.457k** Customers and Revenue less than **1M$/ 251M$**

4.2 Customer Classification

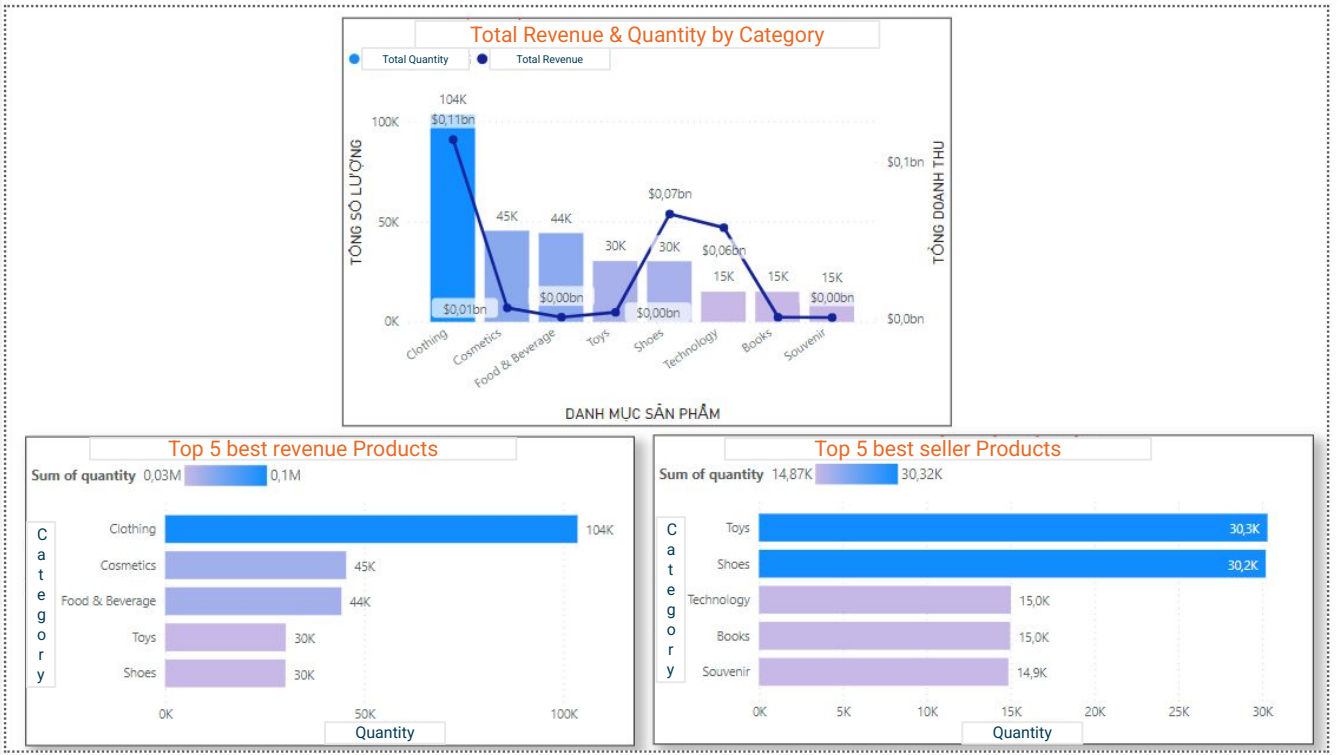
Summary this part

- **Potential Customer Group:**
- **Attention customer groups:**
- **Customer Churn:**
- Như nhóm trên chiếm phần ít nhưng cần chú ý tránh gia tăng với 1 số giải pháp như sau:

+ Cải thiện chất lượng sản phẩm/dịch vụ
+ Nâng cao chất lượng dịch vụ khách hàng
+ Xây dựng chương trình trung thành
+ Tiếp thị hiệu quả
+ Cá nhân hóa trải nghiệm khách hàng

