REPORT ON MINI PROJECT

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Project Title: Sales Performance Analysis of a Retail Superstore

Project Domain: Sales & E-Commerce

Submission Date: Dec-10

Mentor Name: Kumaran M

Raw Dataset Link:

https://drive.google.com/drive/folders/1h30aF9Cm9CYKFnIBjVwhcwdmbBXAVOvK?usp=sharing

Cleaned Dataset Link:

https://drive.google.com/drive/folders/1Dv51767DT7tWGxHfeiKQTudz9WkzZufe?usp=sharing

Purpose of the Project

The purpose of this mini project is to analyse retail sales data from a Superstore and generate meaningful business insights using Excel for data cleaning and Power BI for data visualization.

This project aims to:

- Understand sales performance across different regions, product categories, and customer segments.
- Identify trends, high-performing products, and profitability using interactive dashboards.
- Support business decision-making by transforming raw data into clear, visual insights.
- Showcase skills in data preprocessing, analytical thinking, and Power BI dashboard creation.

Objective of the Project

The main objectives of this project are:

- **To perform data cleaning and preprocessing using Excel**, including removing duplicates, handling missing values, and creating calculated fields.
- **To analyse sales performance** based on categories, regions, customer segments, and product types.
- **To create an interactive Power BI dashboard** using various visualizations like bar charts, pie charts, line charts, cards, and slicers.
- **To derive actionable insights** that help understand trends in sales, profit, quantity sold, and discount patterns.
- **To demonstrate end-to-end data analytics skills**—from dataset selection to report creation and interpretation.

Data Cleaning in dataset

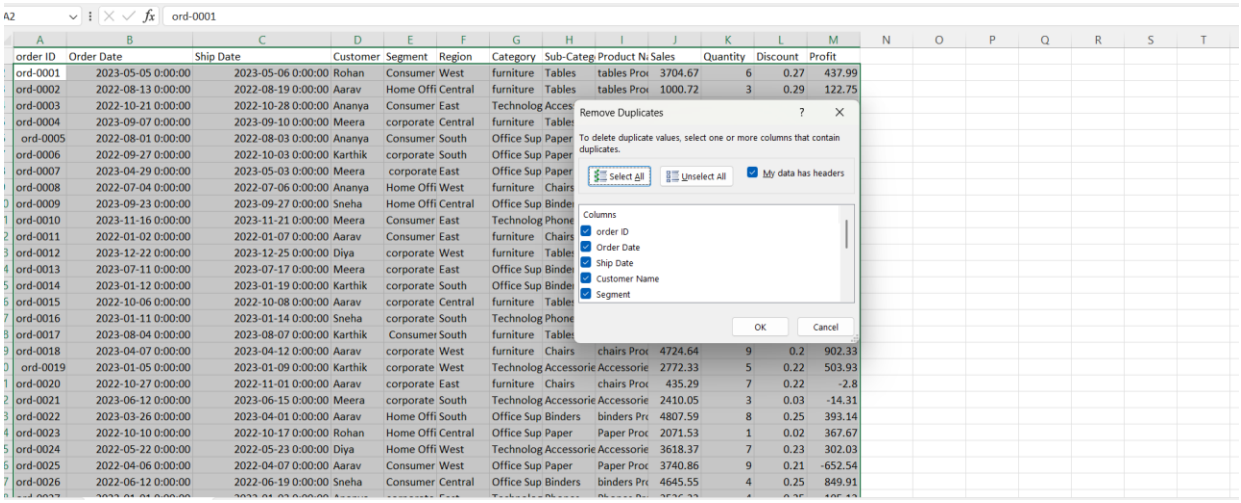
I began the cleaning process by converting the data range into a structured Excel table using Ctrl + T, making the dataset easier to manage and format.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	order ID	Order Date	Ship Date	Customer	Segment	Region	Category	Sub-Categ	Product Na	Sales	Quantity	Discount	Profit
2	ord-0001	2023-05-05 0:00:00	2023-05-06 0:00:00	Rohan	Consumer	West	furniture	Tables	tables Proc	3704.67	6	0.27	437.99
3	ord-0002	2022-08-13 0:00:00	2022-08-19 0:00:00	Aarav	Home Offi	Central	furniture	Tables	tables Proc	1000.72	3	0.29	122.75
4	ord-0003	2022-10-21 0:00:00	2022-10-28 0:00:00	Ananya	Consumer	East	Technolog	Accessorie	Accessorie	4736.73	7	0.18	548.64
5	ord-0004	2023-09-07 0:00:00	2023-09-10 0:00:00	Meera	corporate	Central	furniture	Tables	tables Proc	2593.41	6	0.12	175.32
6	ord-0005	2022-08-01 0:00:00	2022-08-03 0:00:00	Ananya	Consumer	South	Office Sup	Paper	Paper Proc	3087.23	4	0.27	-242.31
7	ord-0006	2022-09-27 0:00:00	2022-10-03 0:00:00	Karthik	corporate	South	Office Sup	Paper	Paper Proc	2315.28	4	0.06	285.41
8	ord-0007	2023-04-29 0:00:00	2023-05-03 0:00:00	Meera	corporate	East	Office Sup	Paper	Paper Proc	4024.54	6	0.06	-579.47
9	ord-0008	2022-07-04 0:00:00	2022-07-06 0:00:00	Ananya	Home Offi	West	furniture	Chairs	chairs Proc	1040.55	5	0.11	184.67
10	ord-0009	2023-09-23 0:00:00	2023-09-27 0:00:00	Sneha	Home Offi	Central	Office Sup	Binders	binders Pr	4819.03	9	0.14	1025
11	ord-0010	2023-11-16 0:00:00	2023-11-21 0:00:00	Meera	Consumer	East	Technolog	Phones	Phones Pr	2906.9	2	0.27	-220.22
12	ord-0011	2022-01-02 0:00:00	2022-01-07 0:00:00	Aarav	Consumer	East	furniture	Chairs	chairs Proc	4769.45	5	0.22	1233.13
13	ord-0012	2023-12-22 0:00:00	2023-12-25 0:00:00	Diya	corporate	West	furniture	Tables	tables Proc	3917.69	4	0.01	807
14	ord-0013	2023-07-11 0:00:00	2023-07-17 0:00:00	Meera	corporate	East	Office Sup	Binders	binders Pr	118.64	4	0.12	35.13
15	ord-0014	2023-01-12 0:00:00	2023-01-19 0:00:00	Karthik	corporate	South	Office Sup	Binders	binders Pr	1145.32	6	0.23	336.71
16	ord-0015	2022-10-06 0:00:00	2022-10-08 0:00:00	Aarav	corporate	Central	furniture	Tables	tables Proc	680.41	2	0.06	186.69
17	ord-0016	2023-01-11 0:00:00	2023-01-14 0:00:00	Sneha	corporate	South	Technolog	Phones	Phones Pr	255.87	4	0.09	-42.45
18	ord-0017	2023-08-04 0:00:00	2023-08-07 0:00:00	Karthik	Consumer	South	furniture	Tables	tables Proc	3399.1	10	0.06	426.88
19	ord-0018	2023-04-07 0:00:00	2023-04-12 0:00:00	Aarav	corporate	West	furniture	Chairs	chairs Proc	4724.64	9	0.2	902.33
20	ord-0019	2023-01-05 0:00:00	2023-01-09 0:00:00	Karthik	corporate	West	Technolog	Accessorie	Accessorie	2772.33	5	0.22	503.93
21	ord-0020	2022-10-27 0:00:00	2022-11-01 0:00:00	Aarav	corporate	East	furniture	Chairs	chairs Proc	435.29	7	0.22	-2.8
22	ord-0021	2023-06-12 0:00:00	2023-06-15 0:00:00	Meera	corporate	South	Technolog	Accessorie	Accessorie	2410.05	3	0.03	-14.31
23	ord-0022	2023-03-26 0:00:00	2023-04-01 0:00:00	Aarav	Home Offi	South	Office Sup	Binders	binders Pr	4807.59	8	0.25	393.14
24	ord-0023	2022-10-10 0:00:00	2022-10-17 0:00:00	Rohan	Home Offi	Central	Office Sup	Paper	Paper Proc	2071.53	1	0.02	367.67
25	ord-0024	2022-05-22 0:00:00	2022-05-23 0:00:00	Diya	Home Offi	West	Technolog	Accessorie	Accessorie	3618.37	7	0.23	302.03
26	ord-0025	2022-04-06 0:00:00	2022-04-07 0:00:00	Aarav	Consumer	West	Office Sup	Paper	Paper Proc	3740.86	9	0.21	-652.54
27	ord-0026	2022-06-12 0:00:00	2022-06-19 0:00:00	Sneha	Consumer	Central	Office Sup	Binders	binders Pr	4645.55	4	0.25	849.91

