



Data Analysis & Visualization With Power BI

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Xxxx Store House Sales Analysis

The Problem

COMPANY	CONTEXT	PROBLEM STATEMENT
Xxxx Store House operates as an e-commerce enterprise specializing in the distribution of Office Supplies, Furniture, and Technology products.	Xxxx Store Houses offers an extensive array of products, categorized into sub-categories to facilitate simplified identification and grouping of retail items. The company is actively pursuing an evaluation of its sales performance and customers.	We need to analyze key indicators of our sales data to gain insight into our business performance. Specifically, we want to calculate the following Metrics; Total Sales, Profit, Total Quantity Ordered, Daily/ Monthly/ yearly analysis of orders.

The Process

Sales data gotten from Kaggle.

Step 1

Initial Analysis

- In Power BI, Power Query was used to execute data cleansing procedures such as rectifying spelling errors, aligning accurate column data types, and resolving issues related to missing or duplicate values.
- Implemented a dedicated time-intelligent function table to facilitate deeper insights within specific time periods.
- Utilized a Model view to establish a linkage between the main dataset and the time intelligent function table, fostering cohesive analysis.

Step 2

Exploratory Analysis

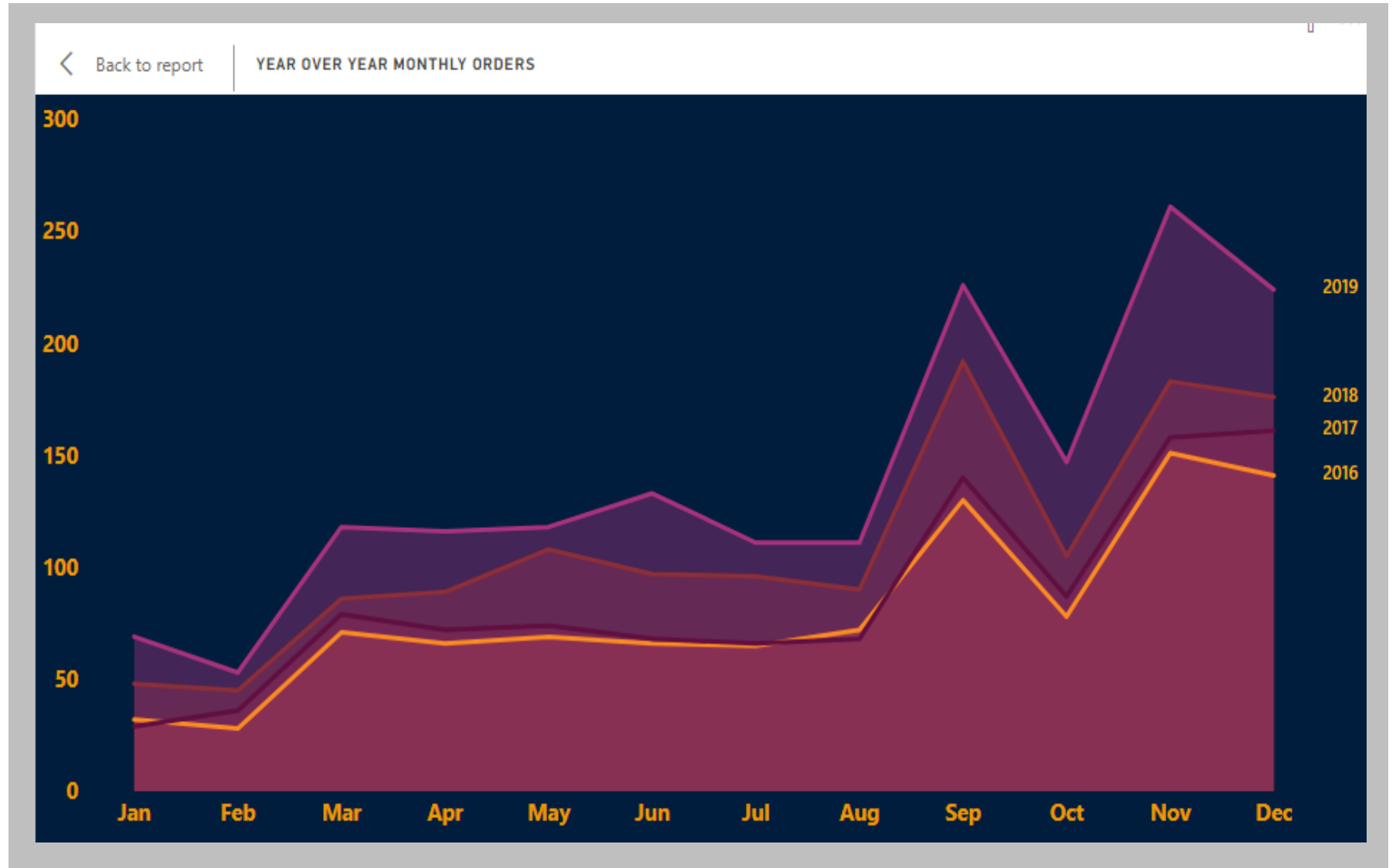
- Expanded the model view by introducing supplementary columns designed to facilitate metric calculations.
- Formulated new measures within the framework to compute profit and profit percentage accurately.
- Employed advanced data analysis techniques, including Time Series analysis, to uncover significant patterns, trends, and insights within the data, enabling informed decision-making

