Power BI – Visualizations

April 2018

Insights & Data

Capgemini

AGENDA

Power BI Data Modelling

- Modelling
- Manage Data Relationships
- Cardinality
- Cross-filter direction
- Optimize Data Models
- Calculated Tables
- Calculated Columns
- Measures
- Time Based Functions
- Time Based Data Exploration

Power BI Data Modelling

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Modelling

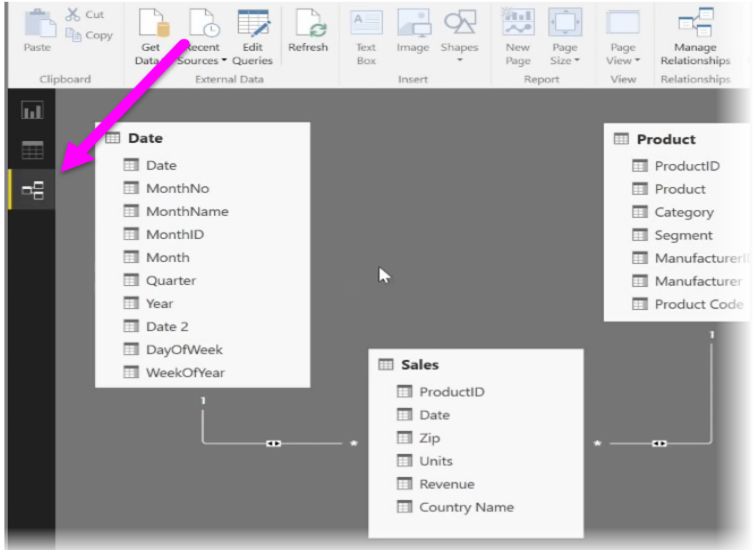
To build powerful reports in Power BI, first you need to have a great data model. Various Modelling capabilities available in Power BI are

- Connecting Multiple tables from different sources using relationships.
- Creating calculated columns by defining a calculation that transforms or combines two or more elements of existing data.
- Creating Measures and Calculated Tables using Dax.
- Create tables by pasting some content or typing in manually.
- Using Sort by Column tool, available in the Modeling Tab, to ensure that your data is displayed in the order you intended.
- Changing Data Category, Data Type, Format and Default Summarization for fields in your dataset.
- Hiding the fields from field pane, which are not required in Visualizations.

Manage Data Relationships

Power BI allows you to visually set the relationship between tables or elements using ***Relationship view***. In Relationship view you can

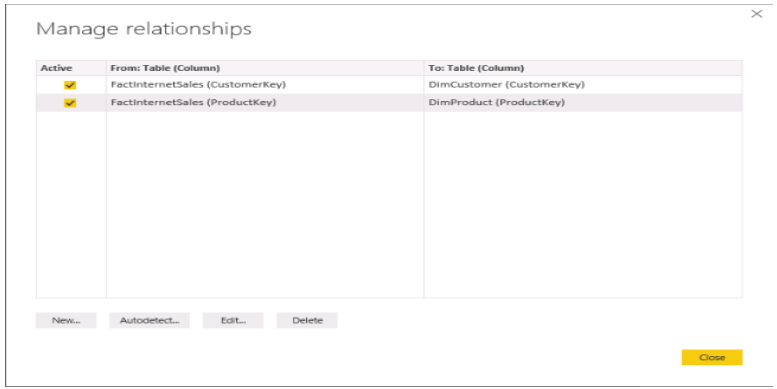
- Add a relationship by just dragging and dropping the fields between the tables you want to create a relationship.
- Remove a relationship by Right-clicking on it and selecting Delete.
- Hide a table or individual column from your report.
- Delete a table from your report.