Order ID	Order Date	Ship Date	Customer Name	Segment	Region	Category	Sub-Category	Product Name	Sales	Quantity	Discount	Profit	Revenue per unit	Order Year	Order Month
ORD-0001	14-11-2022	21-11-2022	Rohan	Corporate	Central	Technology	Phones	Phones Product	4712.2	10	0.12	975.93	471.22	2022	Nov-22
ORD-0002	18-04-2023	20-04-2023	Ananya	Home Office	Central	Technology	Phones	Phones Product	3078.02	6	0.26	-86.52	513.0033333	2023	Apr-23
ORD-0003	17-09-2023	20-09-2023	Aarav	Corporate	West	Office Suppli	Binders	Binders Product	815.65	4	0.3	237.37	203.9125	2023	Sep-23
ORD-0004	26-10-2023	31-10-2023	Meera	Home Office	South	Technology	Accessories	Accessories Produ	2297.72	4	0.03	-54.5	574.43	2023	Oct-23
ORD-0005	03-05-2023	09-05-2023	Diya	Home Office	East	Furniture	Tables	Tables Product	4640.98	5	0.08	972.09	928.196	2023	May-23
ORD-0006	26-10-2022	01-11-2022	Karthik	Consumer	South	Technology	Accessories	Accessories Produ	2950.17	3	0.24	295.21	983.39	2022	Oct-22
ORD-0007	15-08-2023	16-08-2023	Diya	Corporate	West	Technology	Accessories	Accessories Produ	348.94	2	0.08	50.4	174.47	2023	Aug-23
ORD-0008	15-04-2023	17-04-2023	Aarav	Consumer	South	Office Suppli	Binders	Binders Product	2016.24	2	0.3	-112.69	1008.12	2023	Apr-23
ORD-0009	29-05-2022	02-06-2022	Diya	Consumer	West	Furniture	Chairs	Chairs Product	3638.59	5	0.15	-232.82	727.718	2022	May-22
ORD-0010	02-06-2022	04-06-2022	Sneha	Corporate	Central	Technology	Phones	Phones Product	1208.86	4	0.1	-49.34	302.215	2022	Jun-22
ORD-0011	02-05-2022	09-05-2022	Diya	Home Office	East	Office Suppli	Paper	Paper Product	4407.05	3	0.04	773.3	1469.016667	2022	May-22
ORD-0012	04-08-2022	09-08-2022	Aarav	Consumer	Central	Office Suppli	Paper	Paper Product	465.87	9	0.17	84.84	51.76333333	2022	Aug-22
ORD-0013	01-10-2023	03-10-2023	Aarav	Consumer	West	Office Suppli	Binders	Binders Product	4801.46	8	0.12	790.91	600.1825	2023	Oct-23
ORD-0014	15-07-2022	19-07-2022	Rohan	Consumer	West	Technology	Accessories	Accessories Produ	2859.11	8	0.21	688.09	357.38875	2022	Jul-22
ORD-0015	20-08-2023	26-08-2023	Aarav	Consumer	Central	Technology	Phones	Phones Product	3659.68	3	0.12	235.48	1219.893333	2023	Aug-23
ORD-0016	13-05-2023	19-05-2023	Karthik	Corporate	Central	Office Suppli	Paper	Paper Product	3999.46	4	0.17	667.32	999.865	2023	May-23
ORD-0017	13-11-2023	15-11-2023	Meera	Corporate	Central	Office Suppli	Paper	Paper Product	1538.37	4	0.29	267.61	384.5925	2023	Nov-23
ORD-0018	23-11-2022	27-11-2022	Diya	Corporate	West	Furniture	Chairs	Chairs Product	3543.16	6	0.17	-91.11	590.5266667	2022	Nov-22
ORD-0019	19-11-2023	25-11-2023	Rohan	Corporate	West	Furniture	Chairs	Chairs Product	1077.99	2	0.19	114.84	538.995	2023	Nov-23
ORD-0020	06-02-2022	08-02-2022	Karthik	Home Office	West	Technology	Accessories	Accessories Produ	4424.89	4	0.23	-361.07	1106.2225	2022	Feb-22
ORD-0021	06-09-2022	08-09-2022	Sneha	Corporate	East	Technology	Accessories	Accessories Produ	3982.24	7	0.14	733.77	568.8914286	2022	Sep-22
ORD-0022	08-11-2022	15-11-2022	Diya	Home Office	West	Technology	Phones	Phones Product	1216.42	1	0.24	4.3	1216.42	2022	Nov-22
ORD-0023	08-01-2022	09-01-2022	Meera	Home Office	West	Furniture	Chairs	Chairs Product	2755.86	9	0.28	-389.02	306.2066667	2022	Jan-22
ORD-0024	26-09-2023	02-10-2023	Karthik	Corporate	East	Technology	Accessories	Accessories Produ	641.53	2	0.23	6.09	320.765	2023	Sep-23
ORD-0025	17-05-2022	22-05-2022	Meera	Consumer	East	Furniture	Tables	Tables Product	1424.75	9	0.25	321.33	158.3055556	2022	May-22
ORD-0026	19-01-2022	24-01-2022	Rohan	Corporate	West	Furniture	Chairs	Chairs Product	2083.74	9	0.09	-35.84	231.5266667	2022	Jan-22

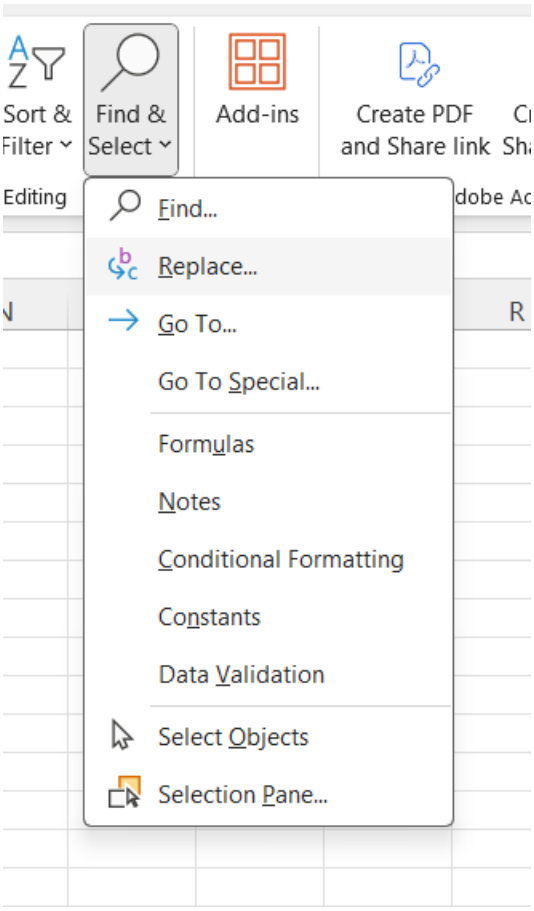
Remove Duplicates

The dataset was cleaned by removing all duplicate entries, ensuring that only unique and valid data points were retained.



Used Remove duplicates option in the ribbon and removed all the duplicate values present in the dataset.

Replace Inconsistant Data:



- Ensured all date values were in the same format (DD-MMM-YYYY).
- Standardized text fields such as Category, Region, and Segment to avoid spelling variations.

Fixed irregular numerical entries

- Checked for negative or unrealistic values in Sales, Profit, and Quantity.

