

SHORT SUMMARY

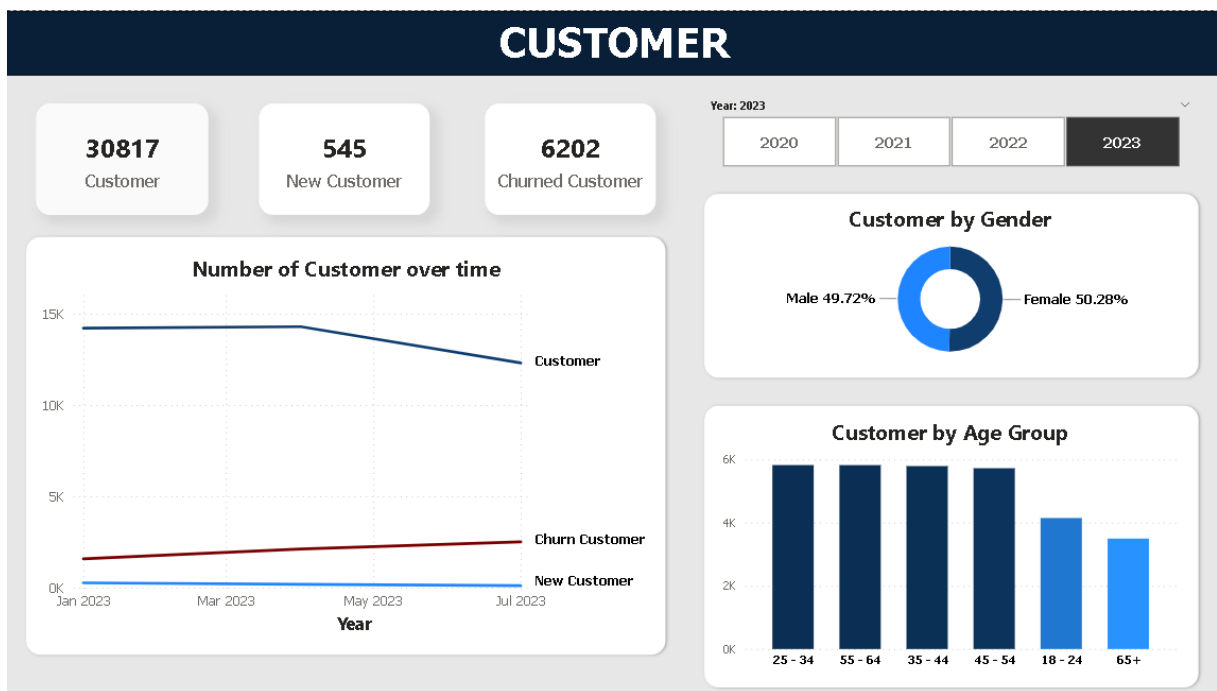
Problem:

- Analyze the business performance and development of an e-commerce retail business after 4 years to make appropriate recommendations for development.

Exploratory analysis:

1. Customer

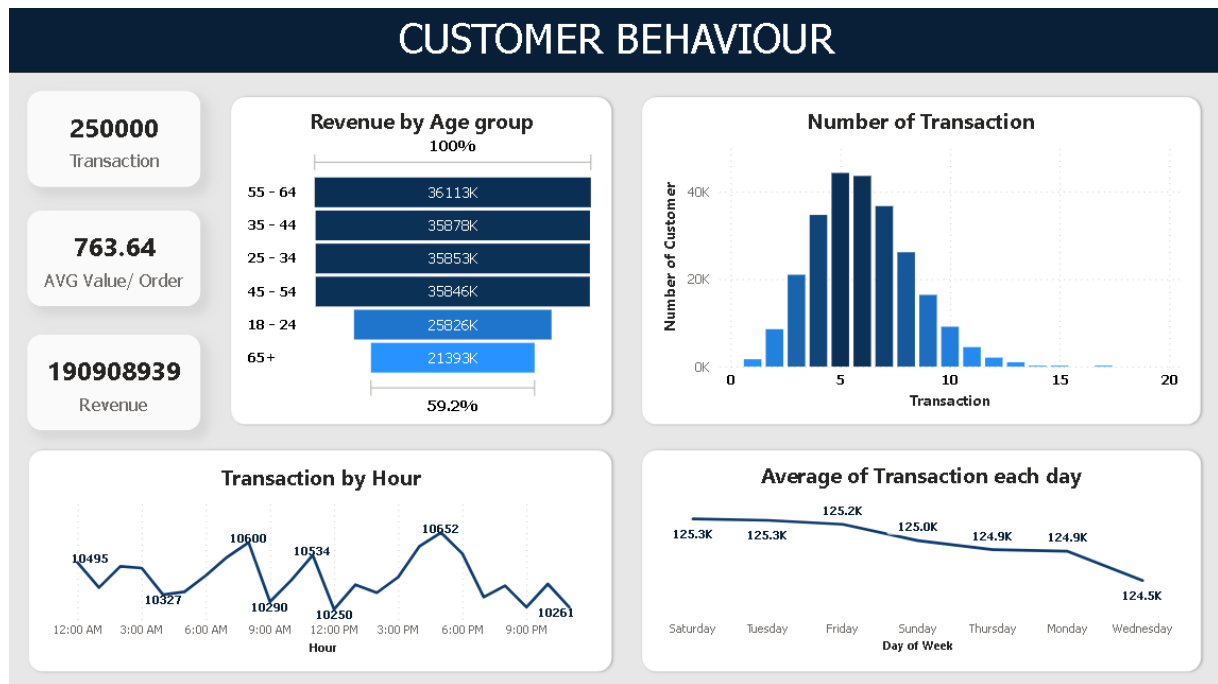
- The customer base of the business has a fairly balanced ratio of men and women, partly because the products of the business are very diverse and suitable for everyone.
- The main customer group of the business is from 25-65 years old. The group of students (18-24) and people over 65+ is relatively smaller.
- In 2023, the number of new customers will increase slightly, while the number of customers churning will increase, which will lead to a sharp decline in the number of customers, especially from April 2023.



2. Purchasing Behaviour

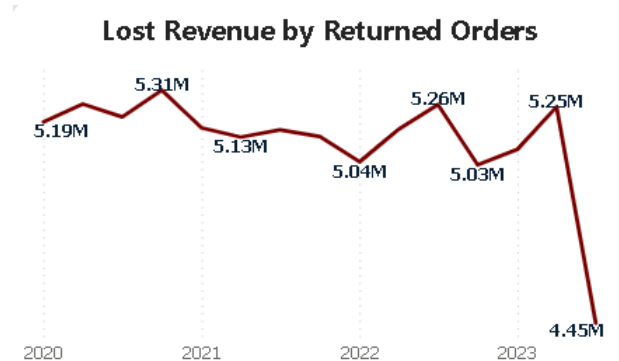
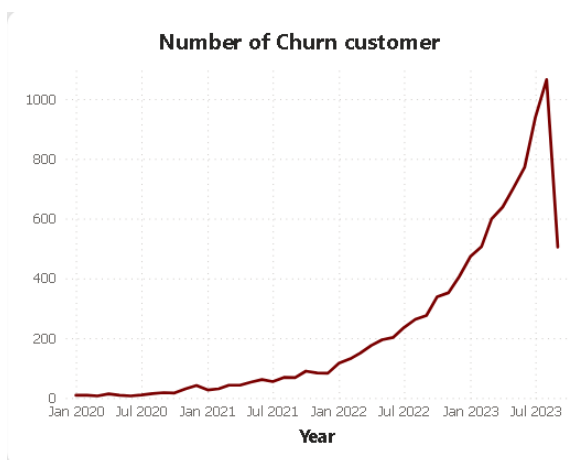
- There were a total of 250000 transactions within 4 years, bringing in more than 190 million in revenue.
- Customers tend to make 4-7 trades mainly, with a small number of customers making more trades, up to 20 trades.

