VRK
Venkata Reddy Konasani

Power BI Assignment Questions

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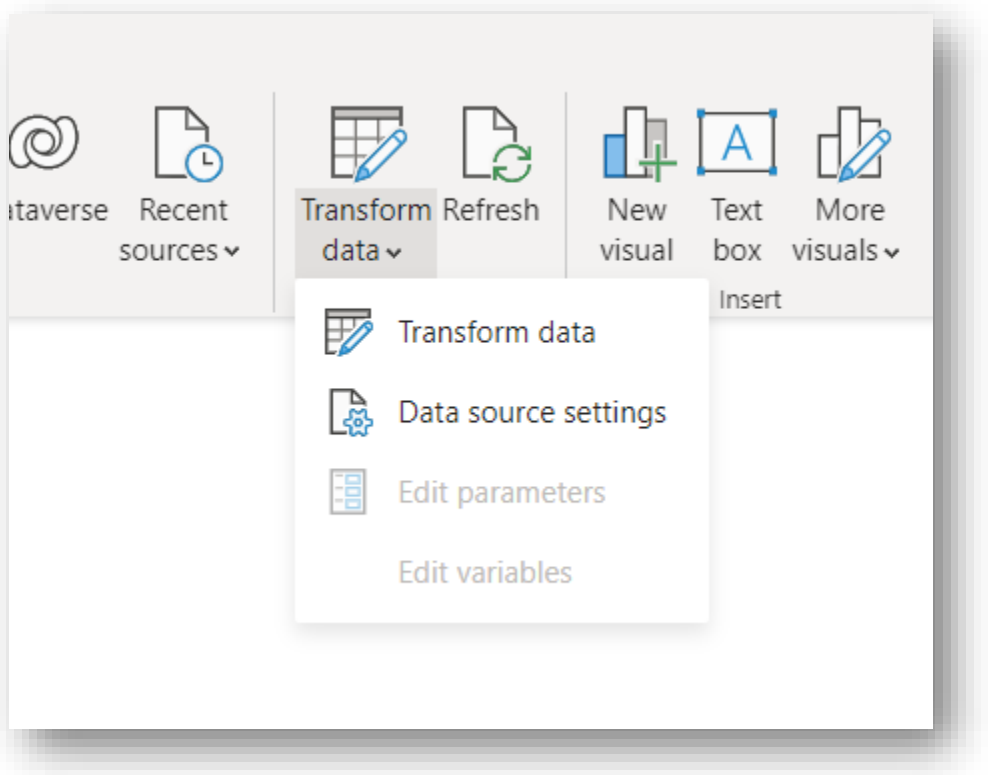
Note - All the exercises are based on a single power BI file- Sales_Analysis.pbix. Download this file from the supporting files folder.

Q1) Open Sales_Analysis.pbix file. Navigate to Data Source Settings and update the data source file. Change the path to input data file ProductSalesTable.xlsx

Hint



Q2) How many tables are there in the Sales_Analysis.pbix file? Name the fact table and name the lookup(dimension tables). Then, delete all the connections and reconnect tables based on the keys. Please write down the connected keys(what fields are they joined on) between the facts table and lookup tables.

Q3) Modify the formatting of the BirthDate column in the Customers table. The new format should be DD-MM-YY. Modify the formatting of the Invoices.InvoiceDate column in the Sales table. The new format should be DD-MM-YY

Answer

BirthDate
07-01-18
15-01-18
16-01-18
26-01-18

Q4) Create a calculated column in the Customers table named "Age" to indicate the customer's age. Use the customer's Birthdate in a DAX formula.

