SALES DATASET ANALYSIS

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DA-DS, March Batch.

OBJECTIVE :

To analyze sales dataset to gain valuable insights into their sales behavior, customer behavior and market trends, and make informed decisions to drive growth and revenue.

GOALS :

- Identify Sales Trends
- Measure Sales Performance
- Forecast Future Sales
- Identify Top and Least Performing Products
- Inform Business Decisions

DATASET OVERVIEW :

- Sales data of a company in US.
- Contains 9995 rows and 21 columns.

DATA CLEANING PROCESS :

- Checked and removed duplicates and missing values.
- Formatted as table and freezed the header row.

BEFORE

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer	Customer	Segment	Country	City	State	Postal Cod	Region
2	1	CA-2016-1	########	########	Second Cl	CG-12520	Claire Gut	Consumer	United Stat	Hendersor	Kentucky	42420	South
3	2	CA-2016-1	########	########	Second Cl	CG-12520	Claire Gut	Consumer	United Stat	Hendersor	Kentucky	42420	South
4	3	CA-2016-1	########	########	Second Cl	DV-13045	Darrin Van	Corporate	United Stat	Los Angele	California	90036	West
5	4	US-2015-1	########	########	Standard C	SO-20335	Sean O'Do	Consumer	United Stat	Fort Laude	Florida	33311	South
6	5	US-2015-1	########	########	Standard C	SO-20335	Sean O'Do	Consumer	United Stat	Fort Laude	Florida	33311	South
7	6	CA-2014-1	########	########	Standard C	BH-11710	Brosina Ho	Consumer	United Stat	Los Angele	California	90032	West
8	7	CA-2014-1	########	########	Standard C	BH-11710	Brosina Ho	Consumer	United Stat	Los Angele	California	90032	West
9	8	CA-2014-1	########	########	Standard C	BH-11710	Brosina Ho	Consumer	United Stat	Los Angele	California	90032	West
10	9	CA-2014-1	########	########	Standard C	BH-11710	Brosina Ho	Consumer	United Stat	Los Angele	California	90032	West
11	10	CA-2014-1	########	########	Standard C	BH-11710	Brosina Ho	Consumer	United Stat	Los Angele	California	90032	West
12	11	CA-2014-1	########	########	Standard C	BH-11710	Brosina Ho	Consumer	United Stat	Los Angele	California	90032	West
13	12	CA-2014-1	########	########	Standard C	BH-11710	Brosina Ho	Consumer	United Stat	Los Angele	California	90032	West
14	13	CA-2017-1	########	########	Standard C	AA-10480	Andrew All	Consumer	United Stat	Concord	North Carc	28027	South
15	14	CA-2016-1	########	########	Standard C	IM-15070	Irene Mad	Consumer	United Stat	Seattle	Washingto	98103	West
16	15	US-2015-1	########	########	Standard C	HP-14815	Harold Pav	Home Offi	United Stat	Fort Worth	Texas	76106	Central
17	16	US-2015-1	########	########	Standard C	HP-14815	Harold Pav	Home Offi	United Stat	Fort Worth	Texas	76106	Central
18	17	CA-2014-1	########	########	Standard C	PK-19075	Pete Kriz	Consumer	United Stat	Madison	Wisconsin	53711	Central
19	18	CA-2014-1	########	########	Second Cl	AG-10270	Alejandro	Consumer	United Stat	West Jorda	Utah	84084	West

