

DEPI Data Analysis



SCENARIO (JUST FOR FUN)





Omar Nasr



Ahmed Matter



Mohammed Ahmed





You're required to do an exploration and find a problem related to store sales

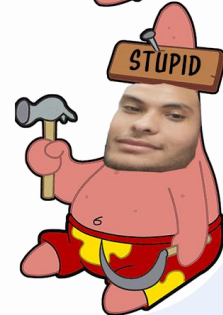
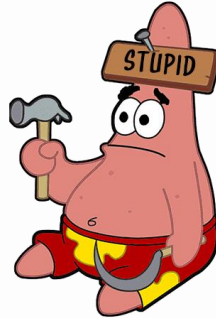
Ahmed Matter



Omar Nasr



Mohammed Ahmed



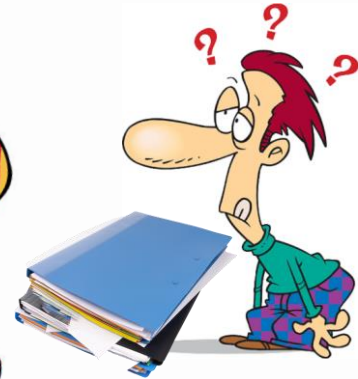


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01 Exploration

We will provide a general exploration using charts to the data

03 Conclusion

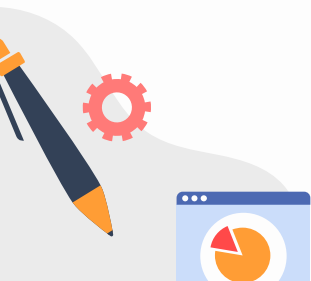
Recommendations and Findings related to the problem

02 Problem Solving

We will put our searching efforts into problems – weird patterns into the data.

04 Team Credits

Integration of technology tools in mathematical exploration





01 Exploration

Explore the data



Exploration

Which Category Made highest sales:

Which Category Has The Highest Demand(In Num Of Orders):

Which Sub-Category Has The Highest Demand(In Num Of Orders):

Which Sub-Category Made highest sales:

Which Ship Mode Is The most Preferred :

Most Profitable Customer Segmentation:

Total Sales By Region:

Top 10 States Sales :

Top 15 City Sales :

Yearly & Monthly Total Sales



We're a small retail business located in the **United States**.

We sell **1,861** Product ID(**1848 Product Name**) on **3** Categories (Furniture , Office Supplies and Technology) in **17** Sub-Category.

We have **793** customer Divided into **3** Customer Segmentation (Consumer, Corporate and Home Offices).

We have **4,922** Orders , between years **2015-2018** Sold at one Country(United States) ,With Total sales about **2.26 M** .

Our Orders Sold on **529** City on **49** State on **4** Regions.

Our task is to analyze the sales data and identify weak areas and opportunities for Super Store to boost business growth.

FIRST SALES DASHBOARD

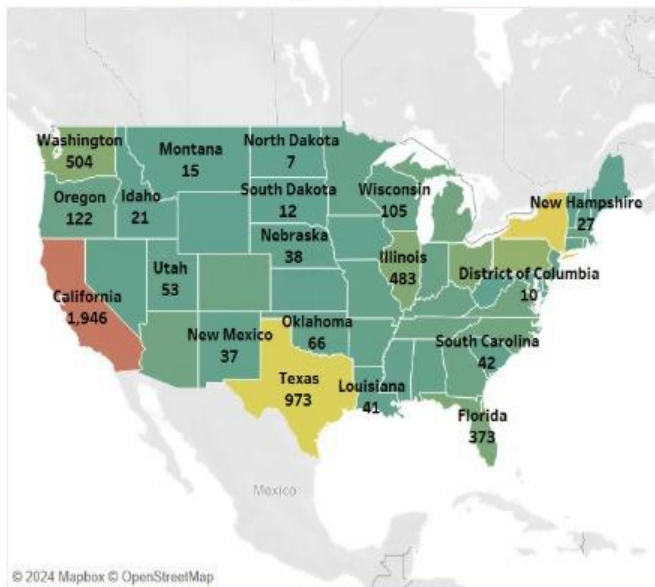
Total Sales
2.26M

Total Product
1,861

Total Customers
793

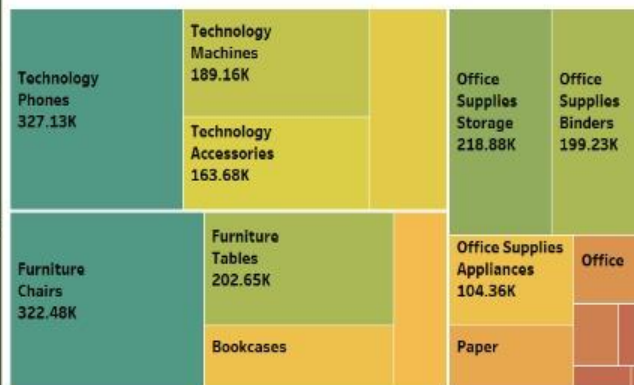
Category: (All) Region: (All) Year of Order Date: (All)