Result. Note- the Age value may change in your result

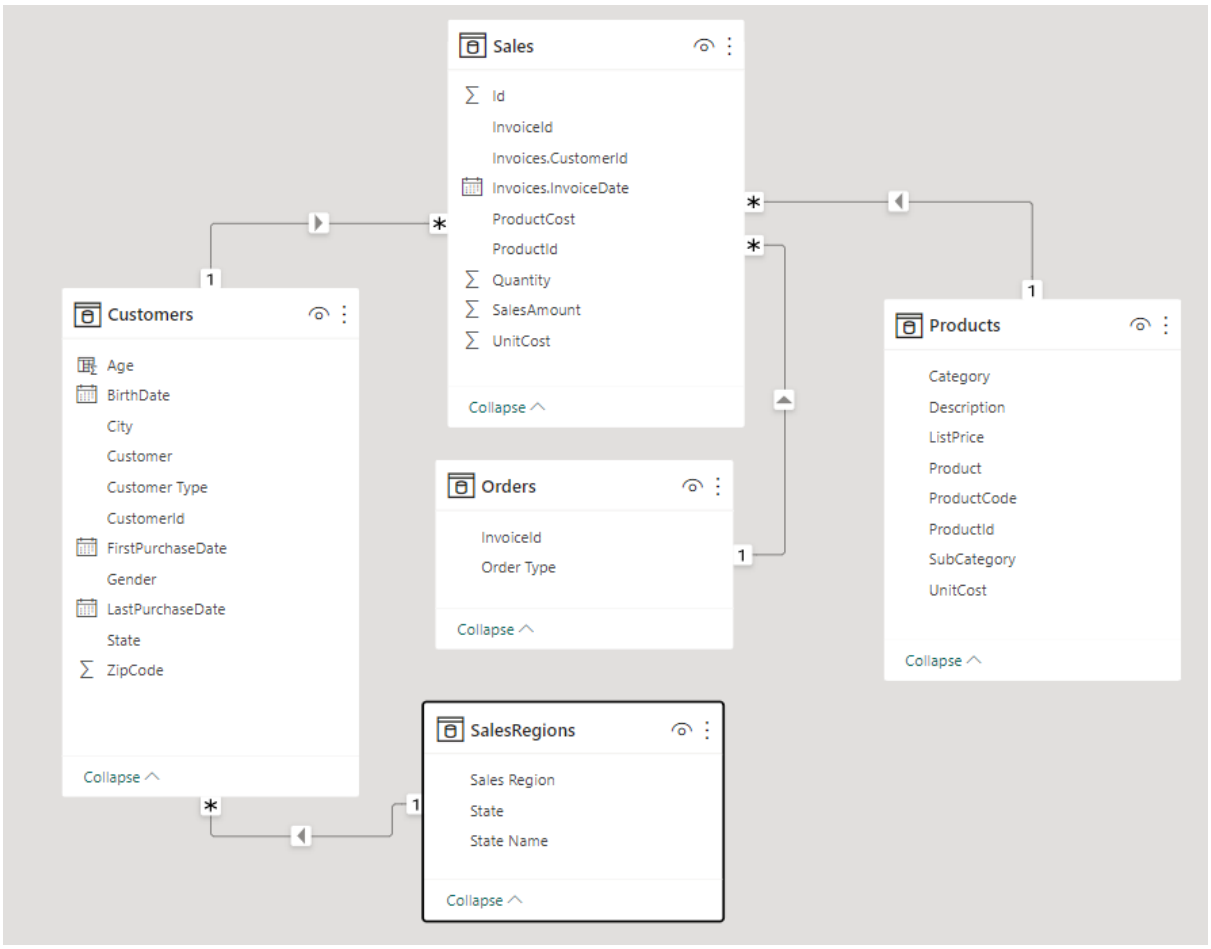
BirthDate	FirstPurchaseDate	LastPurchaseDate	Customer	Customer Type	Age
10-03-49	04 February 2012	04 February 2012	Jewell Ryan	One-time Customer	73.8
09-05-85	08 February 2012	08 February 2012	Granville Perry	One-time Customer	37.6
19-06-79	08 February 2012	08 February 2012	Sheri Mercado	One-time Customer	43.5
16-06-78	09 February 2012	09 February 2012	Raleigh Olson	One-time Customer	44.5
02-01-45	18 February 2012	18 February 2012	Carrie Foreman	One-time Customer	78
11-08-84	19 February 2012	19 February 2012	Renee McMillan	One-time Customer	38.3
07-09-89	22 February 2012	22 February 2012	Wayne Gordon	One-time Customer	33.3
26-05-85	22 February 2012	22 February 2012	Luella Vinson	One-time Customer	37.6
13-08-78	29 February 2012	29 February 2012	Rosario Knight	One-time Customer	44.3
22-05-89	05 March 2012	05 March 2012	Trent Hoffman	One-time Customer	33.6
17-04-91	05 March 2012	05 March 2012	Preston Bowen	One-time Customer	31.7