AFTER

	A	B	C	D	E	F
1	Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID
2	1	CA-2016-152156	11-08-2016	11-11-2016	Second Class	CG-12520
3	2	CA-2016-152156	11-08-2016	11-11-2016	Second Class	CG-12520
4	3	CA-2016-138688	06-12-2016	16-06-2016	Second Class	DV-13045
5	4	US-2015-108966	10-11-2015	18-10-2015	Standard Class	SO-20335
6	5	US-2015-108966	10-11-2015	18-10-2015	Standard Class	SO-20335
7	6	CA-2014-115812	06-09-2014	14-06-2014	Standard Class	BH-11710
8	7	CA-2014-115812	06-09-2014	14-06-2014	Standard Class	BH-11710
9	8	CA-2014-115812	06-09-2014	14-06-2014	Standard Class	BH-11710
10	9	CA-2014-115812	06-09-2014	14-06-2014	Standard Class	BH-11710
11	10	CA-2014-115812	06-09-2014	14-06-2014	Standard Class	BH-11710
12	11	CA-2014-115812	06-09-2014	14-06-2014	Standard Class	BH-11710
13	12	CA-2014-115812	06-09-2014	14-06-2014	Standard Class	BH-11710
14	13	CA-2017-114412	15-04-2017	20-04-2017	Standard Class	AA-10480
15	14	CA-2016-161389	12-05-2016	12-10-2016	Standard Class	IM-15070
16	15	US-2015-118983	22-11-2015	26-11-2015	Standard Class	HP-14815
17	16	US-2015-118983	22-11-2015	26-11-2015	Standard Class	HP-14815
18	17	CA-2014-105893	11-11-2014	18-11-2014	Standard Class	PK-19075
19	18	CA-2014-167164	13-05-2014	15-05-2014	Second Class	AG-10270
20	19	CA-2014-143336	27-08-2014	09-01-2014	Second Class	ZD-21925
21	20	CA-2014-143336	27-08-2014	09-01-2014	Second Class	ZD-21925
22	21	CA-2014-143336	27-08-2014	09-01-2014	Second Class	ZD-21925
23	22	CA-2016-137330	12-09-2016	13-12-2016	Standard Class	KB-16585
24	23	CA-2016-137330	12-09-2016	13-12-2016	Standard Class	KB-16585

FORMULAE USED :

- Total Sales
- Total Discount
- Average Sales
- Zscore in Sales and Discount
- Outliers

Mean of Sales:
=AVERAGE(R1:R9995)
St.Dev of Sales:
=STDEV(R1:R9995)
Total Sales:
=SUM(Table1[[#All],[Sales]])

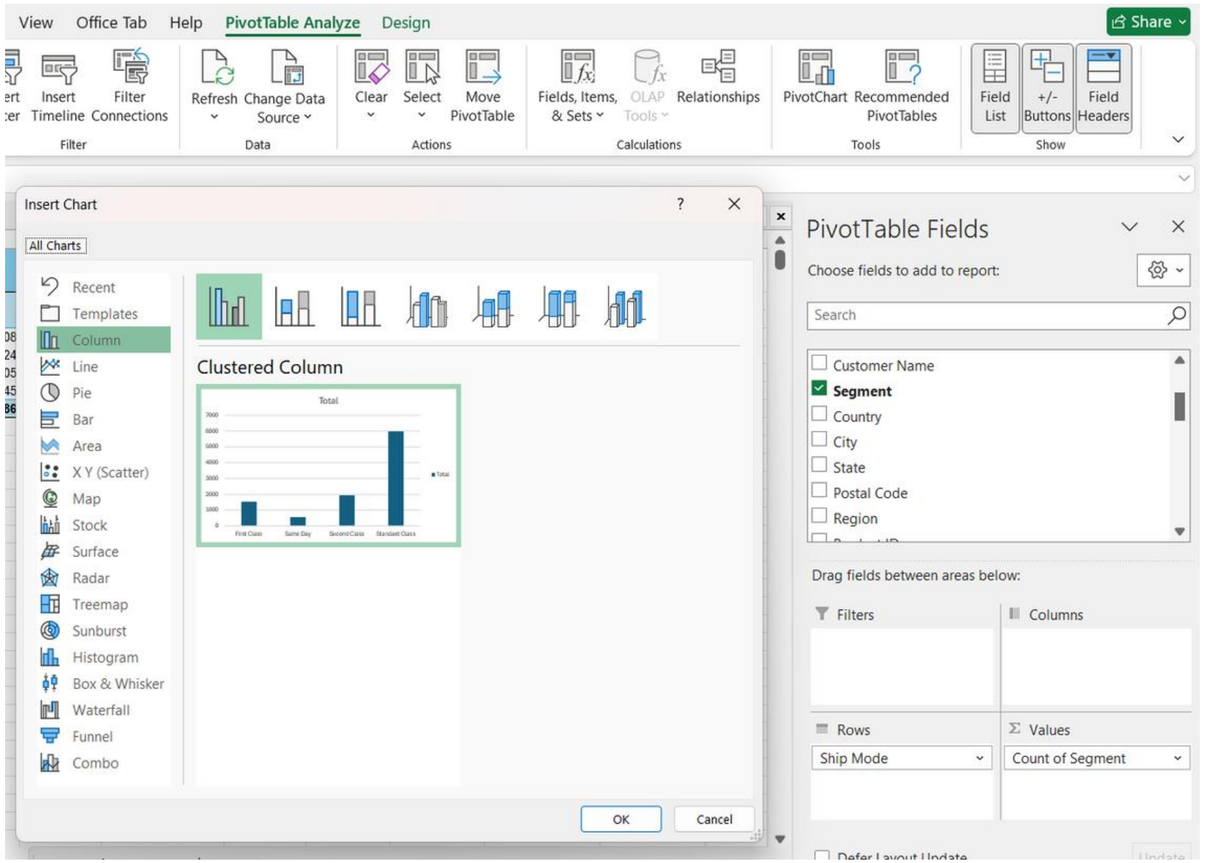
	V	W
	Zscore in Sales	Outliers in Sales
	=(R2-$R$9998)/$R$10000	=IF(ABS(V2)>3,"Outliers","Not_Outliers")
	=(R3-$R$9998)/$R$10000	=IF(ABS(V3)>3,"Outliers","Not_Outliers")
	=(R4-$R$9998)/$R$10000	=IF(ABS(V4)>3,"Outliers","Not_Outliers")
	=(R5-$R$9998)/$R$10000	=IF(ABS(V5)>3,"Outliers","Not_Outliers")