Num Of Category In Each State

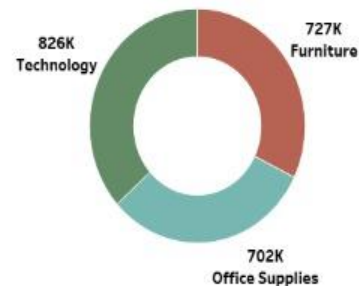


© 2024 Mapbox © OpenStreetMap

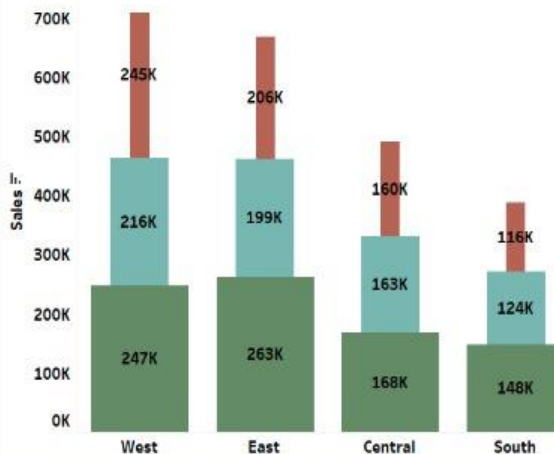
Total Sales Based On Category And Sub_C



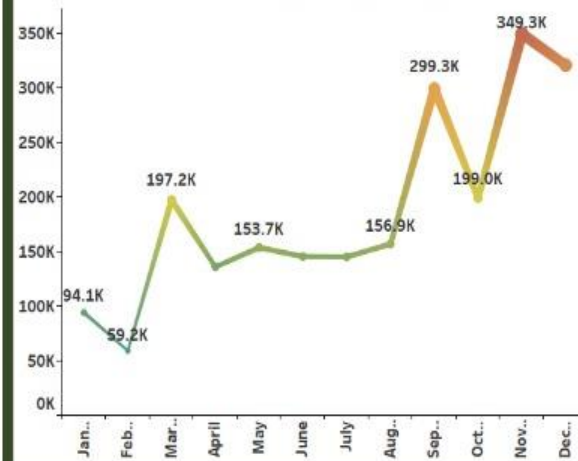
Total Sales For Each Category



Total Sales Based On Region And Category



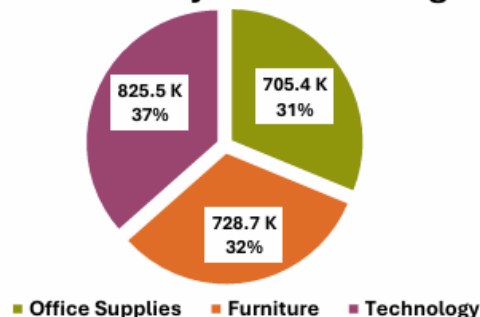
Total Sales Based On Month





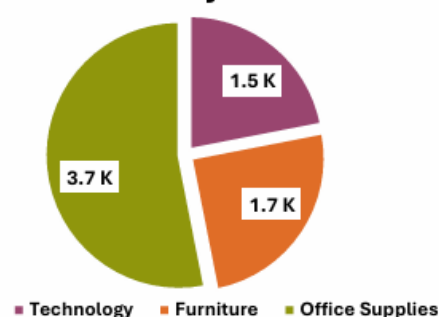
Which Category Made highest sales:

Total Sales By Product Category



Which Category Has The Highest Demand(In Num Of Orders):

Num Of Orders By Product Category



Noticed:

Tech Products are the highest Product category that made sales = 825.5 K (37%), While the office supplies is the most preferred category for our customers as it appears at about 3.7 K order from 4.9 k (Our Orders Num) represent (appears) approximately (75%) Of Our Orders.

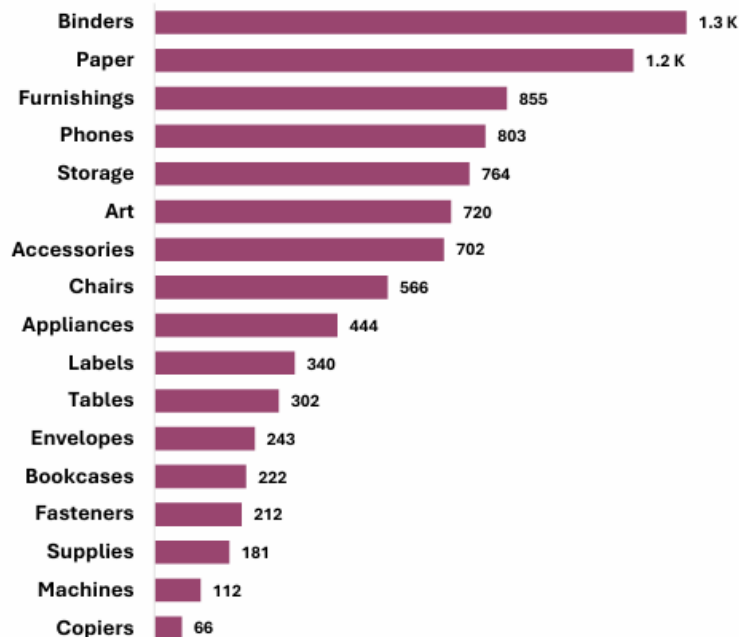
Recommended :

To Focus On Office Supplies Product as it's Most Preferred .
Focus On Tech Products as It's More Profitable.



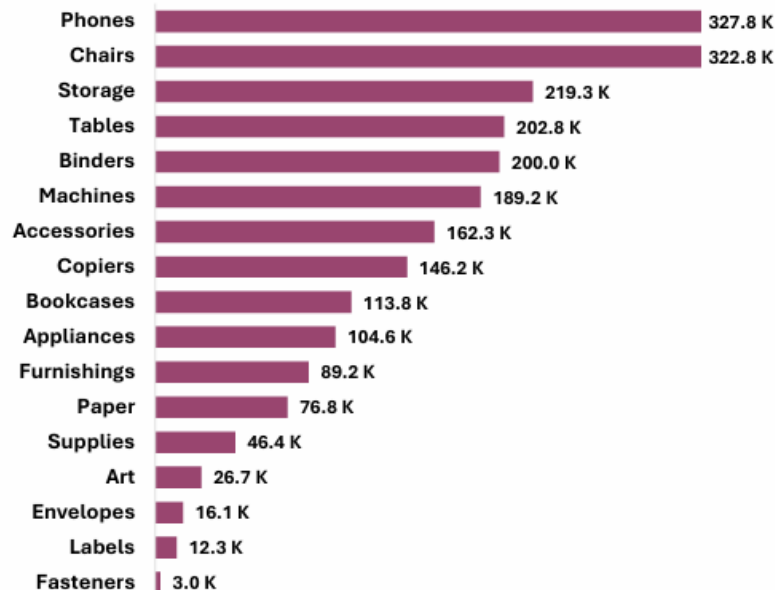
Which Sub-Category Has The Highest Demand(In Num Of Orders):

Num Of Orders By Sub-Category



Which Sub-Category Made highest sales:

Total Sales By Sub-Category





Exploration

Noticed:

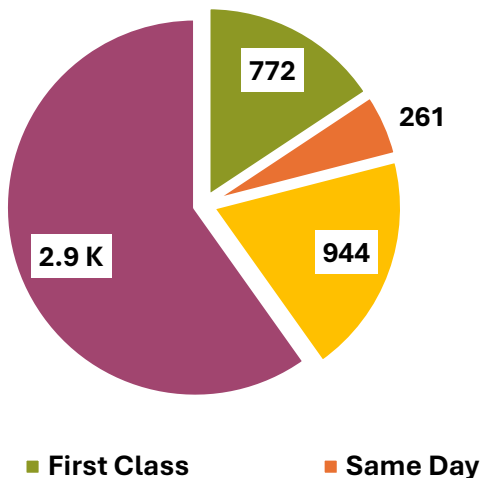
Phones & Chairs are the highest Product Sub-category that made sales = 650.6 K (30%) , While Binders & Papers Is the most preferred Sub-category Products for our customers as it appears at about 2.5 K order from 4.9 k (Our Orders Num) represent(appears) approximately (50%) Of Our Orders.