05 CONSUMER TRENDS

5.1 Analysis by Product Category

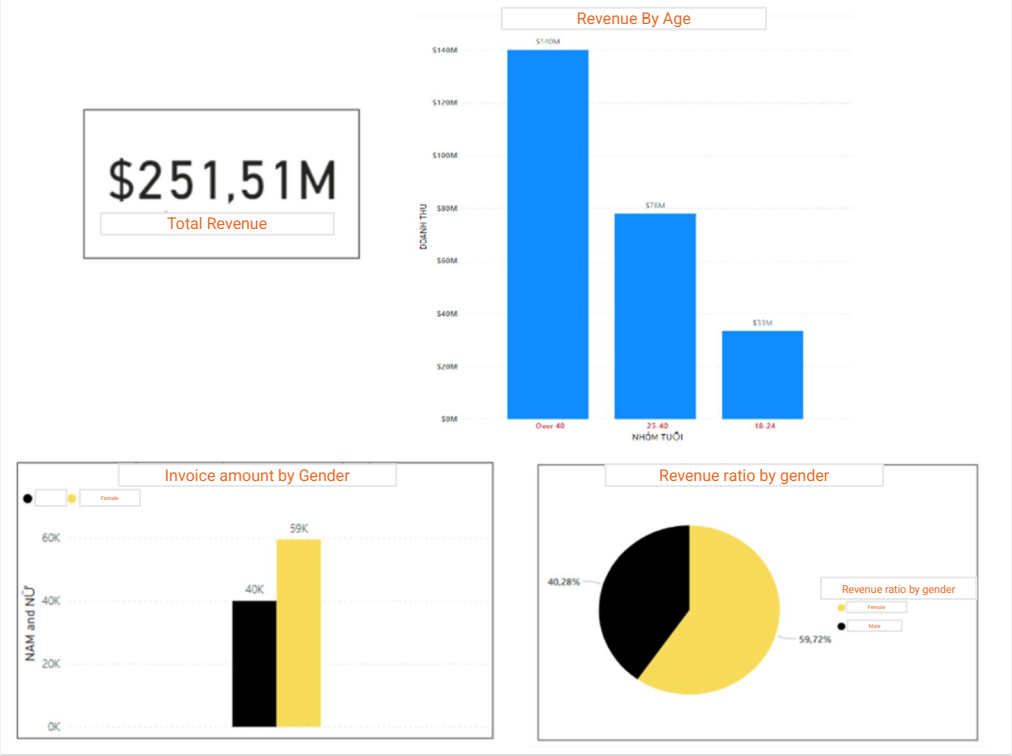


Fashion and Cosmetics & Beverages are the top in terms of revenue **~ 200k$**

Toy and Shoes have a good metrics sales volume **>60k products**

- **Fashion and Cosmetics & Beverages are bright spots to consider when investing.**
- If you want to sell quantity instead of quality, the Toy and Shoes industries are good choices.

