Academic Year: 2024-25	**Year:** Second Year	**Div: A**	**Term:** I
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Subject: DSV			
Assignment No.: 3			
Date: 24/10/24			

1. **Title:**

Superstore Sales.

2. **About Dataset:**

The Superstore dataset is a popular dataset often used for data analysis and visualization, particularly in the context of business intelligence and data science projects. It typically includes transactional data from a fictional retail store and includes various attributes such as:

1. **Order ID**: Unique identifier for each order.
2. **Order Date**: Date when the order was placed.
3. **Ship Date**: Date when the order was shipped.
4. **Customer ID**: Unique identifier for each customer.
5. **Customer Name**: Name of the customer.
6. **Segment**: The market segment (e.g., Consumer, Corporate, Home Office).
7. **Country**: Country of the customer.
8. **City**: City of the customer.
9. **State**: State of the customer.
10. **Postal Code**: Postal code of the customer.
11. **Product ID**: Unique identifier for each product.
12. **Product Name**: Name of the product.
13. **Category**: Category of the product (e.g., Furniture, Office Supplies, Technology).
14. **Sub-Category**: More specific category within the main category.
15. **Sales**: Total sales amount for the order.
16. **Quantity**: Number of units sold.
17. **Discount**: Discount applied to the order.
18. **Profit**: Profit earned from the order.

Use Cases

- **Sales Analysis**: Understand sales trends over time, identify top-selling products, and analyze customer buying behavior.
- **Profitability Analysis**: Evaluate which products or categories are most profitable and which are underperforming.
- **Customer Segmentation**: Group customers based on their buying patterns, which can help in targeted marketing.
- **Supply Chain Management**: Analyze shipping times and logistics to improve delivery efficiency.

Purpose of the Dataset:

Here are three key purposes of the Superstore dataset:

1. Business Analytics Practice: It helps analysts and students develop skills in data analysis and business intelligence.
2. Sales and Profitability Evaluation: The dataset allows for the assessment of sales trends and profitability, helping businesses make informed decisions.
3. Customer Insights and Segmentation: It enables the analysis of customer behavior and segmentation for targeted marketing strategies.