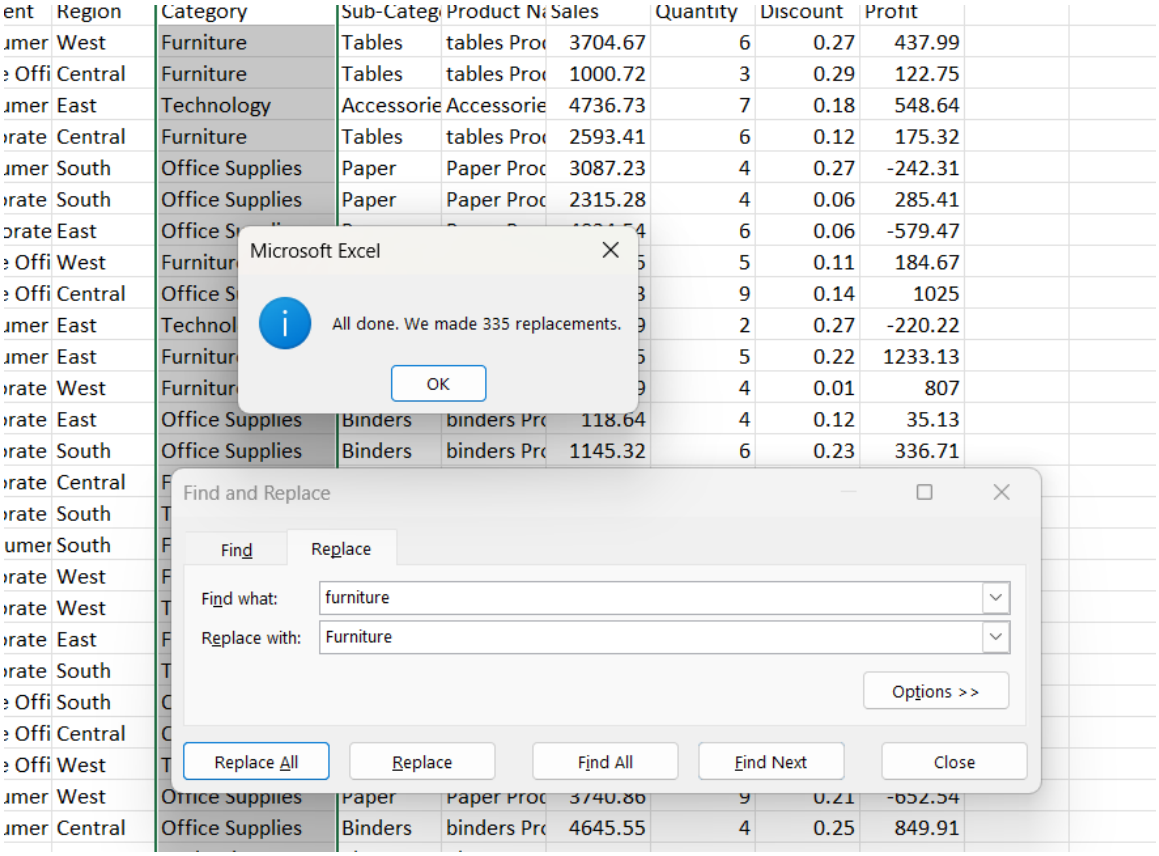
- Converted all numerical columns into proper number format (removed currency symbols/text).

Corrected spelling and naming inconsistencies

Used Find & Replace to correct inconsistent names (e.g., “furniture ” vs “Furniture”)

Ensured consistency in capitalization

- Converted inconsistent text formats into a standard form (e.g., Proper Case).
- Removed inconsistent data in category column using find and replace option.



Replace Missing Values:

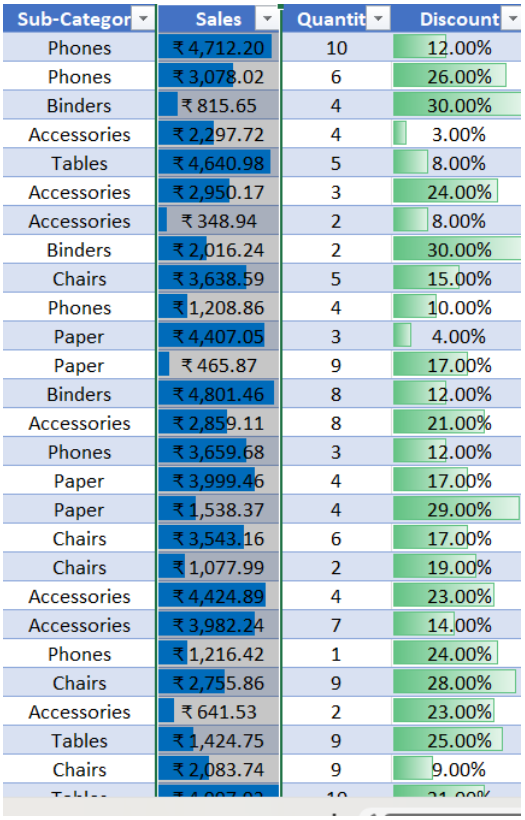
2023-04-05 0:00:00	Rohan	corporate	Central	Furniture	Tables	tables Pro	4149.90	9	0.24	497.04
2022-06-13 0:00:00	Diya	Consumer	South	Technology	Accessorie	Accessorie	2125.55	6	0.19	39.66
2022-05-10 0:00:00	Rohan	Consumer	Central	Furniture	Tables	tables Pro	3688.11	7	0.12	-526.53
2023-01-09 0:00:00	Aarav	corporate	West	Furniture	Tables	tables Pro	4631.43	4	0.28	-681.55
2023-10-06 0:00:00	Karthik	Home Offi	West	Office Supplies	Binders	binders Pr	4825.8	4	0.14	-855.9
2022-05-07 0:00:00	Aarav	Consumer	East	Furniture	Chairs	chairs Pro	2289.94	3	0.3	156.98
2024-01-08 0:00:00	Ananya	Consumer	Central	Technology	Phones	Phones Pr	708.6	2	0.17	-95.13
2023-10-02 0:00:00	Meera	corporate	East	Office Supplies	Binders	binders Pr	2135.65	5	0.23	474.82
2023-07-07 0:00:00	Aarav	corporate	West	Office Supplies	Binders	binders Pr	1320.56	9	0.03	-174.41
2022-09-07 0:00:00	Sneha	Home Offi	East	Furniture	Tables	tables Pro	3793.71	9	0.22	-710.05
2023-02-13 0:00:00	Diya	Consumer	East	Furniture	Tables	tables Pro	3190.04	2	0.09	534.18
2022-09-06 0:00:00	Sneha	Home Offi	South	Furniture	Chairs	chairs Pro	227.29	1	0.01	12.97
2023-02-04 0:00:00	Sneha	Consumer	South	Office Supplies	Paper	Paper Proc	84.35	8	0.29	-3.78
2023-09-22 0:00:00	Meera	corporate	East	Office Supplies	Binders	binders Pr	2711.1	6	0.12	794.83
2022-04-09 0:00:00	Rohan	Consumer	South	Office Supplies	Paper	Paper Proc	4468.98	6	0.06	-184.3
2022-04-09 0:00:00	Sneha	Home Offi	Central	Furniture	Tables	tables Pro	2166.74	3	0.2	151.5
2023-04-25 0:00:00	Rohan	Consumer	East	Furniture	Chairs	chairs Pro	1921.82	10	0.04	415.71
2023-05-25 0:00:00	Ananya	Home Offi	South	Furniture	Tables	tables Pro	2468.69	9	0.28	288.87
2022-10-01 0:00:00	Karthik	Home Offi	Central	Office Supplies	Binders	binders Pr	4087.56	3	0.22	-206.05
2022-02-22 0:00:00	Sneha	corporate	West	Technology		Phones Pr	2937.01	6	0.26	200.76
2022-10-07 0:00:00	Meera	Home Offi	West	Furniture	Chairs	chairs Pro	283.36	1	0.19	-46.85
2022-03-28 0:00:00	Ananya	Consumer	East	Furniture	Chairs	chairs Pro	1332.04	2	0.23	324.39
2023-06-28 0:00:00	Ananya	corporate	South	Technology	Accessorie	Accessorie	4419.01	9	0.1	1150.23
2023-06-21 0:00:00	Rohan	Home Offi	East	Technology	Accessorie	Accessorie	1850.57	4	0.2	138.73
2022-11-03 0:00:00	Sneha	Consumer	West	Furniture	Chairs	chairs Pro	1429.26	5	0.08	307.76
2022-04-04 0:00:00	Meera	Consumer	South	Office Supplies	Paper	Paper Proc	3894.03	5	0.18	606.07
2022-01-12 0:00:00	Ananya	Home Offi	Central	Office Supplies	Binders	binders Pr	4171.26	8	0.11	128.13

- **Identified missing or blank cells** in numerical and categorical columns. Filled the missing value in sub category column by analyzing the category column .

- **Replaced missing numerical values** using methods like:
    1. Average (mean)
    2. Median
    3. Zero (only if logically meaningful)
- **Filled missing categorical fields** with:
    1. Most frequent value (mode)
    2. “Not Available” or “Unknown” tag

- **Ensured no empty fields remained** before importing into Power BI.
- **Validated the filled values** to maintain accuracy and avoid bias.
- **Documented all changes** so the cleaned dataset remains transparent and reproducible.

