

SALES PROFITABILITY AND TRENDS



INTRODUCTION

In today's competitive retail landscape, understanding sales trends and optimizing profitability are critical for business success. This project, titled "Sales Trends and Profitability Analysis", focuses on analyzing sales data from a Superstore to uncover key insights into performance patterns, customer behavior, and profit-driving factors.

AGENDA

- 01** introduction To Data
- 02** Sales and Profitability Analysis by subcategories
- 03** Analysis and Findings: Subcategories in Loss
- 04** Correlation between discount and profitability
- 05** Subcategories vs Segments
- 07** Profitability By state
- 08** Top 10 most profitable products
- 09** Recommendation And Dashboard

1. ABOUT DATA



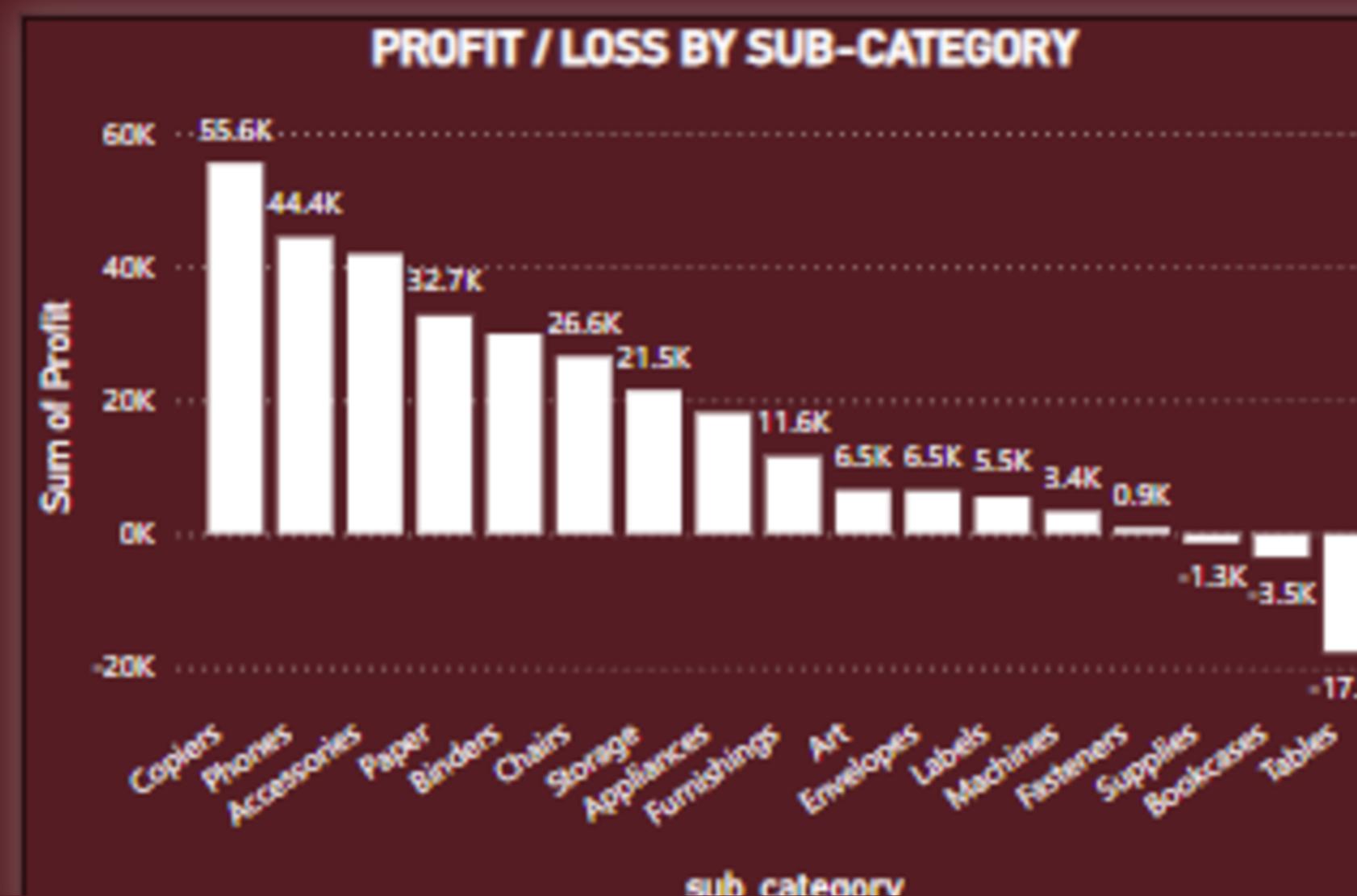
The dataset used in this analysis is sourced from Kaggle and contains 9,694 records. It includes the following fields:

- Row ID: Unique identifier for each row.
- Order ID: Unique identifier for each customer order.
- Order Date and Ship Date: Dates when the order was placed and shipped.
- Ship Mode: Shipping method used by the customer.
- Customer ID and Customer Name: Identifiers and names of customers.
- Segment: Customer segment (e.g., Consumer, Corporate, Home Office).
- Country, City, State, Postal Code, Region: Geographic details of customers.
- Product ID: Unique identifier for each product.
- Category and Sub-Category: Classification of products.
- Product Name: Name of the product.
- Sales: Revenue generated from the sale.
- Quantity: Number of units sold.
- Discount: Discount applied to the sale.
- Profit: Profit or loss from the sale.



SALES AND PROFITABILITY ANALYSIS BY SUBCATEGORIES

This data highlights the profitability of various product sub-categories. Copiers lead with the highest profit of \$55,617.82, followed by Phones and Accessories. Sub-categories like Paper and Binders also contribute significant profits. On the other hand, Tables and Bookcases show notable losses, with Tables incurring a loss of \$17,725.5.



sub_category	Total Orders	Quantity Sold	Profit
Copiers	68	234	55617.82
Phones	881	3254	44447.88
Accessories	775	2976	41936.64
Paper	1267	4811	32712.17
Binders	1433	5614	29983.02
Chairs	617	2356	26590.17
Storage	821	3065	21527.91
Appliances	466	1729	18138.01
Furnishings	910	3390	11588.64
Art	796	3000	6527.79
Envelopes	246	880	6460.87
Labels	364	1400	5546.25
Machines	115	440	3384.76
Fasteners	212	901	942.44
Supplies	176	590	-1348.57
Bookcases	228	868	-3472.56
Tables	319	1241	-17725.5

Analysis and Findings: Subcategories in Loss

- Based on the analysis of the Tables subcategory, we observe a moderately strong negative correlation of -0.67 between discount and profitability. This means that as discounts increase, profitability tends to decline significantly.



- In the bookcase subcategory, the Consumer segment has incurred a significant loss of \$4,435.64 over 131 transactions, while the Home Office and Corporate segments have shown profits of \$324.63 and \$638.45 from 33 and 64 transactions, respectively.

Segment	sum(profit)	count(*)
Consumer	-4435.64	131
Home Office	324.632	33
Corporate	638.4502	64

CORRELATION BETWEEN DISCOUNT AND PROFITABILITY:-

- There is a correlation of -0.63 between discount levels and total profit, indicating that as discounts increase, total profit tends to decrease, negatively impacting overall profitability.
- Discounts below 30% (0.3) can lead to positive profitability, as seen with a profit of \$1,418.99 at a 0.15 discount, while discounts of 0.4 and above result in increasing losses.
- Both discount levels and profitability are influenced by the number of orders; for example, at a 0.7 discount, there are 391 orders resulting in a loss of -\$39,643.72, while at a 0.8 discount, with only 285 orders, the loss increases to -\$30,136.24. This illustrates how higher discounts, combined with fewer orders, lead to significant losses.

discount	total_orders	total_profit
0.7	391	-39643.7
0.8	285	-30136.2
0.4	205	-23065.4
0.5	66	-20506.4
0.3	227	-10369.3
0.6	132	-5548.4
0.45	11	-2493.11
0.32	27	-2391.14
0.15	52	1418.99
0.1	94	9029.18
0.2	3547	89379.3
0	4657	317184

WHICH CUSTOMER SEGMENT IS MOST PROFITABLE ?