Step 3

Visualizations

- Utilized a diverse range of graphs, charts, slicers, and maps within Power BI, effectively enhancing the communication of insights and findings.

This analysis is divided into three different dashboards, an approach aimed at preventing overcrowding, fostering clarity, and promoting simplicity.



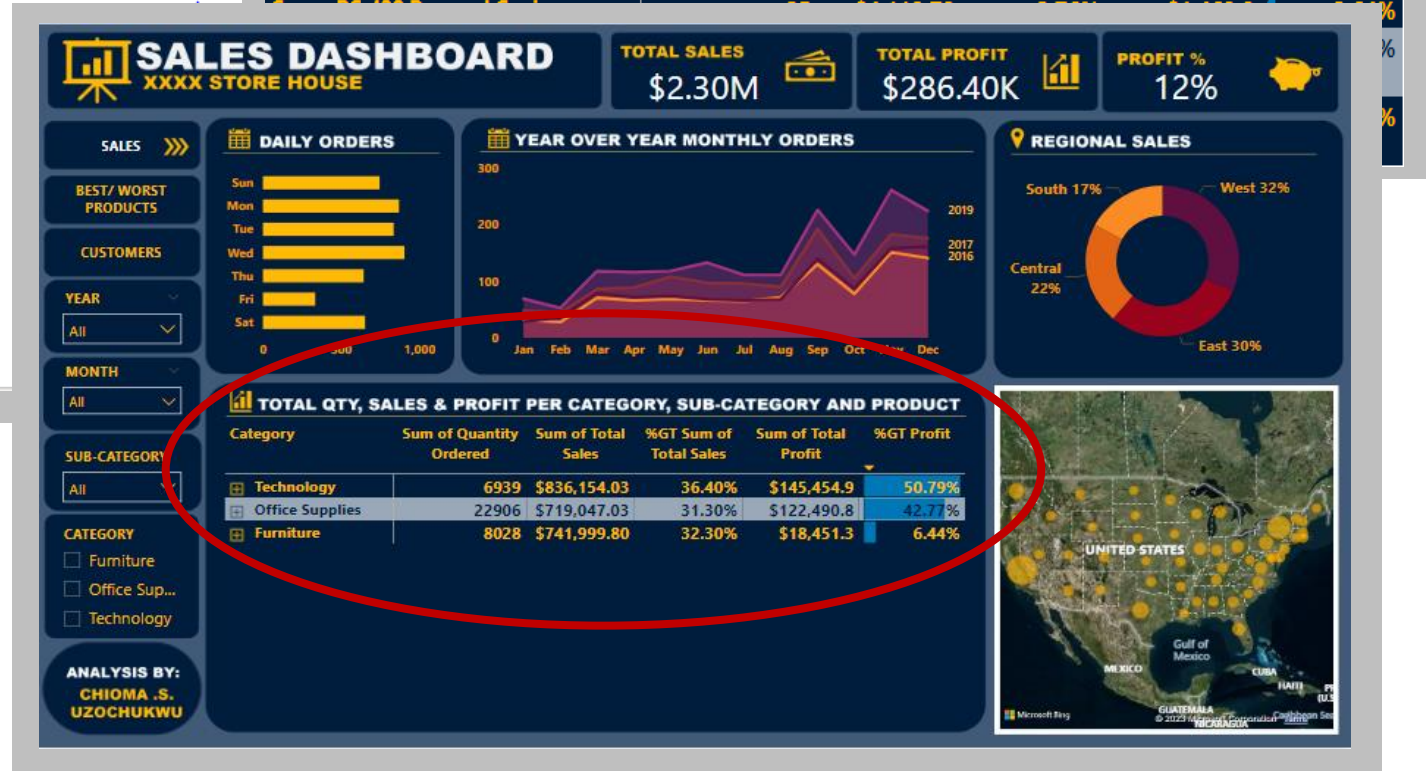


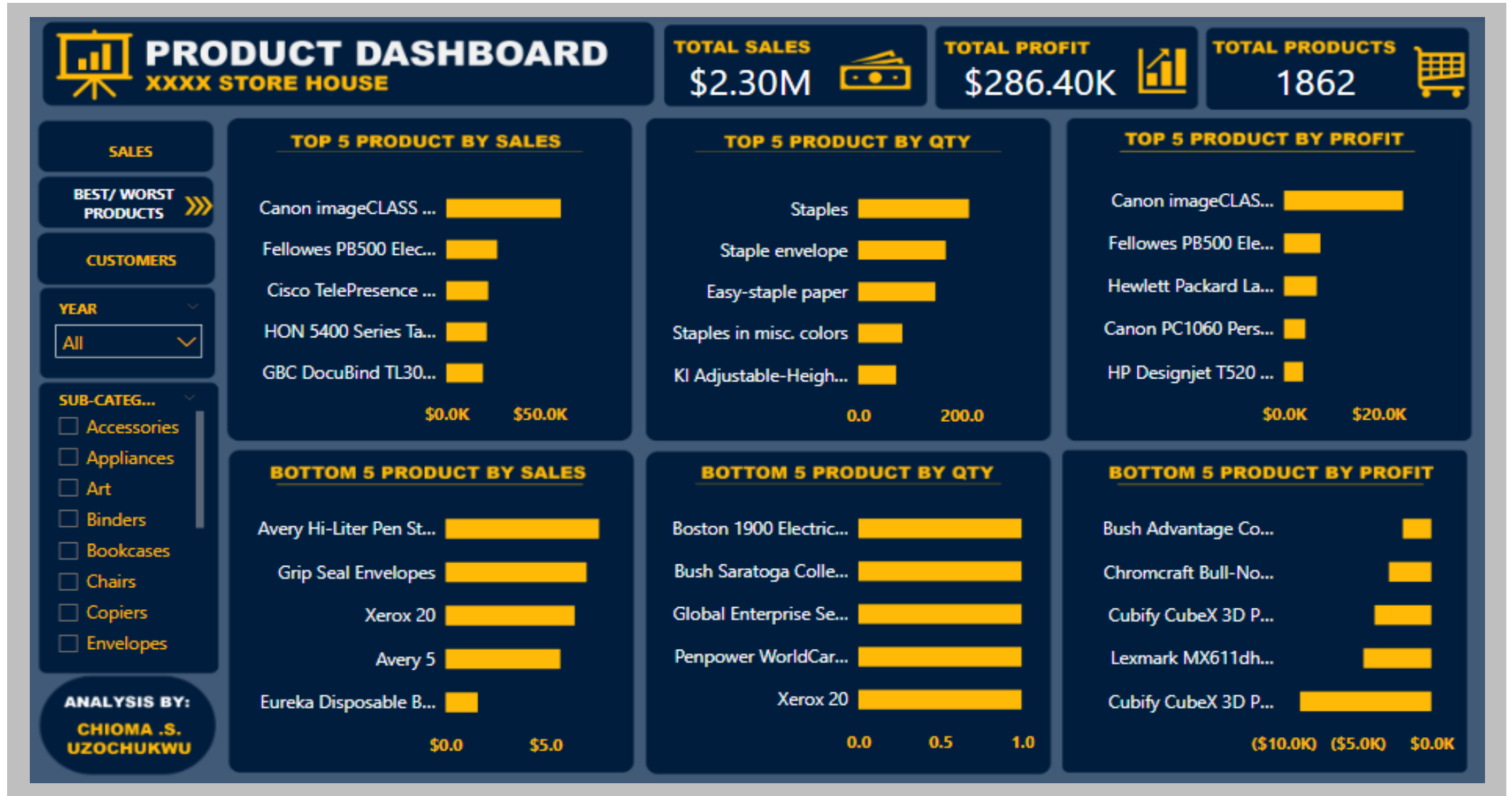
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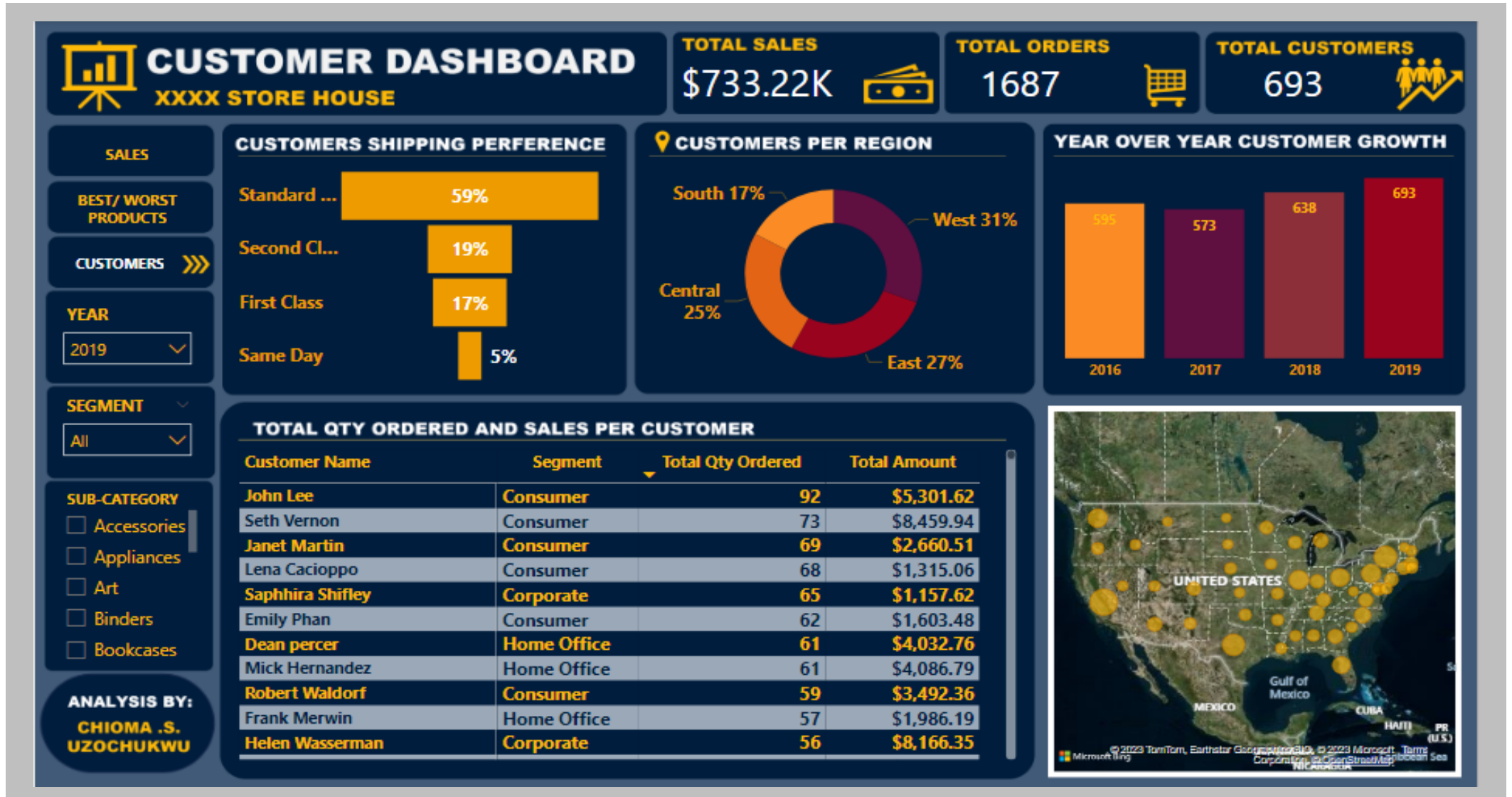
Sub-Category	Sum of Quantity Ordered	Sum of Total Sales	%GT Sum of Total Sales	Sum of Total Profit	%GT Profit