Q5) Create a new table based on the DAX formula given in the supporting files "CreateSalesRegionsTable.txt". Create a new relationship between SalesRegions and Customers by using "State" as a shared key.

Hint: Go to data >>Table tools>> New Table >> Copy and paste the formula.

Result

State	State Name	Sales Region
AK	Alaska	Western Region
AL	Alabama	Central Region
AR	Arkansas	Central Region
AZ	Arizona	Western Region
CA	California	Western Region
CO	Colorado	Western Region
CT	Connecticut	Eastern Region
DE	Delaware	Eastern Region
FL	Florida	Eastern Region
GA	Georgia	Eastern Region
HI	Hawaii	Western Region



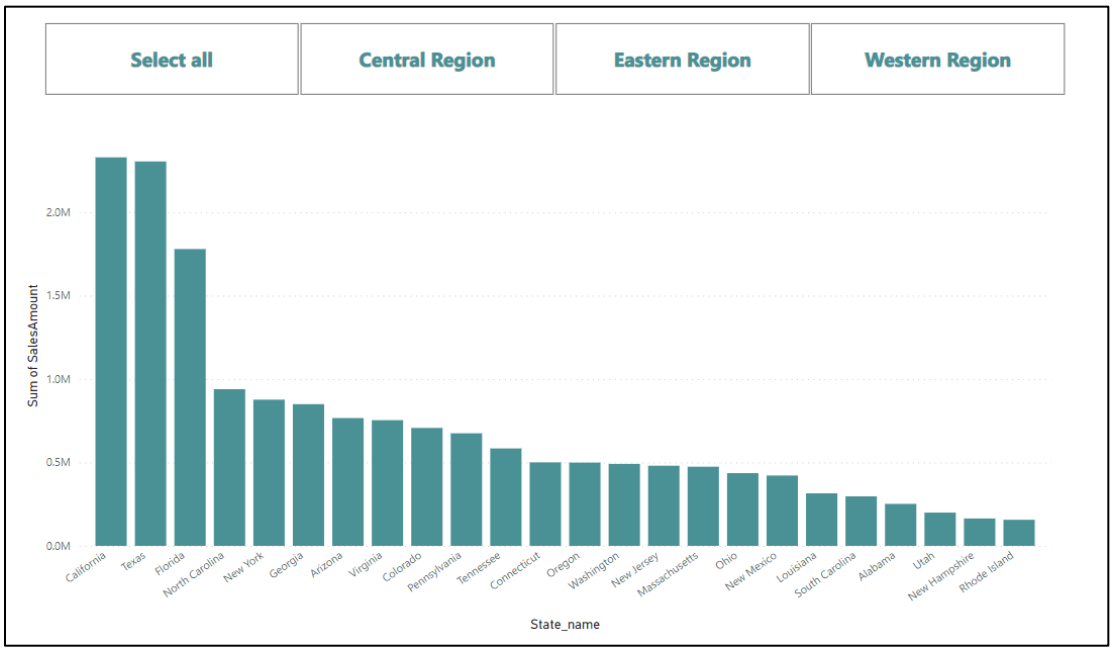
Q6) Use the DAX formula to add a calculated column to the Customers table named Sales Region to display the sales region for each state. Add a calculated column to the Customers table named State Name to display the full state name

