Manufacturer

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Exercise 1

1. Create relationship between **Products** and **Sales** tables with *ProductID* column.
2. Create relationship between **Products** and **Manufactures** tables with *ManufacturerID* column.
3. Create relationship between **Date** and **Sales** tables with *Date* column.
4. Create relationship between **Locations** and **Sales** tables with *CountryZip* column.

Exercise 3

1. Create *Total Sales* measure. It is just the sum of *Revenue*.
2. Create *Sales LY* measure. It is *Total Sales* measure calculated for the period in the last year. The formula should include CALCULATE and SAMEPERIODLASTYEAR**.** For more details see: https://www.tutorialspoint.com/dax_functions/dax_sameperiodlastyear_function.htm
3. Create *Sales Var* measure. It is the difference between *Total Sales* and *Sales LY*.
4. Create *Sales Var %* measure. It is the difference between *Total Sales* and *Sales LY* in percent. Use DIVIDE function.
5. Go to **.docx** file and answer the questions

YoY sales details

Year	Total sales	Sales LY	Sales Var	Sales Var %
2000	258,190,517.77		258,190,517.77	100.00%
2001	310,530,260.84	258,190,517.77	52,339,743.07	20.27%
2002	347,165,641.80	310,530,260.84	36,635,380.95	11.80%
2003	376,532,147.10	347,165,641.80	29,366,505.30	8.46%
2004	400,804,392.39	376,532,147.10	24,272,245.29	6.45%
2005	430,353,693.17	400,804,392.39	29,549,300.78	7.37%
2006	457,207,351.82	430,353,693.18	26,853,658.65	6.24%
2007	439,180,853.44	457,207,351.82	-18,026,498.38	-3.94%
2008	406,183,103.06	439,180,853.44	-32,997,750.38	-7.51%
2009	268,328,374.35	406,183,103.06	-137,854,728.71	-33.94%
2010	237,247,850.24	268,328,374.35	-31,080,524.11	-11.58%
2011	250,843,885.69	237,247,850.24	13,596,035.46	5.73%
2012	262,981,096.33	250,843,885.70	12,137,210.63	4.84%
2013	272,620,970.86	262,981,096.33	9,639,874.53	3.67%
2014	272,629,284.10	272,620,970.86	8,313.24	0.00%
2015	136,956,026.68	272,629,284.11	-135,673,257.42	-49.76%
Total	**5,127,755,449.65**	**4,990,799,422.97**	**136,956,026.68**	**2.74%**

Exercise 4

1. Create *YTD Sales* measure. Use **TOTALYTD** for the calculation. For the help you can use: https://exceltown.com/en/tutorials/power-bi/powerbi-com-and-power-bi-desktop/dax-query-language-for-power-bi-and-power-pivot/playing-with-sameperiodlastyear-and-totalytd-functions/
2. Create *YTD LY Sales* measure. Use CALCULATE and SAMEPERIODLASTYEAR with *YTD Sales*.
3. Create *YTD Sales Var* measure. It is the difference between *YTD Sales* and *YTD LY Sales*.
4. Create *YTD Sales Var %* measure. It is the difference between *YTD Sales* and *YTD LY Sales* in percent. Use DIVIDE function.
5. Go to **.docx** file and answer the questions

YTD sales details

Year	Total sales	YTD sales	YTD LY	YTD Sales Var	YTD Sales Var %
2015	**136,956,026.68**	**136,956,026.68**	**272,629,284.11**	**-135,673,257.42**	**-49.76%**
January	10,223,029.56	10,223,029.57	12,425,953.23	-2,202,923.67	-17.73%
February	13,039,067.46	23,262,097.03	29,232,198.75	-5,970,101.73	-20.42%
March	29,480,231.44	52,742,328.47	58,063,213.02	-5,320,884.55	-9.16%
April	31,031,742.22	83,774,070.68	92,312,205.60	-8,538,134.92	-9.25%
May	27,414,144.77	111,188,215.45	127,950,403.97	-16,762,188.52	-13.10%
June	25,767,811.23	136,956,026.68	158,849,803.71	-21,893,777.02	-13.78%
July		136,956,026.68	184,618,780.19	-47,662,753.50	-25.82%
August		136,956,026.68	210,575,295.95	-73,619,269.27	-34.96%
September		136,956,026.68	230,976,127.02	-94,020,100.34	-40.71%
October		136,956,026.68	246,604,358.25	-109,648,331.56	-44.46%
November		136,956,026.68	259,434,557.03	-122,478,530.35	-47.21%
December		136,956,026.68	272,629,284.11	-135,673,257.42	-49.76%
Total	**136,956,026.68**	**136,956,026.68**	**272,629,284.11**	**-135,673,257.42**	**-49.76%**