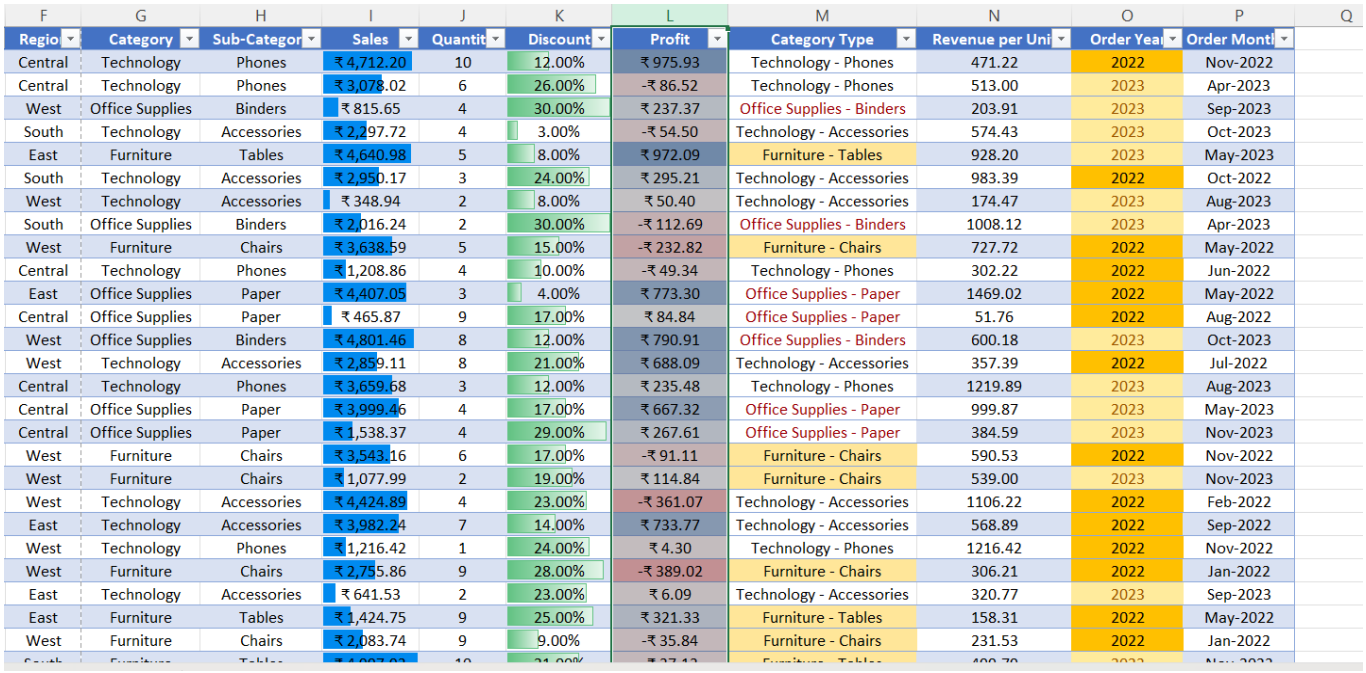
Data Bars:



Sub-Categor	Sales	Quantit	Discount
Phones	₹ 4,712.20	10	12.00%
Phones	₹ 3,078.02	6	26.00%
Binders	₹ 815.65	4	30.00%
Accessories	₹ 2,297.72	4	3.00%
Tables	₹ 4,640.98	5	8.00%
Accessories	₹ 2,950.17	3	24.00%
Accessories	₹ 348.94	2	8.00%
Binders	₹ 2,016.24	2	30.00%
Chairs	₹ 3,638.59	5	15.00%
Phones	₹ 1,208.86	4	10.00%
Paper	₹ 4,407.05	3	4.00%
Paper	₹ 465.87	9	17.00%
Binders	₹ 4,801.46	8	12.00%
Accessories	₹ 2,859.11	8	21.00%
Phones	₹ 3,659.68	3	12.00%
Paper	₹ 3,999.46	4	17.00%
Paper	₹ 1,538.37	4	29.00%
Chairs	₹ 3,543.16	6	17.00%
Chairs	₹ 1,077.99	2	19.00%
Accessories	₹ 4,424.89	4	23.00%
Accessories	₹ 3,982.24	7	14.00%
Phones	₹ 1,216.42	1	24.00%
Chairs	₹ 2,755.86	9	28.00%
Accessories	₹ 641.53	2	23.00%
Tables	₹ 1,424.75	9	25.00%
Chairs	₹ 2,083.74	9	9.00%

- Data Bars were applied in Excel to visually compare values within the column.
- They help highlight higher and lower values through bar lengths, making interpretation easier.
- Using Data Bars improved the readability of numerical data and helped identify patterns at a glance.
- This visual enhancement made the dataset more intuitive for analysis.

Color Scale:



F	G	H	I	J	K	L	M	N	O	P	Q
Regio	Category	Sub-Categor	Sales	Quantit	Discount	Profit	Category Type	Revenue per Uni	Order Yea	Order Montl	
Central	Technology	Phones	₹4,712.20	10	12.00%	₹975.93	Technology - Phones	471.22	2022	Nov-2022	
Central	Technology	Phones	₹3,078.02	6	26.00%	-₹86.52	Technology - Phones	513.00	2023	Apr-2023	
West	Office Supplies	Binders	₹815.65	4	30.00%	₹237.37	Office Supplies - Binders	203.91	2023	Sep-2023	
South	Technology	Accessories	₹2,297.72	4	3.00%	-₹54.50	Technology - Accessories	574.43	2023	Oct-2023	
East	Furniture	Tables	₹4,640.98	5	8.00%	₹972.09	Furniture - Tables	928.20	2023	May-2023	
South	Technology	Accessories	₹2,950.17	3	24.00%	₹295.21	Technology - Accessories	983.39	2022	Oct-2022	
West	Technology	Accessories	₹348.94	2	8.00%	₹50.40	Technology - Accessories	174.47	2023	Aug-2023	
South	Office Supplies	Binders	₹2,016.24	2	30.00%	-₹112.69	Office Supplies - Binders	1008.12	2023	Apr-2023	
West	Furniture	Chairs	₹3,638.59	5	15.00%	-₹232.82	Furniture - Chairs	727.72	2022	May-2022	
Central	Technology	Phones	₹1,208.86	4	10.00%	-₹49.34	Technology - Phones	302.22	2022	Jun-2022	
East	Office Supplies	Paper	₹4,407.05	3	4.00%	₹773.30	Office Supplies - Paper	1469.02	2022	May-2022	
Central	Office Supplies	Paper	₹465.87	9	17.00%	₹84.84	Office Supplies - Paper	51.76	2022	Aug-2022	
West	Office Supplies	Binders	₹4,801.46	8	12.00%	₹790.91	Office Supplies - Binders	600.18	2023	Oct-2023	
West	Technology	Accessories	₹2,859.11	8	21.00%	₹688.09	Technology - Accessories	357.39	2022	Jul-2022	
Central	Technology	Phones	₹3,659.68	3	12.00%	₹235.48	Technology - Phones	1219.89	2023	Aug-2023	
Central	Office Supplies	Paper	₹3,999.46	4	17.00%	₹667.32	Office Supplies - Paper	999.87	2023	May-2023	
Central	Office Supplies	Paper	₹1,538.37	4	29.00%	₹267.61	Office Supplies - Paper	384.59	2023	Nov-2023	
West	Furniture	Chairs	₹3,543.16	6	17.00%	-₹91.11	Furniture - Chairs	590.53	2022	Nov-2022	
West	Furniture	Chairs	₹1,077.99	2	19.00%	₹114.84	Furniture - Chairs	539.00	2023	Nov-2023	
West	Technology	Accessories	₹4,424.89	4	23.00%	-₹361.07	Technology - Accessories	1106.22	2022	Feb-2022	
East	Technology	Accessories	₹3,982.24	7	14.00%	₹733.77	Technology - Accessories	568.89	2022	Sep-2022	
West	Technology	Phones	₹1,216.42	1	24.00%	₹4.30	Technology - Phones	1216.42	2022	Nov-2022	
West	Furniture	Chairs	₹2,755.86	9	28.00%	-₹389.02	Furniture - Chairs	306.21	2022	Jan-2022	
East	Technology	Accessories	₹641.53	2	23.00%	₹6.09	Technology - Accessories	320.77	2023	Sep-2023	
East	Furniture	Tables	₹1,424.75	9	25.00%	₹321.33	Furniture - Tables	158.31	2022	May-2022	
West	Furniture	Chairs	₹2,083.74	9	9.00%	-₹35.84	Furniture - Chairs	231.53	2022	Jan-2022	

- A color scale was used to differentiate values using gradient colors based on magnitude.
- It allows quick identification of high, medium, and low values using color intensity.
- Color scales helped highlight important patterns such as highest sales, lowest profits, or discount variations.
- This made the dataset visually organized and easier to interpret before creating Power BI visuals.
- Applying color scales improved data understanding and supported better decision-making.