2. Explanation of Visualizations:
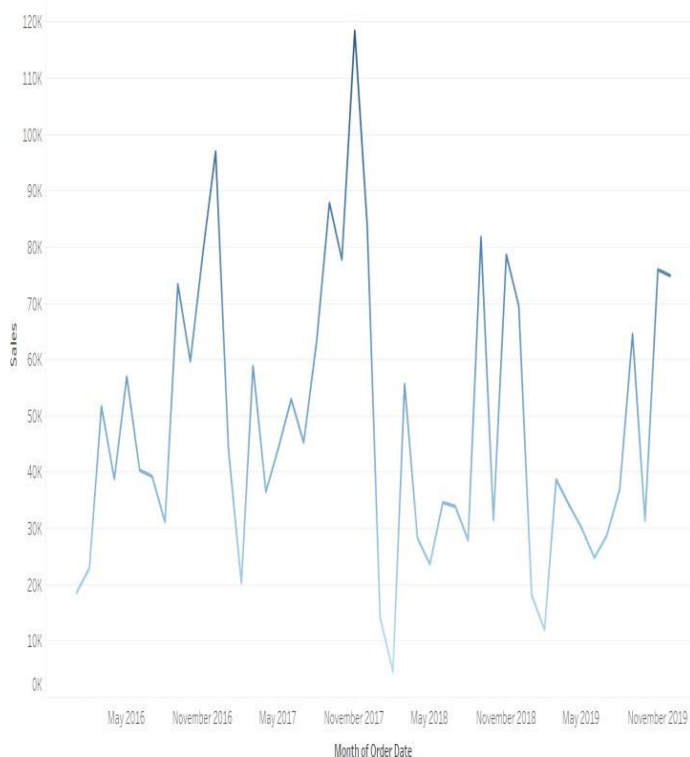
- **Bar Chart & Line Chart:-**

- **Audience: Sales managers, analysts.**
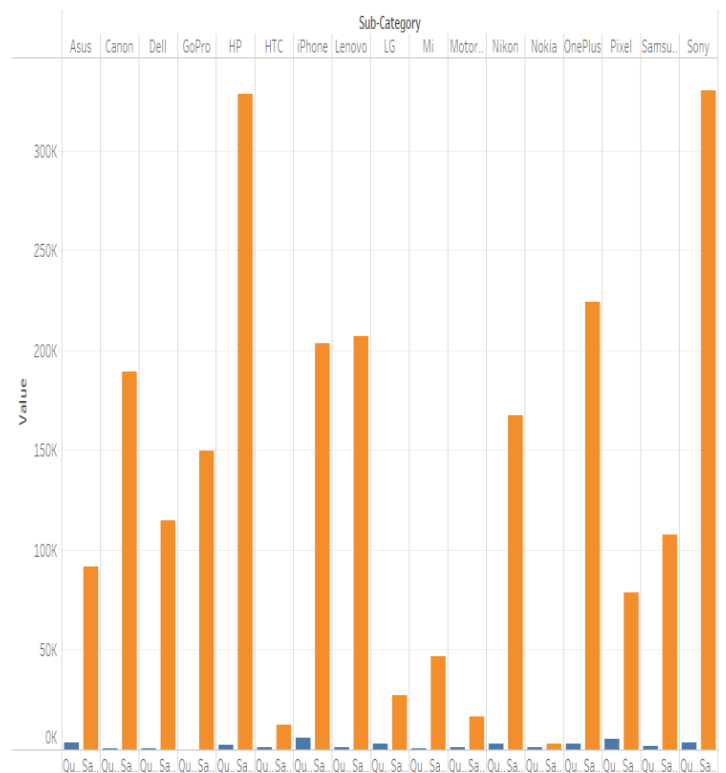- **Purpose:**
  - **Bar Chart**: Used to compare sales or profit across different categories or regions.
  - **Line Chart**: Shows trends over time (e.g., sales over the months or years).
  - **Message**: Bar charts highlight which categories or regions perform best, while line charts reveal sales trends and seasonality, helping businesses plan inventory and marketing.

Line Chart

Bar Chart

- **Scatter Plot & Pie Chart:-**
- **Audience: Sales and finance departments.**
- **Purpose:**
  - **Scatter Plot:** To show relationships between two quantitative variables, like sales vs. profit, highlighting correlation or outliers.
  - **Pie Chart:** Displays proportional breakdowns, like sales share by region or product category.
  - **Message:** The scatter plot helps understand the profitability of each sale, while pie charts visually communicate the proportion of sales attributed to different categories.

Scatter plot   **Pie Chart**

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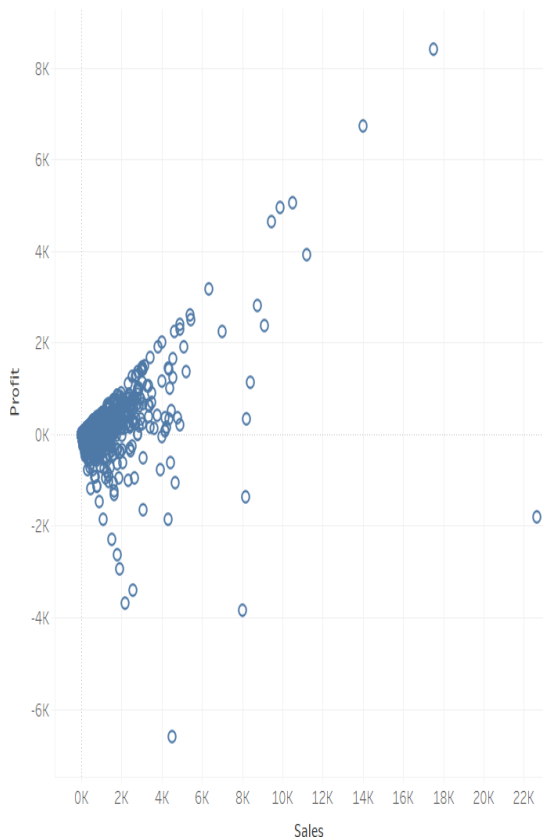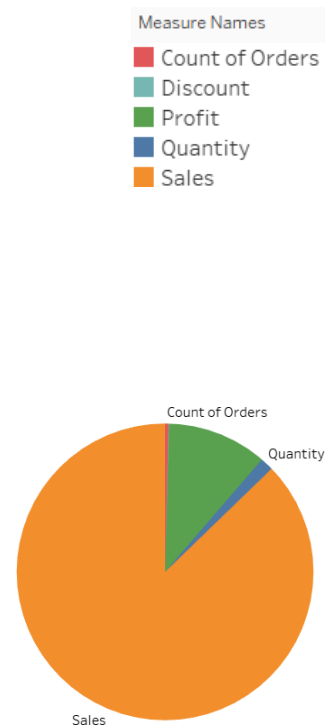
- **Map & Density Maps:-**

