

ANALYTICS IGNITION BOOSTER

TECHNICAL LEARNING WEEK 4



POWER BI- PART III

Time to complete: 30min

Exercise: create a calculated column, build decomposition tree visual

Case description: explore order lines value

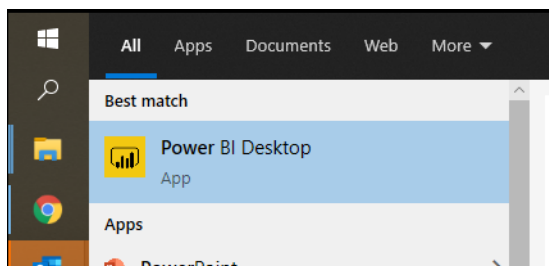
Contents

Import data.....	2
Create new column	3
Build a decomposition tree	4
Change data source	7

- ☒ Open PowerBI desktop.

Then open your Power BI file from last week. File => Open report.

*You can start from your own Power BI report from last week (recommended) or download the solution file for last week's exercise **w3_solution.pbix** available [here](#). If you downloaded **w3_solution.pbix**, you need to do the steps in "Change data source" part before you can continue.*



Video tutorial: 00:00-02:40

Alternatively, just double click on a Power BI file and it will launch Power BI Desktop (as shown in the video). In the video, I have a folder where I saved both the Power BI report **w3_solution.pbix** and the data (seven csv files we have used in the last weeks exercises).

Import data

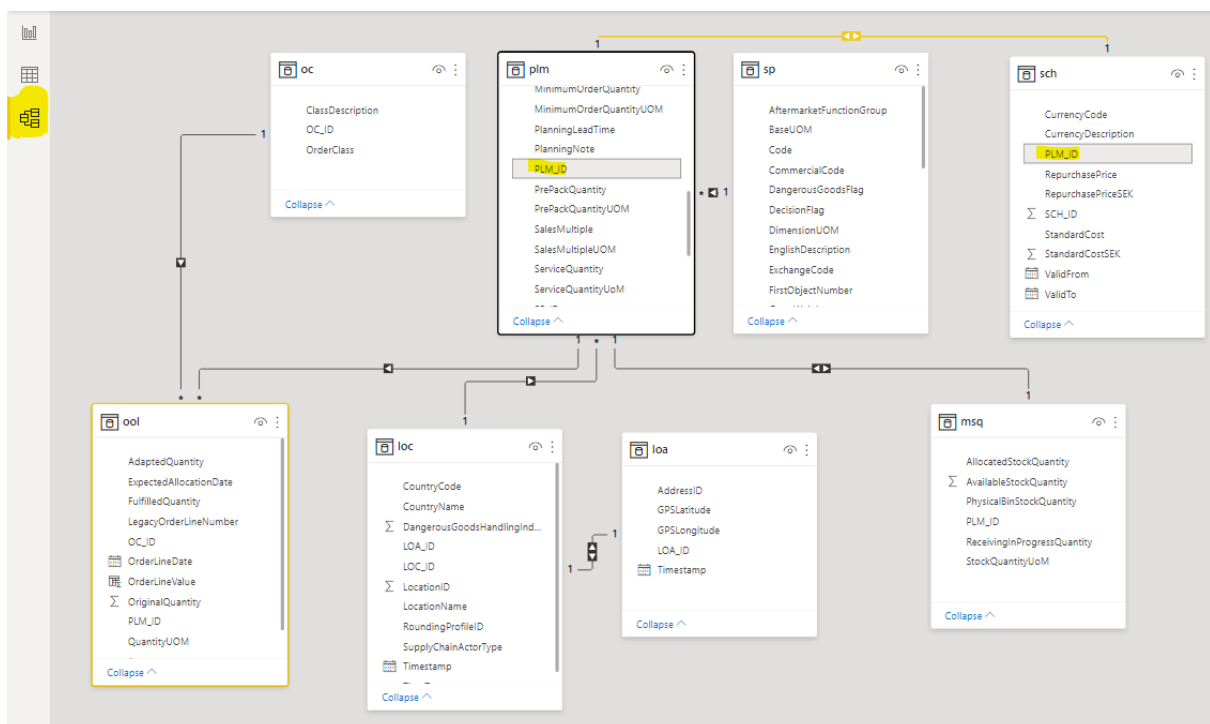


Video tutorial: 02:40-06:30

For this exercise we will need :

- new dataset 'sch.csv' which contains repurchases price in SEK (StandardCostSEK field).
- a new order lines file 'ool.csv' that contains data for multiple warehouses (remember, ool.csv that we used in the first PowerBI task contained only data for CDC Gent). Even though the source systems are different from one warehouse to another, SML Data Hub provides normalized data so it looks the same. The data are limited to a certain scope of spare parts to limit file size and ease the learning. Period 1st of July 2020 – 31st of July 2021. Some data tables were slightly modified.