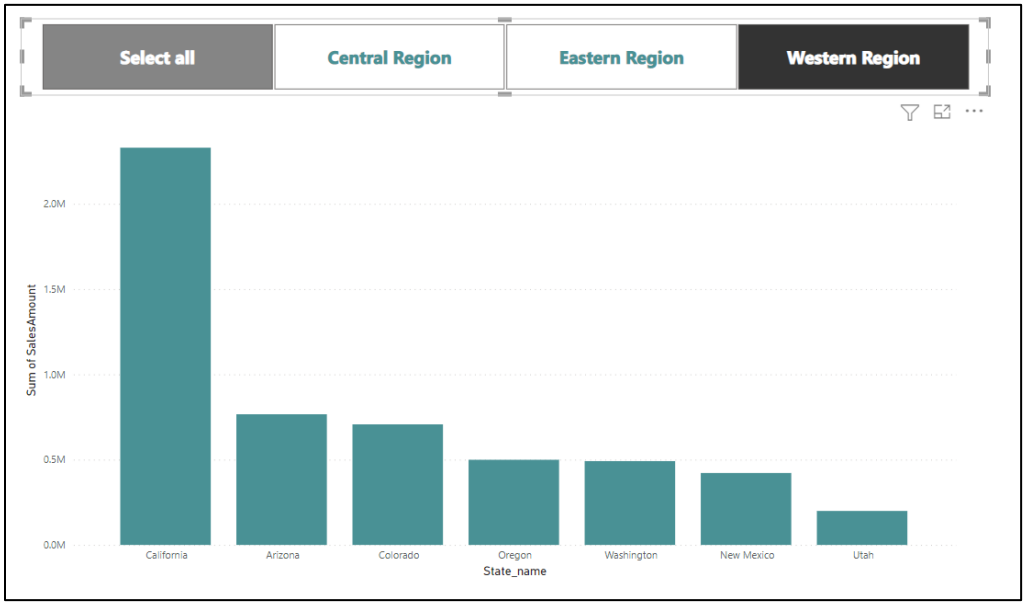
Hint: use Related() function

Result:

Sales_Region	State_name
Western Region	California
Western Region	California
Western Region	California
Western Region	California
Western Region	California
Western Region	California
Western Region	California
Western Region	California
Western Region	California
Western Region	California
Western Region	California

Q7) Create a bar chart to show the sum of SalesAmount by State_name. Keep Sales Region as a filter. The filter must contain select all option as well. Click on the different sales regions in the slicer visual to observe its filtering effect. Format the bar chart and filter to match the below result





Q8) DAX

8.1 Create a measure in the **Sales** table named **Sales Revenue** to perform a sum aggregation on the **SalesAmount** column. Create the below table to show the year from invoice date vs sales revenue.

Year	Sales_Revenue
2012	1076826
2013	3489234
2014	5375379
2015	7311660
Total	**17253100**

8.2 Create another measure in the Sales table named Units Sold to perform a sum aggregation on the Quantity column.

Year	Sales_Revenue	Units_sold
2012	1076826	66440
2013	3489234	953055
2014	5375379	1409250
2015	7311660	1603757
Total	**17253100**	**4032502**

8.3 Create a measure in the Sales table named Product Cost to perform a sum aggregation on the ProductCost column.

Year	Sales_Revenue	Units_sold	Product_Cost
2012	1076826	66440	583647
2013	3489234	953055	1547254
2014	5375379	1409250	2459215
2015	7311660	1603757	3619536
Total	**17253100**	**4032502**	**8209652**

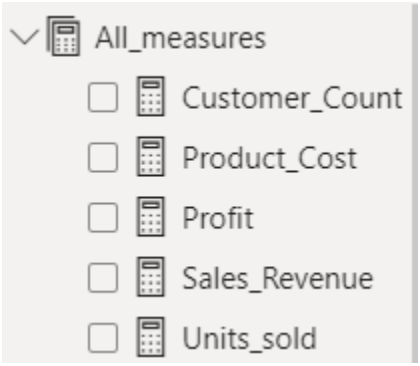
8.4 Create a new measure in the Sales table named Profit by calculating the difference between SalesAmount and ProductCost