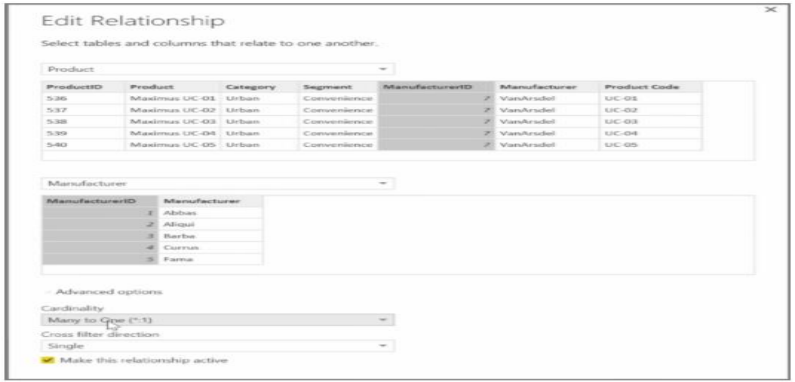


Manage Data Relationships (Continued)

Clicking ***Manage Relationships*** in the Modelling tab will open the Manage Relationships dialog. Here You can

- Create a relationship by using Autodetect or manually add a new relationship.
- Use Edit to manually edit your relationships.
- Make an relationship active or inactive.
- Power BI Desktop will automatically configure the advanced options like Cardinality , Cross filter direction, and Active properties for your new relationship. However, you can also change if required.



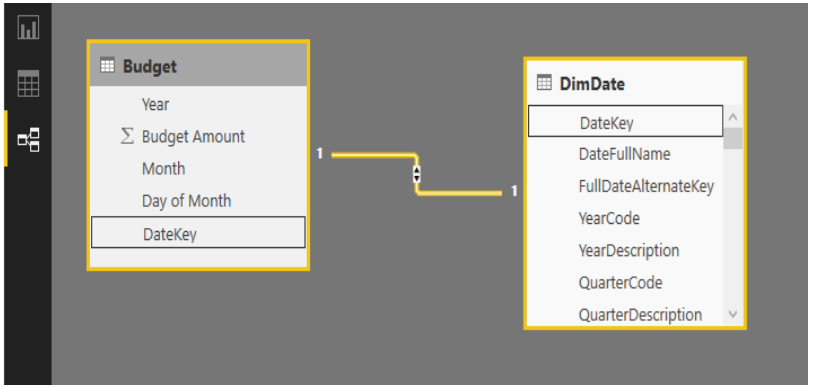


Cardinality

The Cardinality refers the relationship between two tables such as ***Many to One*** or ***One to Many*** or ***One to One.*** Power BI doesn't support Many to Many Cardinality type.

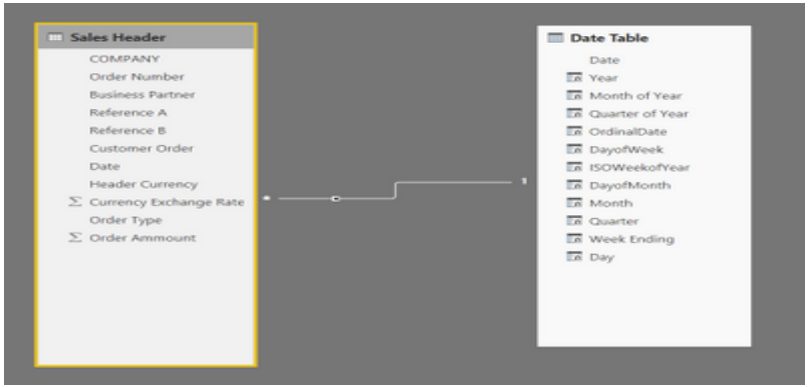
One to One

Used when column in one table has only one instance of a particular value, and the other related table has only one instance of a particular value.



Many to One

Many to One is the fact to dimension type relationship.



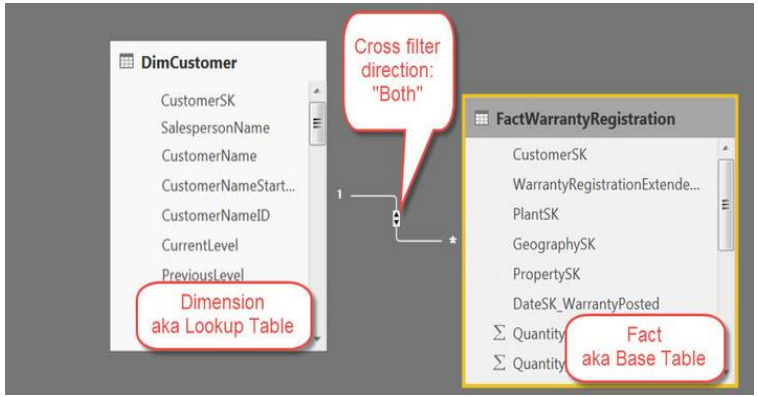
Cross-filter Direction

Cross Filter Direction decides how tables are treated in visualizations in reports.

