SALES ANALYSIS
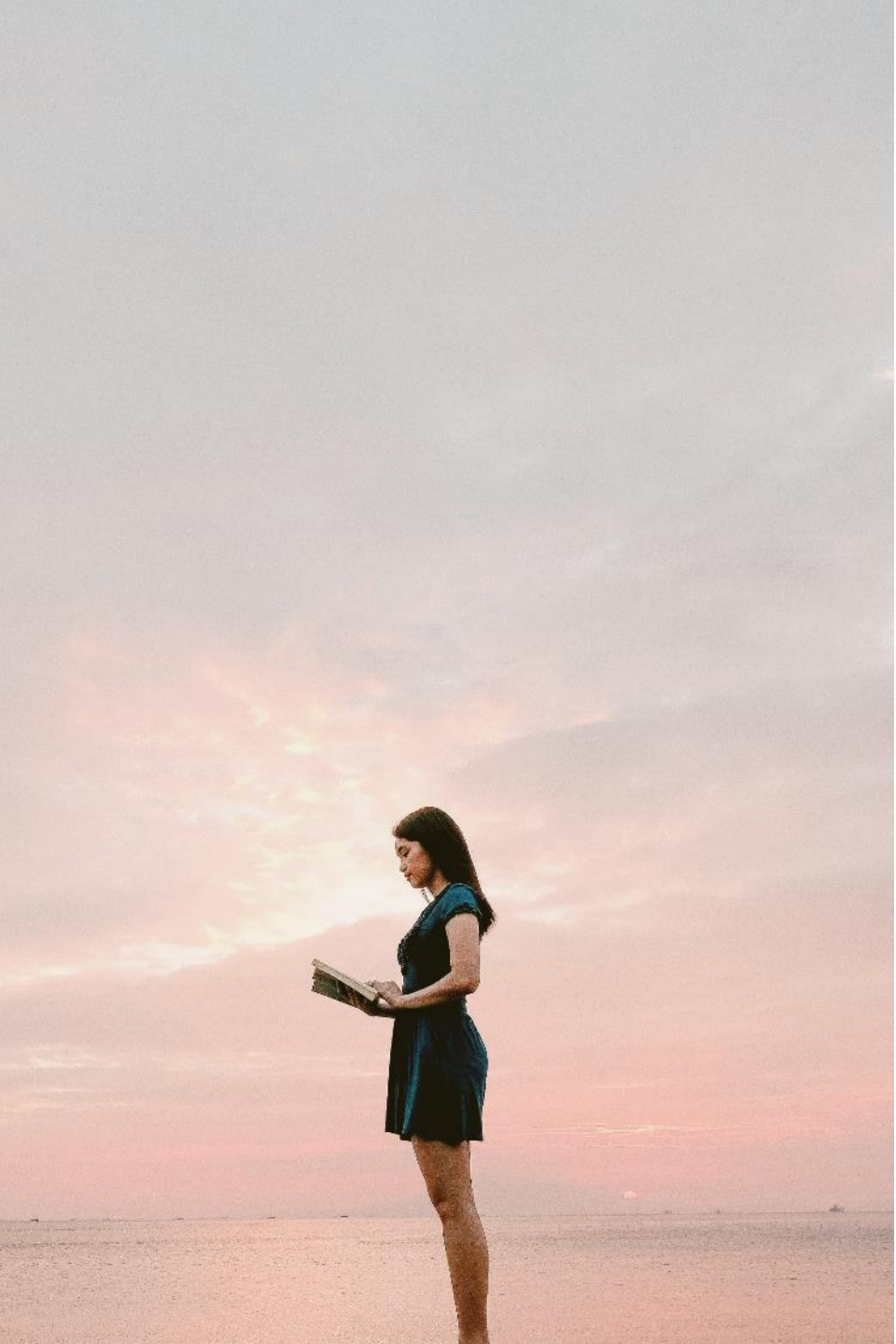
Lapage

Contexte

Reason for the project

- We need to to examine our different indicators and key figures

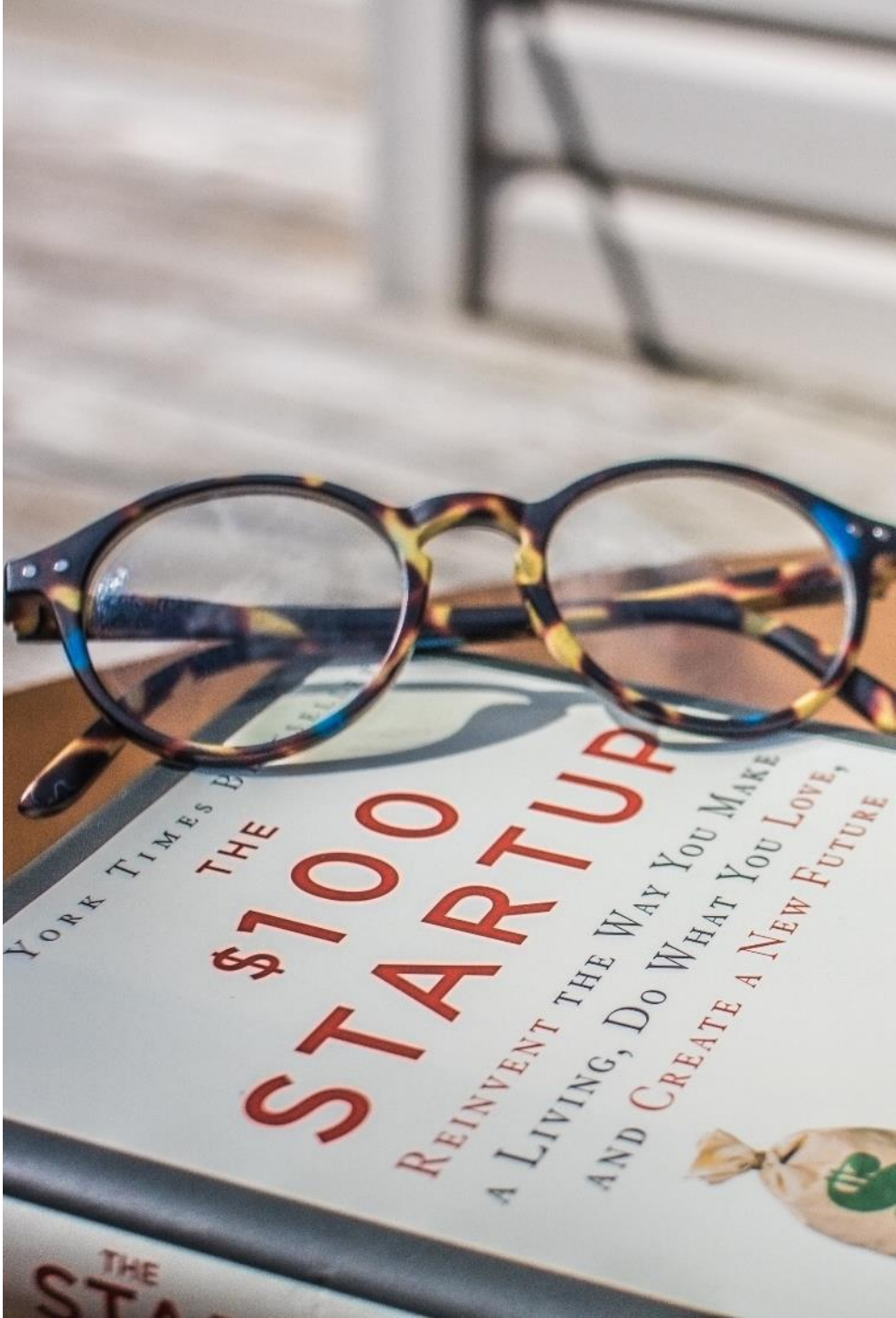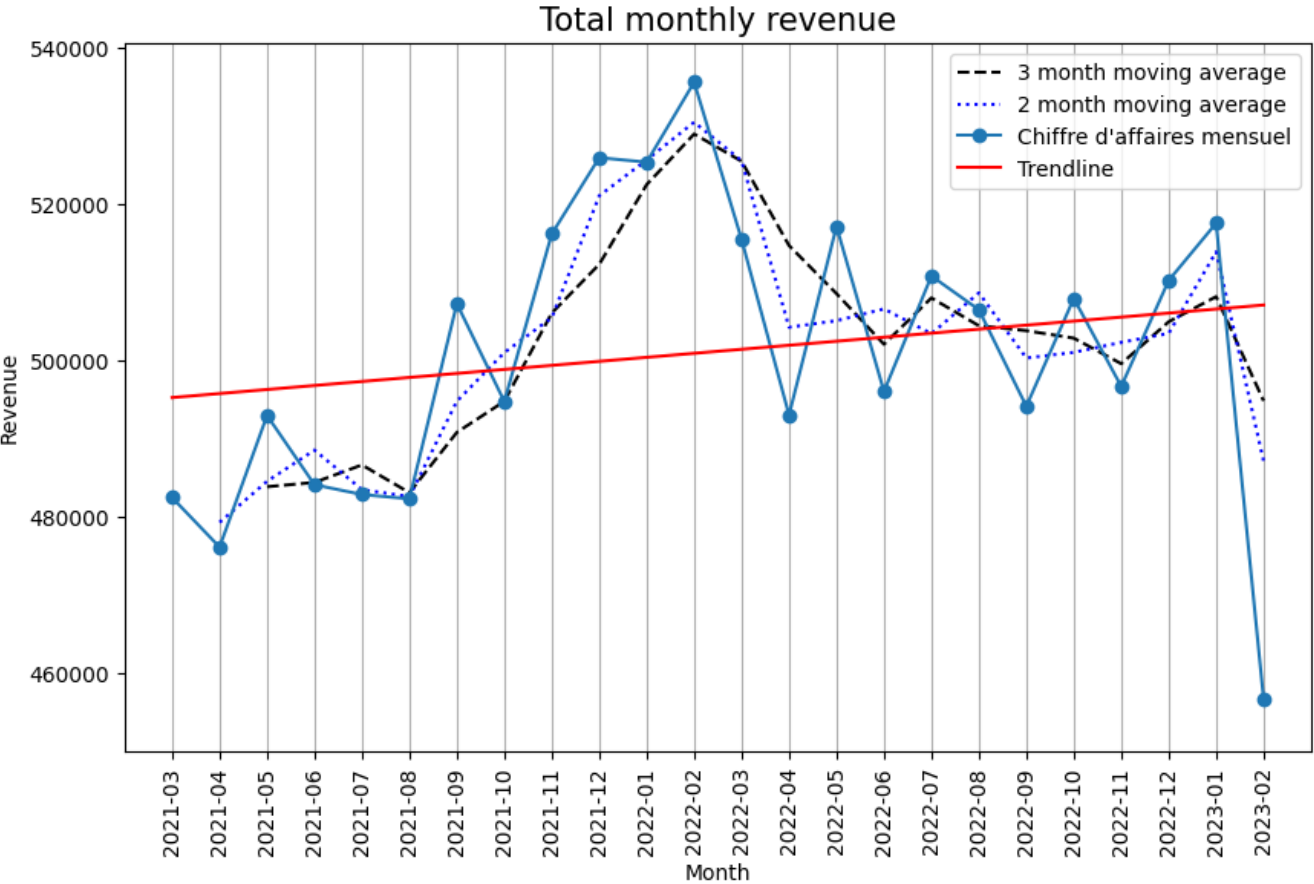- This will allow us to decide on planning for the future
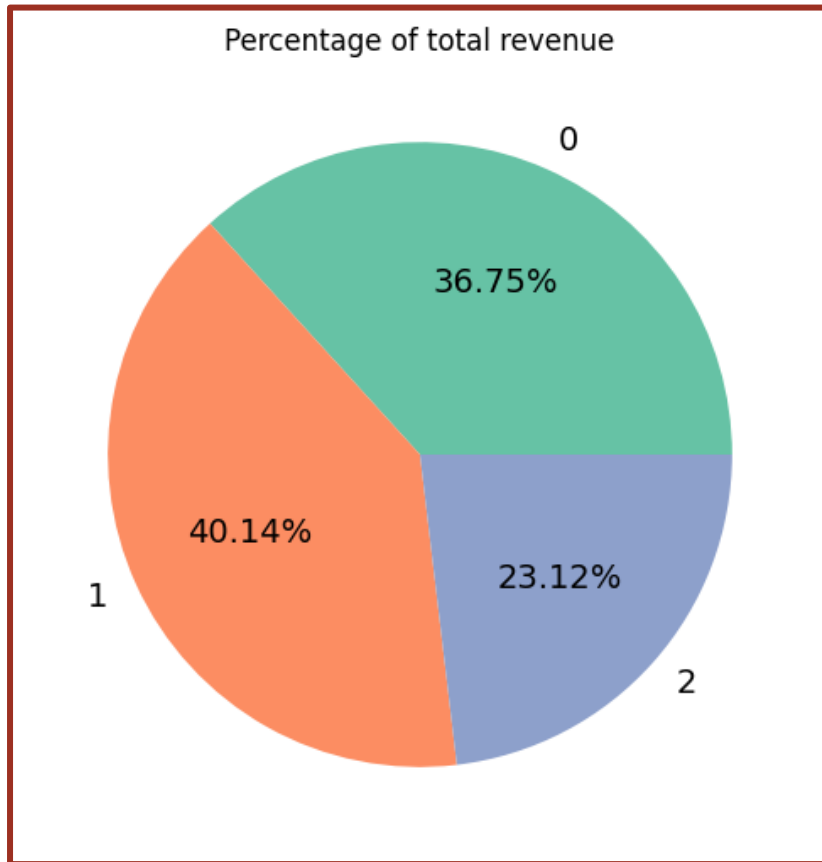
Part 1 – Sales Indicators