- The Consumer Segment generated the highest total profit, with 5,044 orders contributing a total profit of \$132,669.78. However, when looking at average profit per order, the Home Office Segment stands out, with 1,730 orders and an impressive \$34.58 average profit per order.



segment	total_orders	total_sales	total_loss	total_profit	overall_profit	average_profit
Consumer	5044	1150166	-83843.8	216513.5	132669.8	26.3
Corporate	2920	696604.5	-44386	134752.3	90366.3	30.95
Home Office	1730	425679.2	-26281.4	86103.09	59821.68	34.58

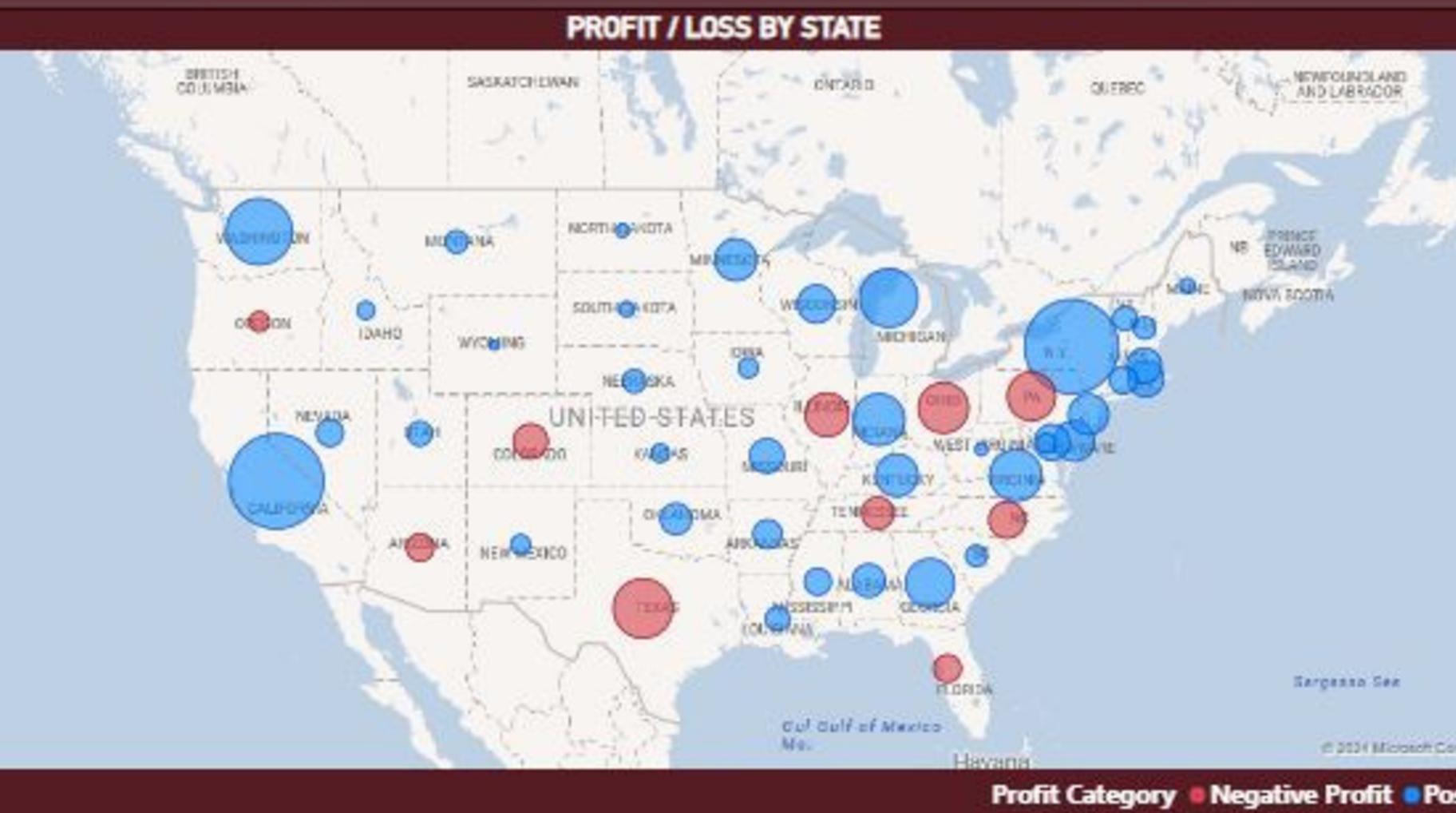
ACROSS VARIOUS SUB-CATEGORIES, THE CONSUMER AND CORPORATE SEGMENTS SHOW DISTINCT DIFFERENCES IN PROFITABILITY:-