Both

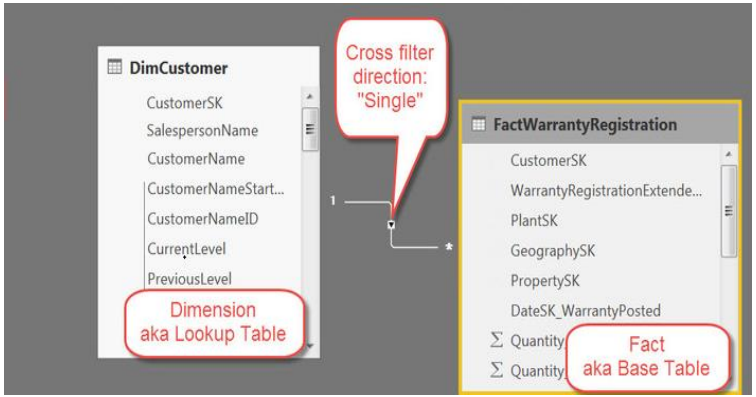
When the Cross filter direction is Both, two tables linked are treated as a single table for aggregation data in visualization.

By default, Relationships will be set to cross-filter in both directions.



Single

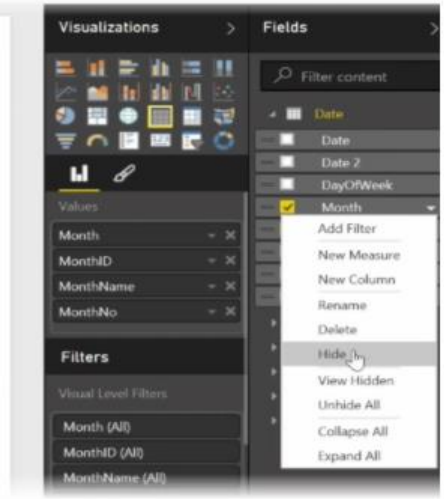
Cross-filtering in just one direction limits some of the modeling capabilities in a relationship.

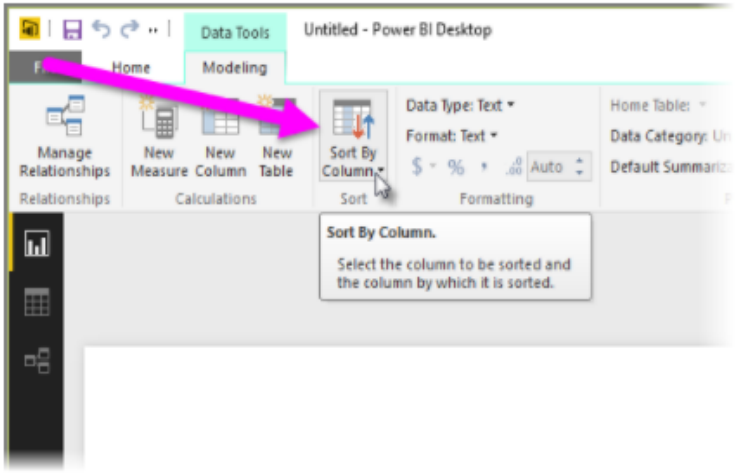


Optimize data models

Power BI Desktop has tools to optimize your data, and make it more usable for you to create reports and visuals, and for viewing your shared reports. Optimization can be done by

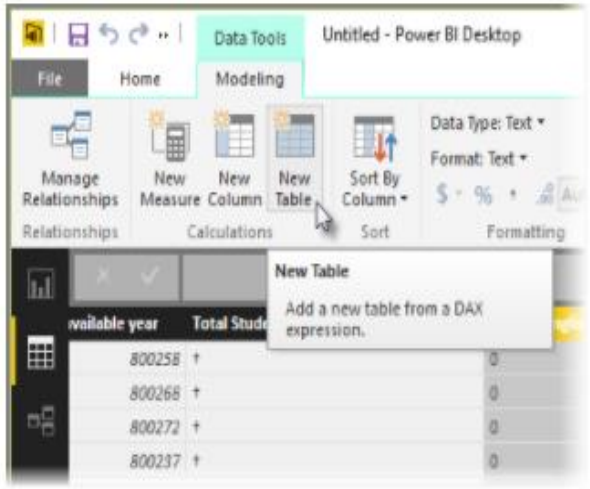
- Hiding the fields that are not needed for reporting and visualization tasks.
- Sorting visualization data by another field.
- Setting the data type for a field is another way to optimize your information so it's handled correctly.