Revenue

Total monthly revenue

Revenue by category

Percentage of total revenue

- 0 — 36.75%
- 1 — 40.14%
- 2 — 23.12%

2292	1928
Number of Category 0 products	Average revenue per product - category 0

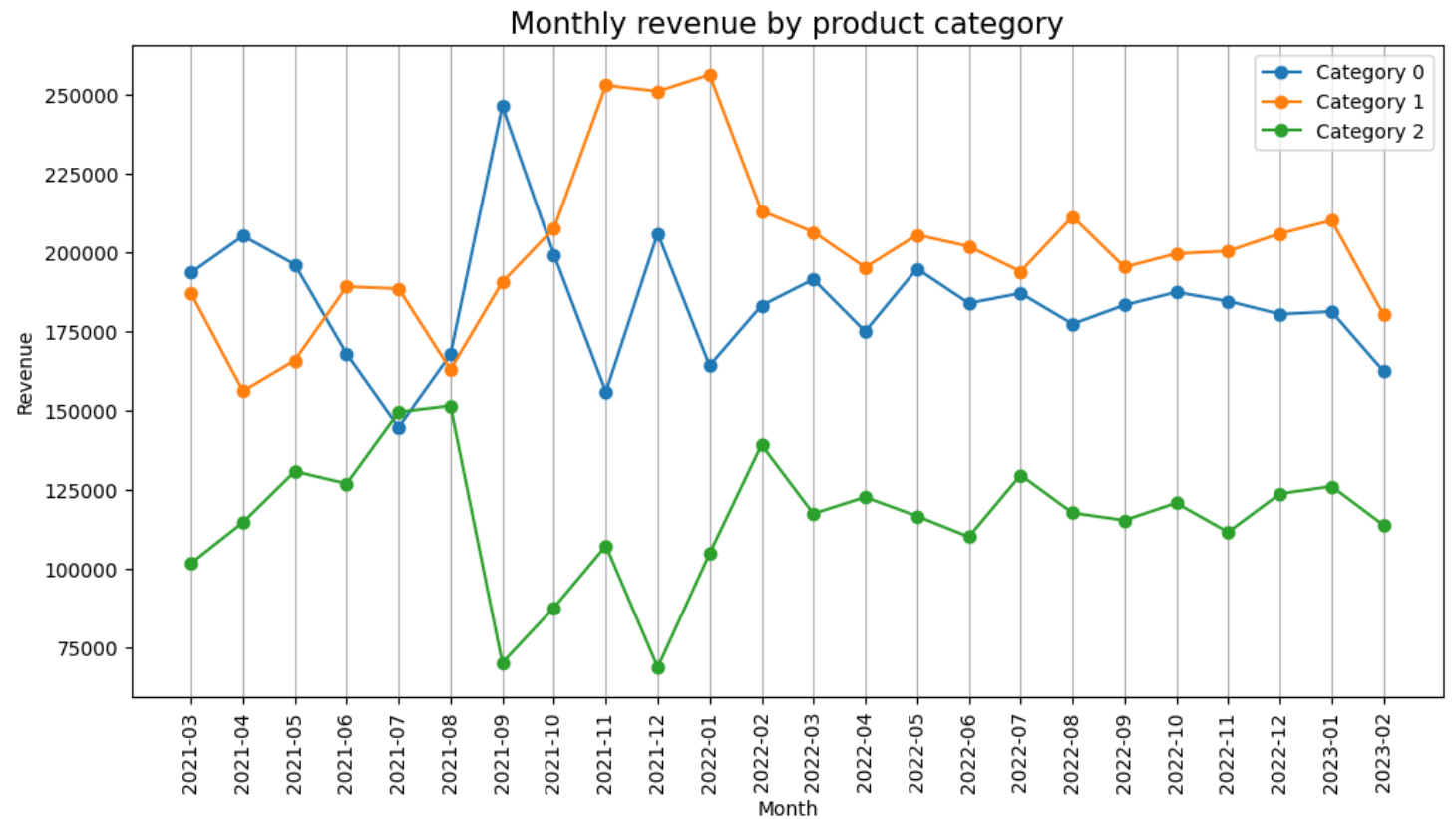| 737	6550
Number of Category 1 products	Average revenue per product - category 1