Explanation of Each Column:

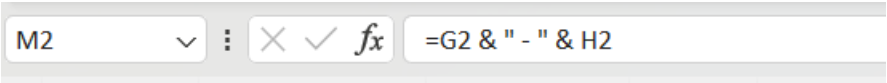
Category Type	Revenue per Uni	Order Yea	Order Mont
Technology - Phones	471.22	2022	Nov-2022
Technology - Phones	513.00	2023	Apr-2023
Office Supplies - Binders	203.91	2023	Sep-2023
Technology - Accessories	574.43	2023	Oct-2023
Furniture - Tables	928.20	2023	May-2023
Technology - Accessories	983.39	2022	Oct-2022
Technology - Accessories	174.47	2023	Aug-2023
Office Supplies - Binders	1008.12	2023	Apr-2023
Furniture - Chairs	727.72	2022	May-2022
Technology - Phones	302.22	2022	Jun-2022
Office Supplies - Paper	1469.02	2022	May-2022
Office Supplies - Paper	51.76	2022	Aug-2022
Office Supplies - Binders	600.18	2023	Oct-2023
Technology - Accessories	357.39	2022	Jul-2022
Technology - Phones	1219.89	2023	Aug-2023
Office Supplies - Paper	999.87	2023	May-2023
Office Supplies - Paper	384.59	2023	Nov-2023
Furniture - Chairs	590.53	2022	Nov-2022
Furniture - Chairs	539.00	2023	Nov-2023
Technology - Accessories	1106.22	2022	Feb-2022
Technology - Accessories	568.89	2022	Sep-2022
Technology - Phones	1216.42	2022	Nov-2022
Furniture - Chairs	306.21	2022	Jan-2022
Technology - Accessories	320.77	2023	Sep-2023
Furniture - Tables	158.31	2022	May-2022
Furniture - Chairs	231.53	2022	Jan-2022

1. Category Type

Purpose:
To combine **Category and Sub-Category** into a single descriptive field for easier analysis in Pivot Tables and Power BI.

How it was created:
A calculated column was created in Excel by merging the two fields.

Formula used:



Explanation:

The "Category Type" column was created by combining the Category and Sub-Category fields using a text-joining formula. This helped convert two separate categorical fields into a single structured label for better grouping and analysis.

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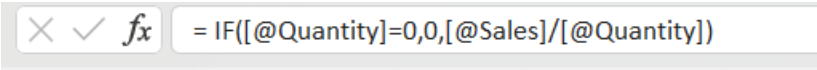
2. Revenue per Unit

Purpose:
To find how much revenue was generated per individual unit sold.

How it was created:
Revenue per Unit = Total Sales ÷ Quantity

Formula used:



Explanation:

The "Revenue per Unit" column was generated by dividing total sales by the quantity sold using a calculated formula. This helps identify high-value and low-value products based on per-unit revenue.

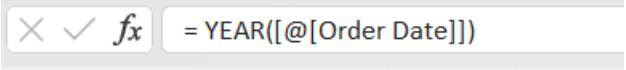
---

3. Order Year

Purpose:
To extract the year from the Order Date for grouping data by yearly trends.

How it was created:
Order Year = YEAR (Order Date)

Formula used:



Explanation :

The "Order Year" column was created by extracting only the year component from the Order Date using the YEAR () function. This enables year-wise trend analysis in Pivot Tables and Power BI.

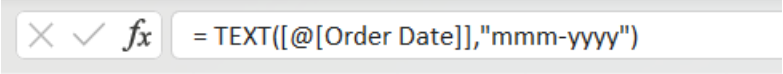
---

4. Order Month

Purpose:
To extract both month name and year for monthly trend visualization.

How it was created:
Order Month = TEXT (Order Date, "MMM-YYYY")

Formula used:



Explanation:

The "Order Month" column was created using the TEXT () function to convert the full date into a readable Month-Year format such as “Nov-2022”. This format is ideal for time-series visualizations.

Pivot Tables:

Order Month	Sum of Sales
Sep-2023	₹ 91,839.52
Sep-2022	₹ 88,242.52
Oct-2023	₹ 1,22,451.91
Oct-2022	₹ 75,719.62
Nov-2023	₹ 97,407.34
Nov-2022	₹ 1,22,882.64
May-2023	₹ 1,15,837.15
May-2022	₹ 1,31,662.61
Mar-2023	₹ 1,03,215.70
Mar-2022	₹ 87,810.67
Jun-2023	₹ 1,06,801.79
Jun-2022	₹ 89,031.86
Jul-2023	₹ 1,18,887.18
Jul-2022	₹ 83,428.05
Jan-2023	₹ 93,383.90
Jan-2022	₹ 1,44,717.61
Feb-2023	₹ 1,02,638.14
Feb-2022	₹ 75,247.97
Dec-2023	₹ 1,16,721.58
Dec-2022	₹ 1,11,989.39
Aug-2023	₹ 1,21,611.27
Aug-2022	₹ 1,18,634.30
Apr-2023	₹ 91,180.72
Apr-2022	₹ 81,460.71
Grand Total	**₹ 24,92,804.15**

Sum of Revenue and Sales based on the Category type.

Category	Sum of Revenue per Unit	Sum of Sales	Count of Order ID
Furniture	**240993.3472**	**₹ 8,46,517.89**	**336**
Chairs Product	123001.4604	₹ 4,25,231.82	169
Tables Product	117991.8868	₹ 4,21,286.07	167
Office Supplies	**248332.0339**	**₹ 8,53,568.83**	**351**
Binders Product	120136.7555	₹ 4,04,665.36	173
Paper Product	128195.2784	₹ 4,48,903.47	178
Technology	**226003.8384**	**₹ 7,92,717.43**	**313**
Accessories Produ	124698.193	₹ 4,33,350.72	167
Phones Product	101305.6454	₹ 3,59,366.71	146
Grand Total	**715329.2195**	**₹ 24,92,804.15**	**1000**

1. Pivot Table for Monthly Sales Analysis

- A Pivot Table was created using the **Order Month** column to summarize monthly performance.
- The **Sum of Sales** field was added to calculate total revenue for each month.

- The data was sorted chronologically to identify trends across 2022 and 2023.
- Conditional formatting (Color Scale) was applied to highlight **highest** and **lowest** monthly sales.

2. Pivot Table for Category-wise Performance

- A Pivot Table was created using **Category** and **Sub-Category** columns.
- The following fields were included:
    - **Sum of Revenue per Unit**
    - **Sum of Sales**
    - **Count of Order ID**
- This helped compare which category (Furniture, Office Supplies, Technology) contributed the most to revenue and order volume.
- Conditional formatting was applied (Green --> High, Red -->Low) for better comparison.

3. Pivot Table for Customer-wise Profit:

Total Profit based on Customer	
Customers	Sum of Profit
⊞ Aarav	₹ 21,806.50
⊞ Ananya	₹ 17,319.40
⊞ Diya	₹ 26,959.66
⊞ Karthik	₹ 20,599.06
⊞ Meera	₹ 17,085.80
⊞ Rohan	₹ 15,040.30
⊞ Sneha	₹ 21,843.15
Grand Total	₹ 1,40,653.87

- Customer names were used as rows in a Pivot Table.
- Sum of Profit was used as the values field.
- This allowed ranking of customers based on profitability.
- Color formatting highlighted top-earning customers.

5. Pivot Table for Region-wise Profit:

Total Profit based on Region	
Region	**Sum of Profit**
Central	₹ 41,861.78
East	₹ 29,815.91
South	₹ 23,657.11
West	₹ 45,319.07
Grand Total	**₹ 1,40,653.87**

- Region was added as rows to create a region-level profit comparison.

- Sum of Profit was used to identify the most profitable regions (Central, East, West, South).
- Grand Total was used to summarise total profit generated across all regions.