- ☑ Download [here](#) the data sch.csv & ool.csv
- ☑ Load sch.csv via Get data => Text/CSV. We need to transform data to make the StandardCostSEK field recognized as a decimal number. It is the same transformation we did last week and the week before. Do you remember how to do it? Try to do it yourself, check video or last weeks' tutorials if you are unsure.
- ☑ Let's go to Model view and check the relationships between the new table sch and existing Data Model. As you can see, a relationship was created automatically between sch and plm tables via PLD_ID field.



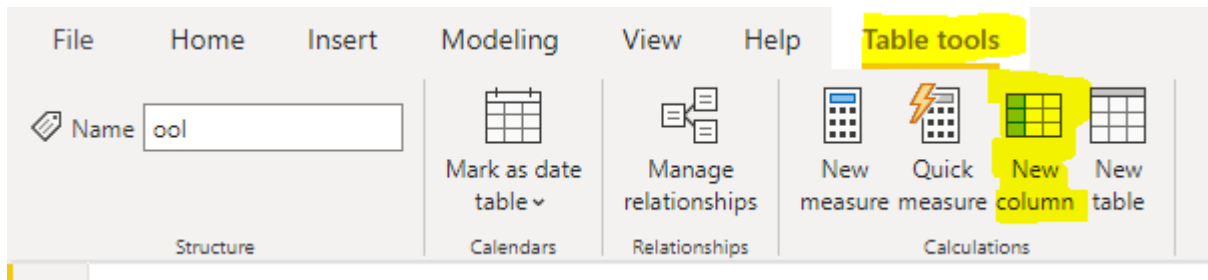
Create new column



Video tutorial: 06:30-10:20

Since now we have added StandardCost data, we can calculate order line value (ordered quantity x price). Let's create a new column containing calculation for order line value in ool table

- ☑ Go to Report or Data view, you can do it in both views following exactly the same steps. Select 'ool' table on the right pane. Then click on 'New column' in the upper pane.



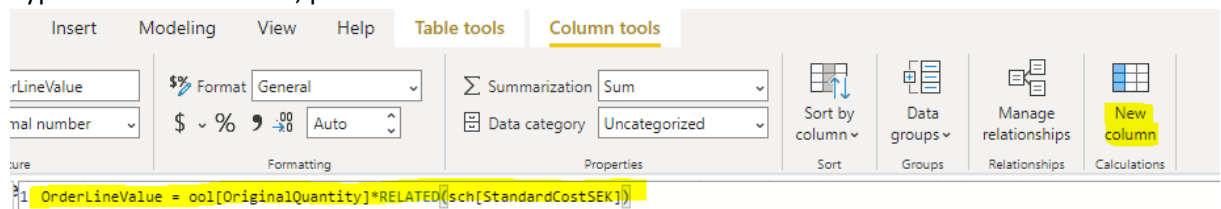
- ☑ Write the formula below (it is called [DAX language](#)). Start with the name for your new column "OrderLineValue" followed by "=" and the formula. Start typing the name of the field you want to use and you will get automatic suggestions.

```
1 OrderLineValue = orig
```

ool [OriginalQuantity]

Table name Field name

Type the formula below, press enter. You can switch to Data view to check the result.



In this formula we are using RELATE function which allows to get the data from a different table (in this case, sch table) based on a relationships between the table. See [documentaion](#) for more details.