Recommended :

**To Focus On Binders & Papers Product as it's Most Preferred .
Focus On Phones & Chairs Products as It's More Profitable.**



Ship Mode By Num Of Orders



Which Ship Mode Is The most Preferred :

Noticed:

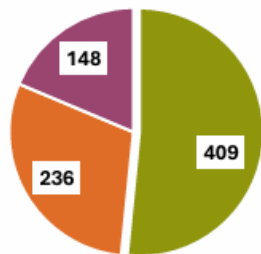
About 2.9 K Order Of 4.9 K (Our Orders Num) Delivered In Standard Class represent(appears) approximately (60%) Of Our Orders.

About 774 Customer Of 793 (Our Customers) Used The Ship Mode Standard Class represent(appears) approximately (97%) Of Our Customers.

Exploration

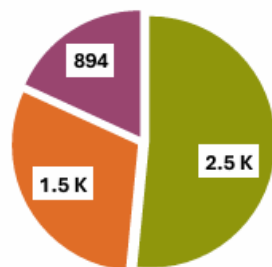
Most Profitable Customer Segmentation:

Num Of Customer By Segment



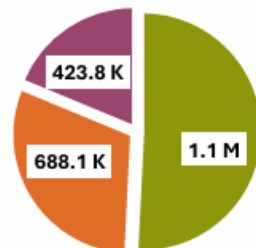
■ Consumer ■ Corporate ■ Home Office

Orders By Customer Segment



■ Consumer ■ Corporate ■ Home Office

Sales By Customer Segment



■ Consumer ■ Corporate ■ Home Office

We Have 793 Customer , 409 are Consumer Customer represent approximately (52%) Of Our Customers.

With about (52%) of our orders are for Those (Consumer).

With About (51%) Of our 4 Years Total sales are For Those(Consumer).

Emily Phan Is The Customer Made Orders(17),While Sean Miller is Highest Sales(25 K)

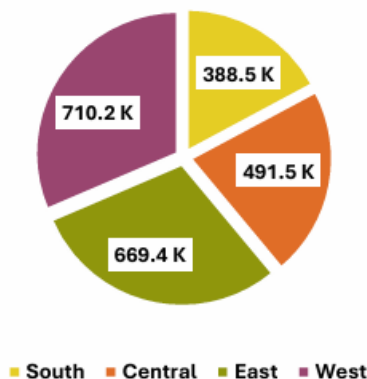
Recommended :

Focus On Consumer Segment as They are our backbone(half of our orders & Sales are for them).

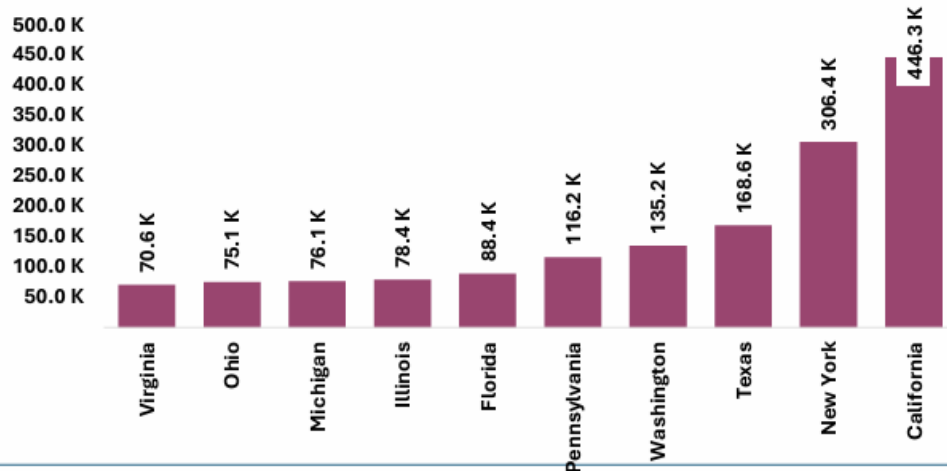
Exploration

Total Sales By Region:

Sales By Region



Top 10 States Sales :



Noticed:

West Region Is the highest sales = 710.2 K (32%), While South Region Is the Lowest 388.5 K (17%), After Research We Found That South Region Has The Most Population, But They are Lower Wages Than Other Regions.

Top State Is California It represent about (20%) Of Our Total Sales.

The 5 States (California, New York, Texas, Washington, Pennsylvania) Represent approximately (52%) Of Our Sales (So We can Expand There).



Exploration



Top 15 City Sales :

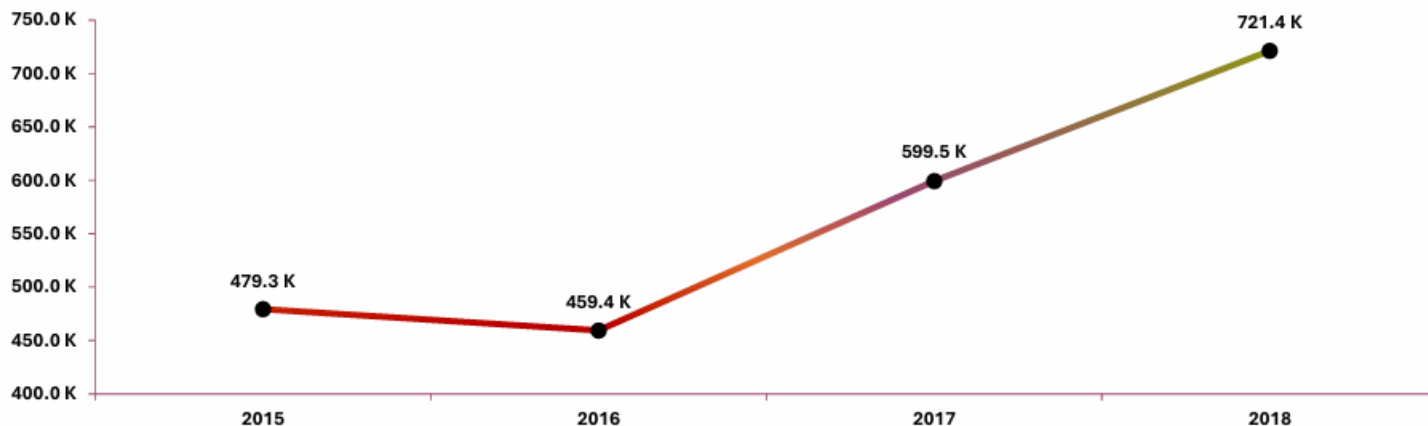
Noticed:

New York City Is the highest sales = 252.5 K (12%) , Followed By **Los Angeles** Sales = 173.4 K (10%).
 The (15) City Of Ours(529)→(3% Of Our Cities) Represent Approximately 1.2 M (52%) Of Our Sales.
 Recommended :To Expand There & Focus On.



Exploration

Yearly Total Sales



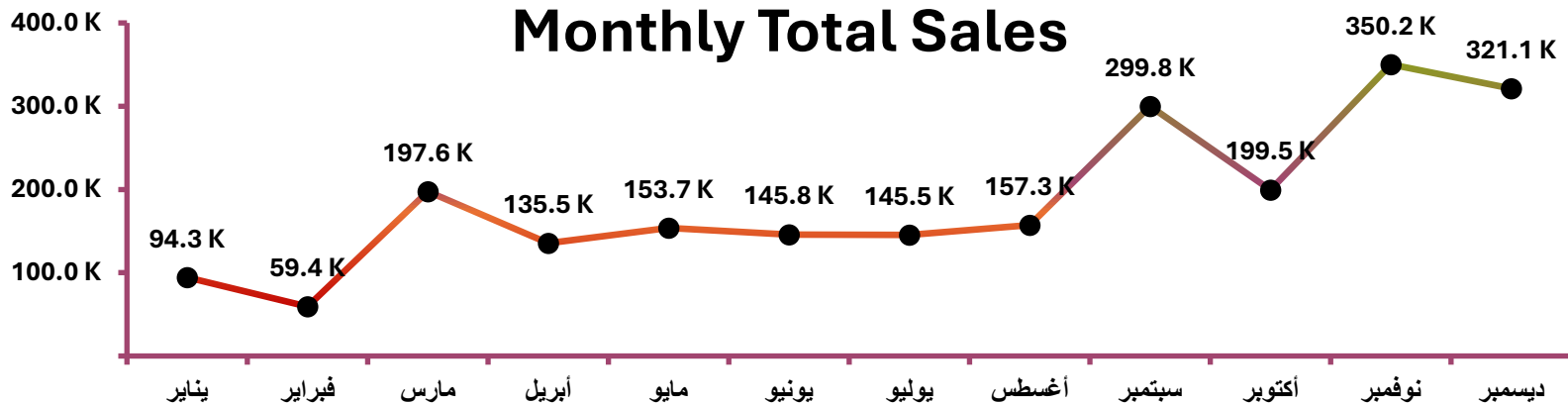
The Most Profitable year is 2018.

The Worth Year Is 2016.

We'll Search the reasons for this high gap in Yearly sales.

We'll Search Why Sales 2016 Is Low.

Exploration

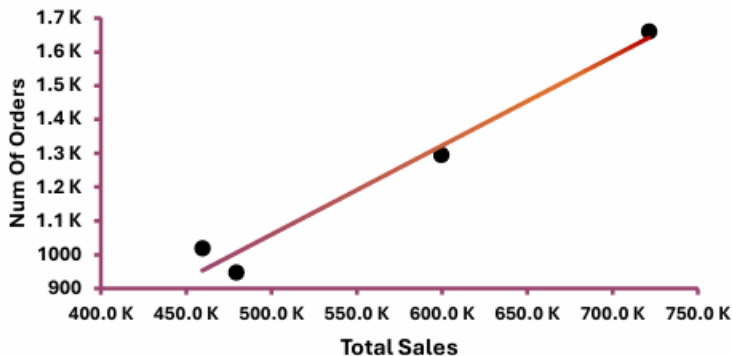


The Most Profitable Month are Nov & Dec .(Every Year)-→ Seems Not Problem.
 The Worth Month are Feb & Jan.(Every Year) -→ Seems Not Problem.
 Sales are Worth at QTR1 & QTR2, and it Increases at QTR3 & QTR4.

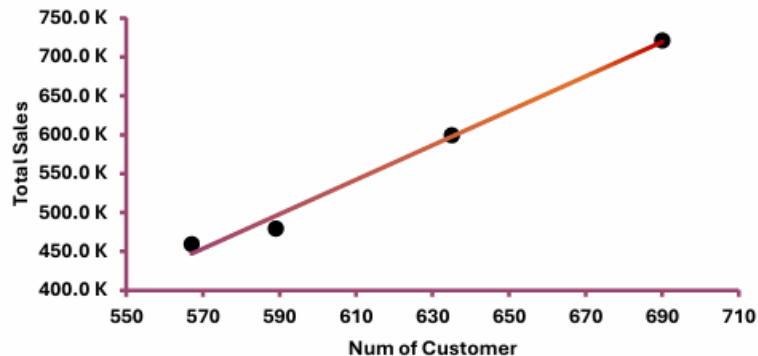
This Drop at Jan & Feb May be Because Of Holidays(as Much People Leave their City or go out for celebrate).
 The increase

Exploration

**Correlation Between Num Of Orders
& Total Sales**



**Total Sales & Num Of Customer Per
Year**



Strong Positive Correlation With Value =0.99

Increase in Num Of Orders lead to Increase In Sales.

Increase In Num Of Customer Who make Orders lead to increase in sales



Exploration

Yearly Sales & Num Of Orders & Num Of Customer

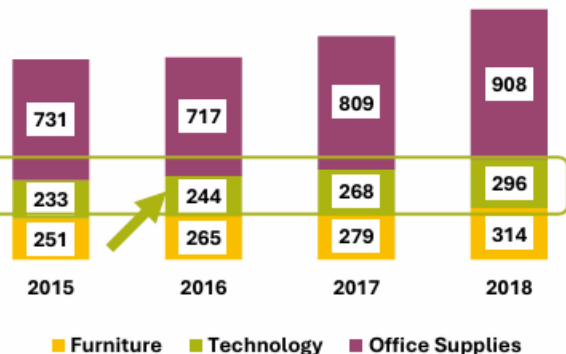


Here We notice that sales in 2016 is lower despite the num of order is higher !!
But When we add Num Of Customer Who made Orders, We noticed that 2016 has the lowest num of customers (The Highest Num Of Orders in 2016 Came From Low Num Of Customer).
This Proves That Our Sales Don't depend on num of orders only but also num of customer made orders too (Num Of Orders & Num Of Different Customers Together affect the sales).