Exercise 5

1. Create *VanArsdel Total Sales* measure. Use CALCULATE for the calculation. For the help you can use: https://learn.microsoft.com/en-us/dax/calculate-function-dax
2. Create *VanArsdel % Sales Market Share* measure. The result is the share of Sales of VanArsdel company in the sales of all companies. Use DIVIDE function.
3. Go to **.docx** file and answer the questions

Customer sales details

Year	Total sales	VanArsdel Total Sales	VanArsdel %
2000	258,190,517.77	99,656,849.54	38.60%
2001	310,530,260.84	116,187,883.01	37.42%
2002	347,165,641.80	143,101,585.27	41.22%
2003	376,532,147.10	161,713,198.26	42.95%
2004	400,804,392.39	170,763,503.95	42.61%
2005	430,353,693.17	182,204,576.53	42.34%
2006	457,207,351.82	196,832,831.14	43.05%
2007	439,180,853.44	185,058,791.00	42.14%
2008	406,183,103.06	164,873,079.98	40.59%
2009	268,328,374.35	128,472,243.73	47.88%
2010	237,247,850.24	117,296,358.63	49.44%
2011	250,843,885.69	126,059,745.60	50.25%
2012	262,981,096.33	134,691,629.80	51.22%
2013	272,620,970.86	145,496,564.73	53.37%
2014	272,629,284.10	138,219,631.99	50.70%
2015	136,956,026.68	66,270,491.84	48.39%
Total	**5,127,755,449.65**	**2,276,898,965.01**	**44.40%**

Exercise 7

- Go to **Sales** table
- Create column called *Price***.** To make it divide revenue by units with the help of DIVIDE function. Now you can see the prices of all products for all days but it is will be hard to find any trend with such calculation.
- Create new column called *Year* using YEAR() function.
- Create *Revenue_per_product_year* calculated column. After calculation you will be able to see the fixed value of revenue per each product and year in each row in Data View. For the calculation use CALCULATE, ALLEXCEPT functions and *ProductID* and *Year* (you should create it yourself) columns. Do all calculations in **Sales** table.
- In the same way calculate *Units_per_product_year*
- Create *Price_per_product_year* with the help of DIVIDE function. Price is the relation of Revenue to Units.
- Go to **.docx** file and answer the questions

Prices history

Year	First ProductID	Average of Price_per_product_year	Revenue_per_product_year	Units_per_product_year
2012	1000	110.86	203,046,221.30	1,831,525.00
2013	1000	110.68	1,052,119.47	9,506.00
2011	1000	110.10	776,275,095.93	7,050,672.00
2010	1000	109.32	726,453,279.88	6,644,920.00
2015	1000	109.30	177,461,949.70	1,623,552.00
2014	1000	109.22	114,623,839.10	1,049,469.00
2009	1000	109.00	569,123,207.66	5,221,218.00
2008	1000	103.46	7,210,339,136.00	69,693,525.00
2007	1000	100.00	3,555,478,563.85	35,553,228.00
2006	1000	97.99	3,563,684,089.98	36,366,480.00
2005	1000	95.17	4,058,223,755.89	42,640,468.00
2004	1000	92.08	1,913,769,203.86	20,782,734.00
2003	1000	89.20	2,889,304,566.48	32,392,128.00
2002	1000	89.20	1,468,278,537.27	16,460,950.00
Total	**1000**	**99.09**	**27,227,113,566.36**	**277,320,375.00**

Exercise 8

- Create *Product Rank DESC*. It should return the rank of the product. For the calculation use RANKX, *ProductID* column, DENSE. For information use: https://radacad.com/showing-ranking-in-a-visual-in-power-bi-using-rankx-dax-function
- Create *Product Rank ASC*. It should return the values with the opposite sorting of *Product Rank DESC*.
- Go to **.docx** and finish all tasks

Top 5

ProductID	ProductRnk	Total sales
487	2	108,286,836.91
826	3	97,000,832.31
438	4	93,264,060.77
506	5	87,766,368.43
475	5	83,429,405.50
Total	**1**	**469,747,503.93**

Bottom 5

ProductID	Product Rank ASC	Total sales
1824	1	
2266	1	
2267	1	
845	1	
912	1	
917	1	
919	1	
920	1	
1835	1	0.00
2208	1	0.00
2209	1	0.00
2302	1	0.00
673	1	0.00
2200	2	17.33
2313	3	28.30
2320	4	34.07
881	5	47.30
Total	**17**	**127.00**

Product Rank ASC

ProductID	Custom_product_rank	Revenue_per_product_year (bins)
1083	9	0.00
1084	9	0.00
1099	9	0.00
1100	9	0.00
1669	9	0.00
1670	9	0.00
1671	9	0.00
2274	9	0.00
314	9	0.00
367	9	0.00
522	9	0.00
920	9	
Total	**108**	