- In the Appliances sub-category, the Consumer Segment placed 244 orders, generating a profit of \$6,981.92. Interestingly, the Corporate Segment, with only 155 orders, outperformed with a higher profit of \$7,429.89.
- In the Bookcases sub-category, the Consumer Segment faced a loss of -\$4,435.63 from 131 orders, while the Corporate Segment, with just 64 orders, managed a modest profit of \$638.
- In the Storage sub-category, the Consumer Segment placed 438 orders, resulting in a profit of \$7,273.87. Meanwhile, the Corporate Segment, despite fewer orders at 252, earned a greater profit of \$9,185.49.
- In the Supplies sub-category, the Consumer Segment saw a loss of -\$1,745.47 from 93 orders, whereas the Corporate Segment, with only 56 orders, made a profit of \$312.53.

segment	sub_category	total_orders	total_profit
Consumer	Appliances	244	6981.928
Corporate	Appliances	155	7429.895
Consumer	Bookcases	131	-4435.64
Corporate	Bookcases	64	638.4502
Consumer	Storage	438	7273.879
Corporate	Storage	252	9185.498
Consumer	Supplies	93	-1745.47
Corporate	Supplies	56	312.5364

PROFITABILITY BY STATE

- We have successfully delivered order across 49 State. Of these, 39 state have been profitable, while 10 state have experienced losses.
- The tables highlights the Top 5 Loss-Making and Top 5 Profitable States, showing total losses or profits for each state. It also includes the number of cities in each state that are either loss-making or profitable. This provides a quick snapshot of state and city-level performance.



Most Loss Making 5 State

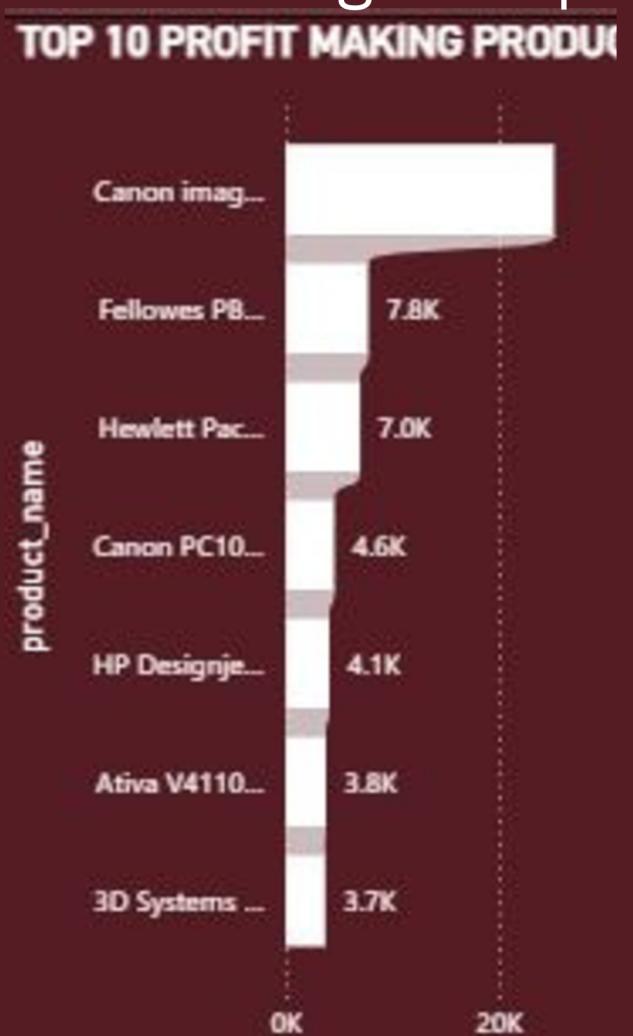
state	total_loss	total_gain	overall_profit	city_in_loss	city_in_gain
Texas	-36492.3	10957.27	-25535	35	19
Ohio	-21575.2	4504	-17071.2	20	4
Pennsylvania	-21377	5930.64	-15446.4	6	2
Illinois	-18891.3	6860.25	-12031.1	25	8
North Carolina	-11541.7	4054.74	-7486.9	7	12

