

A photograph showing a person's hands and arms from a side-on perspective. They are wearing a dark blue suit jacket and a silver watch on their left wrist. They are holding a black tablet in their right hand, which displays several bar charts and line graphs on a white background. A laptop is open in front of them on a wooden desk, and a smartphone lies next to it. The background is slightly blurred, showing an office environment with a window.

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.

BEFORE

Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer	Customer Segment	Country	City	State	Postal Code	Region	
1	CA-2016-1 #####	#####	#####	Second Class	CG-12520	Claire Gute	Consumer	United States	Henderson	Kentucky	42420	South
2	CA-2016-1 #####	#####	#####	Second Class	CG-12520	Claire Gute	Consumer	United States	Henderson	Kentucky	42420	South
3	CA-2016-1 #####	#####	#####	Second Class	DV-13045	Darrin Van	Corporate	United States	Los Angeles	California	90036	West
4	US-2015-1 #####	#####	#####	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States	Fort Lauderdale	Florida	33311	South
5	US-2015-1 #####	#####	#####	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States	Fort Lauderdale	Florida	33311	South
6	CA-2014-1 #####	#####	#####	Standard Class	BH-11710	Brosina Holt	Consumer	United States	Los Angeles	California	90032	West
7	CA-2014-1 #####	#####	#####	Standard Class	BH-11710	Brosina Holt	Consumer	United States	Los Angeles	California	90032	West
8	CA-2014-1 #####	#####	#####	Standard Class	BH-11710	Brosina Holt	Consumer	United States	Los Angeles	California	90032	West
9	CA-2014-1 #####	#####	#####	Standard Class	BH-11710	Brosina Holt	Consumer	United States	Los Angeles	California	90032	West
10	CA-2014-1 #####	#####	#####	Standard Class	BH-11710	Brosina Holt	Consumer	United States	Los Angeles	California	90032	West
11	CA-2014-1 #####	#####	#####	Standard Class	BH-11710	Brosina Holt	Consumer	United States	Los Angeles	California	90032	West
12	CA-2014-1 #####	#####	#####	Standard Class	BH-11710	Brosina Holt	Consumer	United States	Los Angeles	California	90032	West
13	CA-2017-1 #####	#####	#####	Standard Class	AA-10480	Andrew Allard	Consumer	United States	Concord	North Carolina	28027	South
14	CA-2016-1 #####	#####	#####	Standard Class	IM-15070	Irene Madeline	Consumer	United States	Seattle	Washington	98103	West
15	US-2015-1 #####	#####	#####	Standard Class	HP-14815	Harold Pavlack	Home Office	United States	Fort Worth	Texas	76106	Central
16	US-2015-1 #####	#####	#####	Standard Class	HP-14815	Harold Pavlack	Home Office	United States	Fort Worth	Texas	76106	Central
17	CA-2014-1 #####	#####	#####	Standard Class	PK-19075	Pete Kriz	Consumer	United States	Madison	Wisconsin	53711	Central
18	CA-2014-1 #####	#####	#####	Second Class	AG-10270	Alejandro G.	Consumer	United States	Jordan	Utah	84084	West

DATA CLEANING PROCESS :

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

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 :