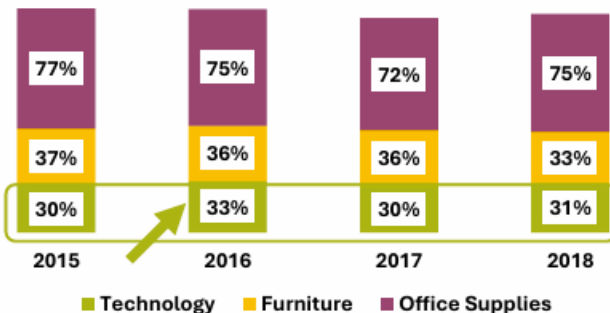
Recommended : Focus On Customer Attraction & Customer Needs To Increase Num Of Alternate Customer and Their Orders.(To Prevent The Sales Drop As 2016).

Exploration

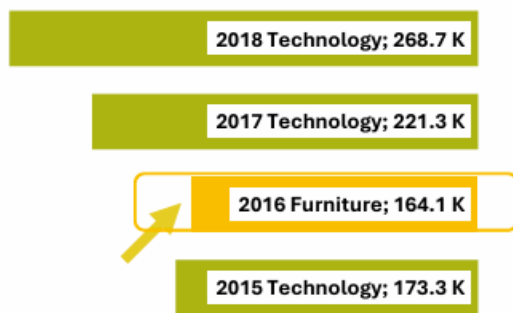
Yearly Product Num BY Category



Yearly Category % For Each Order

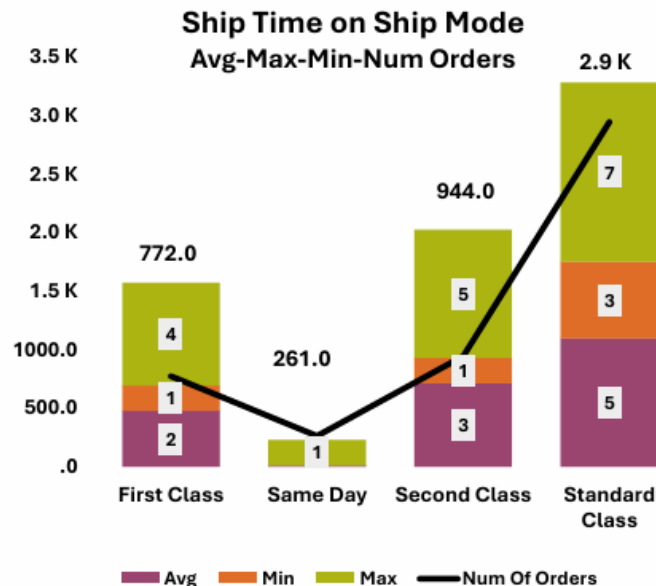


Most Valued Category Yearly

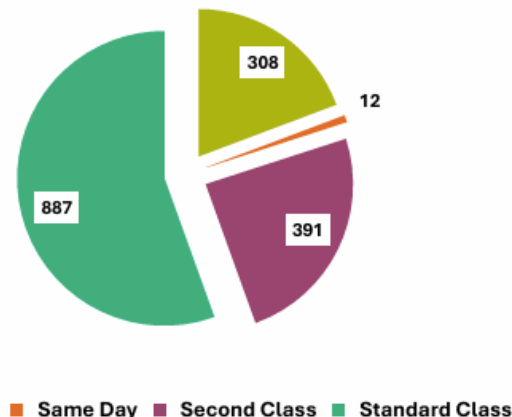


Here We notice that Tech Category Is The Most Valuable Yearly Unless in 2016 Furniture Is The Most .

But When we focus on category % in each order We found the demand for each category is Normal !! And in 2016 Tech Product appears at (33%) of our orders (The Highest of each Year). But When we focus on Num Of Products Sold On Tech Category, We Found it Normal. It may be because of Pricing or giving high discount (No Data To Prove This)



Num Of Delayed Orders
(Ship Time Above Avg)



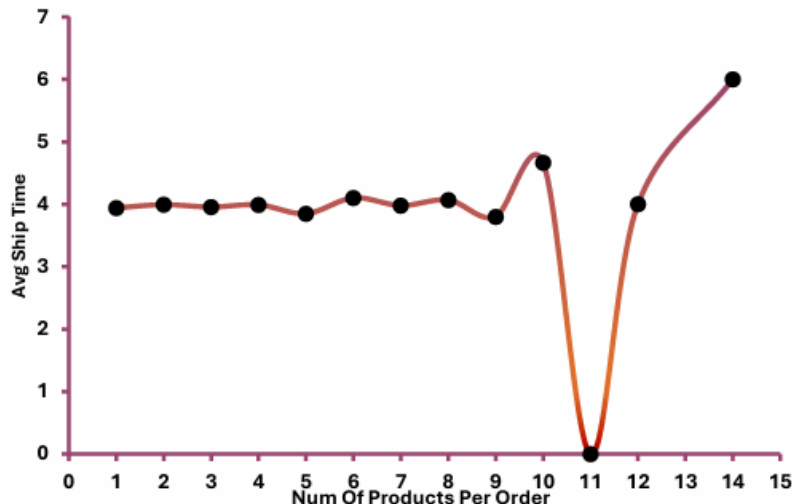
We Notice about 1.6 K (32%) Of our orders arrives above Avg of Ship Mode(2.1 K) Delay in 4 Years.

Why Customer Would Choose First Or Second Class and Extra Fees(More Than Standard Class) Where The Ship Time seems To be Similar .