5.2 Analysis by Age & Gender



Customers over **40** contributed the most revenue, reaching **$14M.**

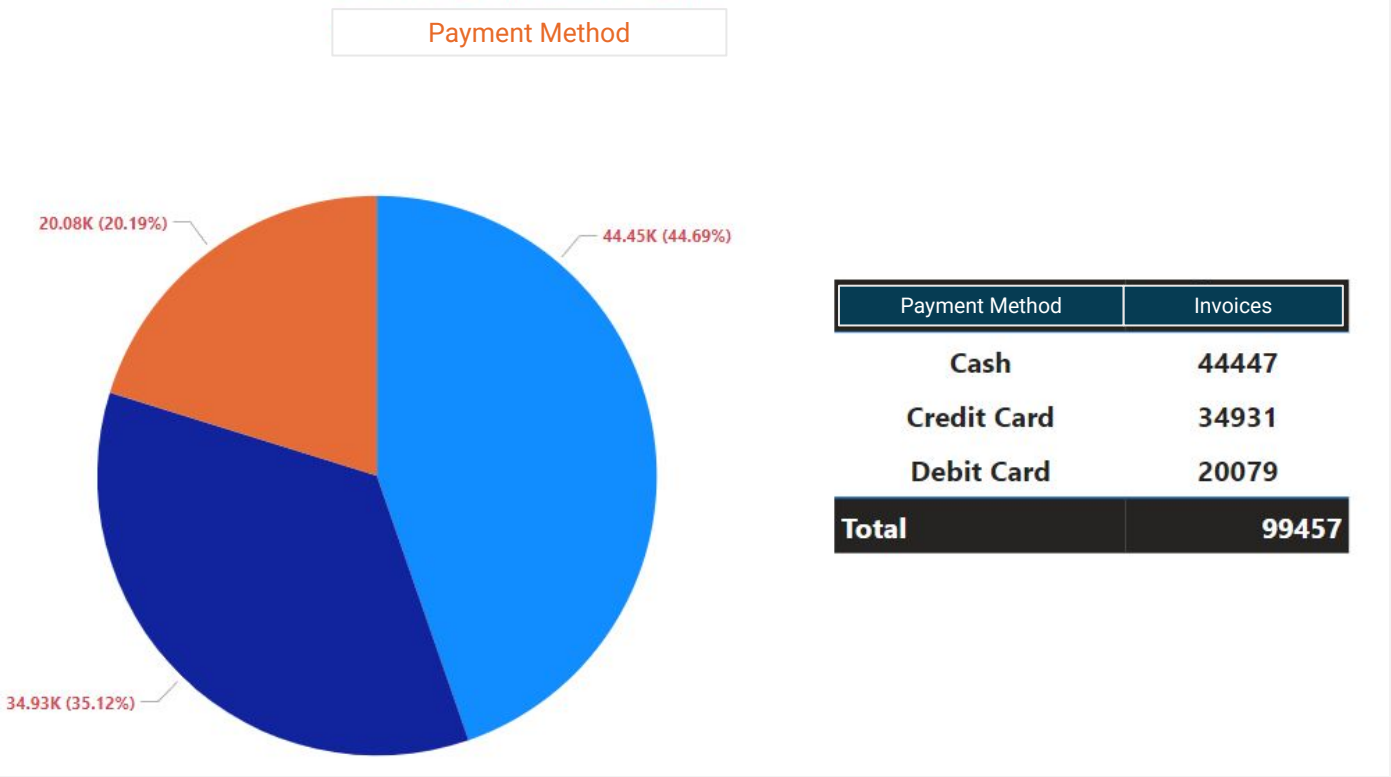
Customer between **25-40** year old top 2 with **$7M**.

Customer between **18-24** year old is worst revenue with **$3.5M**.

Women are a potential customer group that needs to be further exploited.

=>Middle-aged and elderly customers are the main target customer group, bringing in the largest revenue. Increase marketing to Women (create attractive products, services and promotions for women) especially the 25 - 40 year old group

5.3 Phân tích theo Phương thức thanh toán



Payment Method	Invoices
Cash	44447
Credit Card	34931
Debit Card	20079
Total	**99457**