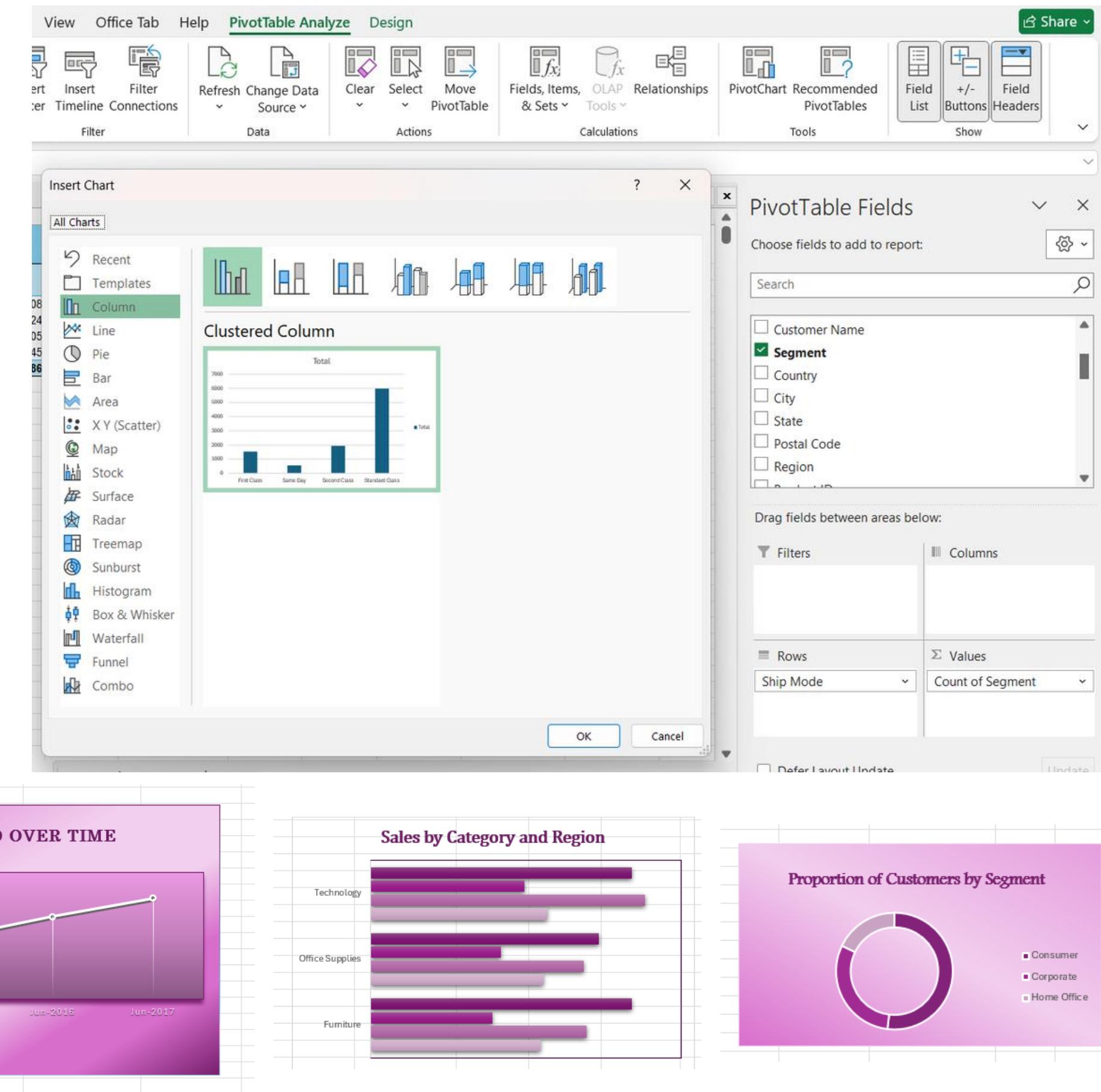
- Total Sales
- Total Discount
- Average Sales
- Zscore in Sales and Discount
- Outliers

	V	W	
	Zscore in Sales	Outliers in Sales	
Mean of Sales:	$=(R2-\$R\$9998)/\$R\10000	=IF(ABS(V2)>3,"Outliers","Not_Outliers")	
=AVERAGE(R1:R9995)	$=(R3-\$R\$9998)/\$R\10000	=IF(ABS(V3)>3,"Outliers","Not_Outliers")	Mean of Discounts:
St.Dev of Sales:	$=(R4-\$R\$9998)/\$R\10000	=IF(ABS(V4)>3,"Outliers","Not_Outliers")	=AVERAGE(U1:U9995)
=STDEV(R1:R9995)	$=(R5-\$R\$9998)/\$R\10000	=IF(ABS(V5)>3,"Outliers","Not_Outliers")	St.Dev of Discounts:
Total Sales:			=STDEV(U1:U9995)
=SUM(Table1[[#All],[Sales]])			
		Total Discount:	
		=SUM(Table1[[#All],[Discount]])	

PIVOT TABLE AND PIVOT CHART :