- The usual times when many transactions occur are around 8am, 11pm and afternoon hours from 16 – 19h. Besides, weekends like 6th, 7th, Sunday and 3rd usually have the most transactions.



3. Churn & Return analysis

- The number of churn customers increased year over year to 9942 customers, the churn rate was 20.01%, a sharp increase from June 2022. As for September, because all the data of a month has not been collected, it is not possible to conclude.
- The order return rate is high, nearly 40%, which affects revenue, each month losing about 5M due to the value of returned orders.



CHURN ANALYSIS

9942

Churn customer

20.01%

Churn rate

Year: All

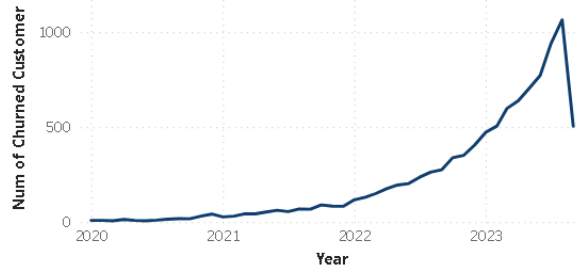
2020

2021

2022

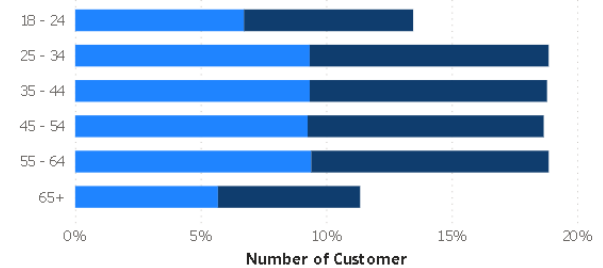
2023

Num of Churned Customer by Year, Quarter and Month



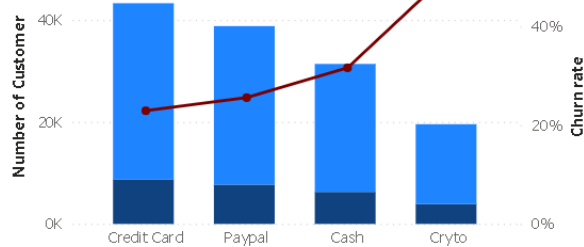
Churn Customer by Age group and Gender

Gender: Female Male



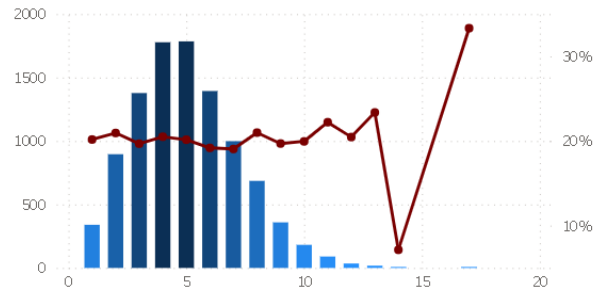
Churn Customer by Payment method

Churn: 0 1 Churn rate



Churn Customer by frequency

Churn customer Churn rate



RETURN ANALYSIS

40.31%