Copiers	234	\$149,528.03	6.51%	\$55,617.8	19.42%
Phones	3289	\$330,007.05	14.37%	\$44,515.7	15.54%
Accessories	2976	\$167,380.32	7.29%	\$41,936.6	14.64%
Paper	5178	\$78,479.21	3.42%	\$34,053.6	11.89%
Binders	5974	\$203,412.73	8.85%	\$30,221.8	10.55%
Chairs	2356	\$328,449.10	14.30%	\$26,590.2	9.28%
Storage	3158	\$223,843.61	9.74%	\$21,278.8	7.43%
Appliances	1729	\$107,532.16	4.68%	\$18,138.0	6.33%
Furnishings	3563	\$91,705.16	3.99%	\$13,059.1	4.56%
Envelopes	906	\$16,476.40	0.72%	\$6,964.2	2.43%
Art	3000	\$27,118.79	1.18%	\$6,527.8	2.28%
Labels	1400	\$12,486.31	0.54%	\$5,546.3	1.94%
Machines	440	\$189,238.63	8.24%	\$3,384.8	1.18%
Fasteners	914	\$3,024.28	0.13%	\$949.5	0.33%
Supplies	647	\$46,673.54	2.03%	(\$1,189.1)	-0.42%
Bookcases	868	\$114,880.00	5.00%	(\$3,472.6)	-1.21%
Tables	1241	\$206,965.53	9.01%	(\$17,725.5)	-6.19%

With the use of slicers and drill-down functionality, we can perform in-depth analysis within the context of the existing matrix table. This allows us to assess the performance of Categories, Sub-Categories, and individual products with precision and granularity.