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

CATEGORY & SUBCATEGORY:			SALES by REGION & CATEGORY					
Sales & Quantity			Sum of Sales					
Row Labels	Sum of Sales	Sum of Quantity	Sum of Sales	Column Labels	Office Supplies	Technology	Grand Total	
Furniture	741999.7953	8028	741999.7953	Furniture	163797.1638	167026.415	170416.312	501239.8908
Bookcases	114879.9963	868		Central	208291.204	205516.055	264973.981	678781.24
Chairs	328449.103	2356		East	117298.684	125651.313	148771.908	391721.905
Furnishings	91705.164	3563		South	252612.7435	220853.249	251991.832	725457.8245
Tables	206965.532	1241		West	741999.7953	719047.032	836154.033	2297200.86
Office Supplies	719047.032	22906		Grand Total	741999.7953	719047.032	836154.033	2297200.86
Appliances	107532.161	1729	Segment wise Performance					
Art	27118.792	3000	Row Labels Sum of Sales Sum of Profit					
Binders	203412.733	5974	Consumer	1161401.345	134119.2092			
Envelopes	16476.402	906	Corporate	706146.3668	91979.134			
Fasteners	3024.28	914	Home Office	429653.1485	60298.6785			
Labels	12486.312	1400	Grand Total	2297200.86	286397.0217			
Paper	78479.206	5178						
Storage	223843.608	3158						
Supplies	46673.538	647						
Technology	836154.033	6939						
Accessories	167380.318	2976	Sales & Discount by Ship mode					
Copiers	149528.03	234	Ship Mode Sum of Sales Sum of Discount					
Machines	189238.631	440	First Class	351428.4229	253.17			
Phones	330007.054	3289	Same Day	128363.125	82.75			
Grand Total	2297200.86	37873	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

Power Query Editor:

The Power Query Editor window shows the "Superstores sales dataset". The ribbon tabs include File, Home, Transform, Add Column, and View. The Home tab is selected. The ribbon contains various tools for data transformation, such as Close & Load, Refresh, Properties, Advanced Editor, Manage, Choose Columns, Remove Columns, Keep Rows, Remove Rows, Split Column, Group By, Replace Values, Data Type (set to Whole Number), Merge Queries, Append Queries, Combine Files, Manage Parameters, Data source settings, New Source, Recent Sources, Enter Data, and New Query.

Data Preview:

The preview pane displays the first 28 rows of the "Superstores sales dataset". The columns are Row ID, Order ID, Order Date, Ship Date, Ship Mode, Customer ID, and Customer Name. The data shows various shipping details and customer names.

Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name
1	CA-2016-152156	11-08-2016	11-11-2016	Second Class	CG-12520	Claire Gute
2	CA-2016-152156	11-08-2016	11-11-2016	Second Class	CG-12520	Claire Gute
3	CA-2016-138688	06-12-2016	16-05-2016	Second Class	DV-13045	Darrin Van Hu
4	US-2015-108966	10-11-2015	18-10-2015	Standard Class	SO-20335	Sean O'Donn
5	US-2015-108966	10-11-2015	18-10-2015	Standard Class	SO-20335	Sean O'Donn
6	CA-2014-115812	06-09-2014	14-05-2014	Standard Class	BH-11710	Brosina Hoff
7	CA-2014-115812	06-09-2014	14-05-2014	Standard Class	BH-11710	Brosina Hoff
8	CA-2014-115812	06-09-2014	14-05-2014	Standard Class	BH-11710	Brosina Hoff
9	CA-2014-115812	06-09-2014	14-05-2014	Standard Class	BH-11710	Brosina Hoff
10	CA-2014-115812	06-09-2014	14-05-2014	Standard Class	BH-11710	Brosina Hoff
11	CA-2014-115812	06-09-2014	14-05-2014	Standard Class	BH-11710	Brosina Hoff
12	CA-2014-115812	06-09-2014	14-05-2014	Standard Class	BH-11710	Brosina Hoff
13	CA-2017-114412	15-04-2017	20-04-2017	Standard Class	AA-10480	Andrew Allen
14	CA-2016-161389	12-05-2016	12-10-2016	Standard Class	IM-15070	Irene Maddo
15	US-2015-118983	22-11-2015	26-11-2015	Standard Class	HP-14815	Harold Pawl
16	US-2015-118983	22-11-2015	26-11-2015	Standard Class	HP-14815	Harold Pawl