Most profit Making 5 State

state	total_loss	total_gain	overall_profit	city_in_loss	city_in_gain
California	-3769.67	78438.87	74669.2	1	80
New York	-5031.14	78538.26	73507.13	0	18
Washington	-387.87	33364.49	32976.62	0	17
Michigan	0	24340.95	24340.95	0	21
Virginia	0	18461.02	18461.02	0	13

TOP 10 MOST PROFITABLE PRODUCTS

- Contribution to Profit:
 - These 10 products account for 22.32% of the total profit, a significant share of overall revenue.
- Total Orders:
 - These products have received 44 orders out of a total of 9,694 orders.
- Discount Impact:
 - Offering discounts of 50% or more on these products results in losses, as the discount amount starts to outweigh the profit margins.



Discount	total_orders	total_profit
0.5	1	-944.99
0.8	3	-6361.16
0.4	3	1551.99
0.2	15	15457.88
0	22	53431.52

RECOMMENDATION:-

- Discount Strategy for Tables:-
 - Cease offering discounts on tables in general. If discounts must be given, restrict them to small discounts in the states of Washington, New York, and Virginia.
- Bookcase Subcategory Discount Adjustments:
 - Discontinue discounts for the Consumer segment in the states of Pennsylvania, Texas, Colorado, Ohio, and Arizona.
- Customer Base Expansion:-
 - Focus efforts on increasing the customer base in Wyoming, Kansas, South Dakota, and North Dakota.
- Texas:-
 - Reassess the pricing strategy for binders and appliances, and consider discontinuing aggressive promotions or discounts to improve profitability.