Year	Sales_Revenue	Units_sold	Product_Cost	Profit
2012	1076826	66440	583647	493179
2013	3489234	953055	1547254	1941980
2014	5375379	1409250	2459215	2916164
2015	7311660	1603757	3619536	3692124
Total	**17253100**	**4032502**	**8209652**	**9043448**

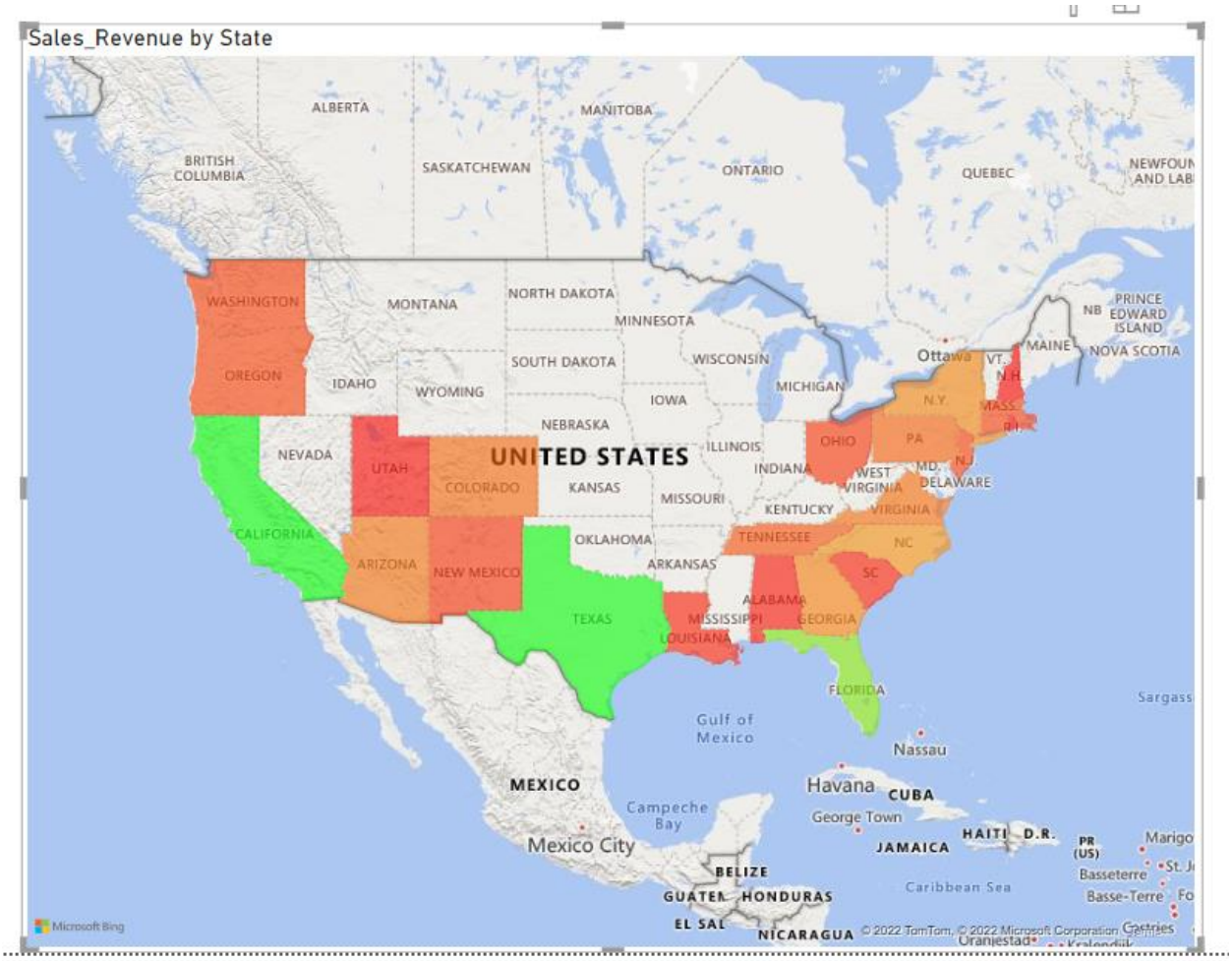
8.5 Create a measure in the Sales table named Customer Count to count the number of customers