Return Rate

100769

Return order

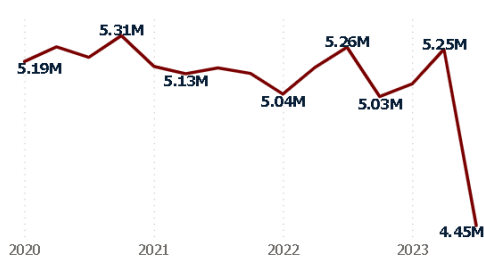
302461

Returned product

76840333

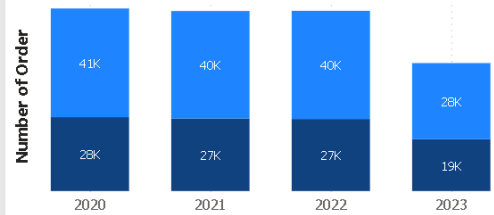
Lost Revenue

Lost Revenue by Returned Orders



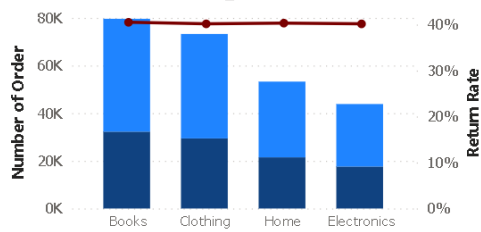
Return order

Returns: 0 1



Return order

Returns: 0 1 Return_rate



Return order by Age group

Name	Return rate	Return order	Returned quantity	Lost Revenue
Books	40.50%	32254	96899	24569735
Home	40.33%	21479	64467	16331082
Clothing	40.17%	29424	88038	22717300
Electronics	40.16%	17612	53057	13222216
Total	40.31%	100769	302461	76840333

4. Customer Lifetime Value

CUSTOMER VALUE ANALYSIS

Customer Lifetime Value

110.13K

AVG Purchase Frequency Rate

1.82

AVG Customer LifeSpan

79.54

Year: 2022

2020

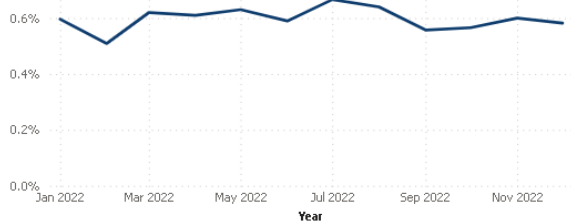
2021

2022

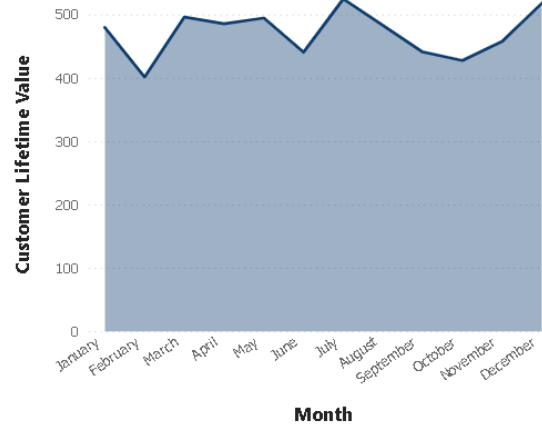
2023

Customer Name	Customer Lifetime Value	AVG Revenue per Customer	AVG Purchase Frequency rate
Ariana Phillips	3,507,580.00	10,565.00	8.00
Richard Reilly	2,784,383.00	8,953.00	7.00
Colton Ramirez	2,555,070.00	7,935.00	6.00
Carla Green	2,363,790.00	8,265.00	5.00