Mean of Discounts:
=AVERAGE(U1:U9995)
St.Dev of Discounts:
=STDEV(U1:U9995)

Total Discount:
=SUM(Table1[[#All],[Discount]])

PIVOT TABLE AND PIVOT CHART :

- Easy data analysis
- Flexibility
- Data Visualization
- Gain insights

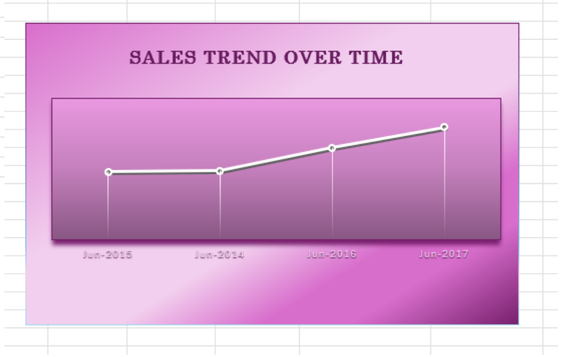


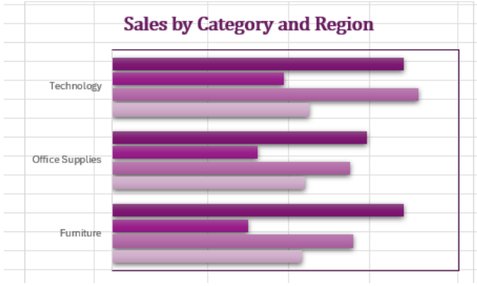
CATEGORY & SUBCATEGORY: Sales & Quantity		
Row Labels	Sum of Sales	Sum of Quantity
Furniture	741999.7953	8028
Bookcases	114879.9963	868
Chairs	328449.103	2356
Furnishings	91705.164	3563
Tables	206965.532	1241
Office Supplies	719047.032	22906
Appliances	107532.161	1729
Art	27118.792	3000
Binders	203412.733	5974
Envelopes	16476.402	906
Fasteners	3024.28	914
Labels	12486.312	1400
Paper	78479.206	5178
Storage	223843.608	3158
Supplies	46673.538	647
Technology	836154.033	6939
Accessories	167380.318	2976
Copiers	149528.03	234
Machines	189238.631	440
Phones	330007.054	3289
Grand Total	2297200.86	37873

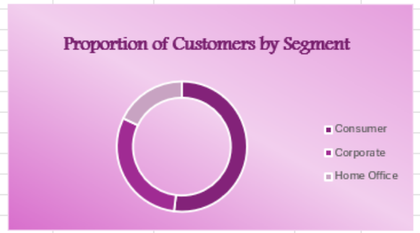
SALES by REGION & CATEGORY				
Sum of Sales	Column Labels			
Row Labels	Furniture	Office Supplies	Technology	Grand Total
Central	163797.1638	167026.415	170416.312	501239.8908
East	208291.204	205516.055	264973.981	678781.24
South	117298.684	125651.313	148771.908	391721.905
West	252612.7435	220853.249	251991.832	725457.8245
Grand Total	741999.7953	719047.032	836154.033	2297200.86