Year	Sales_Revenue	Units_sold	Product_Cost	Profit	Customer_Count
2012	1076826	66440	583647	493179	10407
2013	3489234	953055	1547254	1941980	28288
2014	5375379	1409250	2459215	2916164	41710
2015	7311660	1603757	3619536	3692124	51407
Total	**17253100**	**4032502**	**8209652**	**9043448**	**131812**

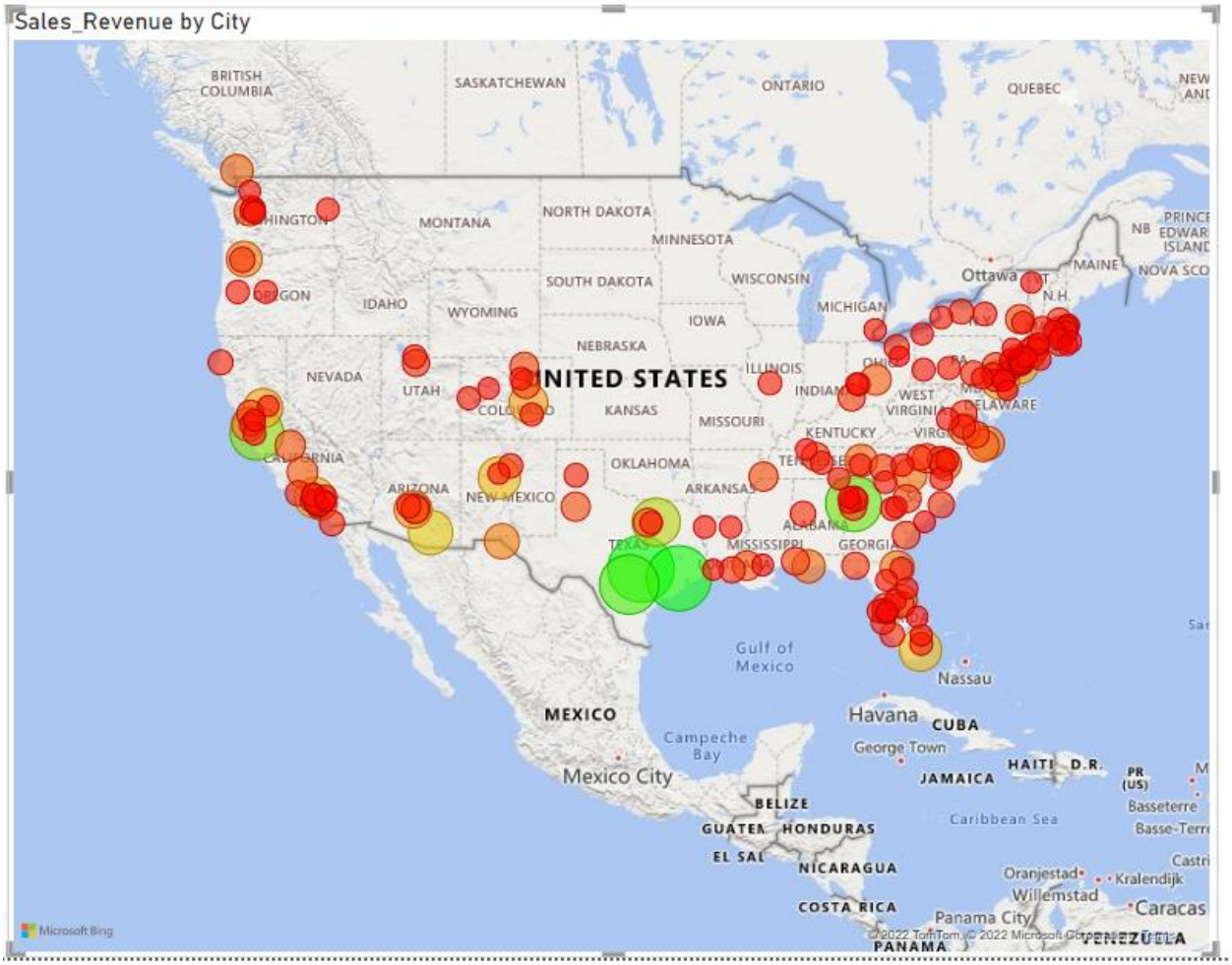
8.6. Create a new table, All_measures. Keep all the newly created measures in it.