236	11780
Number of Category 2 products	Average revenue per product - category 2

Monthly revenue by category

Product Sales

Percentage of total sales
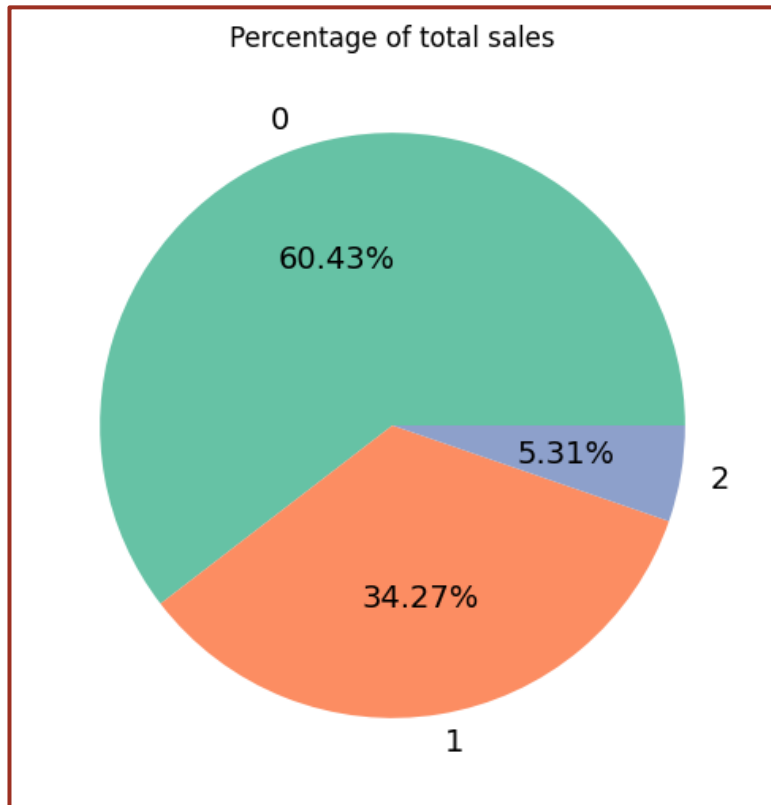
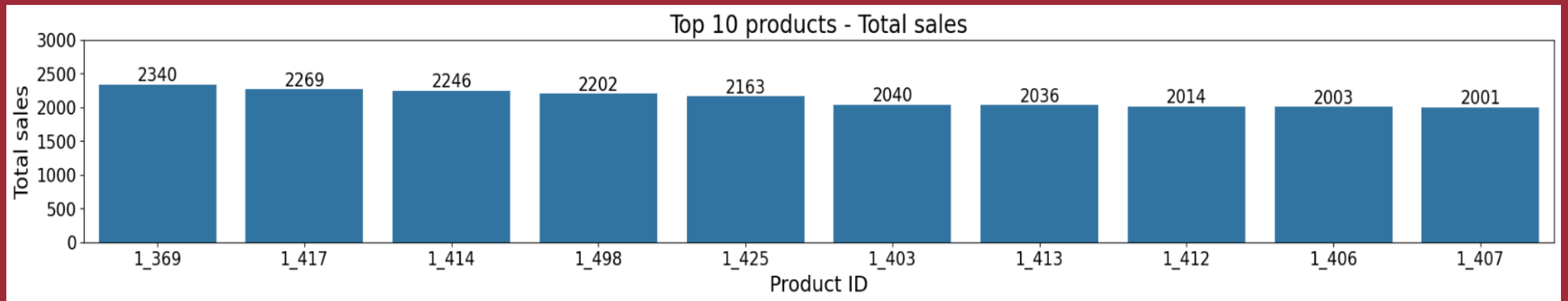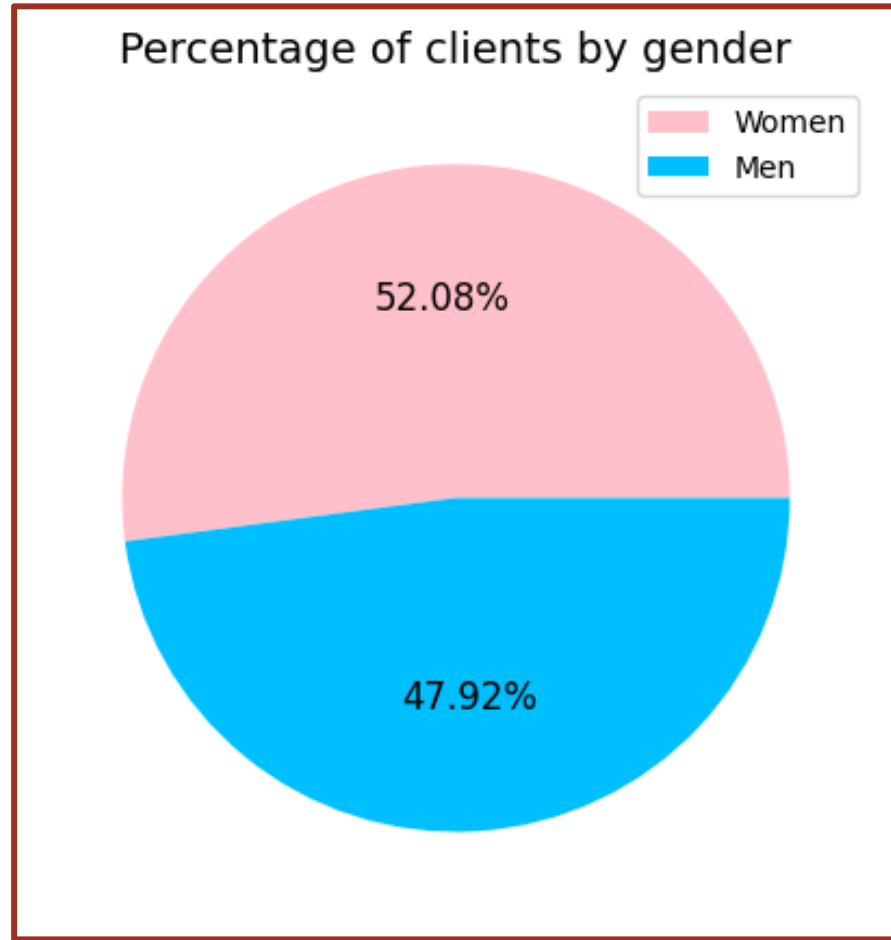|	
2292 Number of Category 0 products	**181** Category 0 - Average sales per product
737 Number of Category 1 products	**319** Category 1 - Average sales per product
236 Number of Category 2 products	**154** Category 2 - Average sales per product

Top 10 Products – Total Sales

Top 10 Products – Highest Revenue

Top 10 products with the highest revenue
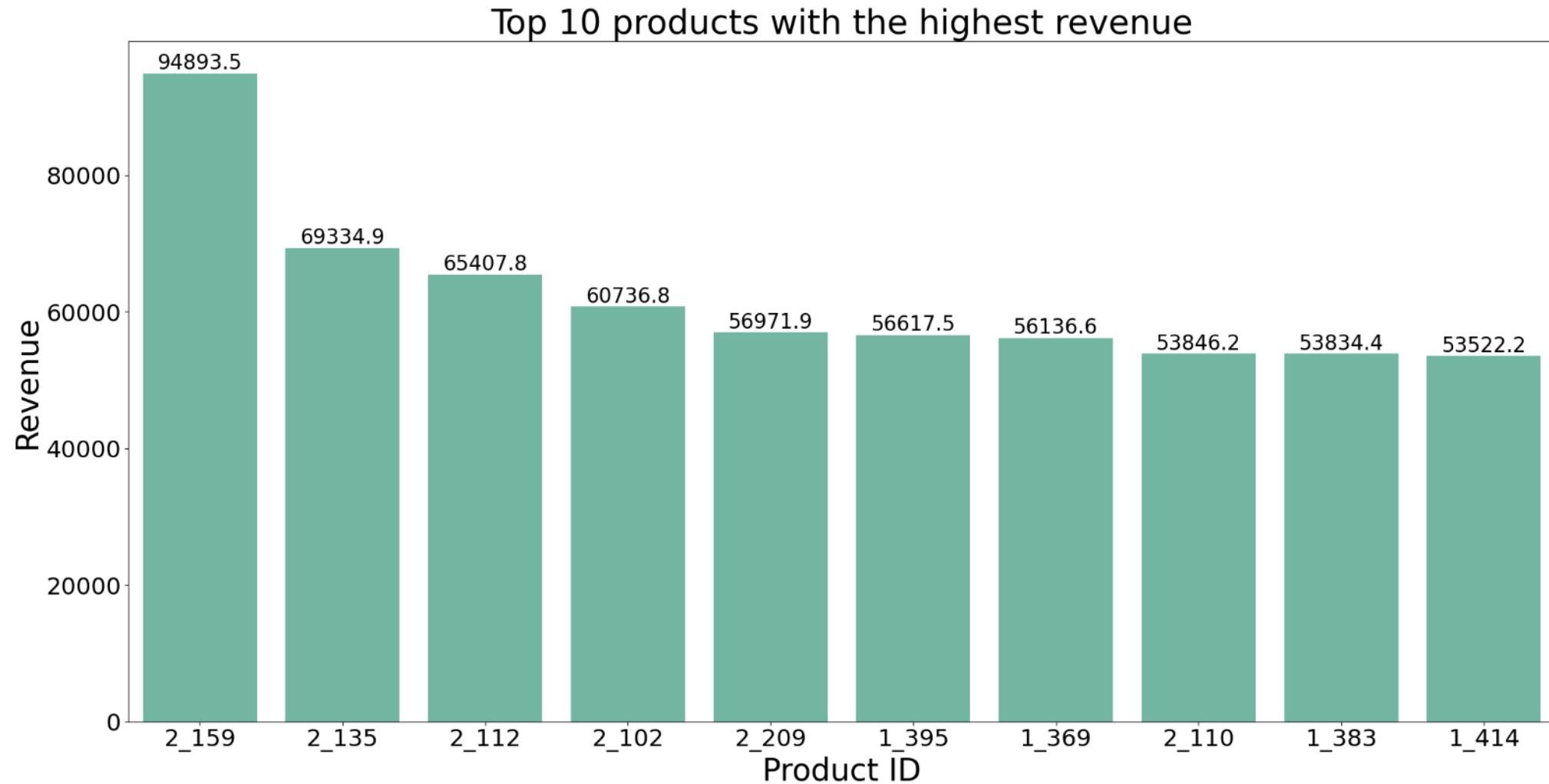
Client Gender Distribution