Segment wise Performance		
Row Labels	Sum of Sales	Sum of Profit
Consumer	1161401.345	134119.2092
Corporate	706146.3668	91979.134
Home Office	429653.1485	60298.6785
Grand Total	2297200.86	286397.0217

Sales & Discount by Ship mode		
Ship Mode	Sum of Sales	Sum of Discount
First Class	351428.4229	253.17
Same Day	128363.125	82.75
Second Class	459193.5694	270.15
Standard Class	1358215.743	955.02
Grand Total	2297200.86	1561.09

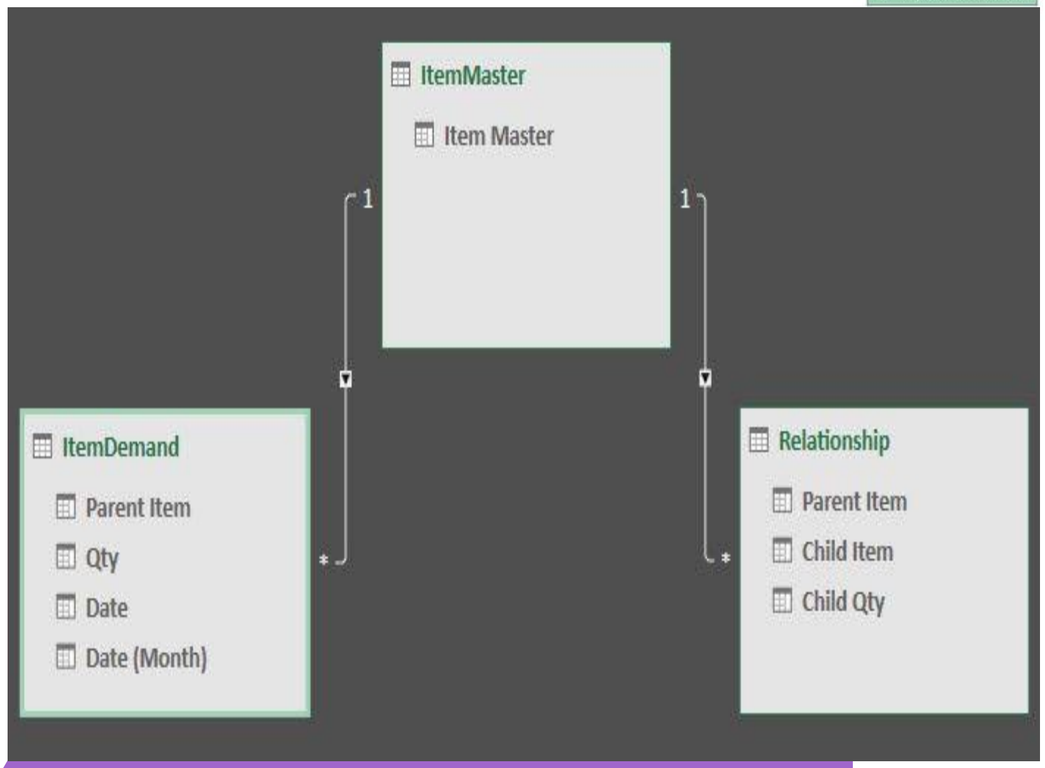


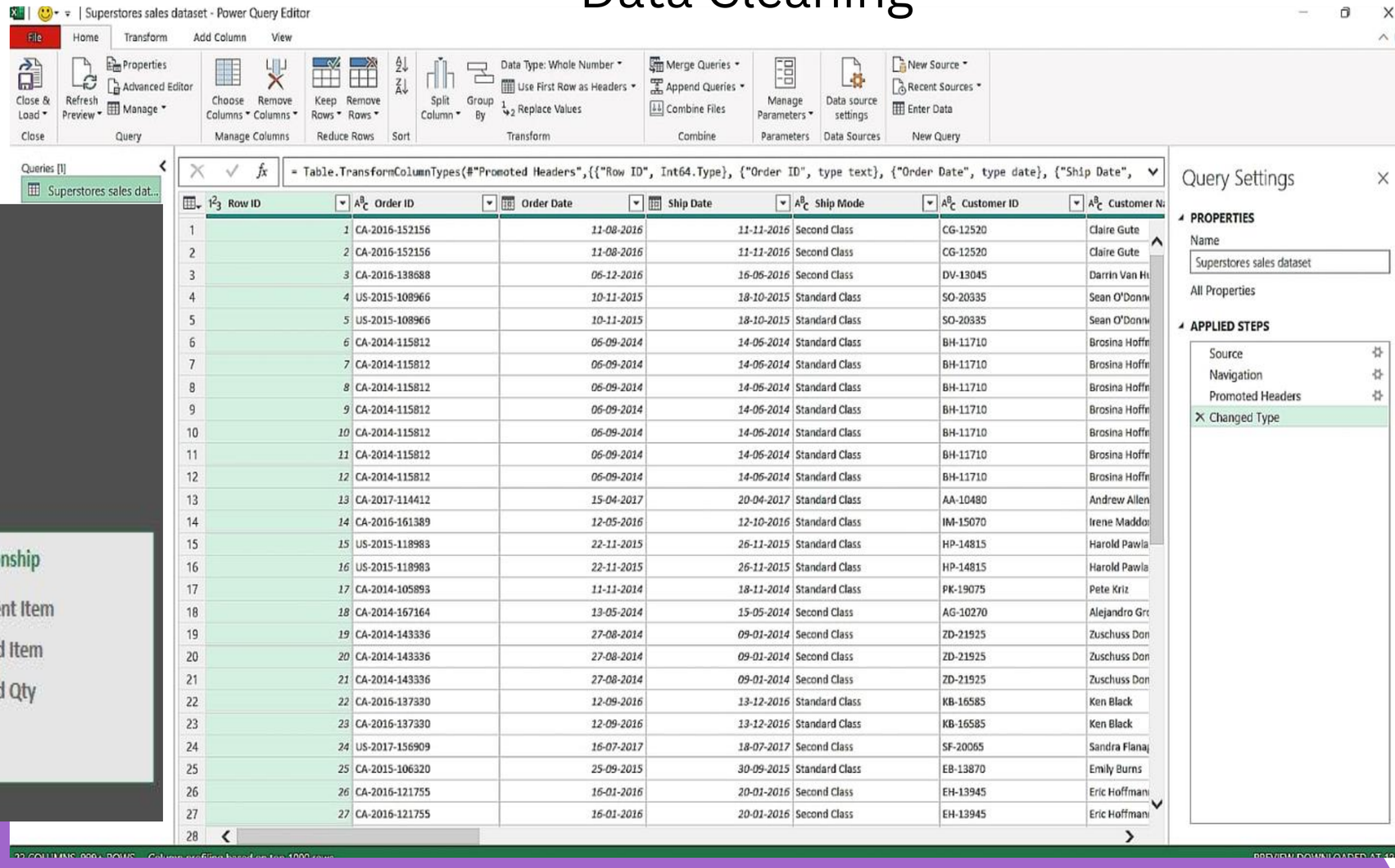




POWER PIVOT AND POWER QUERY :