- **Audience: Regional sales managers, logistics teams.**

- **Purpose:**

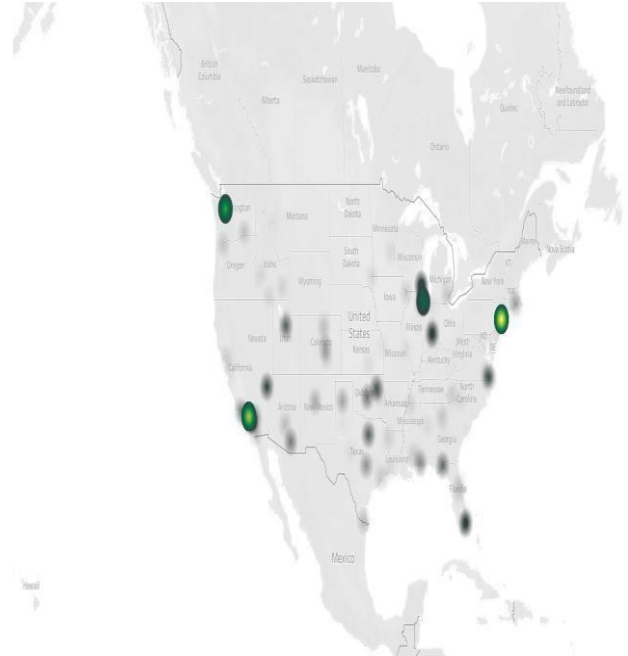 - **Map**: Geographical distribution of sales across various regions.

  - **Density Map:** Highlights areas with higher or lower concentration of sales.

  - **Message:** Maps allow for geographic analysis, identifying strong and weak regions. Density maps highlight areas with high demand, helping with logistics and market focus.

Map

**Density Maps**

- **Stacked Area Chart & Text Tables:-**

- Audience: Executives, strategists.

- Purpose:

  - Stacked Area Chart: Shows cumulative sales or profits over time, with breakdowns by region or category.

  - Text Tables: Detailed tabular data showing sales, profits, etc., per category or region.

  - Message: The stacked area chart helps visualize total sales growth, while the text table provides detailed insights for each segment, allowing for in-depth analysis.
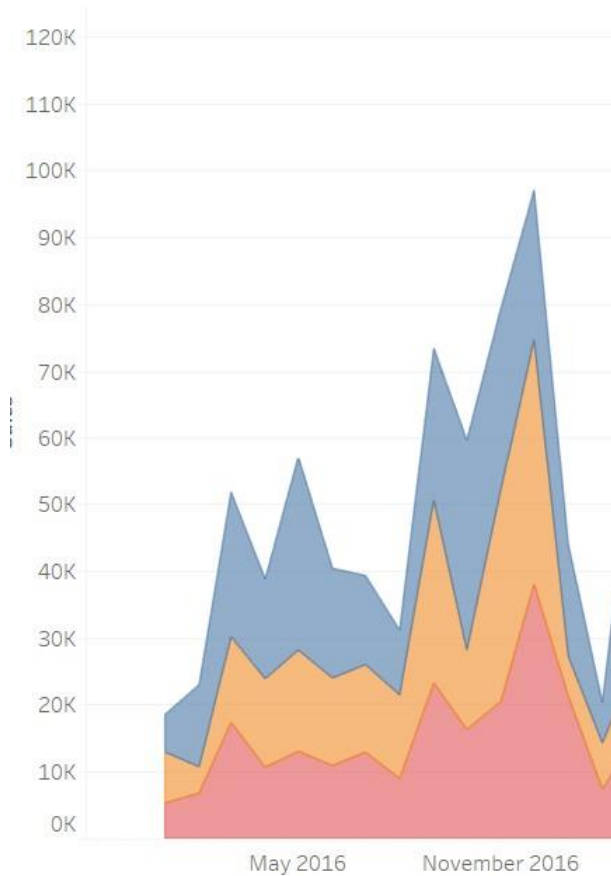
Category	Region	Profit	Sales
Cameras	Central	33,697	170,416
	East	47,462	264,974
	South	19,992	148,772
	West	44,304	251,992
Laptops	Central	-2,871	163,797
	East	3,046	208,291
	South	6,771	117,299
	West	11,505	252,613
Mobile Phones	Central	8,880	167,026
	East	41,015	205,516
	South	19,986	125,651
	West	52,610	220,853

Stacked Area Chart   **Text Table**

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- **Highlight Table & Heat Map:-**
- **Audience: Data analysts, business intelligence teams.**
- **Purpose:**
  - **Highlight Table:** Uses color to highlight high and low values in a tabular format, for easy identification of trends or anomalies.
  - **Heat Map:** Visualizes the intensity of sales or profits across regions, categories, or times.
  - **Message:** These tools quickly draw attention to the best and worst performers, making it easier to spot trends or areas for improvement.