Percentage of clients by gender

- Women
- Men

52.08%

47.92%

Client Ages

Number of clients by age group

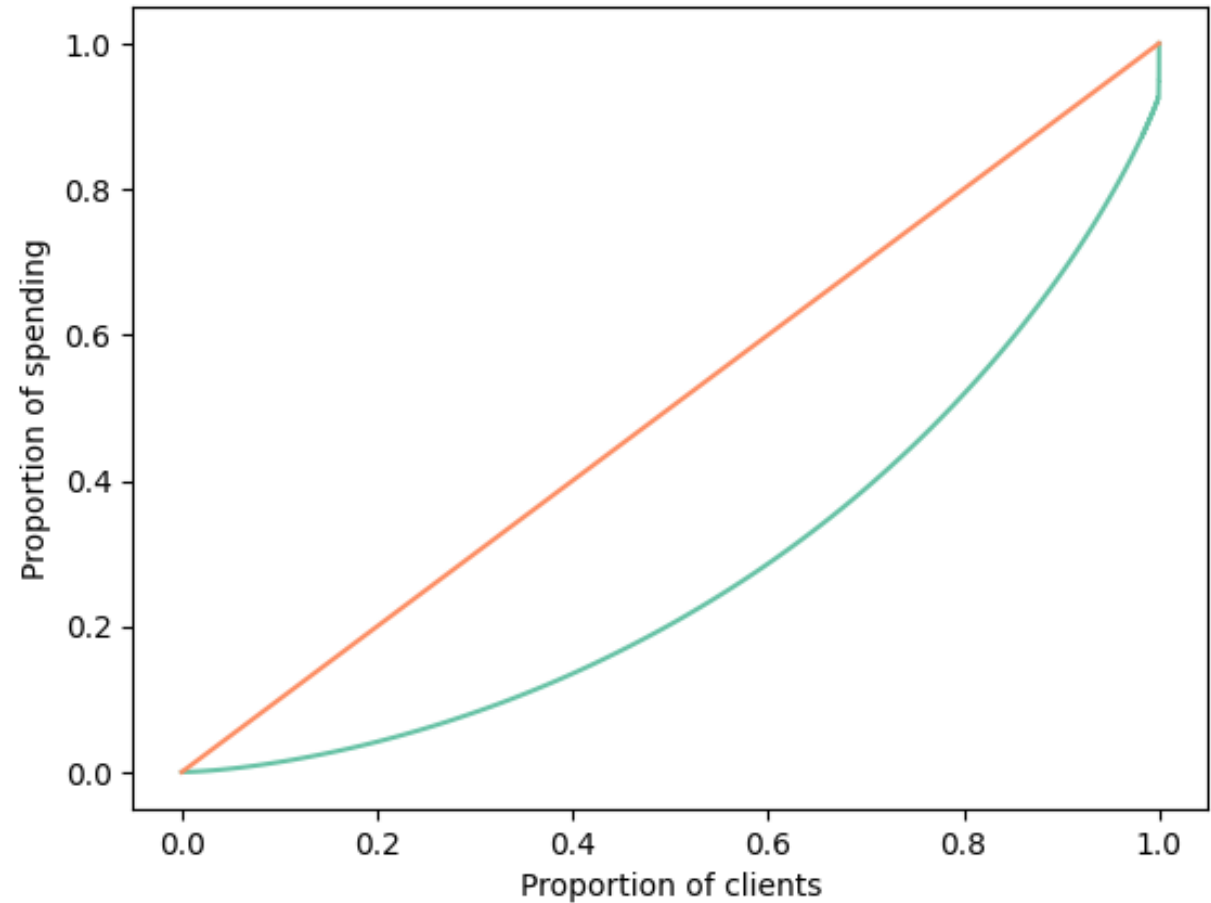| Age group	Number of clients
19-23	995
24-27	629
28-31	656
32-35	648
36-39	649
40-43	709
44-47	751
48-51	609
52-55	646
56-59	557
60-63	396
64-67	464
68-71	334
72-75	209
76-79	136
80-83	112
84-87	75
88-91	35
92-95	11
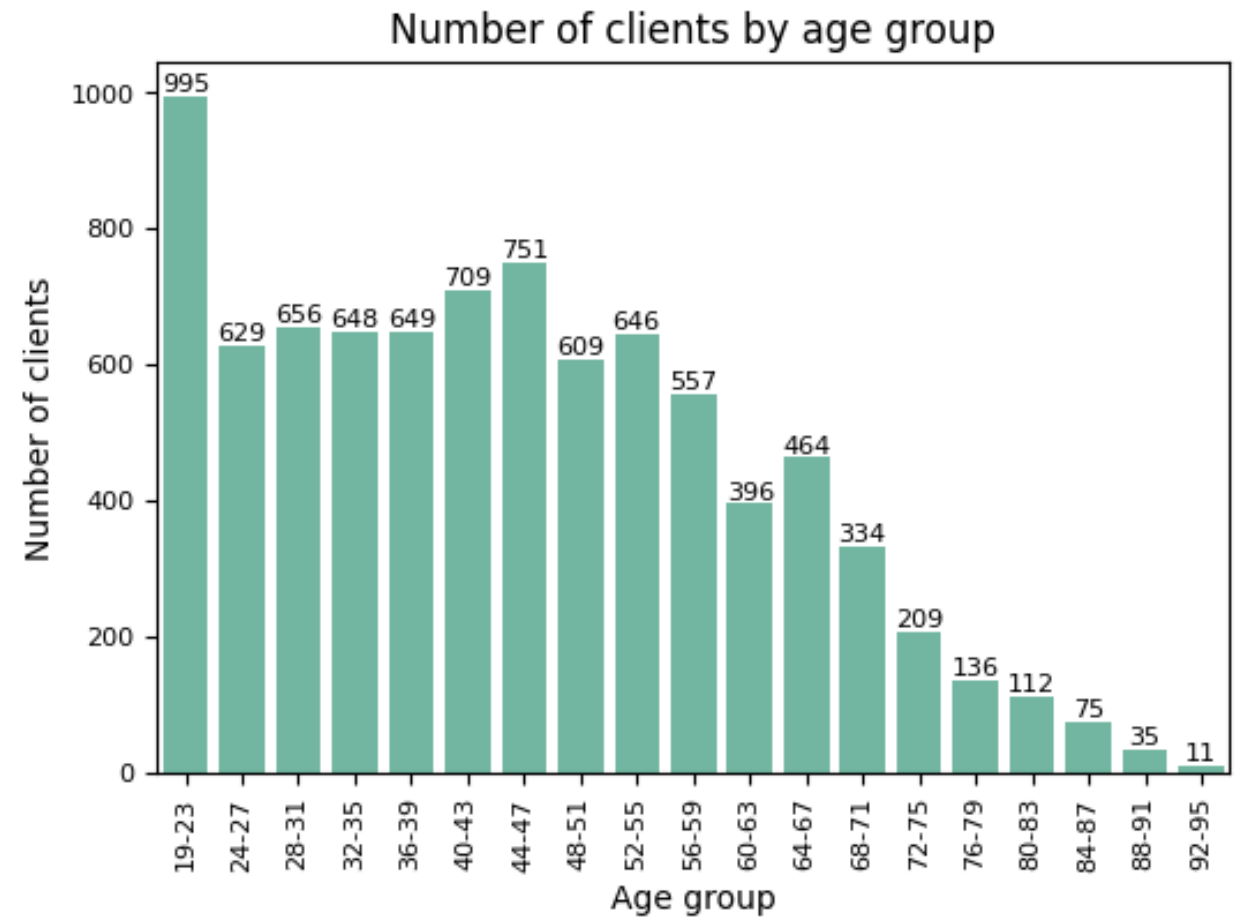
Lorenz Curve

