Lab 3 Create Model Calculations using DAX.

Objectives

Time: 20-35 Minutes

1. Create a calculated column for Total Sales retrieving the product unit price from the products table using the related tables DAX function.

2. Create a generated calendar date dimension table and connect it to the existing data model.

3. Create two iterator measures.
    - SUMX
    - AVERAGEX

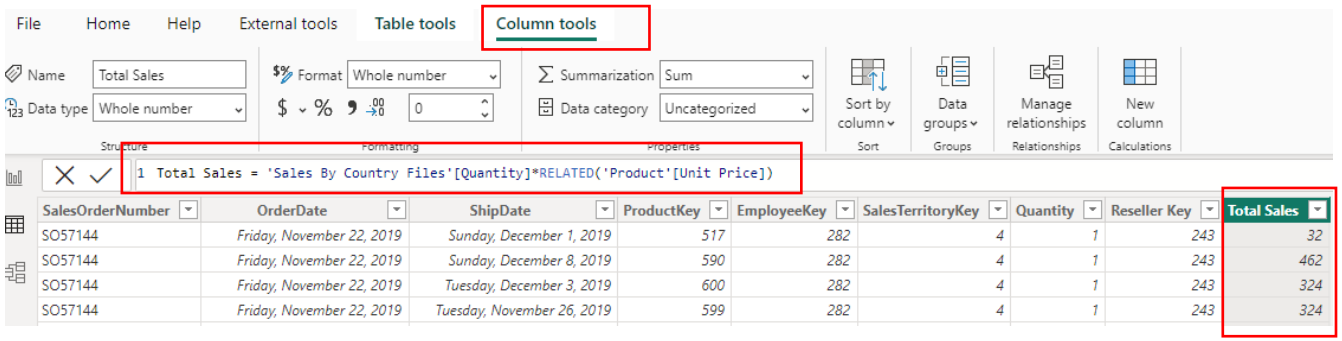
4. Create Explicit measures for
    - Quantity
    - Variance between Sales and Sales Target
    - Variance % using the DIVIDE Function

5. Create a measures table and organize measures into a folder structure.

Lab steps

1) Create a calculated column based on related tables

- Using RELATED DAX function, create a new calculated column that appends [UNIT PRICE] to the Sales By Country Files.
- Develop a Total Sales calculated column by taking the product of Quantity and unit price.



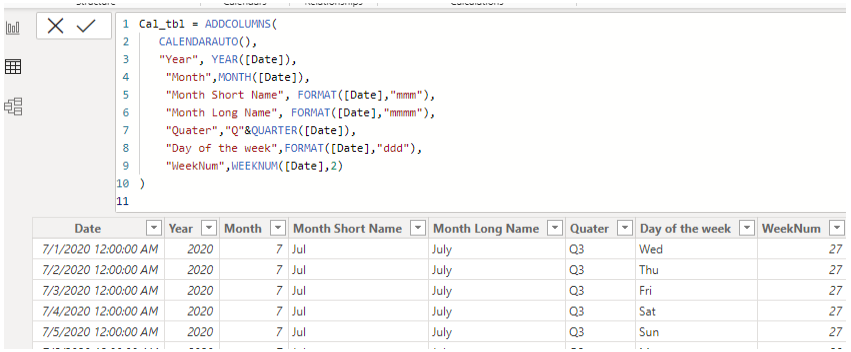
Formula	Format
`Total Sales = 'Sales By Country Files'[Quantity]*RELATED('Product'[Unit Price])`	Whole Number

2) Create a generated calendar dimension table

- Navigate to the Table View and from the Home tab select new table.
- Using the ADDCOLUMN function, create a calculated calendar dimension table with following fields.

  Year
  Month Number
  Month Short Name
  Month Long Name
  Quarter
  Day of the week
  Week Number

- Format the Date column to date only.
- You will need to use the sort by column option to sort the month in proper order.
- Select the Month Short Name column in the table view and from the column tools select the sort by month option.