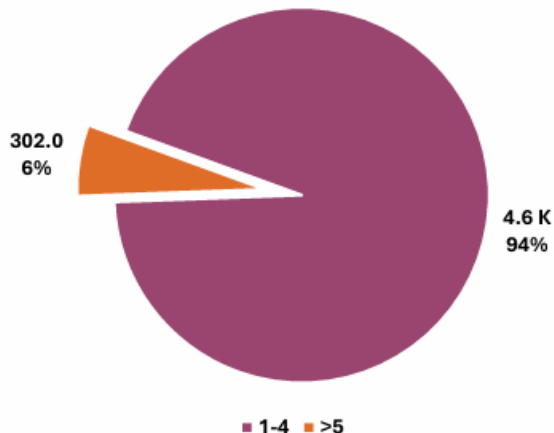
We Must Know Why There Is a delay in Shipping Orders To Achieve Customer Satisfaction.

Exploration

Correlation Between Num Of Products Per Order & Avg Ship Time



Num Of Product Per 1 Order



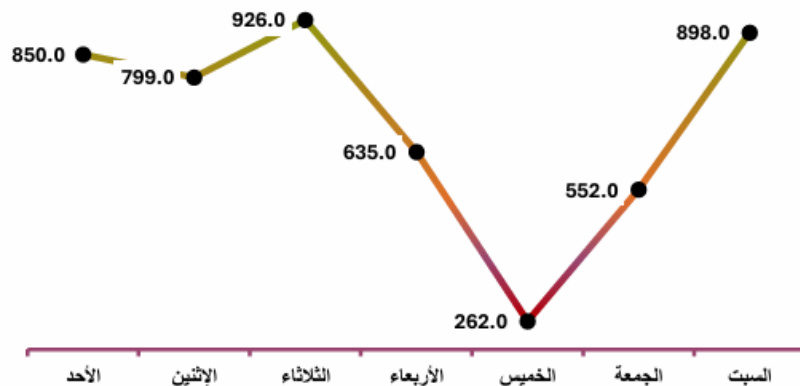
To Explain Delay :

First, We assume that num of product could cause ship delay and after exploring data We Found That (94%) Of our orders contains 1 – 4 Product (This Small Product Num Couldn't Cause Delay).

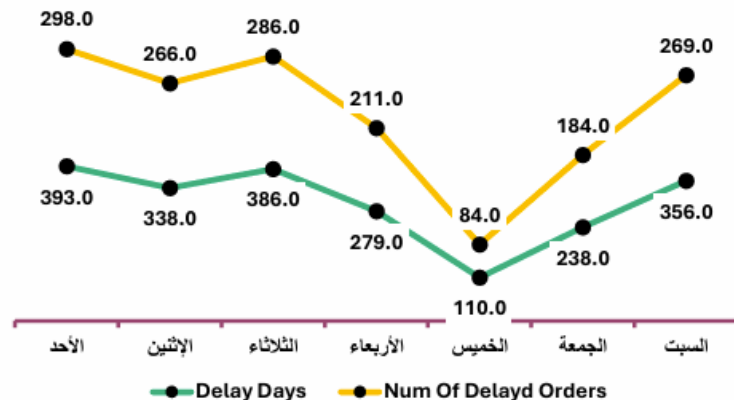
The Correlation = 0.009 weak Positive Correlation

Exploration

Num Of Order By Weekday



Num Of Delayed Orders & Sum Delay Days



To Explain Delay :

Second, We assume that num of product at the same weekday could cause ship delay and after exploring data We Found That (Tuesday-Sunday-Saturday) are highest Demand Weekday(54%) of Our orders.

(Sunday-Tuesday-Saturday) have the highest num of delayed orders & High delay Days.

This May Cause delay (Due to weekday orders load).

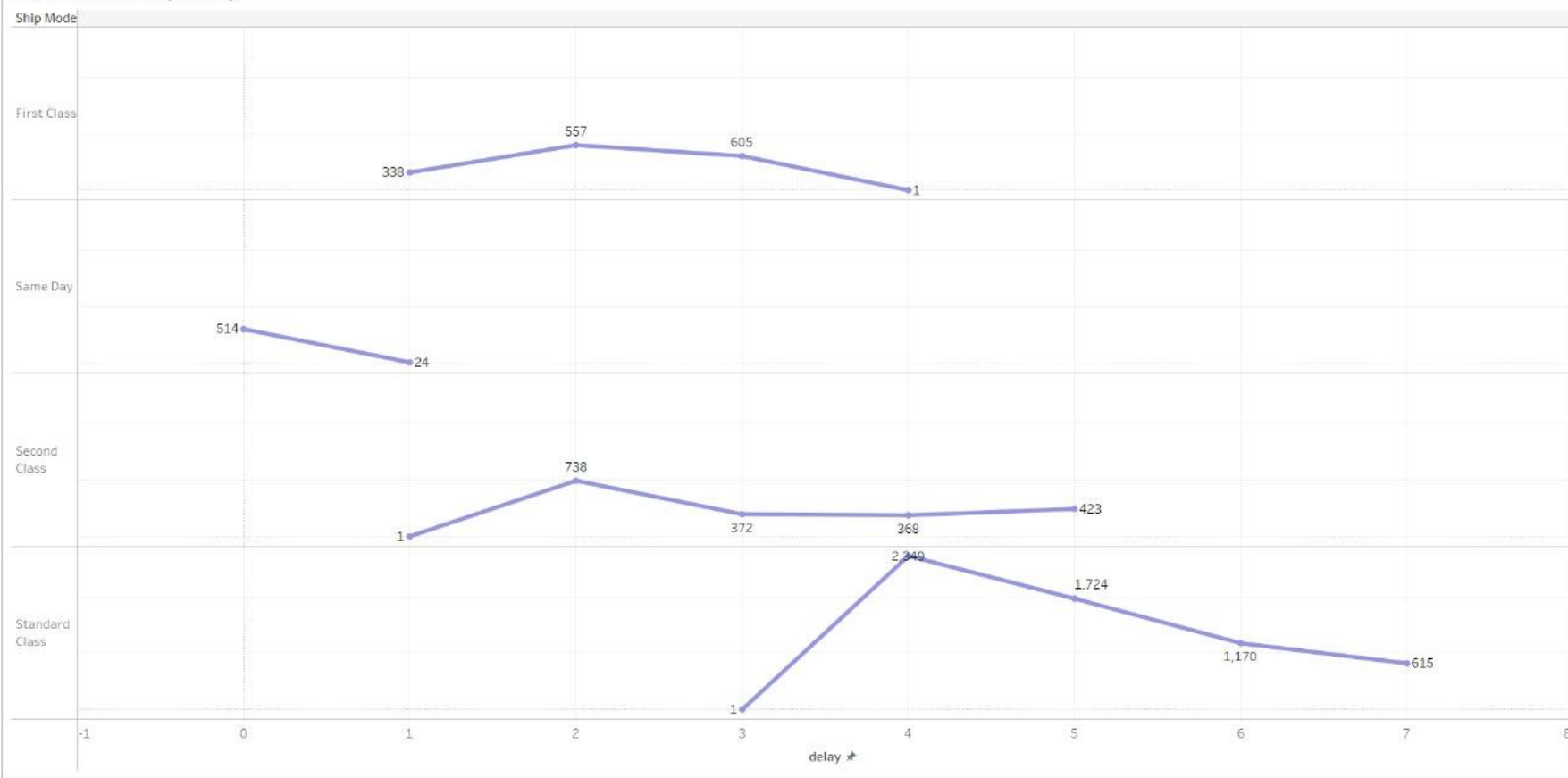
Note: Tue , 05/09/2017 has the highest number of orders In One Day (19 Order) with (38 Product) & about (Avg 1 day delay per order).