0.44

Gini Index

Lorenz curve of client spending

Top 10 Clients - Spending

Top 10 clients by spending
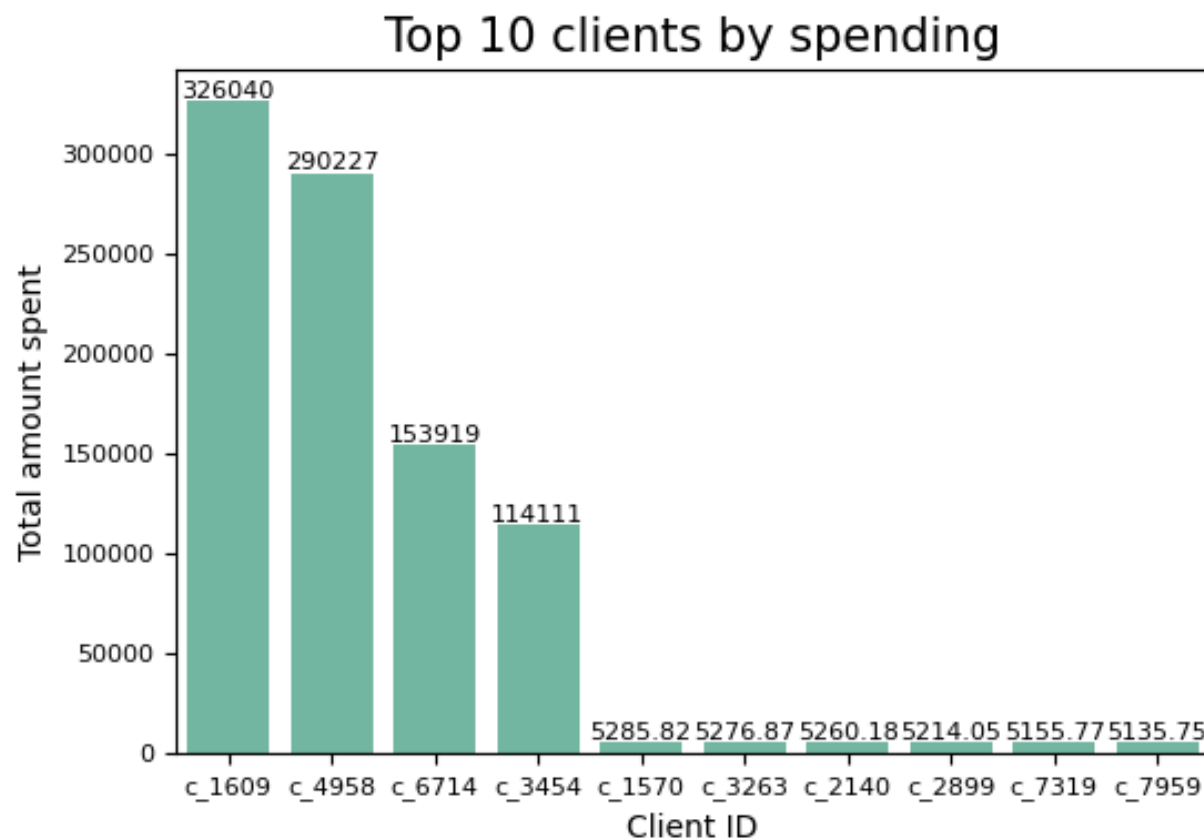
Top 10 Clients – Number of Purchases
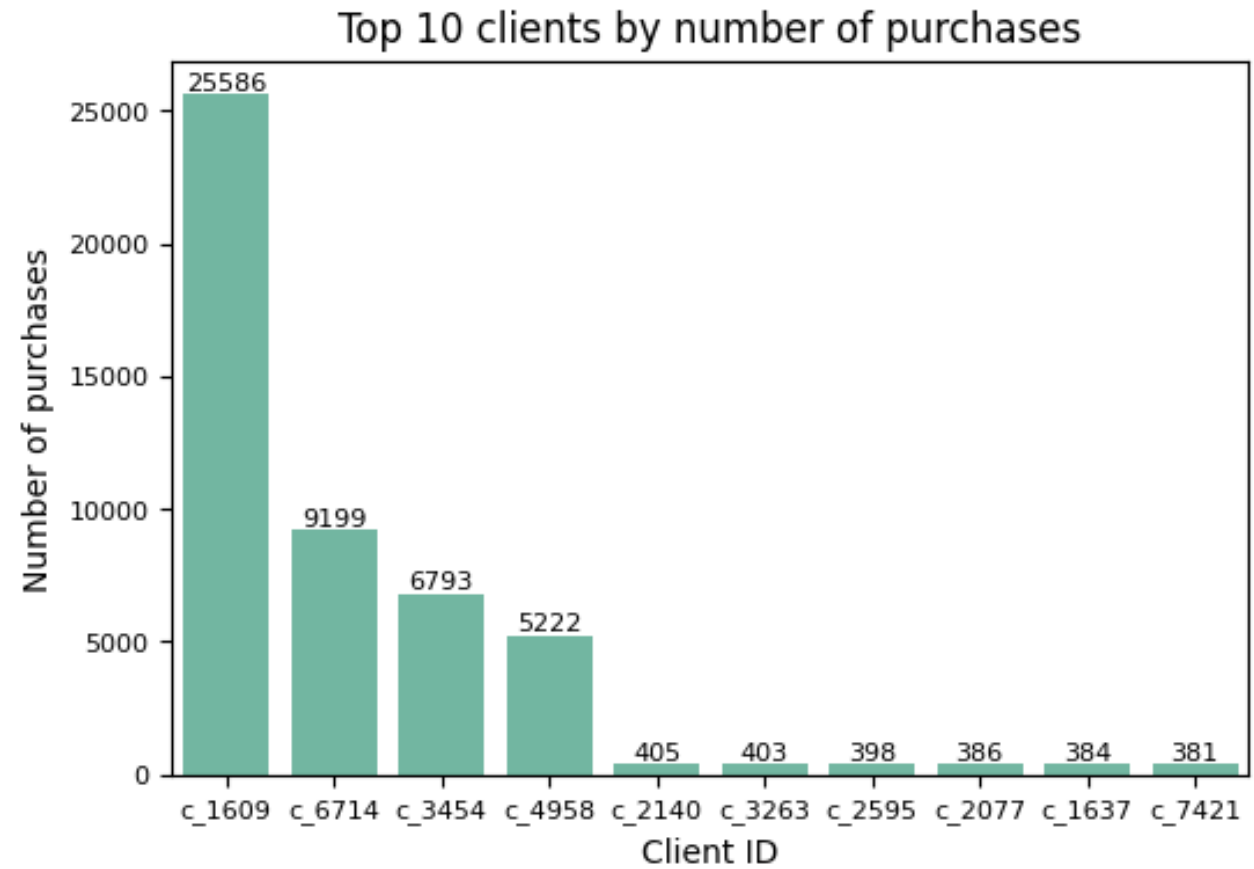
Part 2 – Our clients

Client gender and categories of books purchased

Category of books sold by gender

categ	0	1	2
sex			
f	206103	119307	17283
m	209356	116285	19200

158.25
Chi2 Statistic

4.32e-35
P-value

- Null hypothesis (H0): No association between gender and category of books purchased.
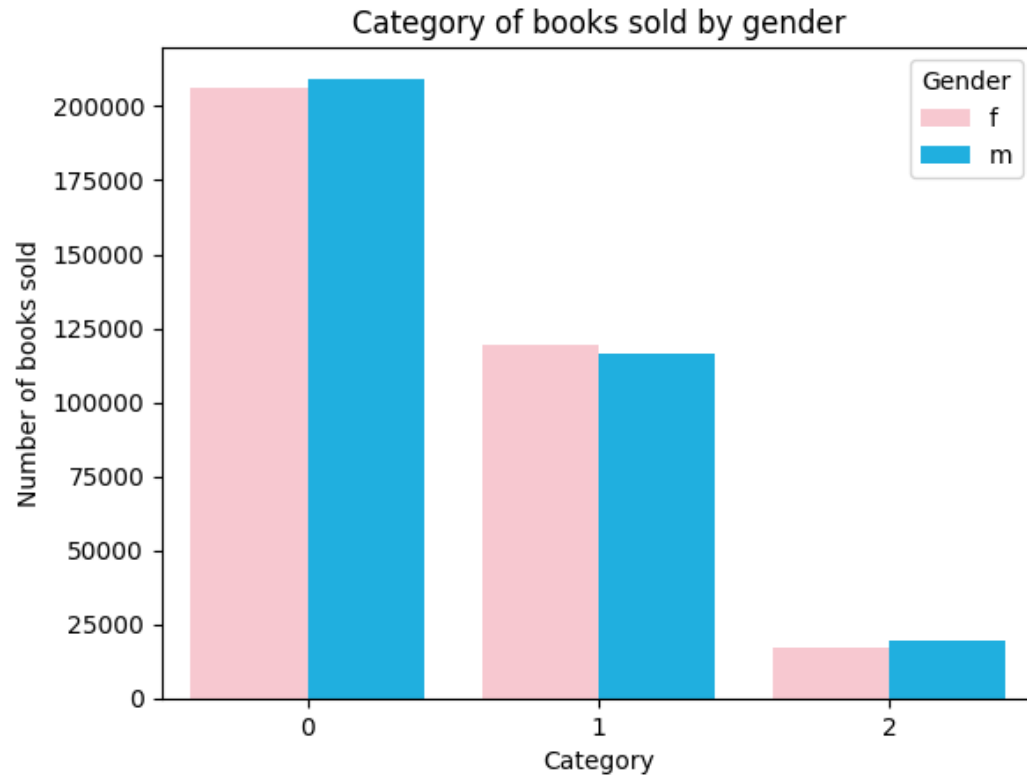- Alternative hypothesis (H1): There is an association between the gender and the category of books purchased.

The high chi2 statistic and very low p-value suggest that there is a link between gender and the category of books purchased.