Year, Quarter, Month, Day

- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011

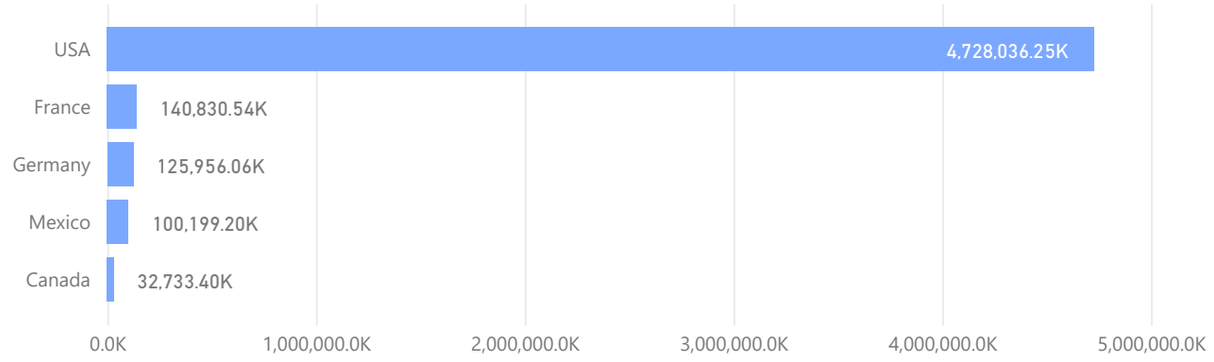
Exercise 9

- Create **CHOOSE_MEASURE** table from Modelling -> Enter data.
- Create *Total Units* measure. It should return the sum of units.
- Create a simple visualization with a slicer "Measure" at the top (slicer should be single-valued) and horizontal bar chart per country at the bottom. Values in visualization should change if you choose the different value in "Measure".
- Attach the screenshot of visualization to the **.docx** file

Measure

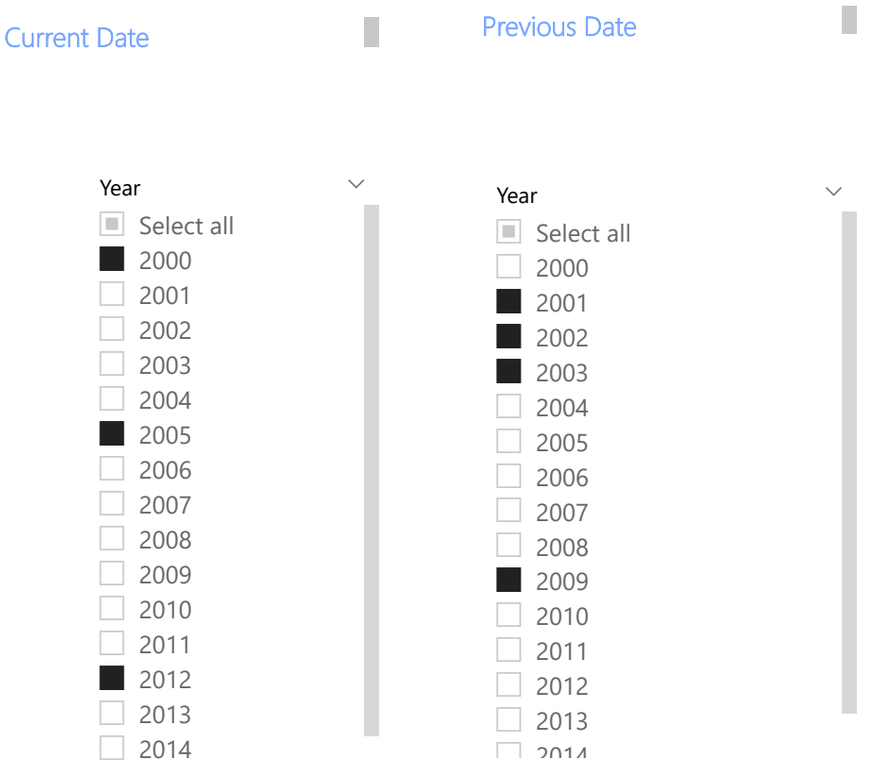
Sales

Units



Exercise 10

- Create **Date_Previous** table. It should be the full copy of **Date** table. Use Modelling -> New table.
- Create 1-to-1 inactive both-way relationship between **Date_Previous** and **Date** based on *Date* column.
- Create *Total Sales, prev. period* measure. It should calculate the Sales for the previous period depending on its own slicer and should not be dependent on the Sales for the current period. Use CALCULATE, USERELATIONSHIP and REMOVEFILTERS for this. For additional info use: https://www.sqlbi.com/articles/userelationship-in-calculated-columns/
- Create *Total Sales, diff PY* measure. It is just difference between *Total Sales* and *Total Sales, prev. period*
- Answer the question in **.docx** file



Total sales	Total sales PY	diff PY
951,525,307.27	1,302,556,424.09	-351,031,116.82