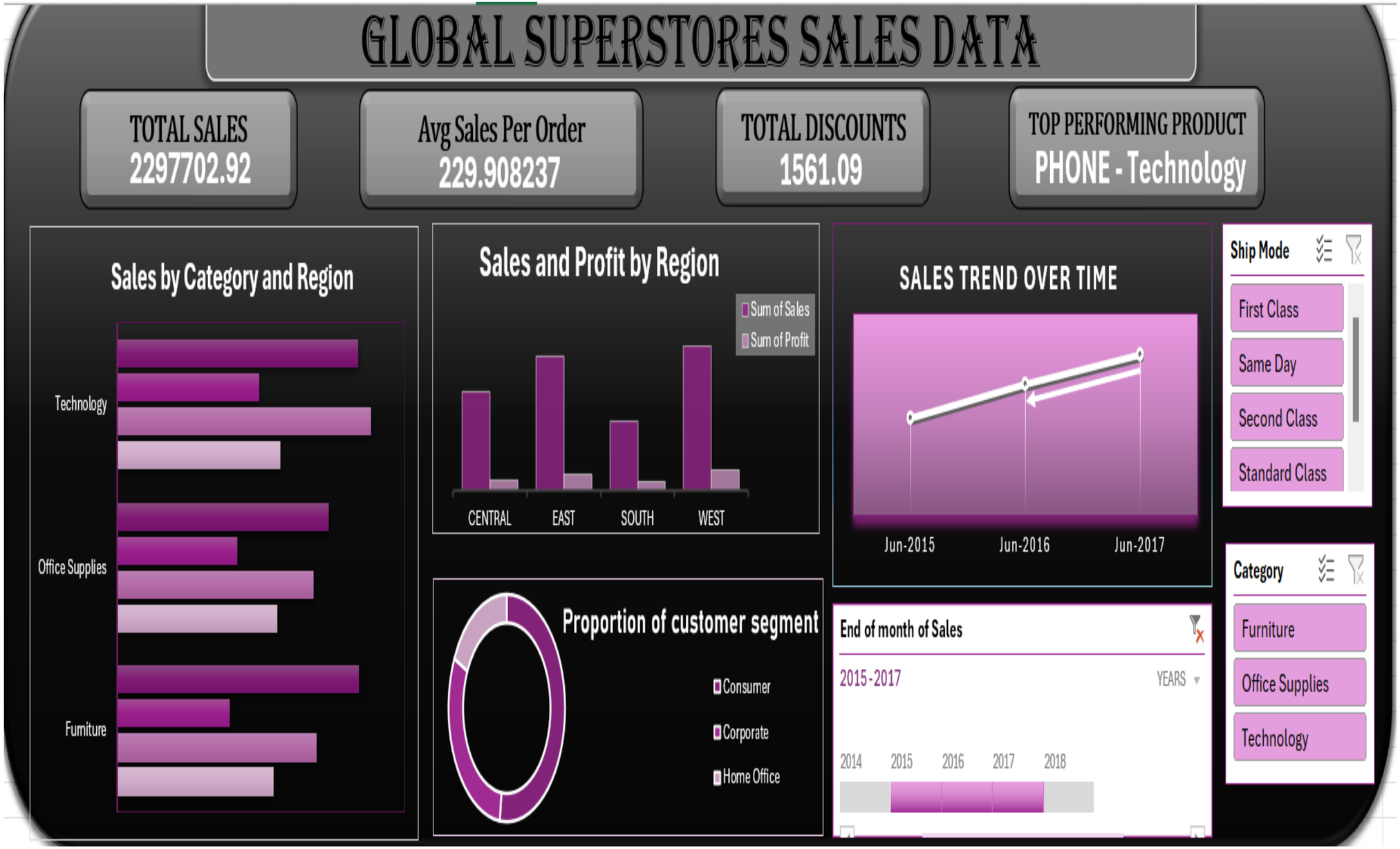
- Data Modelling
- Large Data Handling
- Data Transformation
- Data Cleaning





DASHBOARD OVERVIEW :

- Data Visualization
- Real - Time insights
- Improved Decision-Making
- Interactive Charts and graphs
- Customizable



WHAT-IF ANALYSIS:

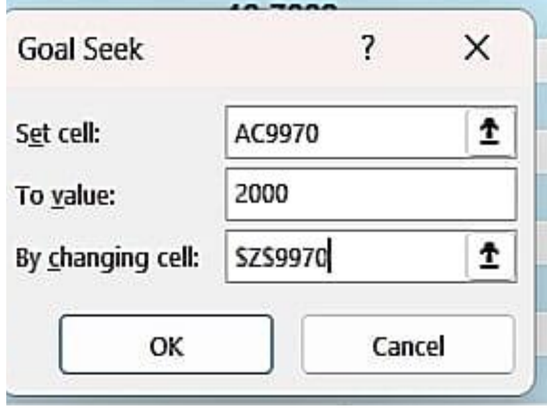
- Predictive Insights
- Risk Management
- Improved Forecasting
- Strategic Planning

What-if Scenarios

Scenario Summary			
	Current Values:	10PerInc	5DecInDis
Changing Cells:			
$AG$2	700	770	700
$AG$3	165	181.5	165
$AG$4	260	286	260
$AG$5	406	446.6	406
$AG$6	630	693	630
$AJ$2	3	3	2.85
$AJ$3	5	5	4.75
$AJ$4	2	2	1.9
$AJ$5	8	8	7.6
$AJ$6	2	2	1.9
Result Cells:			
$AI$2	3500	3850	3500