Repeat Purchaser Rate



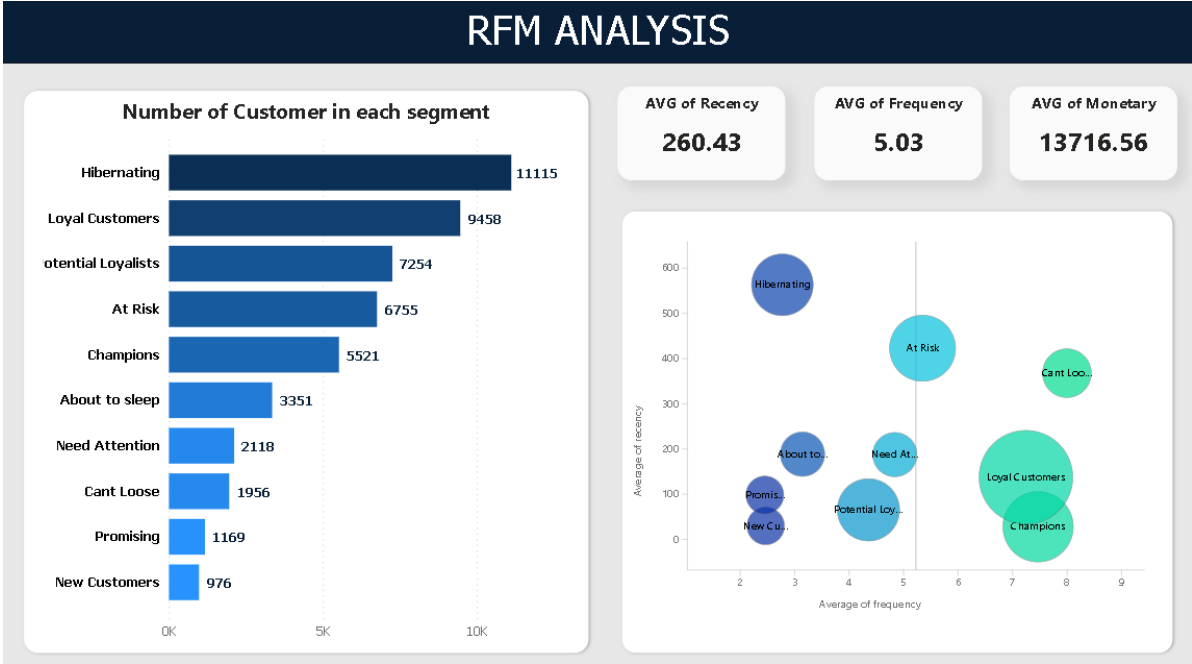
Customer Lifetime Value by Month



- The average Customer Lifetime Value is about 110K, which fluctuates over the months of the year.
- Repeat purchaser rate = the total number of customers with more than 1 transaction divided by the total number of transactions. In 2022, the index fluctuated between 0.5% and 0.7%.