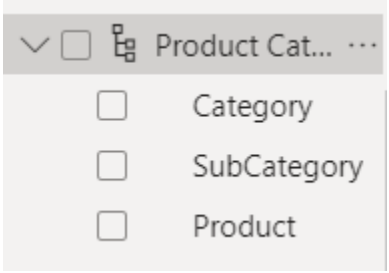
Q9)Create a map fill chart to show the sales revenue by each state. Use red, yellow, and green colors for filling low, medium, and high sales states.



Q10)Create a map chart to show the sales revenue by each city. Use red, yellow, and green colors for filling low, medium, and high-sales cities

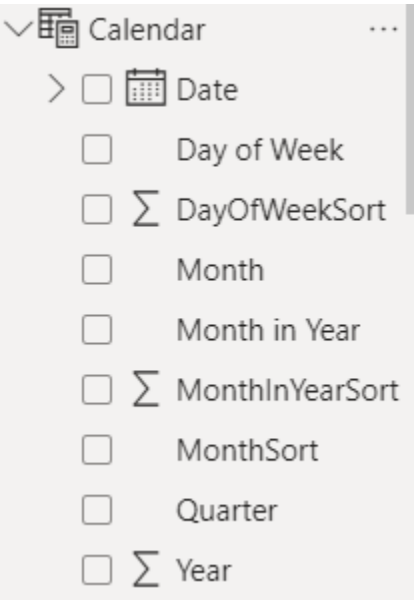


Q11) In the products table, create a new hierarchy Product category. The order should be Category, Subcategory, and product. Then, using that product category hierarchy, create the below visual to show units sold, sales revenue, and Profit by each category and subcategory. Finally, click on the Expand all icon in the toolbar to display the next level in the Product Category hierarchy.



Category	Units_sold	Sales_Revenue	Profit
Action Figures	**3730312**	**7395449**	**4645256**
Cute and Huggable	**3543733**	**4356065**	**3598659**
Black Power Ranger Action Figure	1735	13013	2364
Green Angry Bird Action Figure	4706	23295	13467
Perry the Platypus Action Figure	18314	401992	182224
Phineas and Ferb Action Figure Set	14672	292706	113075
Red Angry Bird Action Figure	4124	61654	53031
Twitter Follower Action Figure	3493118	3493118	3214432
Woody Action Figure	7064	70287	20066
Tough Guys	**186579**	**3039384**	**1046597**
Arts and Crafts	**88734**	**1660574**	**966960**
Drawing	**71678**	**808627**	**321199**
Painting	**17056**	**851947**	**645761**
Remote Control Vehicles	**213456**	**8197077**	**3431232**
Boats	**3070**	**101157**	**62808**
Cars	**53306**	**1131290**	**406900**
Helicopter	**20849**	**1854538**	**657598**
Planes	**80147**	**3480428**	**1797543**
Trucks	**56084**	**1629666**	**506385**
Total	**4032502**	**17253100**	**9043448**

Q12) Create a new calculated table named Calendar using the CreateCalendarTable.txt file. Create a relationship between the Calendar table and the Sales table. Join them on the InvoiceDate column from the Sales table and the Date column of the Calendar table



Q13) Create a new matrix visual to show sales revenue by year and month. Make sure that the table is sorted by month in chronological order.

Hint: Data view >Select month in year column >> Sort by a different column month in year sort.