New column OrderLineValue added at the end of ool table

FulfilledQuantity	QuantityUOM	OrderLineDate	OrderLineValue
NULL	PCE	Wednesday, 1 July 2020	448,4095
NULL	PCE	Wednesday, 1 July 2020	689,6052
NULL	PCE	Wednesday, 1 July 2020	2768,406
NULL	PCE	Wednesday, 1 July 2020	917,72
NULL	PCE	Wednesday, 1 July 2020	672,61425
NULL	PCE	Wednesday, 1 July 2020	3284,79
NULL	PCE	Wednesday, 1 July 2020	1062,1044
NULL	PCE	Wednesday, 1 July 2020	896,819

Build a decomposition tree

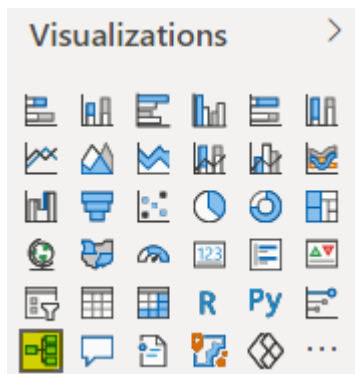


Video tutorial: from 10:20

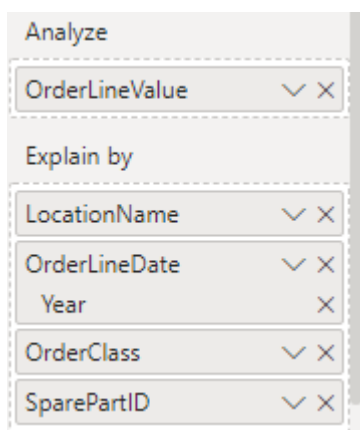
We want to build a new visual to explain better the order line value. We will be using decomposition tree.

The decomposition tree visual in Power BI lets you visualize data across multiple dimensions. It automatically aggregates data and enables drilling down into your dimensions in any order. It is also an artificial intelligence (AI) visualization, so you can ask it to find the next dimension to drill down into based on certain criteria. This makes it a valuable tool for ad hoc exploration and conducting root cause analysis (more details in [documentation](#)).

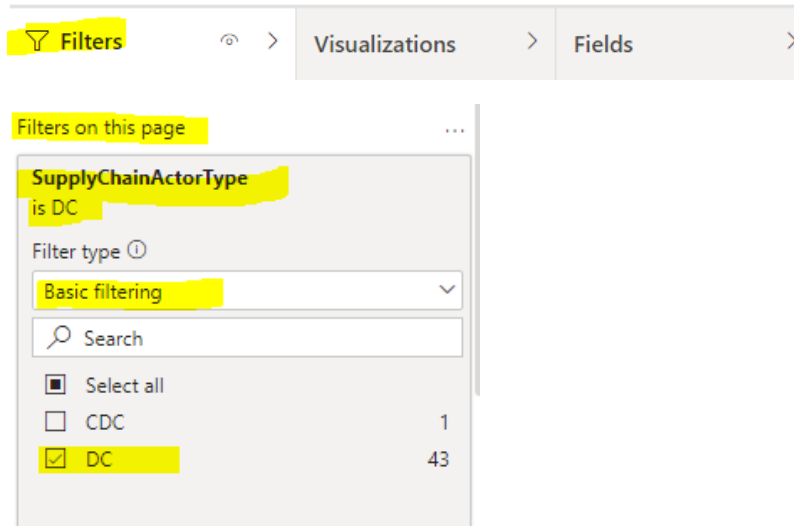
- ☒ In Report view, create a new sheet.
- ☒ On the new sheet, add a new visual by clicking on the 'decomposition tree' icon



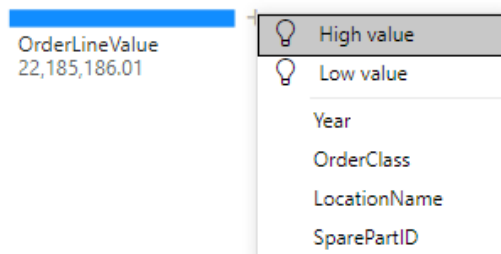
- ☒ In this visual there are two types of inputs: under "Analyze" you put the value you want to explore; under "Explain by" you add dimensions you want to analyze your value by. In our case, we want to explore OrderLineValue by OrderLineDate (year), DC, Order Class, Spare Part ID. You can add other fields here as well. The order you add them in does not matter. Remember that you can use search functionality to look up fields.