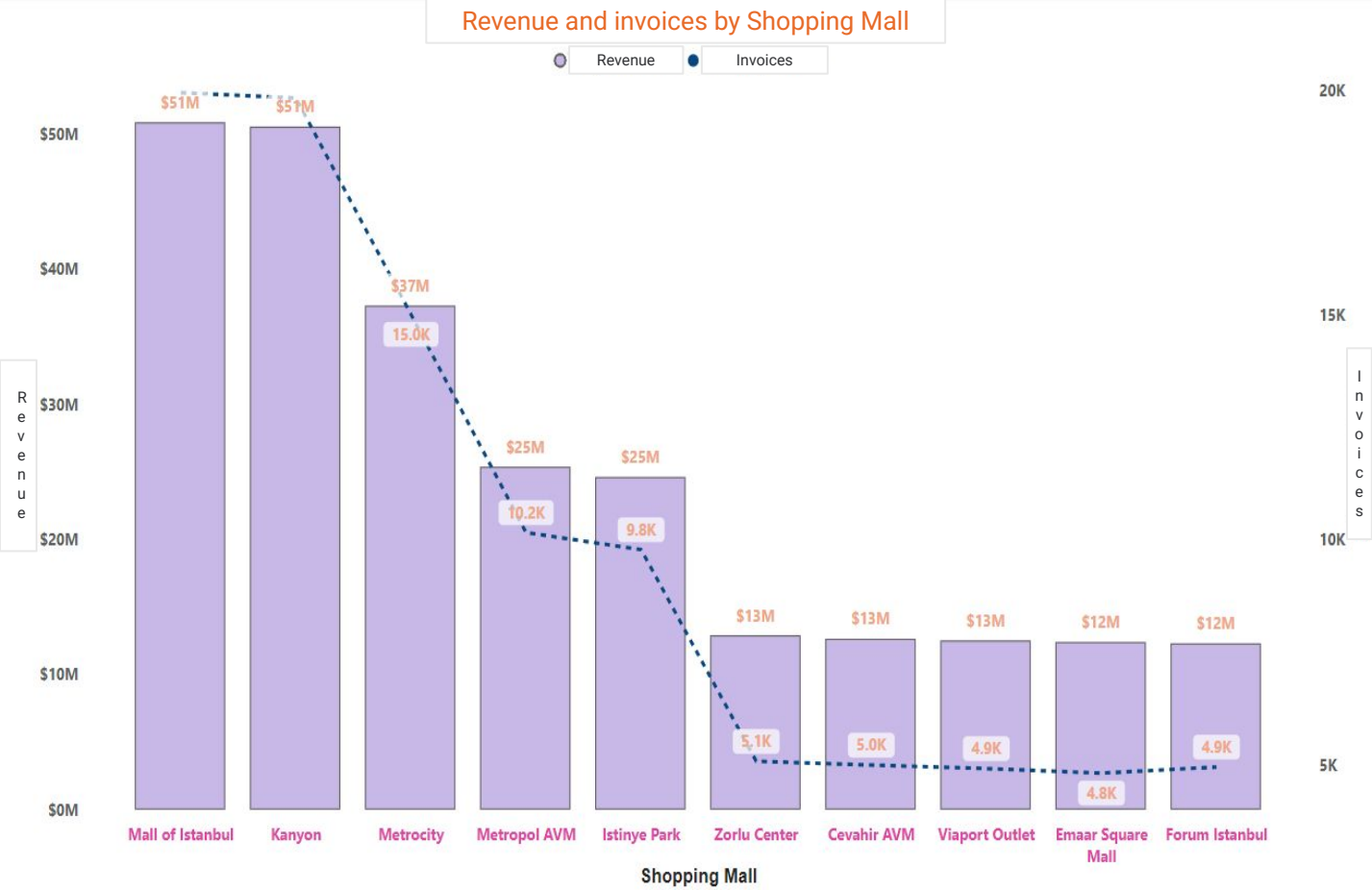
Cash is the best method to pay with highest invoices: > 44k

But the online method is more popular with credit or debit have nearly 60% invoices

=> The habit of paying by cash is still very popular, however, we still try to develop more credit payment methods to attract more customers.