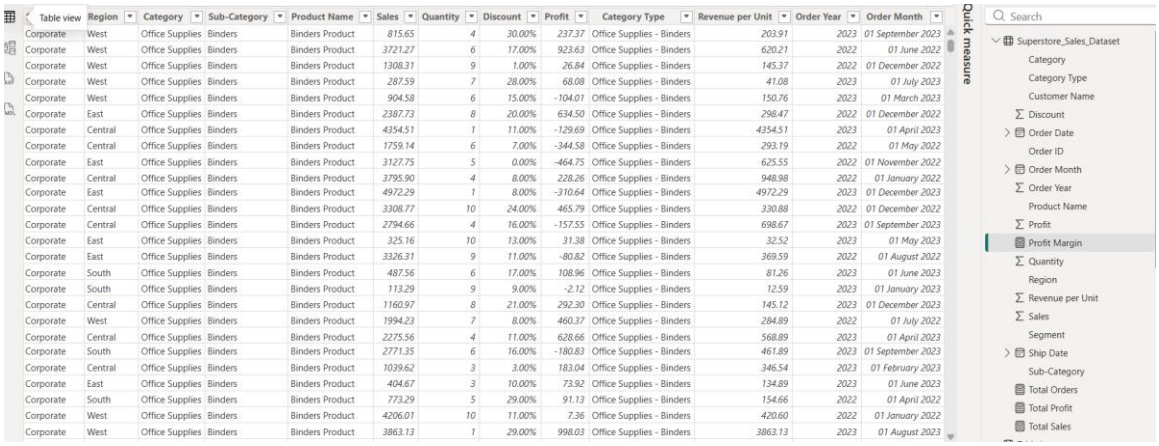
3. Pivot Table for Segment-wise Sales and Profit:

Sum of Sales and Profit based on the Segments		
Segments	**Sum of Sales**	**Sum of Profit**
Consumer	₹ 8,22,020.97	₹ 41,757.84
Corporate	₹ 8,76,768.83	₹ 51,096.43
Home Office	₹ 7,94,014.35	₹ 47,799.60
Grand Total	**₹ 24,92,804.15**	**₹ 1,40,653.87**

- A Pivot Table was built using the Segment column (Consumer, Corporate, Home Office).
- Sum of Sales and Sum of Profit were calculated for each segment.
- This helped identify which customer segment generated maximum profit.
- The Grand Total row summarized overall business performance.

Visualization using POWER BI:

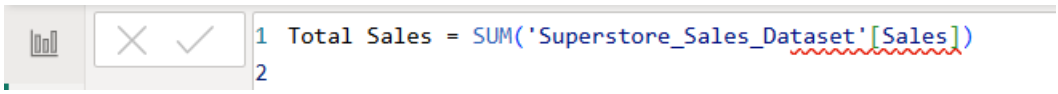
After completing all the data-cleaning steps in Excel, the cleaned workbook was imported into Power BI for further analysis and visualization. I opened Power BI Desktop and selected Home -->Get Data-->Excel, then browsed and chose my cleaned dataset file. After selecting the sheet, I previewed the data to ensure everything was structured correctly and clicked Load to import it into Power BI. Once the data was loaded into the Power BI model, could start creating measures, building visualizations, and designing the dashboard.



Measures:

Total Sales:

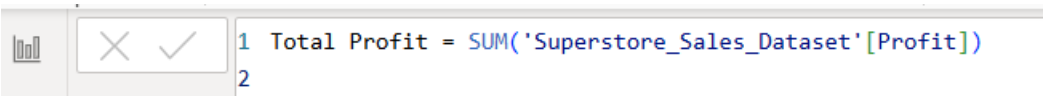
- A DAX measure was created to calculate the *overall sales amount* from the dataset.
- This measure helps understand revenue generated across categories, regions, segments, and customers.
- It was used across multiple visuals like bar charts, category comparison, and segment analysis.
- Formula used:



Total Profit:

- This measure calculates the net profit earned after deducting discounts and cost.

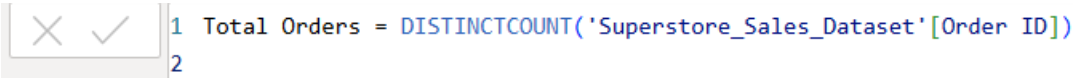
- It helps identify which product categories and regions contribute most to profitability.
- Used in visuals like profit by region, profit by customer, and profit by segment.
- Formula used:



```
1  Total Profit = SUM('Superstore_Sales_Dataset'[Profit])
2
```

Total Orders:

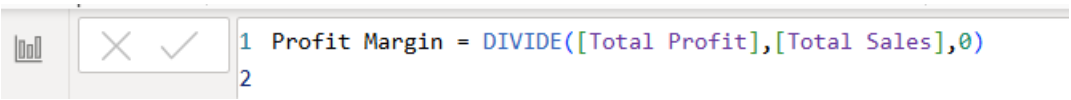
- This measure counts the total number of orders placed in the dataset.
- It helps track order volume across different time periods, categories, and customer segments.
- It was used in KPI cards and pivot-style tables to show order distribution.
- Formula used:



```
1  Total Orders = DISTINCTCOUNT('Superstore_Sales_Dataset'[Order ID])
2
```

Profit Margin (%):

- This measure calculates the percentage of profit earned from total sales.
- It helps evaluate efficiency and whether revenue is translating into good profit.
- Used to compare profitability between segments and product categories.
- Formula used:

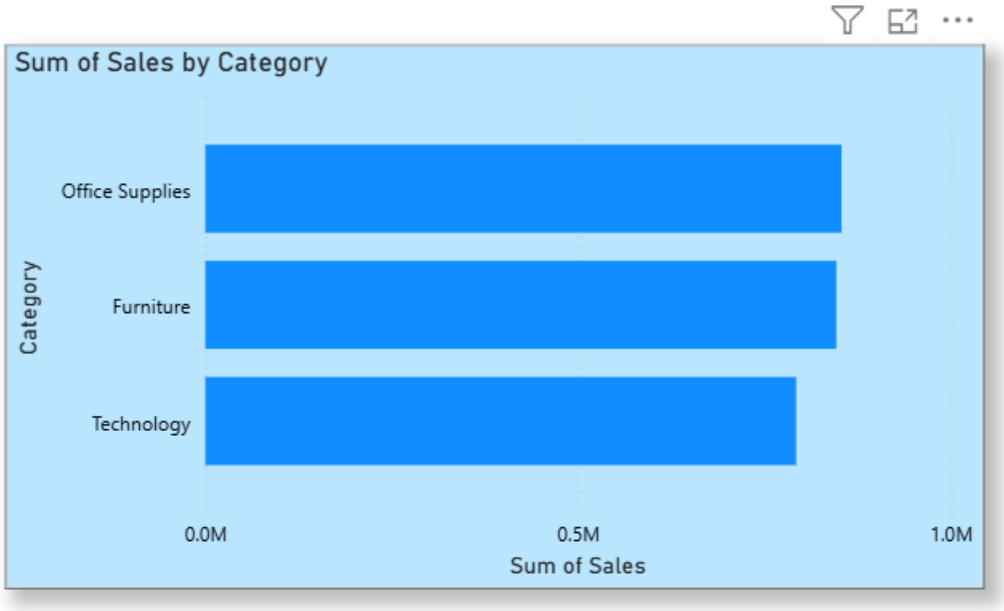


```
1  Profit Margin = DIVIDE([Total Profit],[Total Sales],0)
2
```

Charts Used:

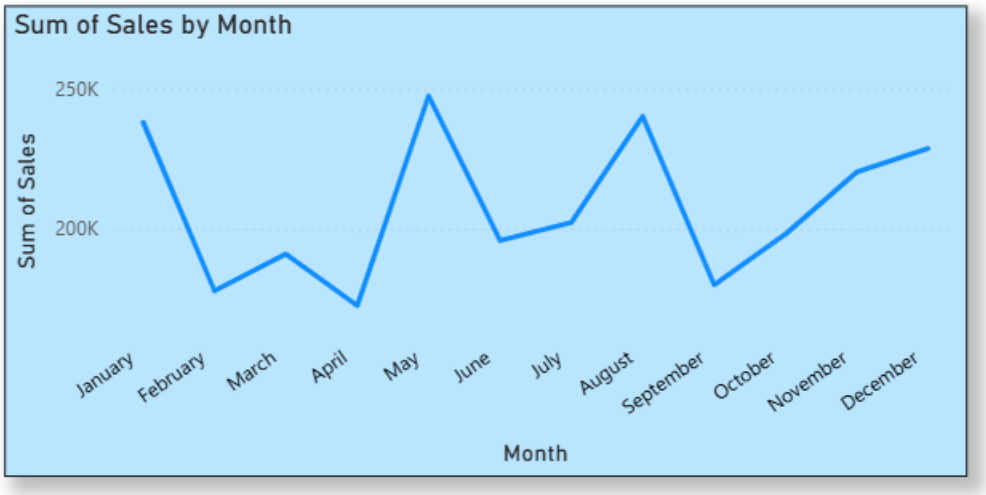
1. Clustered Bar Chart:

- Used to compare Sales across different Regions / Categories.
- Helps identify which region or category performs the best or worst.
- Easy to analyze trends and differences visually.