17	CA-2014-105893	11-11-2014	18-11-2014	Standard Class	PK-19075	Pete Kriz
18	CA-2014-167164	13-05-2014	15-05-2014	Second Class	AG-10270	Alejandro Gr
19	CA-2014-143336	27-08-2014	09-01-2014	Second Class	ZD-21925	Zuschuss Don
20	CA-2014-143336	27-08-2014	09-01-2014	Second Class	ZD-21925	Zuschuss Don
21	CA-2014-143336	27-08-2014	09-01-2014	Second Class	ZD-21925	Zuschuss Don
22	CA-2016-137330	12-09-2016	13-12-2016	Standard Class	KB-16585	Ken Black
23	CA-2016-137330	12-09-2016	13-12-2016	Standard Class	KB-16585	Ken Black
24	US-2017-156909	16-07-2017	18-07-2017	Second Class	SF-20065	Sandra Flanaj
25	CA-2015-106320	25-09-2015	30-09-2015	Standard Class	EB-13870	Emily Burns
26	CA-2016-121755	16-01-2016	20-01-2016	Second Class	EH-13945	Eric Hoffmann
27	CA-2016-121755	16-01-2016	20-01-2016	Second Class	EH-13945	Eric Hoffmann
28						

Relationships:

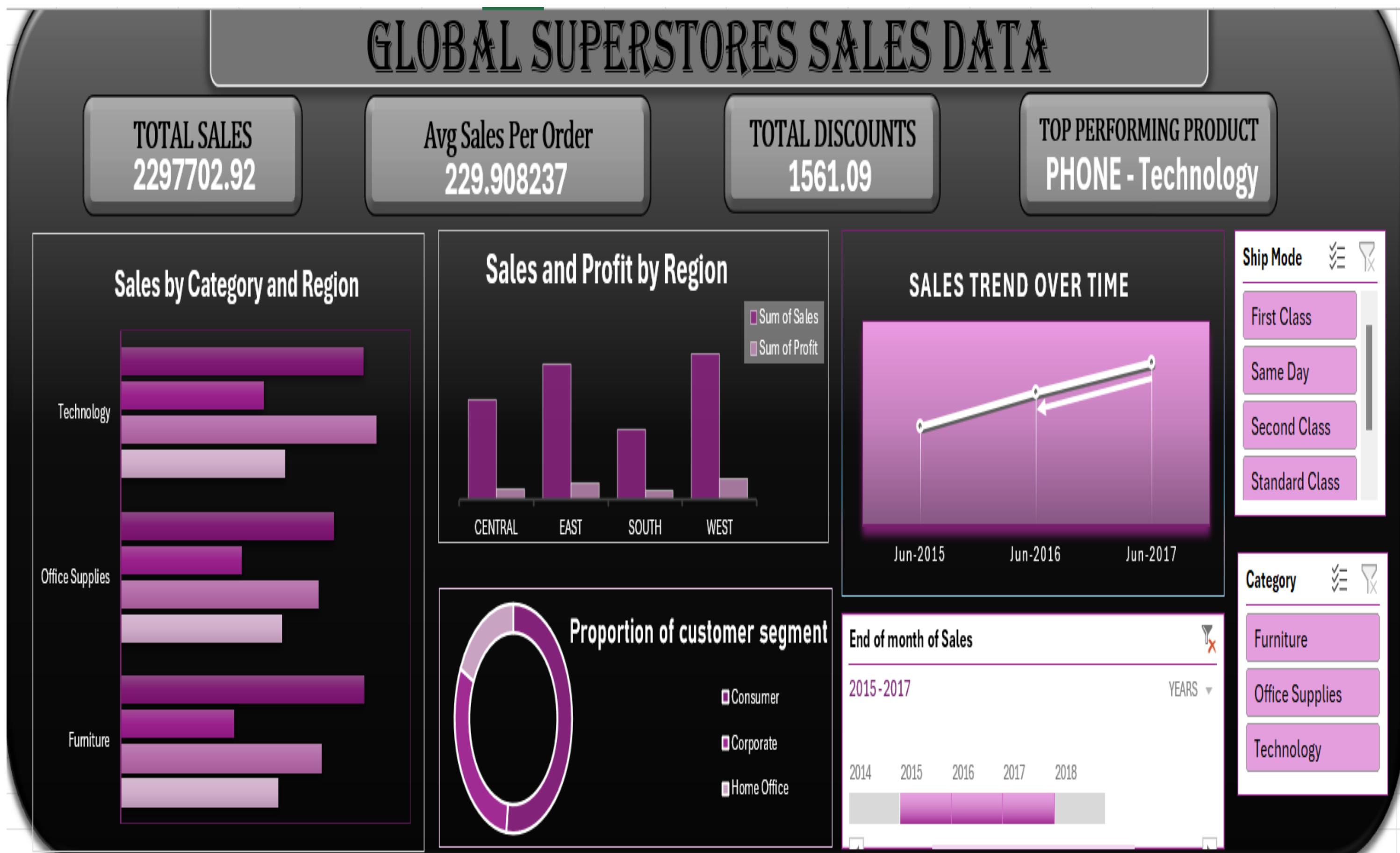
The diagram shows relationships between four tables: ItemMaster, ItemDemand, Parent Item, and Child Item. ItemMaster is connected to ItemDemand via a 1-to-* relationship. ItemMaster is also connected to Parent Item and Child Item via 1-to-1 relationships. Parent Item is connected to Child Item via a *-to-* relationship.