06 PERFORMANCE OF CENTERS

6.1 Revenue and number of invoices by Shopping Mall



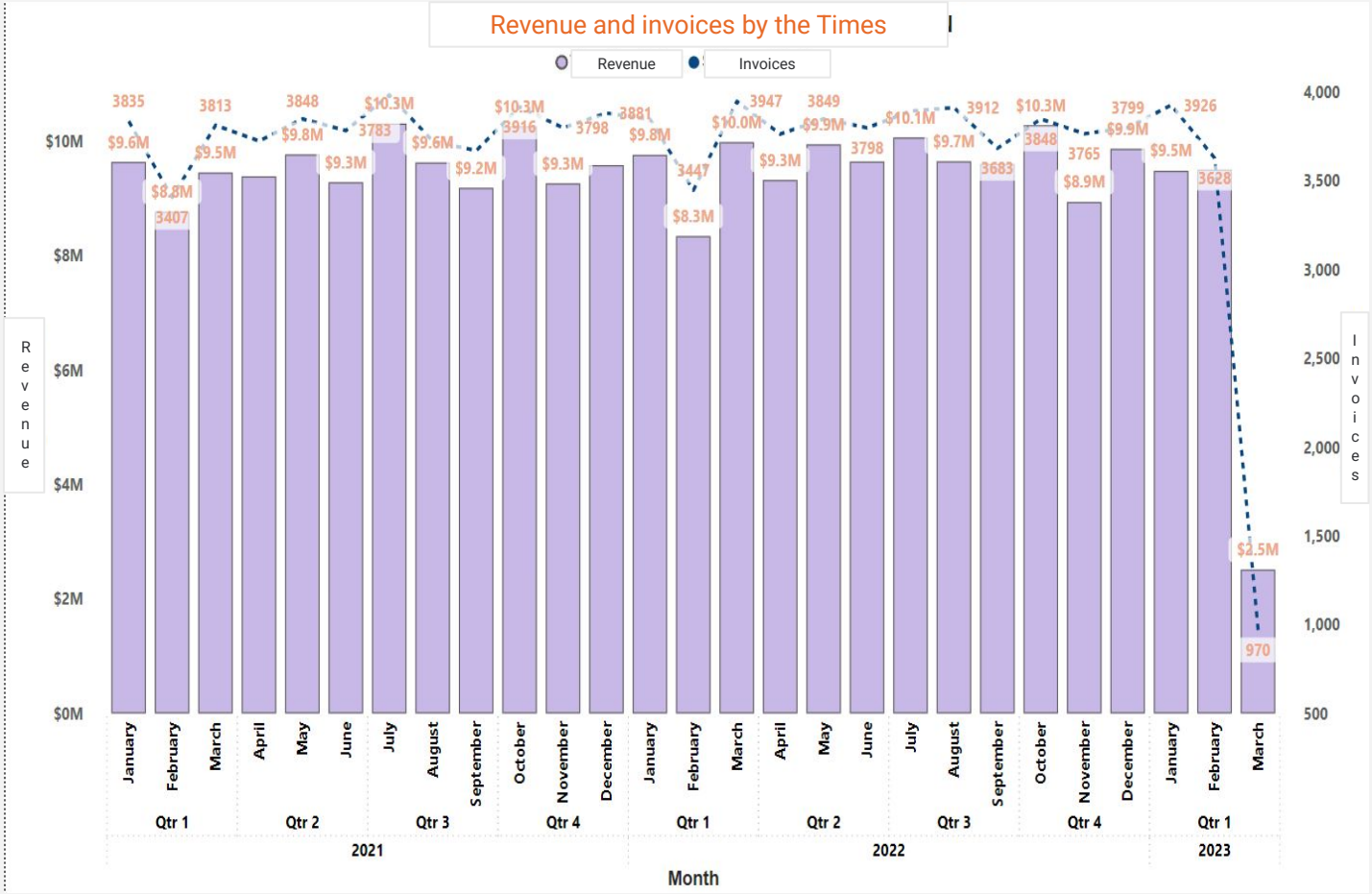
Mall of Istanbul have **51M$ Revenue and ~20k Invoices**

=> This Mall is lead trending and attract many customers

The relationship between invoices and Revenue: proportional - Low invoice lead to low revenue - Nothing specials

Exception: Metrocity has a fairly high number of invoices relative to revenue, which may indicate that the mall has low-value merchandise & is retail-oriented.

6.2 Number of invoices and revenue over time



Revenue: Revenue tends to increase gradually from early 2021 to mid-2022, then decline sharply in late 2022 and early 2023.

Number of invoices: Number of invoices also has a similar trend as revenue, showing a strong correlation between the two.

Seasonal Fluctuations:

Revenue typically peaks in the first and fourth quarters, possibly due to holidays and increased demand.

The second and third quarters typically see lower revenue.

Conclusion

Conclusion

BUSINESS SITUATION

Business data in Istanbul tends to be good towards the end of the year. However, there is not much of a spike in growth, especially with each shopping mall having very few orders per day (average of about 12 orders/mall).

CLIENT

Istanbul is a densely populated city with a large number of tourists every year and a low churn rate, making it a good market for small businesses.

GEOGRAPHIC LOCATION

The city owns many historical relics as well as its own beauty, many places have potential to be exploited in the inner and outer city, very suitable for tourism development, and retail shopping.

STABILITY

It is easy to see that the monthly business parameters have shown that there is almost no significant difference.

INDUSTRY

The women's fashion industry is the leading industry in business categories. Need to focus on middle-aged women's fashion

DATA SOURCE

Link Python	Click here: Link
Link Source Data	Click here: Link
Link Slideshow	Click here: Link
Link Images	Image of Istanbul, Turkey. For more info, click **here**
Link Source Information	Shopping Mall Istanbul. For more info, click **here**
Link Company	M-Company. For more info, click **here**

Thanks!

Do you have any questions?

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