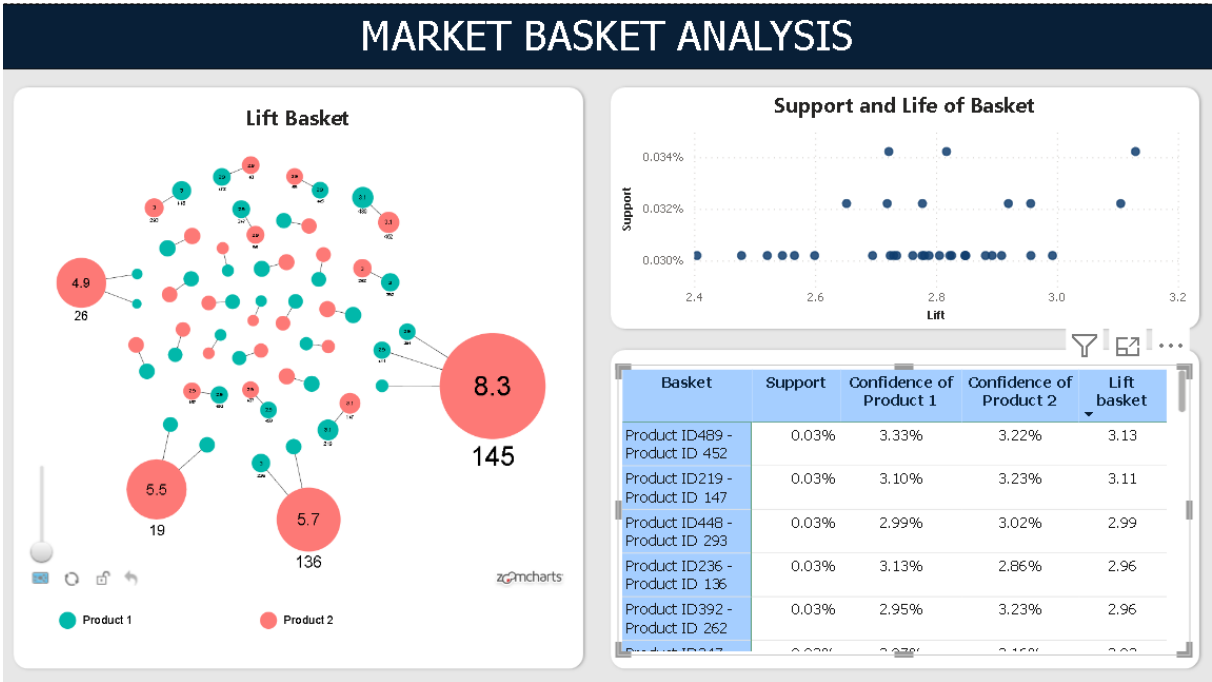
5. RFM analysis

- The analysis focuses on 3 indicators: Recency, Frequency and Monetary, clustering customers according to two indicators R and F.
- Hibernating customer group has the highest number, followed by Loyalty Customer and Potential Customer. This is relatively positive, but strategies are needed to promote the Hibernating customer group and also need to pay attention to the number of customers in the At Risk group which is ranked 4th
- In other to enhance marketing strategy to target customer, we can use the category from RFM analysis to find out different purchasing behavior patterns of different segments. Therefore, make the right approach and marketing plan for them.



6. Market Basket Analysis

- Market Basket analysis shows which groups of products are often bought together to plan to cross-sell or organize products at the website. As can be seen, potential product groups such as 489 – 452, 219 – 147, 448 – 293 ...



7. Sale Performance

Analyzing the revenue situation, we can determine the increase or decrease in revenue over the years, compare revenue between the same periods in different years, based on which to understand and analyze the factors leading to that change.

SALE PERFORMANCE

49673

Customer

190908939

Revenue

250000

Transaction

Category: All

Books

Clothing

Electronics

Home

Performance by Year

Year	Transaction	Revenue	Unique Customer	Change to LY	% Change to LY
2020	68045	51960327	37131	51960327	0.00%
2021	67099	51272071	36935	-688256	-1.32%
2022	67169	51099870	36907	-172201	-0.34%
2023	47687	36576671	30817	-1732414	-4.52%