2- Problem Solving



1- Why same mode but not same delivery time

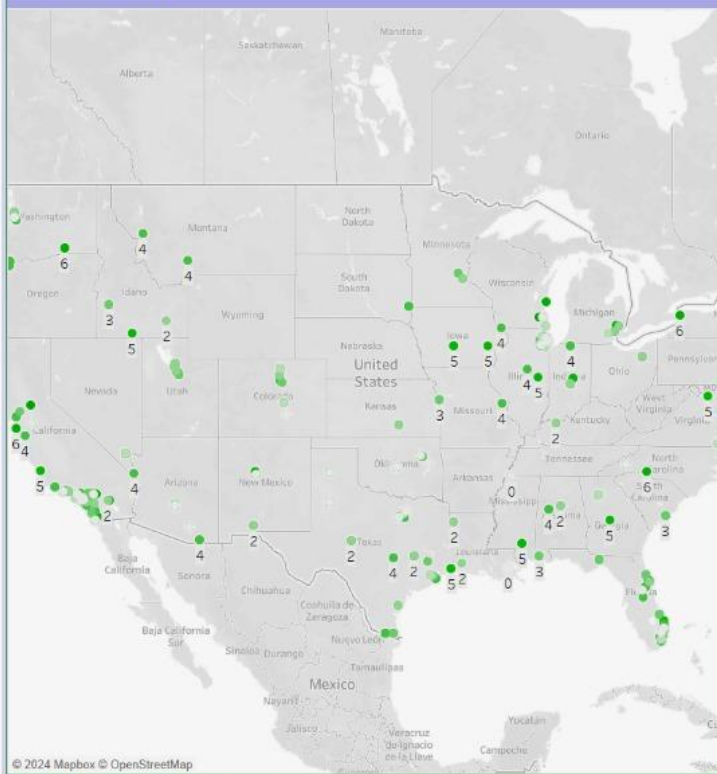
Count of orders per day



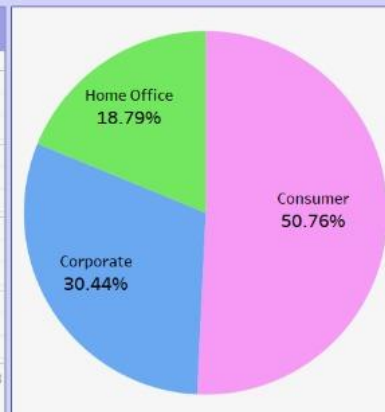
2- Why are there delays in the same state and same shipping mode