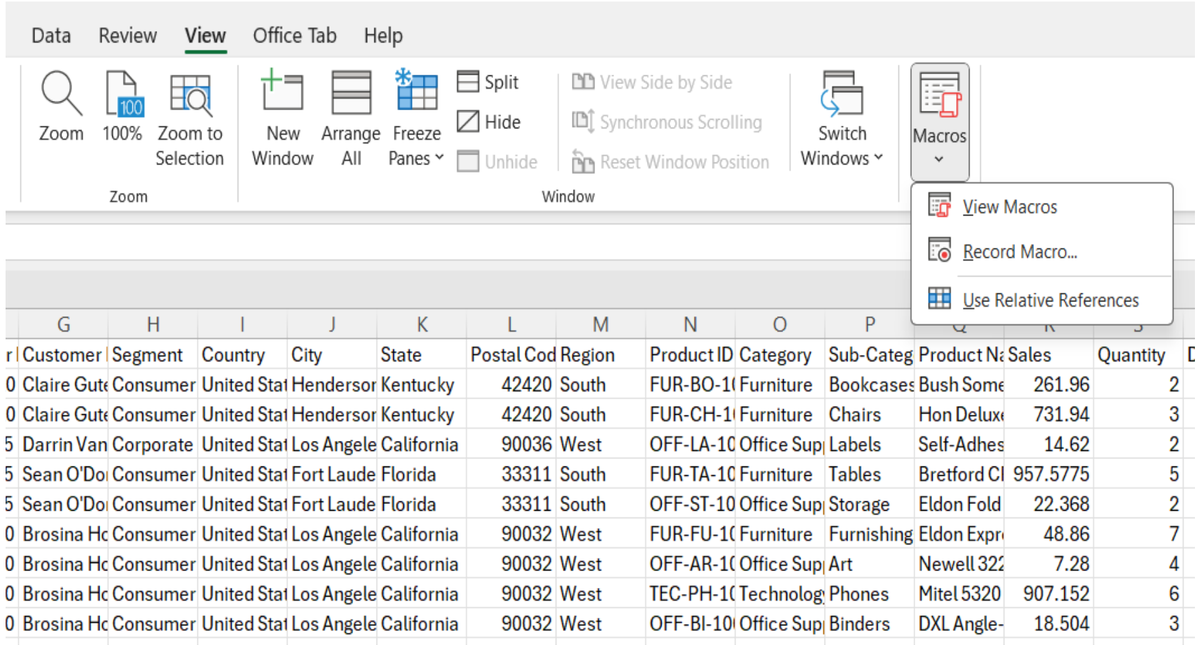
Goal Seek

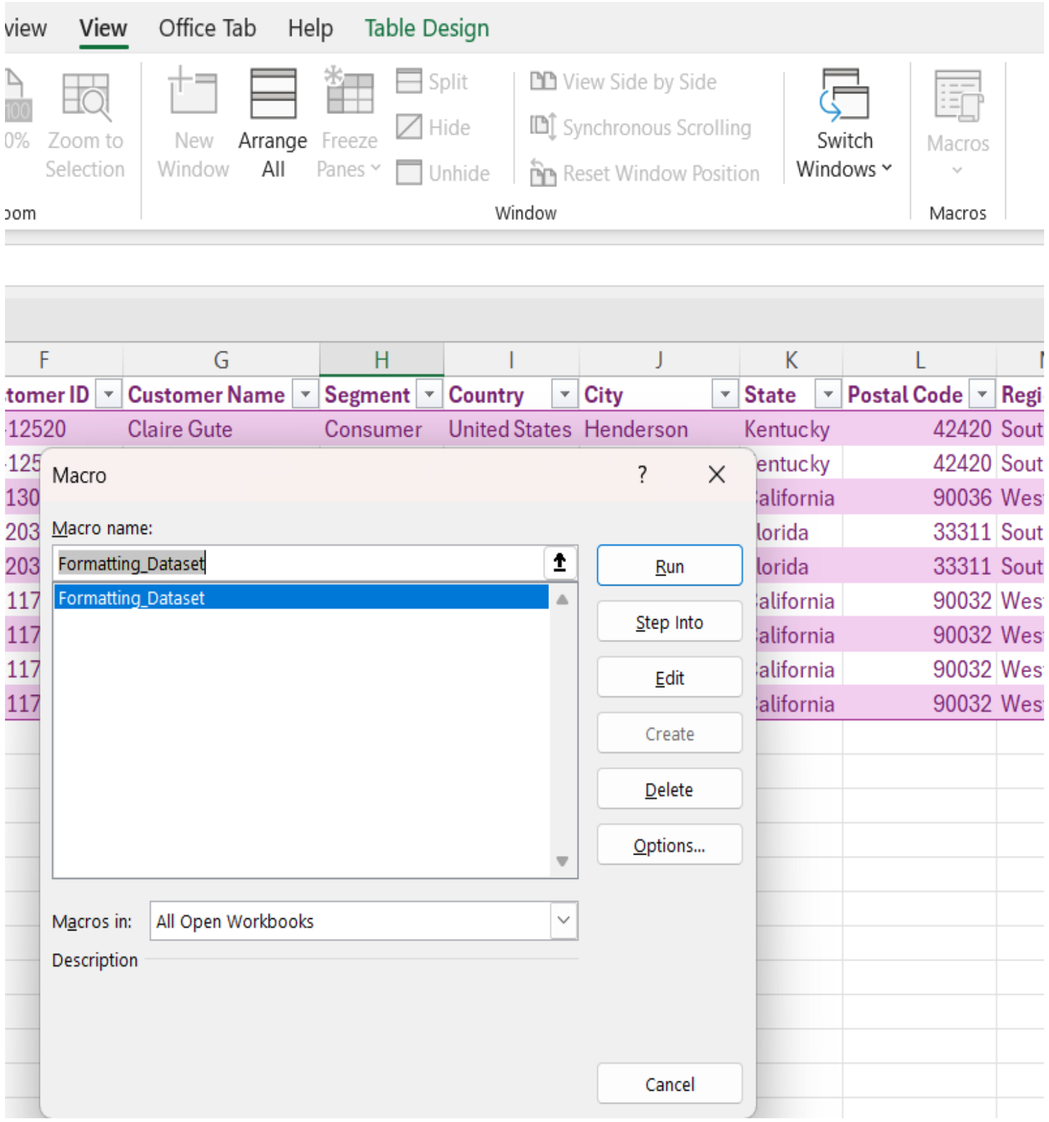
Z	AA	AB	AC
Adjusted Sales	Discount Given	Sales Revenue	Total_Profit (Goal Seek)
40.2	0	201	201
735.98	0	1471.96	1471.96
22.75	0	159.25	159.25
119.56	0	239.12	239.12
140.75	0	703.75	703.75
79.6544	19.9136	159.3088	159.3088
217.568	54.392	1087.84	1087.84
18.69	0	130.83	130.83
13.36	0	26.72	26.72
199.6672	49.9168	399.3344	399.3344
13.86	0	97.02	97.02
	2.6752	42.8032	42.8032
	87.4944	4899.6864	4899.6864
	0	85.98	85.98
	3.304	66.08	66.08
	0	248.92	248.92
	0	195.96	195.96
	0	315	315
	0	222.4	222.4
	0	36.24	36.24



MACROS AND AUTOMATION :

- Time Saving
- Increases Efficiency
- Improves Accuracy
- Consistency
- Productivity





KEY - INSIGHTS :

1. Total sales value is **2297702.92 .**
2. Total Profit gained is **9895188.058 .**
3. Average sales per order is **229.908237 .**
4. Top selling product is **Phones** from the **Technology** category.
5. Least sold products are from **Fasteners** sub-category.
6. High productive region is **West** and category-wise least is **East**.
7. Highly used ship mode is **Standard Class.**
8. From the year **2014-2015**, sales revenue was at its lowest and is highest in **2017**.

SALES by REGION & CATEGORY

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Sub - Category wise Top Selling Products

Row Labels	Sum of Sales
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Chairs	328449.103
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Binders	203412.733
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Paper	78479.206
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Art	27118.792
Envelopes	16476.402
Labels	12486.312
Fasteners	3024.28
Grand Total	**2297200.86**

RECOMMENDATIONS :

- Provide **discounts** in least sales productive regions like **east and south**.
- Increase **quantity** of highly sold categories like **Technology**.
- Improve **quality** of least sold products and create new impressive designs with huge **varieties** for sub-categories like fasteners, labels, envelopes and **Corporate** segment.
- Collect customer feedbacks.
- Provide early delivery in other **ship modes**.
- Provide customer friendly services in the **region**.
- Invent new products in upcoming years to compensate the loss happened in the previous years.

THANK YOU