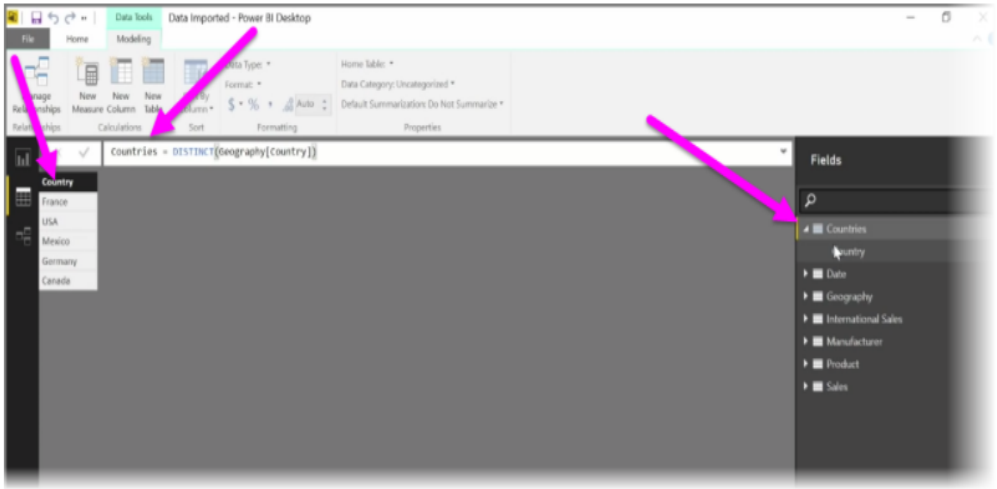




Calculated Tables

- Calculated tables are a function within DAX that allows you to express a whole range of new modeling capabilities.
- If you want to do different types of merge joins or create new tables on the fly based on the results of a functional formula, calculated tables are the way to accomplish that.

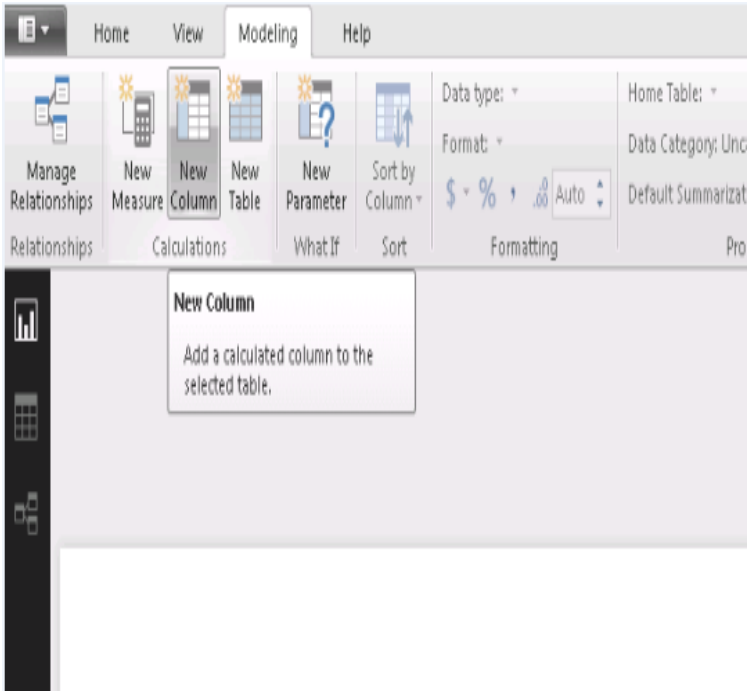




Calculated Columns

Power BI Desktop lets you create Calculated Columns to enrich and enhance your data.