Delays

Delay each city



Count of orders per day

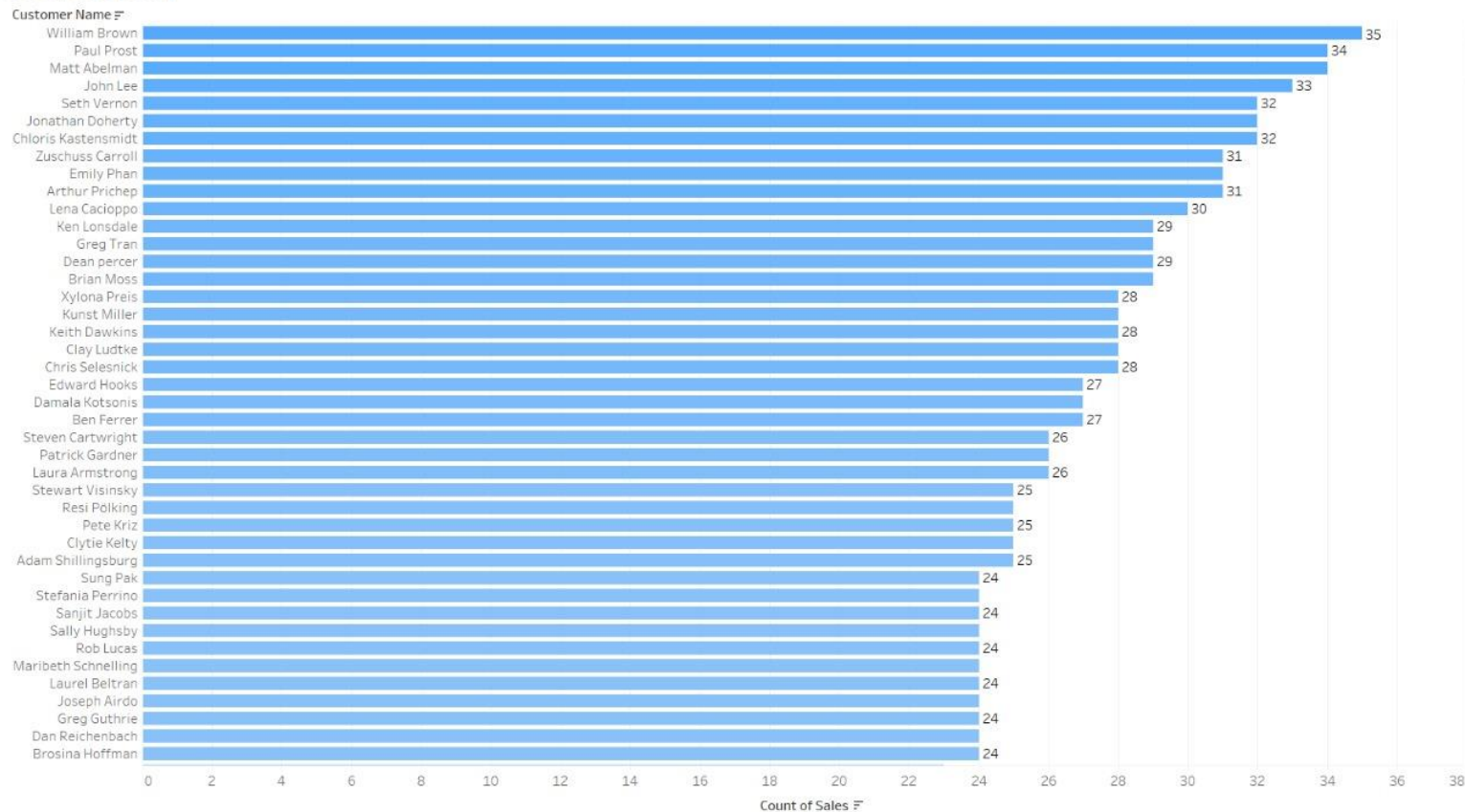


Total Sales Based On Category And Sub_C

Technology Phones 327,782	Technology Accessories 164,187	Furniture Chairs 322,823	Furniture Bookcases 113,813	Office Supplies Storage 219,343	Office Supplies Binders 200,029
Technology Machines 189,239	Technology Copiers 146,248	Furniture Tables 202,811	Furniture	Office Supplies Appliances 104,618	Office Supplies Paper 76,828
				Office Supplies	Office Supplies

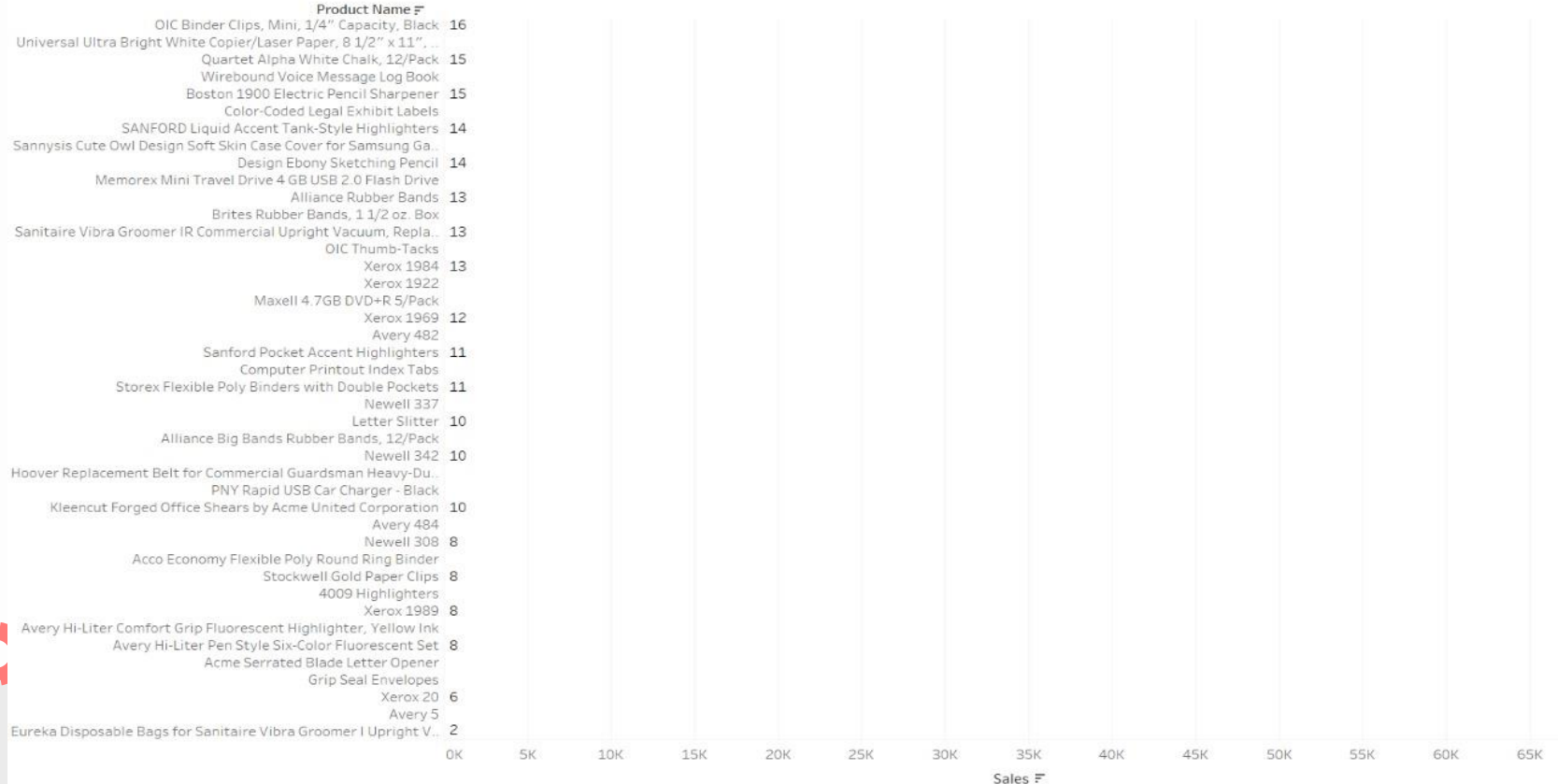
3- The largest customer by total purchases value isn't necessarily the most frequent

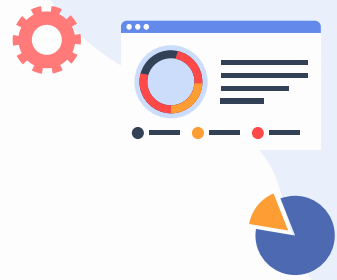
Customer frequency



3- Significant difference In purchases between complementary products

Less product sales





Short answer

- 1 Clarification in the sales process**
- 2 Promotions: Offering discounts on less-selling products when purchasing better-selling ones**
- 3 Integrated marketing: Highlighting the less-selling product as a complementary product in advertising campaigns or during the purchase process on the website.**
- 4 Availability in a visible place:**



Thanks!

- Omar Abdullah
- Omar Nasr
- Ahmed Matter
- Emad Mohamed
- Nouralddin Abdullah
- Mohammed Ahmed