2. Line Chart:

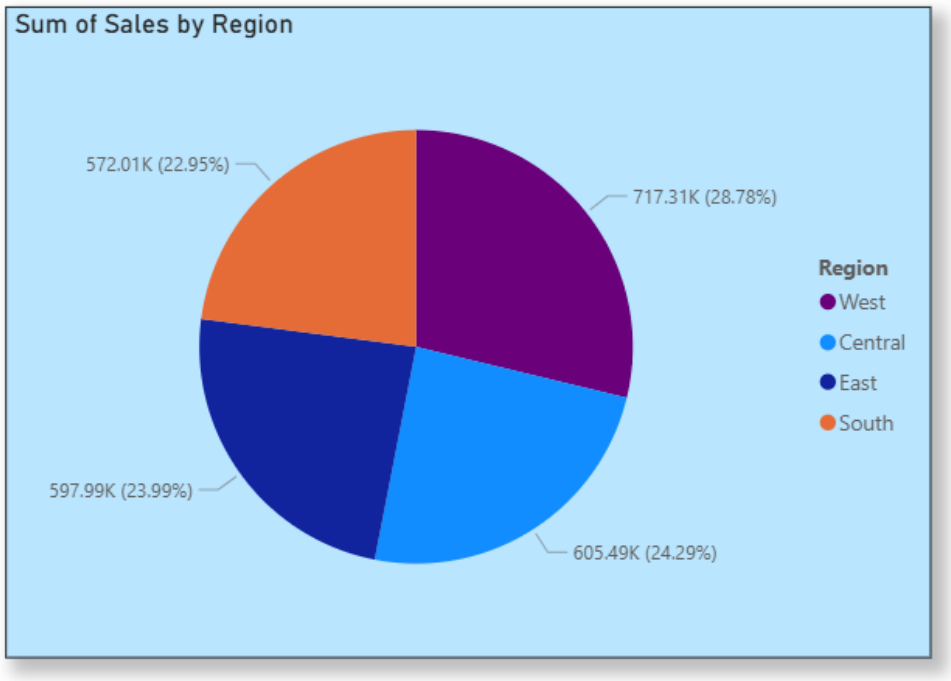
- Used to show Sales trend over months/years.
- Helps understand seasonal patterns, growth or decline in sales over time.



3. Pie Chart:

- Used to show percentage contribution of categories (like Furniture, Office Supplies, Technology).

- Helps visualize how each category contributes to total sales.



Card Visuals:

- Used to display key performance indicators (KPIs) like:

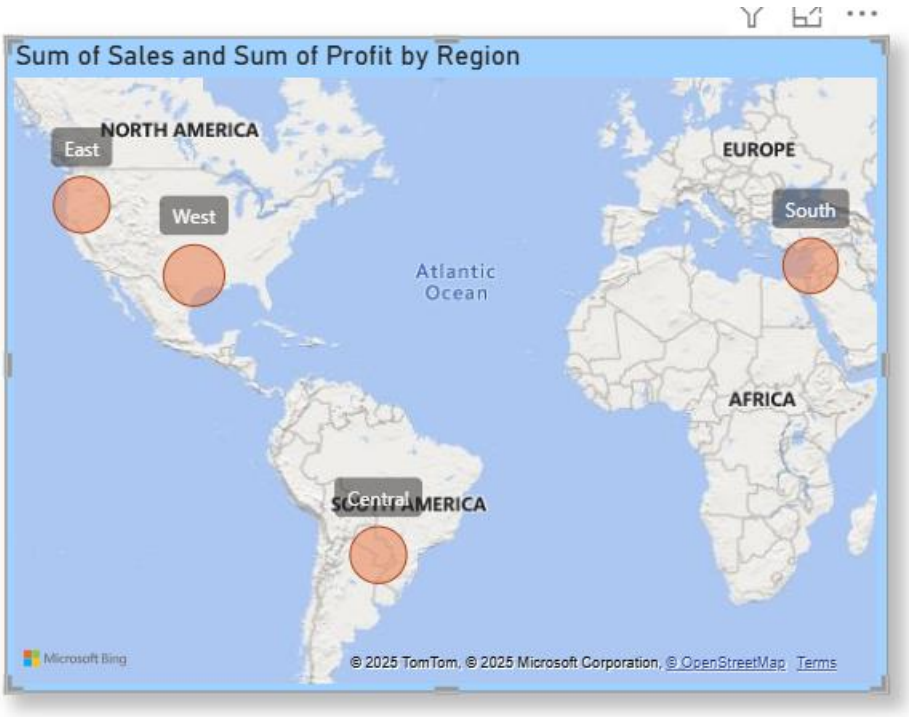
  1. Total Sales
  2. Total Profit
  3. Total Orders
  4. Profit Margin

- Provides quick at-a-glance information.

Map Chart:

- A Filled Map (or Map Visual) was used in Power BI to represent Sales and Profit across different regions.

- The Region field was used as the location category, and the Total Sales measure was assigned as the value.
- Color saturation was applied to highlight the performance differences between regions.

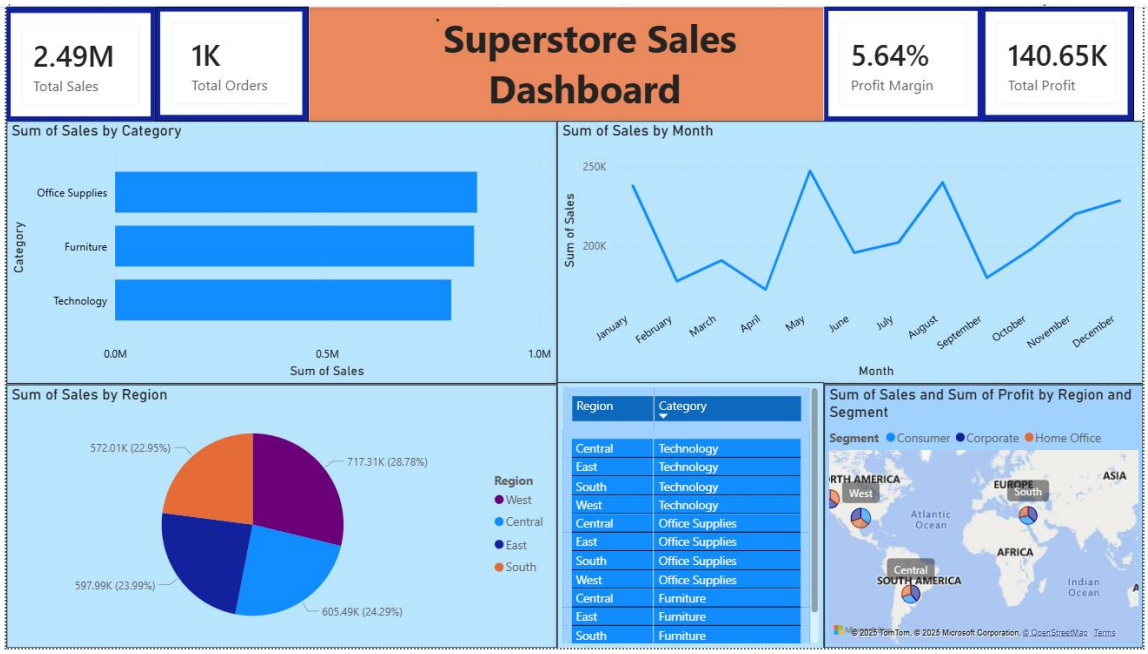


5. Slicer (Filter):

- Used to filter the dashboard by Region, Category, Year, etc.
- Makes the report interactive and easy to explore.