Product	Sum of Quantity Ordered	Sum of Total Sales	%GT Sum of Total Sales	Sum of Total Profit	%GT Profit
Canon imageCLASS 2200 Advanced Copier	20	\$61,599.82	41.20%	\$25,199.9	45.31%
Hewlett Packard LaserJet 3310 Copier	38	\$18,839.69	12.60%	\$6,983.9	12.56%
Canon PC1060 Personal Laser Copier	19	\$11,619.83	7.77%	\$4,570.9	8.22%
Hewlett Packard 610 Color Digital Copier / Printer	21	\$8,899.82	5.95%	\$3,124.9	5.62%
Canon Imageclass D680 Copier / Fax	16	\$8,959.87	5.99%	\$2,800.0	5.03%
Canon PC940 Copier	15	\$5,669.87	3.79%	\$2,092.5	3.76%
Sharp AL-1530CS Digital Copier	17	\$6,399.87	4.28%	\$2,065.0	3.71%
Canon PC1080F Personal Copier	11	\$5,999.90	4.01%	\$1,974.0	3.55%
Canon Image Class D660 Copier	7	\$3,959.93	2.65%	\$1,692.0	3.04%
Sharp 1540cs Digital Laser Copier	10	\$4,399.92	2.94%	\$1,650.0	2.97%







INSIGHT

Key findings derived from the analysis of this dataset include:

- In 2019, the business recorded a 20% increase in sales and a 14% rise in profits when compared to the preceding year. However, certain aspects of the business are experiencing financial setbacks, particularly within the furniture category, which is not generating as much profit compared to the technology and office supplies.
- A mixed profitability landscape of our product sub-category was noticed. While some sub-categories are yielding satisfactory profits, others generating minimal profit, three sub-categories are operating at a loss.
- It is crucial to highlight that the three sub-categories incurring losses are as follows:
Tables - consisting of 57 products, with 14 of them currently operating at a loss.
Bookcases – consisting of 49 products, with 17 of them currently operating at a loss.
Supplies – consisting of 38 products, with 25 of them currently operating at a loss.
- Among our top five sub-categories with high profitability, the copiers sub-category is one to take note of. This is because despite having the smallest customer base compared to its counterparts and generating the lowest total number of orders, it achieved the highest sub-category profit for the business.
- It is also important to take note of September and November, it has consistently witnessed the highest influx of customer orders over the past four consecutive years, suggesting a seasonal trend.

SUGGESTIONS

Outlined below are a series of recommendations aimed at augmenting sales performance:

- ❖ Investigate the factors contributing to elevated orders during peak months. Determine actionable insights from peak months, see how we can leverage it to potentially increase order.
- ❖ For products operating at a loss/ generating minimal profit :
 - Evaluate the pricing strategy. Consider whether increasing prices slightly could help improve profit margins without significantly impacting sales volume.
 - Conduct a thorough analysis of the products and their market dynamic in order to identify products that are more price sensitive, then apply pricing strategies accordingly.
 - Determine where these products are in their lifecycle. If they're approaching the decline phase, assess whether it's worth continuing to invest resources in them.

- ❖ Regarding the Copier sub-category, it's imperative to delve into the factors contributing to the low customer base and order volume. By addressing these aspects strategically, we can pave the way for substantial profit augmentation. To accomplish this objective, the following steps are recommended:
- Conduct market research to Analyze market trends, customer preferences, and competition in other identify potential opportunities for growth.
 - Increase the visibility of the Copiers through targeted marketing campaigns, Identify customer segments that have an affinity with copiers. Tailor marketing efforts to effectively target customers of most of the sub-categories under Office Supplies.
 - Create a dedicated section on the website for Copiers. Showcase it prominently to draw attention, this will help inform customers that we sell copies incase of future purchases.
 - Introduce limited-time promotions or discounts for the subcategory to create urgency and encourage purchases. Collaborate with influencers or bloggers, to promote this subcategory and generate buzz.