Query Settings:

The Query Settings pane shows the properties of the "Superstores sales dataset". The name is set to "Superstores sales dataset". Under Applied Steps, the last step is "Changed Type".

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	42.8032
87.4944	4899.6864	4899.6864	4899.6864
0	85.98	85.98	85.98
3.304	66.08	66.08	66.08
0	248.92	248.92	248.92
0	195.96	195.96	195.96
0	315	315	315
0	222.4	222.4	222.4
0	36.24	36.24	36.24

Goal Seek

Set cell: AC9970

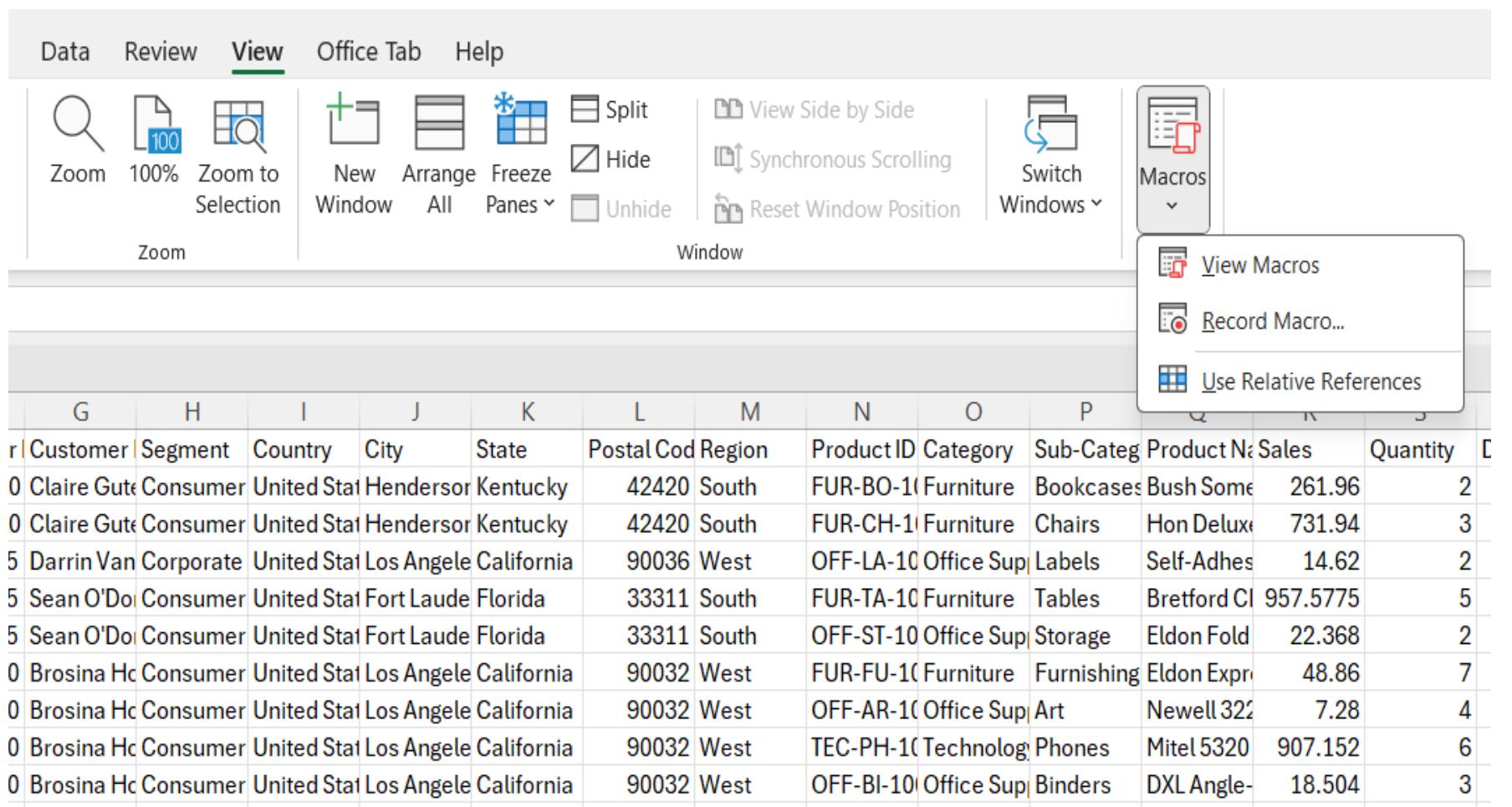
To value: 2000

By changing cell: \$Z\$9970

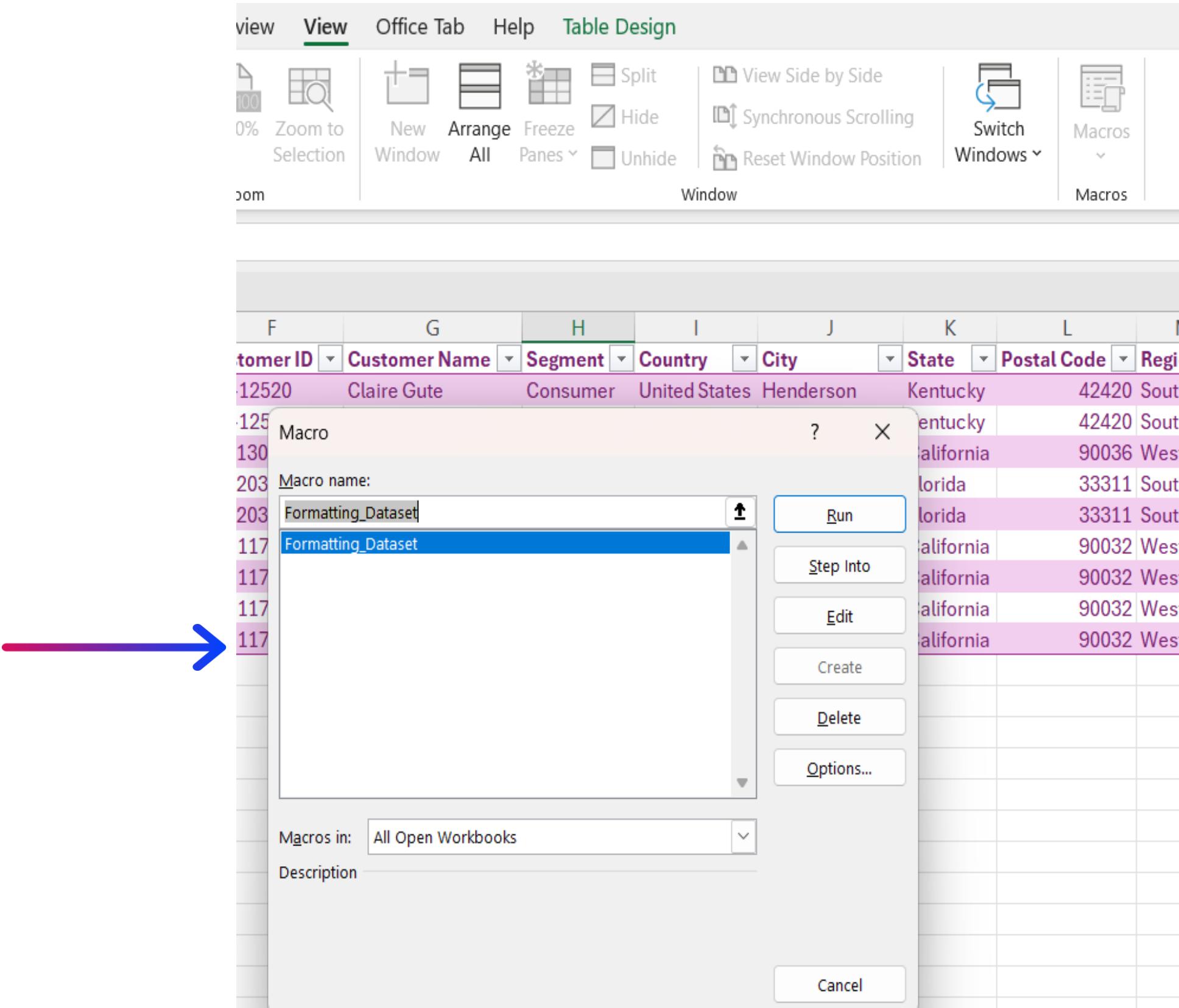
OK Cancel

MACROS AND AUTOMATION :

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



Customer ID	Segment	Country	City	State	Postal Code	Region	Product ID	Category	Sub-Cat	Product Name	Sales	Quantity	
12520	Claire Gute	Consumer	United States	Henderson	Kentucky	42420	South	FUR-BO-10	Furniture	Bookcases	Bush Some	261.96	2
12520	Claire Gute	Consumer	United States	Henderson	Kentucky	42420	South	FUR-CH-10	Furniture	Chairs	Hon Deluxe	731.94	3
117	Darrin Van	Corporate	United States	Los Angeles	California	90036	West	OFF-LA-10	Office Sup	Labels	Self-Adhes	14.62	2
117	Sean O'Donnell	Consumer	United States	Fort Lauderdale	Florida	33311	South	FUR-TA-10	Furniture	Tables	Bretford CI	957.5775	5