	January	February	March	April
Asus	3,980	2,316	5,159	7,538
Canon	7,215	8,990	35,052	18,190
Dell	5,352	1,650	7,352	4,720
GoPro	3,960		25,590	3,880
HP	11,285	7,583	21,344	18,527
HTC	207	300	940	430
iPhone	12,214	4,237	13,889	13,365
Lenovo	10,952	4,218	16,913	9,913
LG	914	1,118	1,302	2,407
Mi	4,403	289	10,637	6,216
Motorola	750	669	1,657	945
Nikon	5,478	5,369	8,767	7,952
Nokia	88	159	150	258
OnePlus	9,218	6,125	14,793	15,806
Pixel	2,264	2,813	6,286	3,964
Samsung	3,176	4,933	6,734	6,042
Sony	13,469	8,984	28,443	17,609

Order Date

	January	Februa..	March	April	May	June	July	August	Septe..	October	Novem..	Decem..
1	-181	270	2,071	1,055	-463	3,173	725	-151	3,075	1,140	2,094	4,200
2	-1,263	2,932	519	966	277	280	60	264	4,267	8,068	1,975	1,096
3	748	630	-485	162	-105	478	1,910	25	-378	1,082	1,635	1,388
4	79	91	116	856	508	495	675	932	1,941	2,776	-1,601	5
5	114	796	373	-167	361	355	-146	714	399	1,500	639	2,559
6	1,381	505	320	680	220	786	512	513	546	-549	644	1,932
7	695	286	463	-603	2,182	-207	1,011	1,038	728	330	-47	-2,102
8	530	113	1,052	956	2,698	31	1,059	1,610	-2,318	149	4,439	1,770
9	178	-259	406	701	403	896	726	1,830	-124	130	3,062	1,970
10	-295	36	608	379	-249	244	-314	607	-184	-452	2,337	2,599
11	28	424	667	966	-590	452	1,143	402	2,876	-264	494	273
12	-1,039	159	238	244	432	625	238	1,261	1,392	852	236	800
13	1,041	498	518	-152	590	420	399	-1,098	1,649	2,711	597	356
14	220	255	873	208	1,463	389	74	4	3,122	2,012	1,337	2,884
15	559	613	97	281	346	360	359	113	3,107	496	681	-1,589
16	2,605	84	3,720	3,214	39	1,796	153	-205	-280	-832	1,577	598
17	-124	-375	18	-2,659	48	3,100	1,100	805	301	1,151	8,496	5,292
18	6	80	-1,213	323	290	590	-129	2,104	1,640	416	687	1,484
19	-254	446	2,076	-283	1,533	88	602	555	-354	-673	715	1,155
20	740	11	902	335	679	610	1,042	757	1,714	353	1,091	1,839
21	694	1,485	2,206	87	2,007	1,146	384	2,117	2,272	2,234	621	1,429
22	1,485	243	254	-583	852	97	445	-6	127	4,614	476	1,375
23	575	70	7,127	443	1,622	503	501	1,109	5,017	627	1,088	1,416
24	123	268	140	214	-4	693	1,066	1,567	1,628	116	2,473	3,570
25	-66	10	1,090	518	480	211	1,654	109	1,336	184	-6,156	2,659
26	1,038	447	1,415	-4	287	1,442	-2,937	826	803	90	3,458	218

Highlight Table **Heat Maps**

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Key Parameters used in the Visualizations:

A typical Superstore sales dataset contains details of a retail store's sales performance, with the following key parameters:

- **Order ID:** Unique identifier for each sales order.

- **Product Category:** Category of the sold product (e.g., Office Supplies, Furniture, Technology).

- **Product Sub-category:** Specific subcategories under each product category.

- **Sales:** Total sales value for each order.

- **Profit:** Profit generated from each sale.

- **Discount:** Percentage discount applied on the sales order.

- **Quantity:** Number of products sold.

- **Customer Segment:** Market segment of the customer (e.g., Consumer, Corporate).

- **Ship Mode:** Mode of shipping for each order (e.g., Standard, Express).

- **Region:** Geographic region (e.g., East, West) where the order was placed.

- **Order Date:** Date when the order was placed.

Conclusion:

In summary, the Superstore dataset serves as a valuable resource for exploring various aspects of retail analytics, enabling users to practice data analysis, evaluate sales and profitability, and gain insights into customer behavior. Utilizing visual tools like bar charts enhances the communication of these insights, making complex data easily interpretable for diverse audiences, including business analysts, marketing professionals, and students. Overall, this activity emphasizes the importance of data-driven decision-making in business, equipping participants with essential skills for real-world applications.