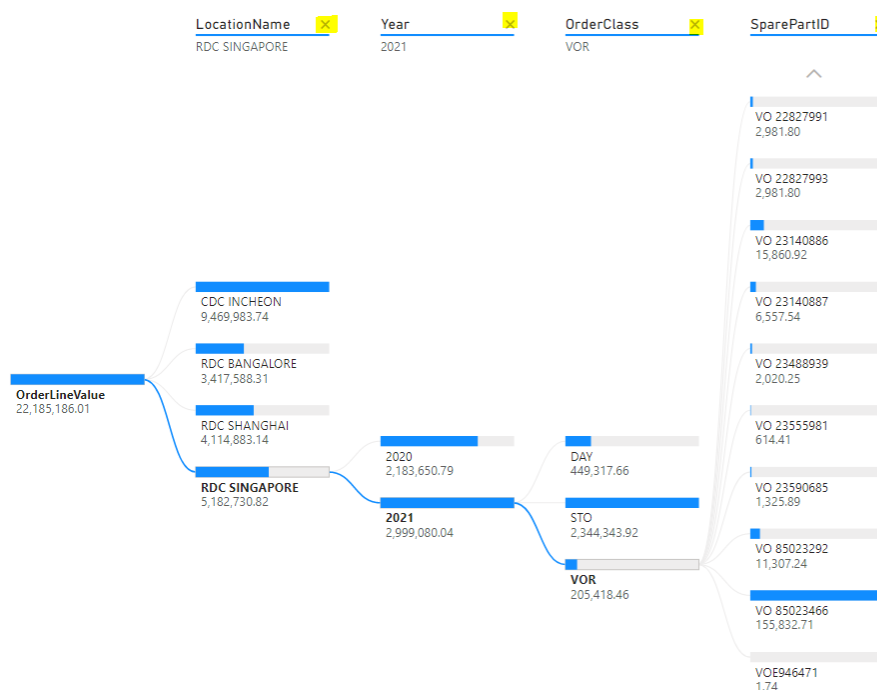


- ☑ Exclude CDC Gent data to focus on warehouses of same level. You can do it using the Filter pane. Add field SupplyChainActorType (CDC = Gent, DC = all the rest of the warehouses in this dataset). If you want to do the reverse – to analyze CDC Gent data, unselects “DC” and select “CDC” in the filter.

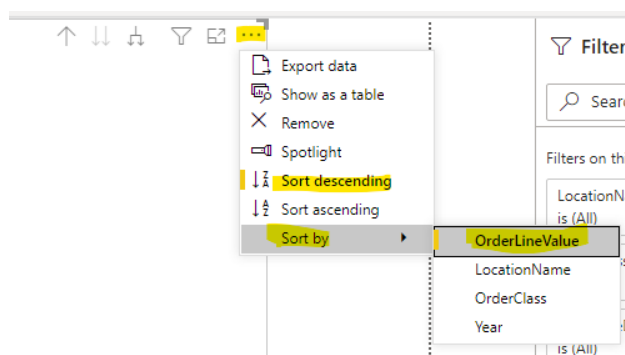


- ☑ Now explore this visual. Click on a “+” to expand it. Then, you will get different option. The ones marked with a light bulb symbol are AI-based. You only need to indicate what are you after (high or low value) and the dimension will be chosen automatically. Otherwise, you can choose a dimension yourself from the list. Yellow highlights below indicate possibilities to navigate in the visual.





- ☒ You may want to adjust the way values are sorted in the visual. In our case, values should be sorted by OrderLineValue in a descending order.



Answer the questions in the Sharepoint using decomposition tree.

Please keep in mind that the data only includes a very narrow scope of parts and period (Period 1st of July 2020 – 31st of July 2021; year 2020 in the data corresponds to 1st of July 2020-31st of December 2020, and 2021 to 1st of January 2021-31st of July 2021). It should only be used for the learning purposes.

We are done with this exercise! With this we conclude the last part of Power BI tutorials within Analytics Ignition Booster! We hope these tutorials gave you a feeling of the tool.

If you decide to learn more about PowerBI make sure to join PowerBI community on Yammer and check out [Group MS BI Community](#) for support and training opportunities!

Change data source

If you downloaded *w3_solution.pbix* do the following before you start. If you work with your Power BI file from last week, you do not need to change data source!

- Make sure you have *oc.csv* and *ool.csv* ([link](#)) from week 2 and *loa.csv*, *loc.csv*, *msq.csv*, *plm.csv*, *sp.csv* ([link](#)) from week 3 files saved on your computer see last week 2 and week 3 tutorials
- Open *w3_solution.pbix*
- Go to Transform data (1) => Data source settings (2)
- Change Source (3) to location of all seven files on your computer
- Refresh (4)