Month in Year	2012	2013	2014	2015	**Total**
Jan	6306	164334	385275	512822	**1068737**
Feb	48815	126501	358244	597684	**1131244**
Mar	53958	243676	381309	532123	**1211067**
Apr	52601	300872	381157	602751	**1337381**
May	61756	334948	438261	647276	**1482241**
Jun	76756	321715	378749	608448	**1385668**
Jul	104408	287800	359744	620316	**1372268**
Aug	111167	298483	457312	678499	**1545461**
Sep	110716	376207	505332	613974	**1606229**
Oct	145999	362943	602448	620735	**1732125**
Nov	156751	340228	545572	590220	**1632770**
Dec	147593	331526	581977	686814	**1747910**
Total	**1076826**	**3489234**	**5375379**	**7311660**	**17253100**

Q14) Create a measure named Sales_Revenue_QTD that calculates a quarter-to-date aggregate sum on the sales revenue. Next, create a measure called Sales_Revenue_YTD that calculates a year-to-date aggregate sum of the sales revenue. Finally, create a measure named Cum_Sales_Revenue that calculates the cumulative sum of sales revenue.

Quarter	Month in Year	Sales_Revenue	Sales_Revenue_QTD	Sales_Revenue_YTD	Cum_Sales_Revenue
2012-Q1	Jan	6306	6306	6,305.63	6306
2012-Q1	Feb	48815	55121	55,120.60	55121
2012-Q1	Mar	53958	109079	1,09,078.81	109079
2012-Q2	Apr	52601	52601	1,61,679.81	161680
2012-Q2	May	61756	114357	2,23,436.07	223436
2012-Q2	Jun	76756	191113	3,00,192.16	300192
2012-Q3	Jul	104408	104408	4,04,599.90	404600
2012-Q3	Aug	111167	215575	5,15,767.38	515767
2012-Q3	Sep	110716	326291	6,26,483.49	626483
2012-Q4	Oct	145999	145999	7,72,482.95	772483
2012-Q4	Nov	156751	302750	9,29,233.60	929234
2012-Q4	Dec	147593	450343	10,76,826.32	1076826
2013-Q1	Jan	164334	164334	1,64,334.38	1241161
2013-Q1	Feb	126501	290835	2,90,834.94	1367661
2013-Q1	Mar	243676	534511	5,34,511.40	1611338
2013-Q2	Apr	300872	300872	8,35,383.57	1912210
2013-Q2	May	334948	635821	11,70,332.01	2247158
2013-Q2	Jun	321715	957536	14,92,047.17	2568873
2013-Q3	Jul	287800	287800	17,79,847.33	2856674
Total		**17253100**	**1897768**	**73,11,660.49**	**17253100**

Q15) Create a measure named Sales Growth PM that calculates the percentage increase between sales revenue for the current month and sales revenue for the previous month. Use the formula (Sales in the current month – Sales in the last month) / Sales in the last month

Quarter	Month in Year	Sales_Revenue	Sales_Growth_PM	Sa
2012-Q1	Jan	6306	Infinity	
2012-Q1	Feb	48815	674.15%	
2012-Q1	Mar	53958	10.54%	
2012-Q2	Apr	52601	-2.52%	
2012-Q2	May	61756	17.41%	
2012-Q2	Jun	76756	24.29%	
2012-Q3	Jul	104408	36.03%	
2012-Q3	Aug	111167	6.47%	
2012-Q3	Sep	110716	-0.41%	
2012-Q4	Oct	145999	31.87%	
2012-Q4	Nov	156751	7.36%	
2012-Q4	Dec	147593	-5.84%	
2013-Q1	Jan	164334	11.34%	
2013-Q1	Feb	126501	-23.02%	
2013-Q1	Mar	243676	92.63%	
2013-Q2	Apr	300872	23.47%	
2013-Q2	May	334948	11.33%	
2013-Q2	Jun	321715	-3.95%	
2013-Q3	Jul	287800	-10.54%	
Total		**17253100**	**Infinity**	