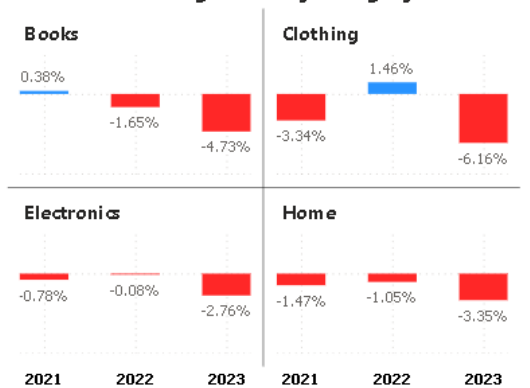
Revenue by Category

Books	Clothing	Home
31.71%	29.69%	17.34%
		21.26%
		Electronics

Revenue

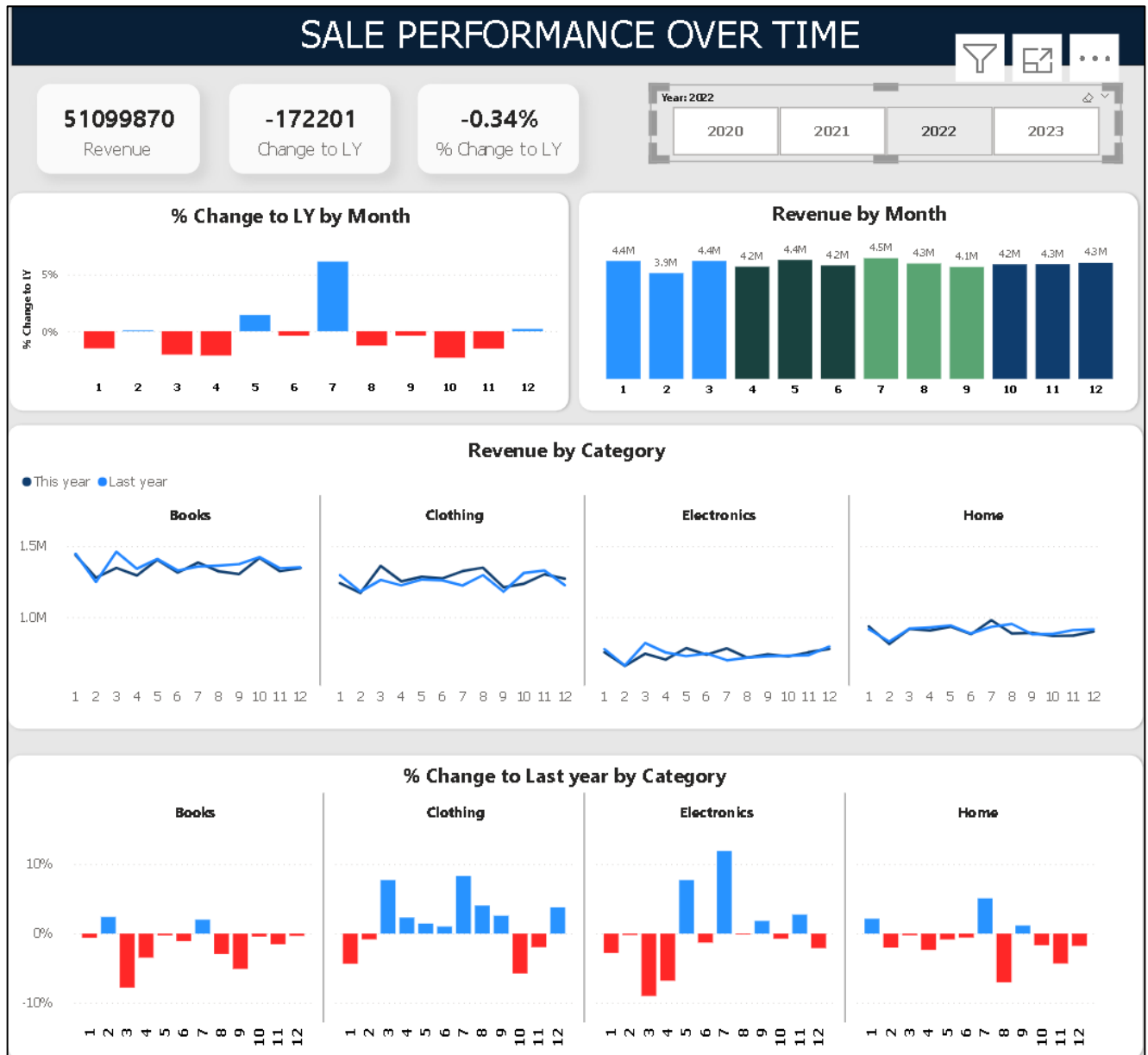


% Change to LY by Category



- The line chart represent a downward trend of total revenue, the data was collected until 15th Sep so there was a dip at September 2023. Revenue from books and clothing contribute more than 60% of total revenue of the company.
- Products in Electronics and Home category saw a decline in 3 three years. The revenue of books and clothing also decreased significantly in 2023. However, because the data was collected from 2020 to 15th Sep 2023, so we can not make a cler conclusion. It seems that some customer tend to buy books and clothing at the 3 ending month of the year.

- We can dive into each category to find out revenue trend over month and then benchmark to other years to identify more about the problem.



- Continue to find out more about the specific products which saw a decrease in revenue.