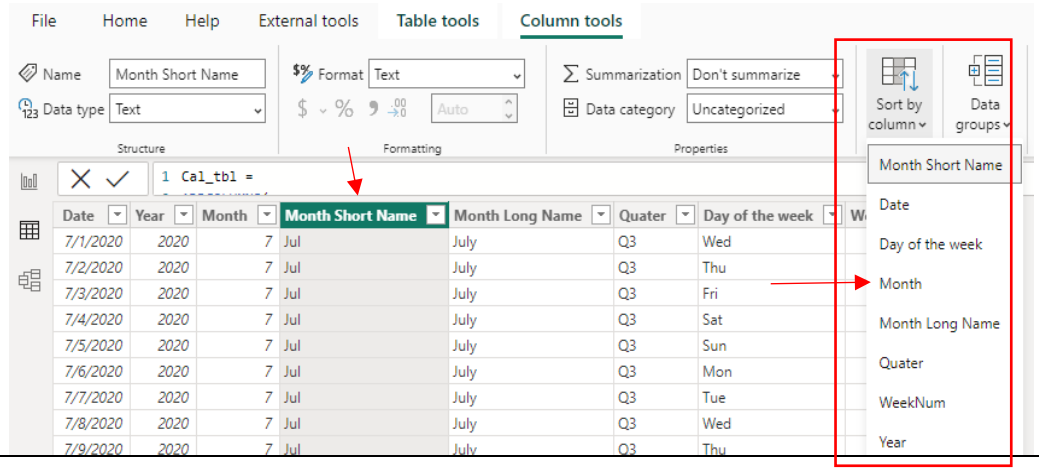


```
1  Cal_tbl = ADDCOLUMNS(
2      CALENDARAUTO(),
3     "Year", YEAR([Date]),
4      "Month",MONTH([Date]),
5      "Month Short Name", FORMAT([Date],"mmm"),
6      "Month Long Name", FORMAT([Date],"mmmm"),
7      "Quater","Q"&QUARTER([Date]),
8      "Day of the week",FORMAT([Date],"ddd"),
9      "WeekNum",WEEKNUM([Date],2)
10 )
11
```

Date	Year	Month	Month Short Name	Month Long Name	Quater	Day of the week	WeekNum
7/1/2020 12:00:00 AM	2020	7	Jul	July	Q3	Wed	27
7/2/2020 12:00:00 AM	2020	7	Jul	July	Q3	Thu	27
7/3/2020 12:00:00 AM	2020	7	Jul	July	Q3	Fri	27
7/4/2020 12:00:00 AM	2020	7	Jul	July	Q3	Sat	27
7/5/2020 12:00:00 AM	2020	7	Jul	July	Q3	Sun	27

Formula

```
Cal_tbl =
ADDCOLUMNS(
    CALENDARAUTO(),
    "Year", YEAR([Date]),
     "Month",MONTH([Date]),
     "Month Short Name", FORMAT([Date],"mmm"),
     "Month Long Name", FORMAT([Date],"mmmm"),
     "Quater","Q"&QUARTER([Date]),
     "Day of the week",FORMAT([Date],"ddd"),
     "WeekNum",WEEKNUM([Date],2)
)
```