Customer age and total spending

Histogram of age
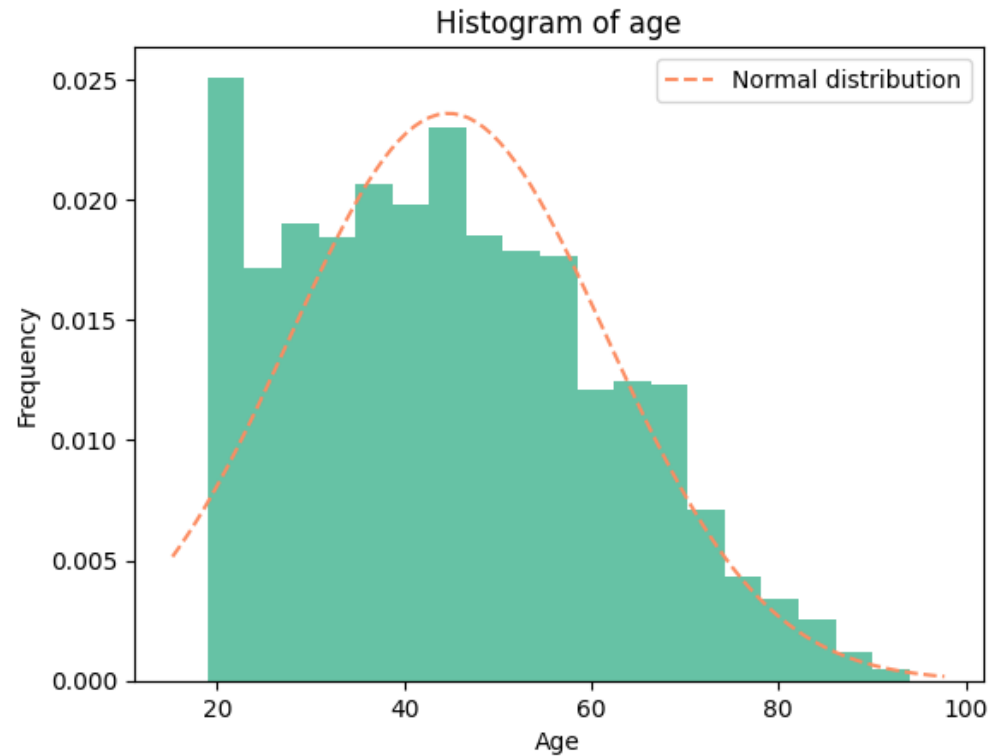
Kolmogorov-Smirnov test for normality - Age

0.0656
Statistic

0.0008518
P-value

H0: The dataset follows a normal distribution
H1: The dataset does not follow a normal distribution

- Relatively small statistic = a small difference between the normal distribution and our data.
- A low p-value = Alternative hypothesis

Customer age and total spending

Distribution of total spend (excluding the 4 clients who purchase the most)

Kolmogorov-Smirnov test for normality – total spend
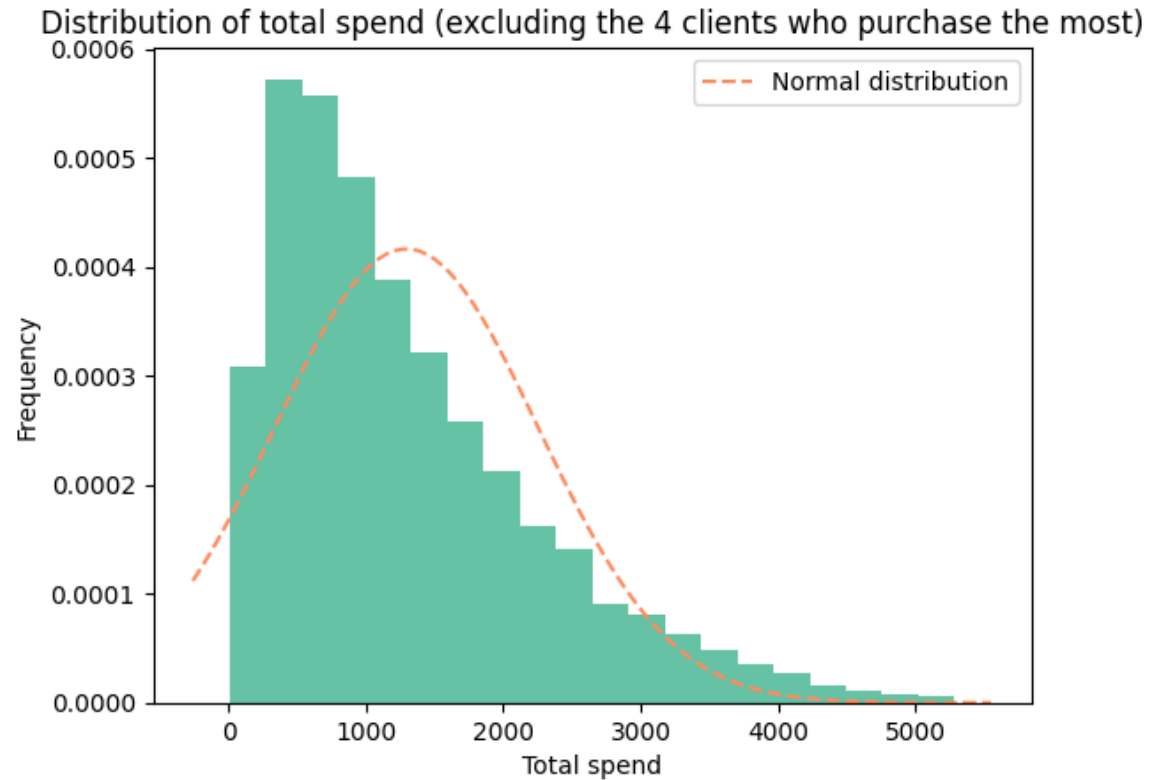
0.4106
Statistic

1.3377e-136
P-value

H0: The dataset follows a normal distribution
H1: The dataset does not follow a normal distribution

A large statistic = the data is very different from a normal distribution.
A low p-value = Alternative hypothesis

Customer age and total spending

Age and total spend

Spearman correlation

-0.1844
Spearman correlation

1.2374e-66
P-value

H0: No association between customer age and total purchase amount
H1: There is an association between customer age and total purchase amount

Spearman correlation and a low p-value = a weak negative relationship between age and total amount

Customer age and number of purchases

Distribution of number of purchases (without the 4 clients who make the highest number of purchases)

Test de Kolmogorov-Smirnov – Number of purchases

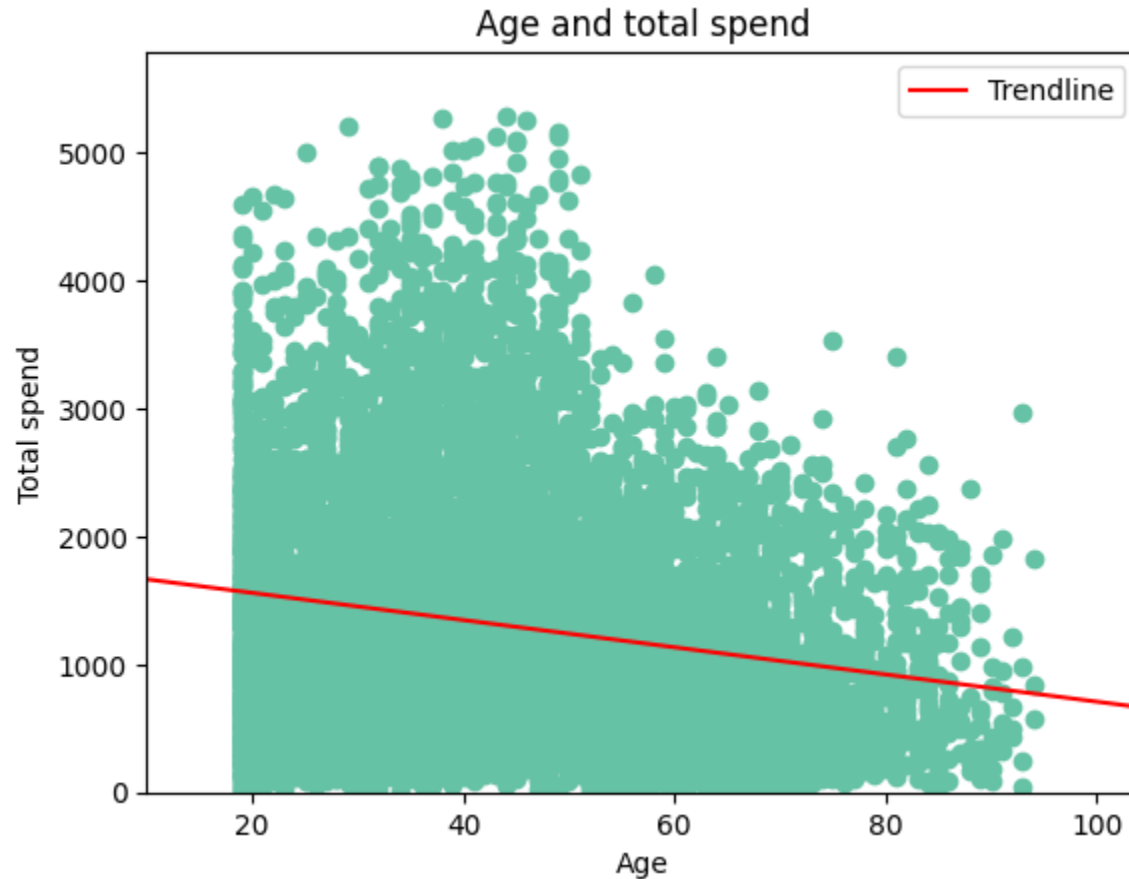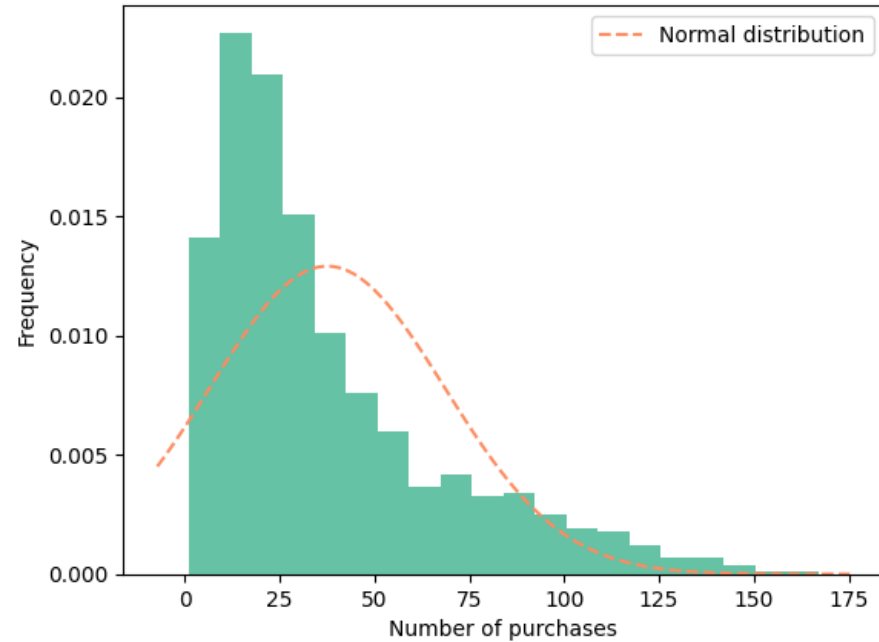| 0.413 |
|---|
| Statistic |