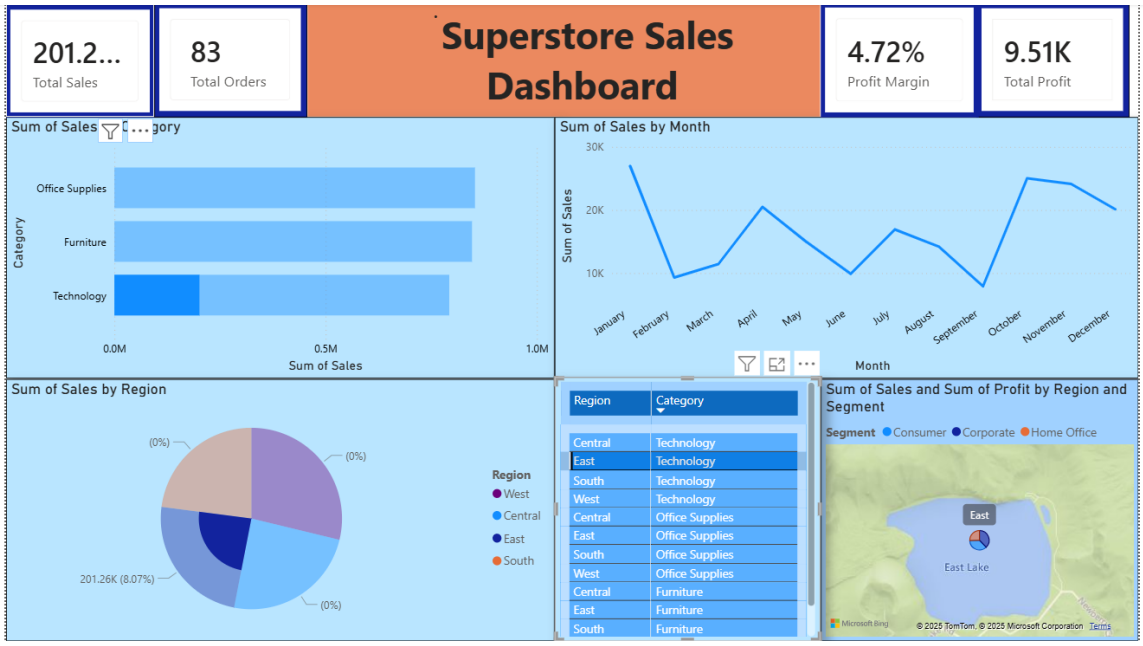
Region	Category
Central	Technology
East	Technology
South	Technology
West	Technology
Central	Office Supplies
East	Office Supplies
South	Office Supplies
West	Office Supplies
Central	Furniture
East	Furniture
South	Furniture
West	Furniture

Final Dashboard:

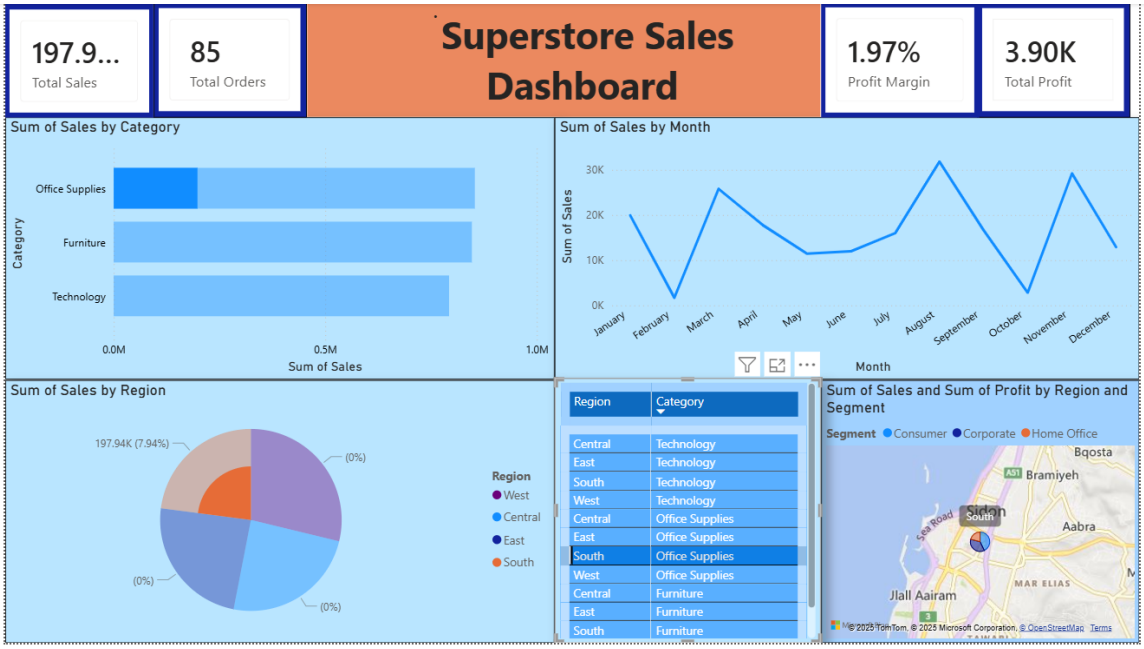


Slicer used:

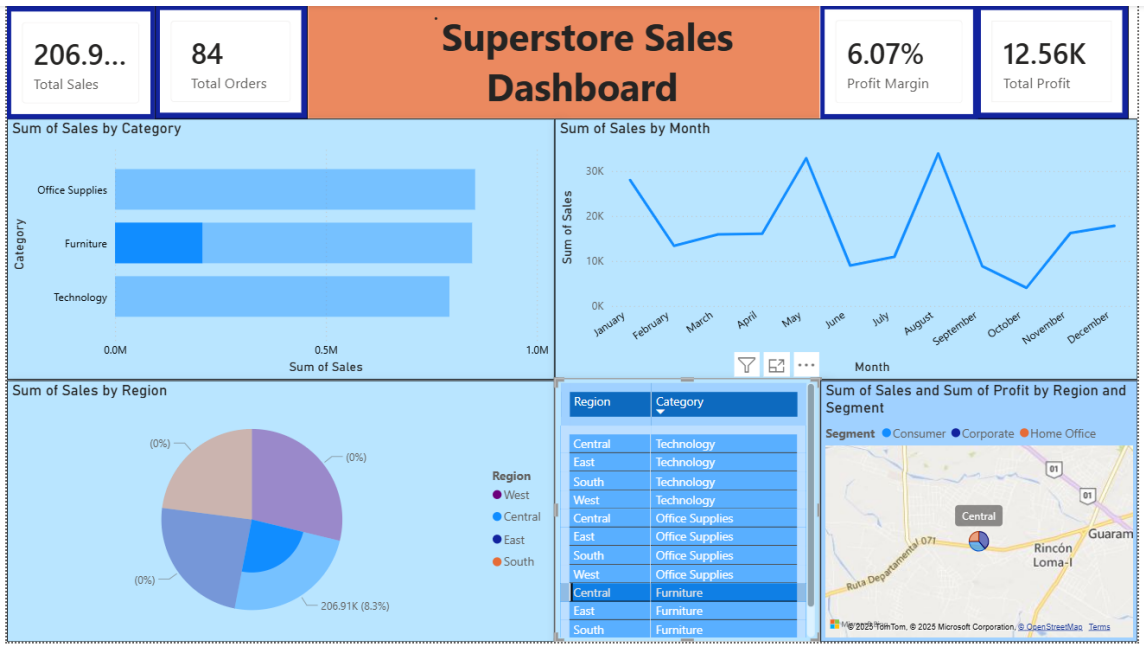
East – Technology



South – Office Supplies



Central – Furniture



Insights:

- **Overall Sales Performance**
  The Total Sales KPI shows strong revenue generation, indicating that the business has healthy customer demand across multiple product categories.

- **Profit Distribution**
  Profit is not evenly spread across all categories. Some sub-categories show high sales but comparatively low profit, suggesting higher cost or discount impact.
- **Most Profitable Categories**
  Technology-related products contribute the highest profit margins, followed by Office Supplies, showing that these areas can be further expanded.
- **Low-Performing Segments**
  Certain Furniture items show low or negative profit, indicating possible over-discounting or higher shipping/manufacturing cost.
- **Customer Purchase Trends**
  The dashboard shows clear segment-wise differences—Consumer segment contributes most of the orders, while Corporate and Home Office show higher average profit per order.
- **Regional Analysis**
  Some regions show higher sales but lower profit, indicating operational inefficiencies or higher returns/discounts.
- **Quantity vs Sales Relationship**
  Higher quantity sold does not always result in higher profit, suggesting the importance of pricing strategies.

Summary:

This project focuses on analysing retail superstore sales using Excel for data cleaning and Power BI for visualization. First, the raw dataset was thoroughly cleaned by removing duplicates, correcting inconsistencies, replacing missing values, standardizing formats, and creating calculated fields. After cleaning, the dataset was imported into Power BI for building an interactive dashboard.

In Power BI, four key measures were created—Total Sales, Total Profit, Total Orders, and Profit Margin—to understand the overall business performance. Multiple charts such as bar charts, line charts, donut charts, tables, and slicers were designed to explore trends across categories, regions, segments, and time. The dashboard clearly highlights revenue patterns, profit contribution, customer segments, and category-wise performance.

Overall, the analysis helps identify strong performing areas like Technology products and highlights improvement opportunities such as Furniture category profitability. The project successfully demonstrates the end-to-end analytics process—from data cleaning to dashboard creation—providing clear insights for business decision-making.