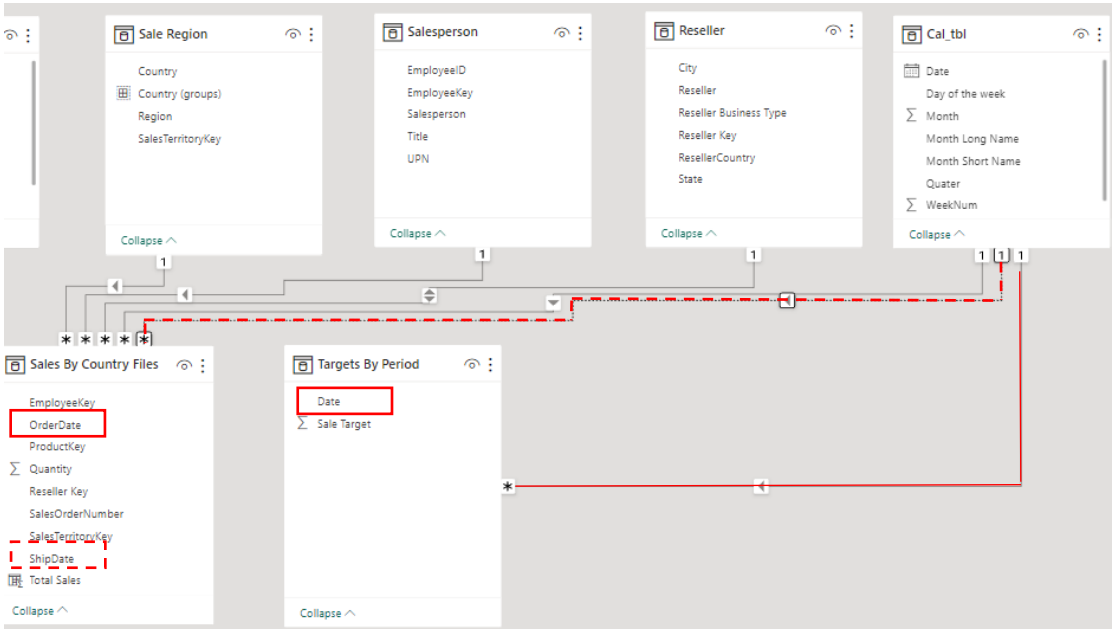


- Connect the Cal_tbl to the data model note that the connection between the ShipDate and the Cal_tbl will be inactive as indicated by the dashed line.

From		To	
Cal_tbl		Target By Period	
PK	Date	FK	Date

From		To	
Cal_tbl		Sales By Country Files	
PK	Date	FK	Order Date

From		To	
Cal_tbl		Sales By Country Files	
PK	Date (Inactive)	FK	Ship Date (Inactive)



3) Create iterator measures

- Create the following iterator measures and place them into a table visual with the year from the calendar table.

Formula	Format
`AVGX Sales = AVERAGEX('Sales By Country Files','Sales By Country Files'[Quantity]*RELATED('Product'[Unit Price]))`	Currency
`Total Sales = SUMX('Sales By Country Files','Sales By Country Files'[Quantity]*RELATED('Product'[Unit Price]))`	Currency

Year	Total Sales	AVGX Sales
2017	$8,080,177	$1,950.79
2018	$25,020,677	$1,489.50
2019	$32,507,704	$1,206.27
2020	$12,352,455	$1,193.01
Total	**$77,961,013**	**$1,338.55**

4) Create supporting measures

Create the following measures

- Sales Target
- Variance of Sales to Target
- Variance %
- Quantity

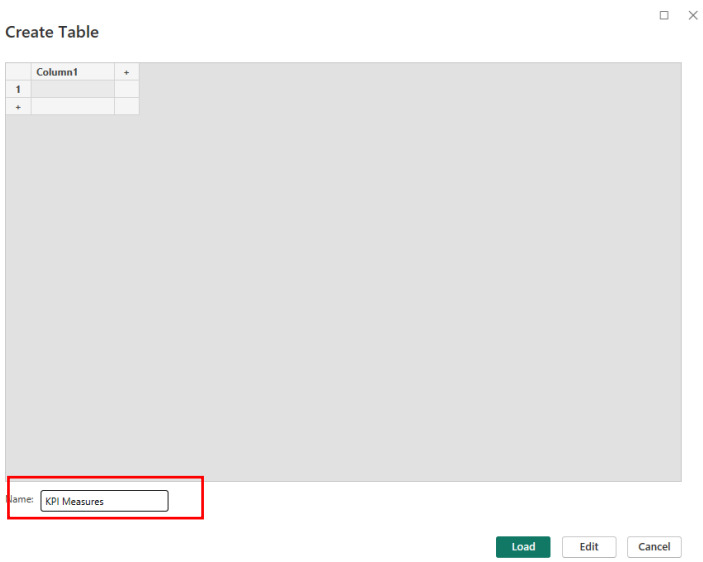
Add all four measures to the table visual including the Year from the calendar table