DASHBOARD: -

Sales Profitability and Trends

REGION SELECTION

- Region
 - Central
 - East
 - South
 - West

TOTAL PRODUCT SOLD

37K

TOTAL PROFIT

282.9K

TOTAL CUSTOMER

793

TOTAL PRODUCTS

1.8K

TOP 10 PROFIT MAKING PRODUCT

product_name

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7.8K

7.0K

4.6K

4.1K

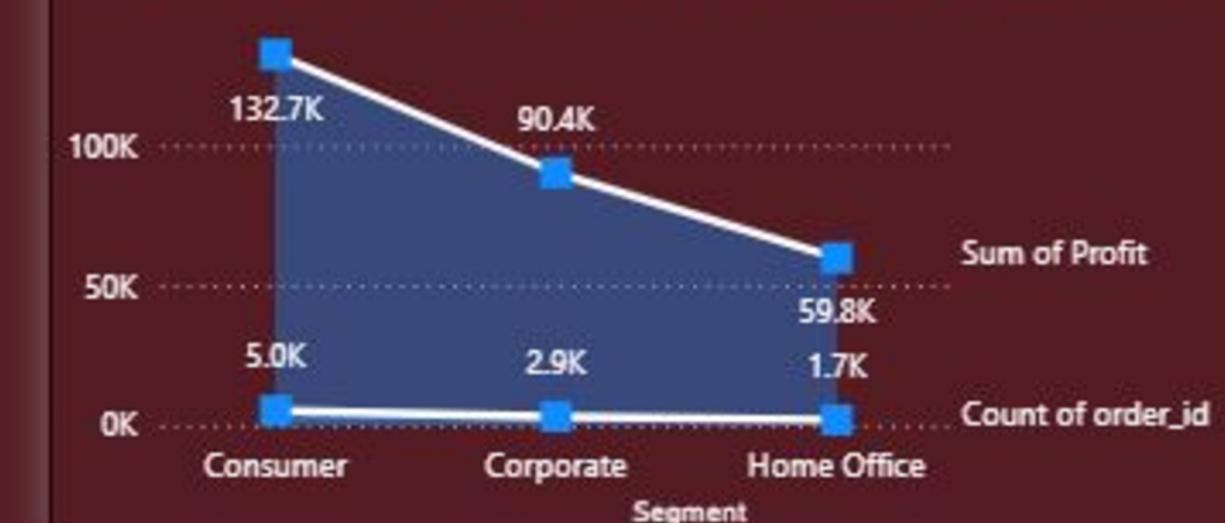
3.8K

3.7K

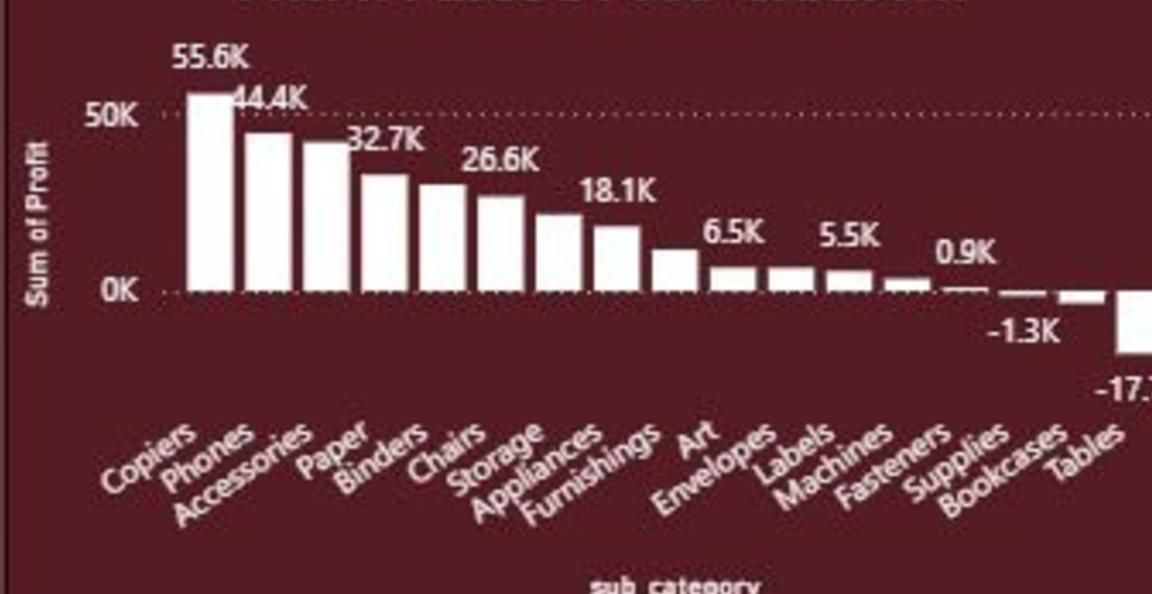
SUM OF PROFIT BY DISCOUNT



SUM OF PROFIT AND COUNT OF ORDER BY SEGMENT



PROFIT / LOSS BY SUB-CATEGORY



PROFIT / LOSS BY STATE



THANK YOU