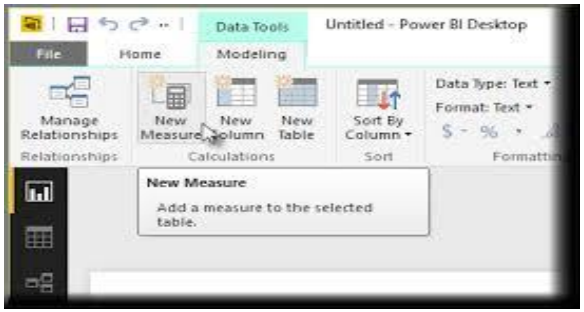
- A calculated column is a new column that you create by defining a calculation that transforms or combines two or more elements of existing data.
- We create calculated column to establish a relationship between tables, when no unique fields exist that can be used to establish a relationship.
- Calculated columns are the same as any another column in our table.
- We can also use DAX expression to prepare a new calculated column.
- A calculated column is applied to every single row of the dataset

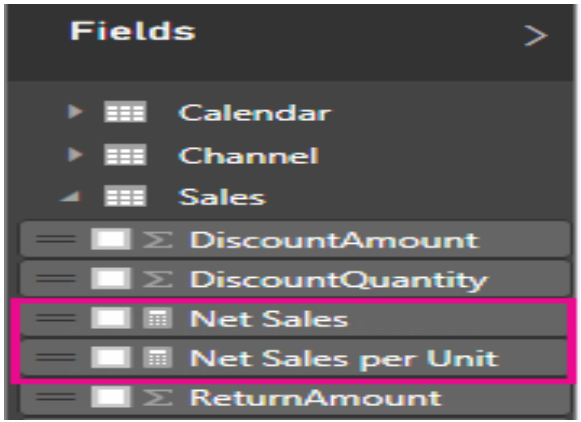


Measures

A measure is a calculation that exists in your Power BI data model.

- Measures help you by performing calculations on your data as you interact with your reports
- Measures you create yourself appear in the Fields list with a calculator icon.
- You can name measures whatever you want, and add them to a new or existing visualization just like any other field.
- Measures take very less space as compared to calculated columns





Time Based Functions

- Time based functions help you create calculations based on dates and time.
- Many of the functions in DAX are similar to the Excel date and time functions. However, DAX functions use a datetime data type, and can take values from a column as an argument.

FIRSTDATE (Date_Column)
LASTDATE (Date_Column)

FIRSTNONBLANK (Date_Column, Expression)
LASTNONBLANK (Date_Column, Expression)

PREVIOUSYEAR (Date_Column [,YE_Date])
NEXTDAY (Date_Column)
NEXTMONTH (Date_Column)
NEXTQUARTER (Date_Column)
NEXTYEAR (Date_Column [,YE_Date])

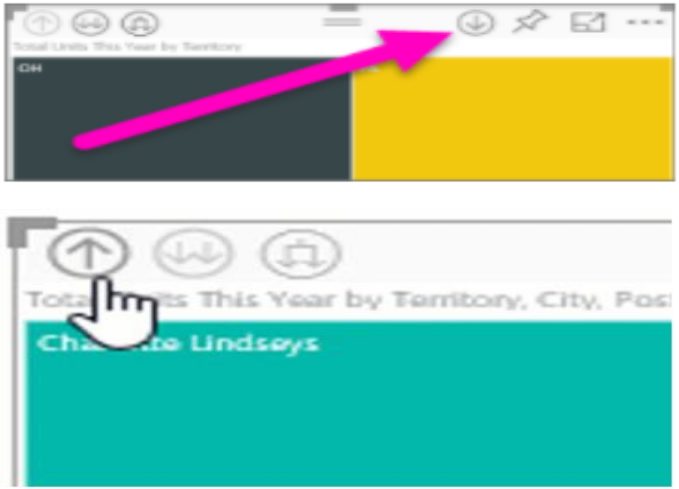
STARTOFMONTH (Date_Column)
STARTOFQUARTER (Date_Column)
STARTOFYEAR (Date_Column [,YE_Date])

ENDOFMONTH (Date_Column)
ENDOFQUARTER (Date_Column)
ENDOFYEAR (Date_Column [,YE_Date])

PREVIOUSDAY (Date_Column
PREVIOUSMONTH (Date_Column)
PREVIOUSQUARTER (Date_Column)

Time Based Data Exploration

When you create a table visualization in your report using a date field, Power BI Desktop automatically includes breakdowns by time period letting you drill down through years, quarters, months, and days with a single click.



Thank You!

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