Formula	Format
`Sale Target = SUM('Targets By Period'[Sale Target])`	Currency
`Variance = [Total Sales]-[Sale Target]`	Currency
`Variance % = DIVIDE([Varience],[Sale Target])`	Percent
`Quantity = SUM('Sales By Country Files'[Quantity])`	Whole Number

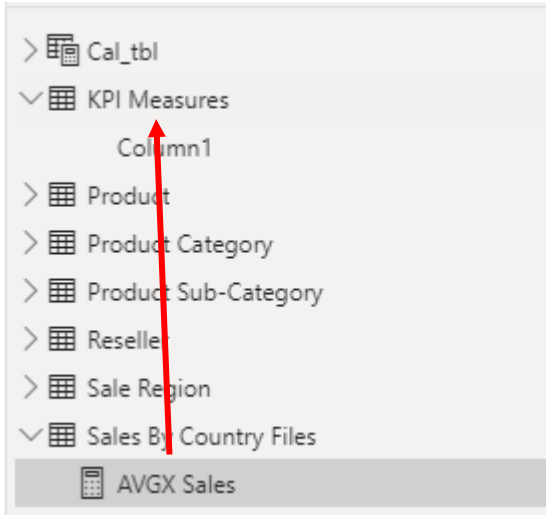
Year	Total Sales	AVGX Sales	Quantity	Sale Target	Varience	Varience %
2017	$8,080,177	$1,950.79	10,842	$7,950,000	130,177	1.64%
2018	$25,020,677	$1,489.50	58,721	$22,750,000	2,270,677	9.98%
2019	$32,507,704	$1,206.27	101,049	$34,000,000	-1,492,296	-4.39%
2020	$12,352,455	$1,193.01	35,246	$70,000,000	-57,647,545	-82.35%
2021				$77,000,000	-77,000,000	-100.00%
Total	**$77,961,013**	**$1,338.55**	**205,858**	**$211,700,000**	**-133,738,987**	**-63.17%**

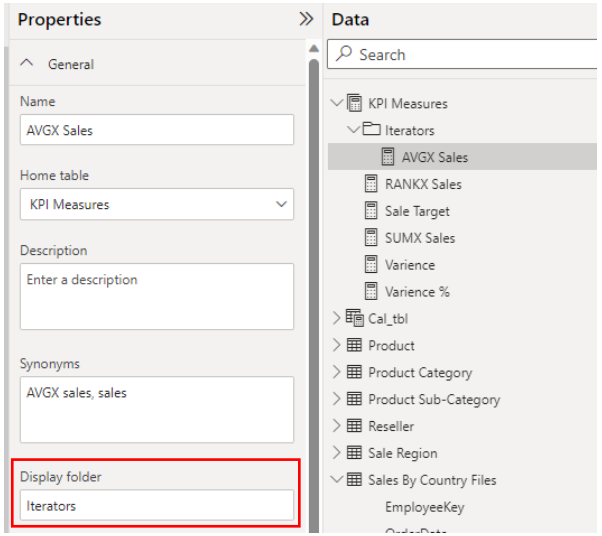
5) Create a measures table and organize measures into a folder structure

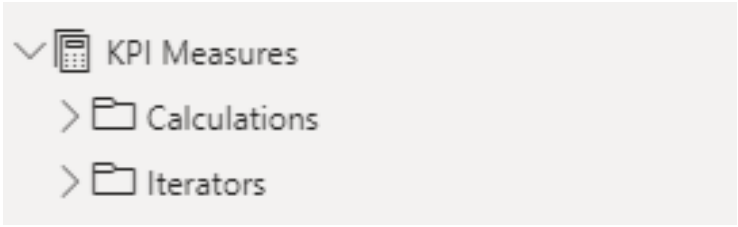
- From the home tab navigate to the Enter data option. At the bottom of the screen label the table **KPI Measures**
- By selecting the measures, you can now go to the Measures tools tab and change the home table location to the new KPI Measures table.
- You can also navigate to the model view where you can drag and drop the measures.



- Once you have measures in the table you can delete column1
- From the properties tab you can create sub-folders to place your measures
- In the Display folder choose a folder name to organize your measures and make them easy to find.
- ****Note that you will only be able to move measures into the subfolders from the model view**







END