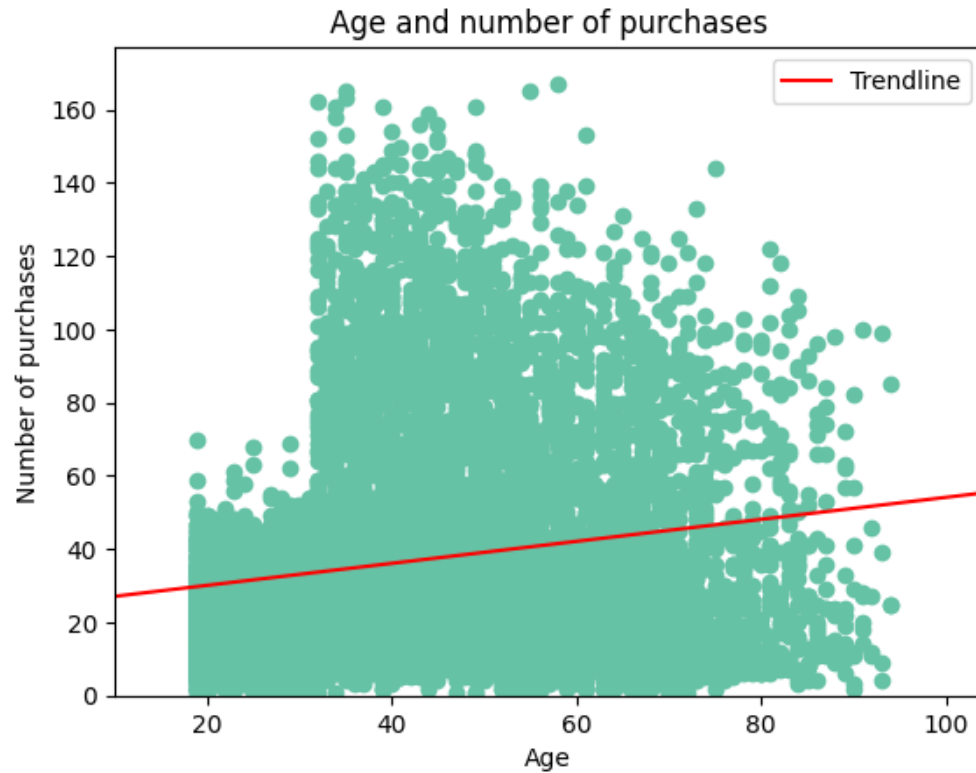| 3.184e-138 |
|---|
| P-value |

H0: The dataset follows a normal distribution
H1: The dataset does not follow a normal distribution

A large statistic = the data is very different from a normal distribution
A very low p-value = Alternative hypothesis

Customer age and number of purchases

Age and number of purchases

Spearman correlation

0.2118
Spearman correlation

8.80e-88
P-value

H0: No association between customer age and purchase frequency
H1: There is an association between customer age and purchasing frequency
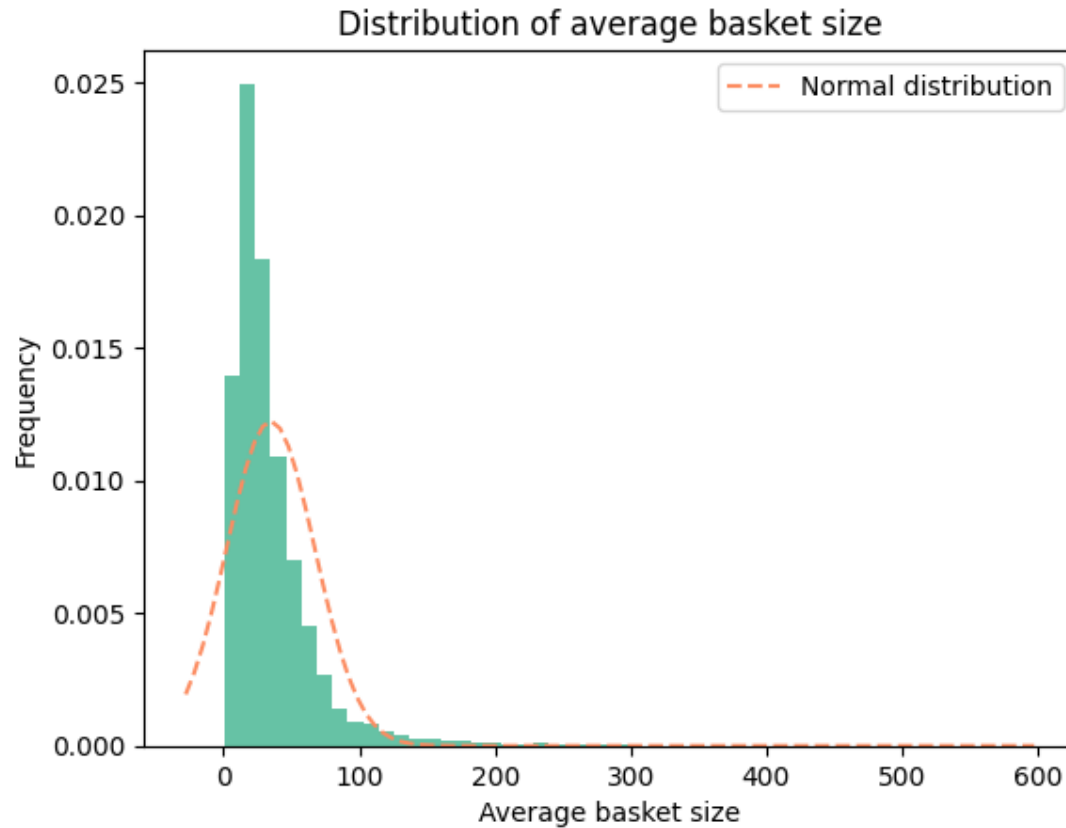
Spearman correlation and a low p-value = a weak and positive link between age and purchasing frequency

Customer age and average basket size

Distribution of average basket size

Kolmogorov-Smirnov test –
Average basket size

0.1643
Statistic

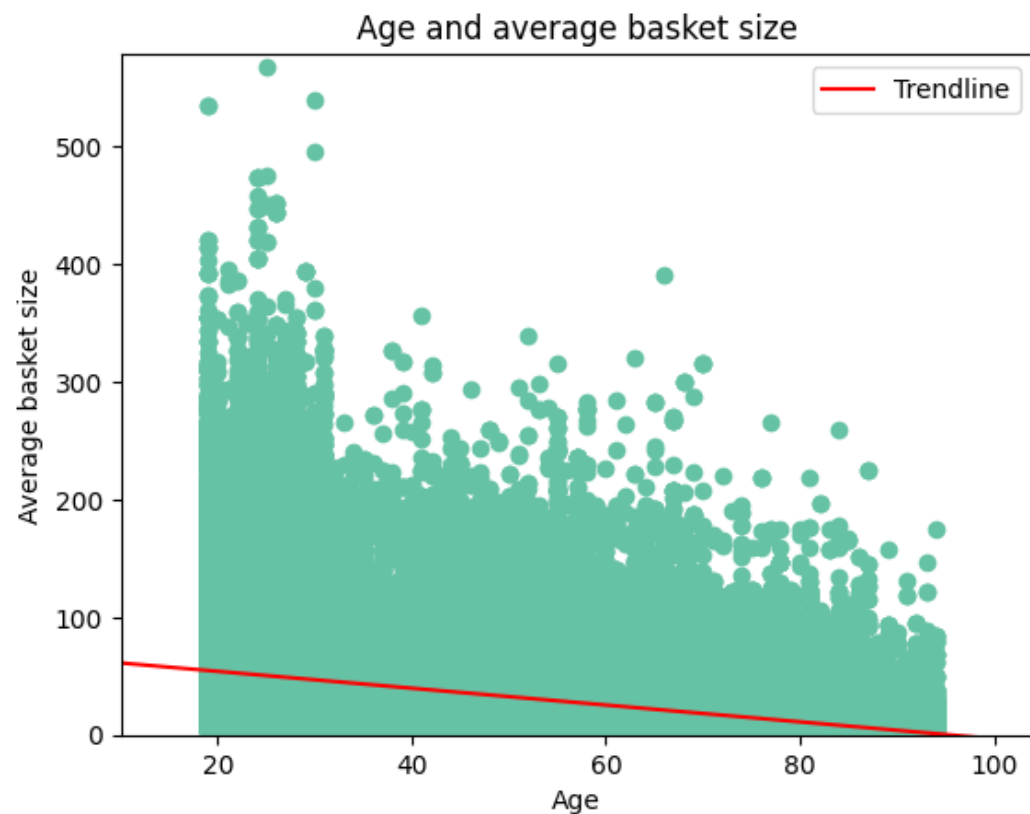| 5.4041e-24 |
| :---: |
| P-value |

H0: The dataset follows a normal distribution
H1: The dataset does not follow a normal distribution