117	Sean O'Donnell	Consumer	United States	Fort Lauderdale	Florida	33311	South	OFF-ST-10	Office Sup	Storage	Eldon Fold	22.368	2
117	Brosina H.	Consumer	United States	Los Angeles	California	90032	West	FUR-FU-10	Furniture	Furnishing	Eldon Expr	48.86	7
117	Brosina H.	Consumer	United States	Los Angeles	California	90032	West	OFF-AR-10	Office Sup	Art	Newell 322	7.28	4
117	Brosina H.	Consumer	United States	Los Angeles	California	90032	West	TEC-PH-10	Technology	Phones	Mitel 5320	907.152	6
117	Brosina H.	Consumer	United States	Los Angeles	California	90032	West	OFF-BI-10	Office Sup	Binders	DXL Angle-	18.504	3



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				
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



Sub - Category wise Top Selling Products	
Row Labels	Sum of Sales
Phones	330007.054
Chairs	328449.103
Storage	223843.608
Tables	206965.532
Binders	203412.733
Machines	189238.631
Accessories	167380.318
Copiers	149528.03
Bookcases	114879.9963
Appliances	107532.161
Furnishings	91705.164
Paper Supplies	78479.206
Art	46673.538
Envelopes	27118.792
Labels	16476.402
Fasteners	12486.312
Grand Total	3024.28

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