A small statistic = not too far from a normal distribution
,A very low p-value = Alternative hypothesis

Customer age and average basket size

Age and average basket size

Spearman correlation

-0.34
Spearman correlation

0.0
P-value

H0: No association between customer age and average basket size
H1: There is an association between customer age and average basket size
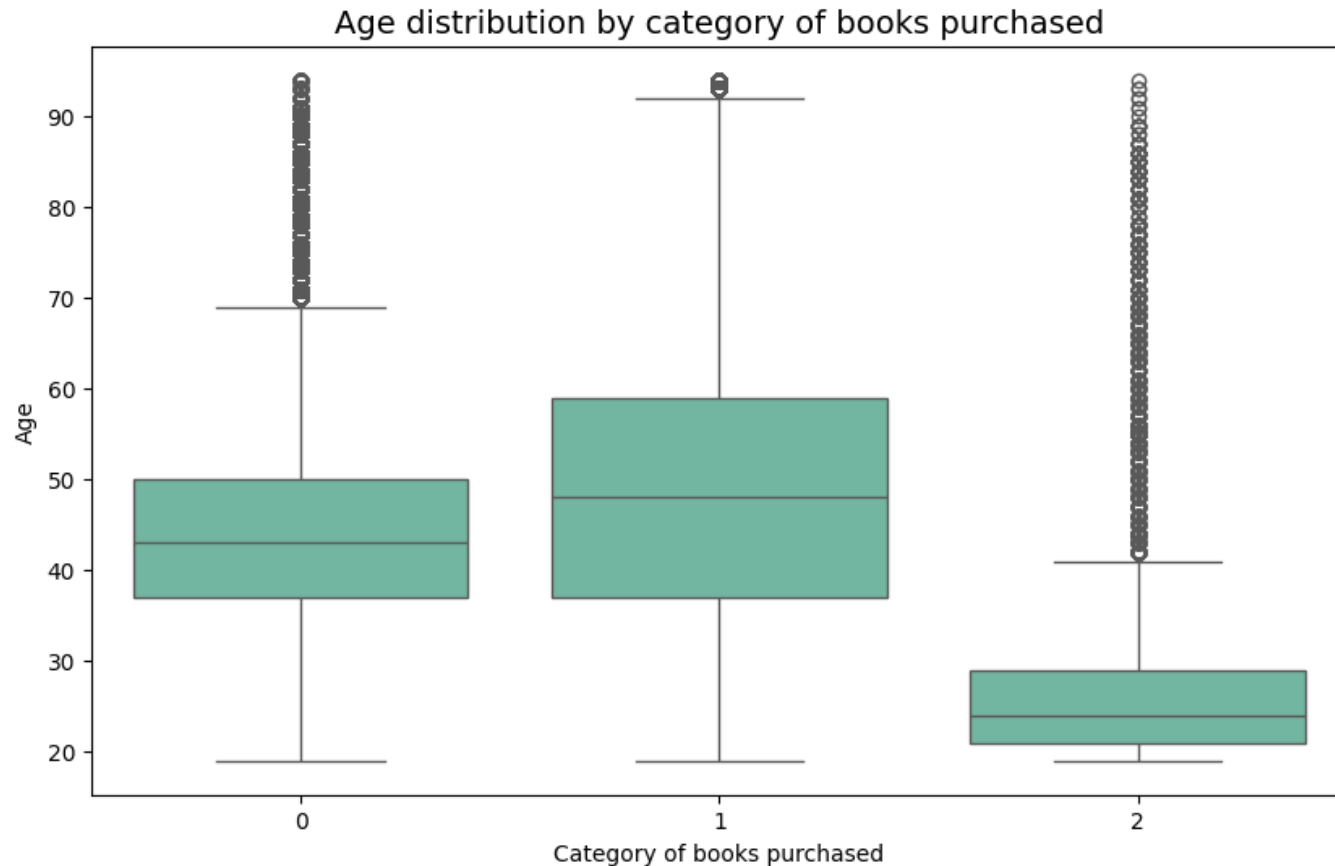
Spearman correlation and a low p-value = a moderate, negative relationship between age and average basket size.

Customer age and categories of books purchased

Age distribution by category of books purchased

Levene test – Equality of variances

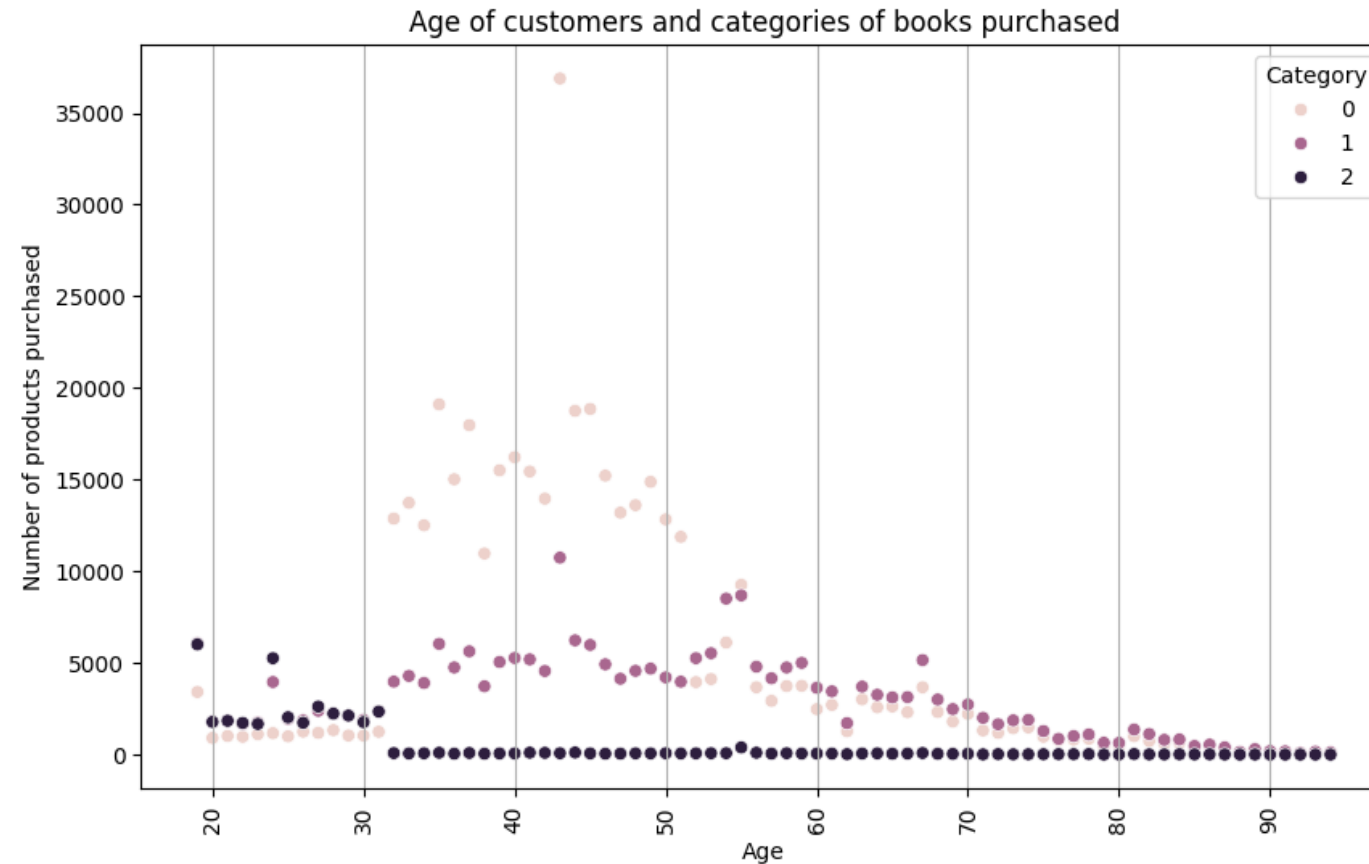| 26975.65 |
| --- |
| Statistic |

0.0
P-value

The large value of the statistic and the small p-value = variances are unequal variances.

H0: The variance between groups is equal
H1: The variance between groups is not equal

Customer age and categories of books purchased

Age of customers and categories of books purchased

Kruskal-Wallis test

78458.43
Statistique

0.0
P-value

A very high statistic = the age distributions for each category are very different.
A very low p-value = the two variables are linked.

H0: No association between customer age and categories of books purchased
H1: There is an association between the age of customers and the categories of books purchased

Conclusion

1

Monthly revenue may be seasonal
Over the past two years, sales have fallen after the Christmas and New Year period, and sales of Category 2 books have increased each year in July. It could be useful to have promotions in low season to increase turnover in months where turnover is lower.

2

Category 2 – Low Sales, High Revenue
60% of our sales are category 0, but category 0 only contributes to 36% of our total revenue. On the other hand, only 5.3% of our sales are products from category 2, but category 2 contributes to 23% of our total revenue.

3

Young people – an interesting demographic
Young people currently make fewer purchases than other demographic groups, but their average basket size is relatively large. They also buy more Category 2 books – the most expensive category. It might be helpful to target this demographic to increase sales and increase revenue.