Power BI

Your instructor
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- 20 year experience in IT: SQL server/BI
- Several years' experience as BI/MI developer in Insurance Market
- Presently working as consultant
- Experienced trainer

Microsoft Certified Trainer
Microsoft
MCT
2018 – 2019

About you!

- Name
- Role
- Experience with Power BI
- Expectation from this course

Our contract

- Class hours
- Breaks and lunch time
- Camera on
- Exercises
- Questions

Power Bi – day 1

- What is Power BI
- Get Data: Data sources
- Explore Power BI Desktop
    - Query Editor
        - Data Transformation
        - Merge files
    - Relationship

- Power BI visuals
    - Create and format
    - Create hierarchy

Power Bi – day 2

- Power Bi Visuals (continued)
- Dax:
  - new column,
  - new measure,
  - CALCULATE,
  - time intelligence -> date table

  - Role Level Security -> attribute members to roles

Power BI

Introduction

Introduction to Power BI

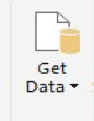
- What is Power BI
  - Microsoft Visualization tool – Released ~June 2015
  - Updated every month
- Power BI tools
  - Power Bi Desktop: download for free and install on local pc
  - Power Bi Services:
    - On line version: www.powerbi.com
    - Free – Pro -- Premium
  - Power Bi Mobile:
    - Complement to Power BI Services
    - Free download

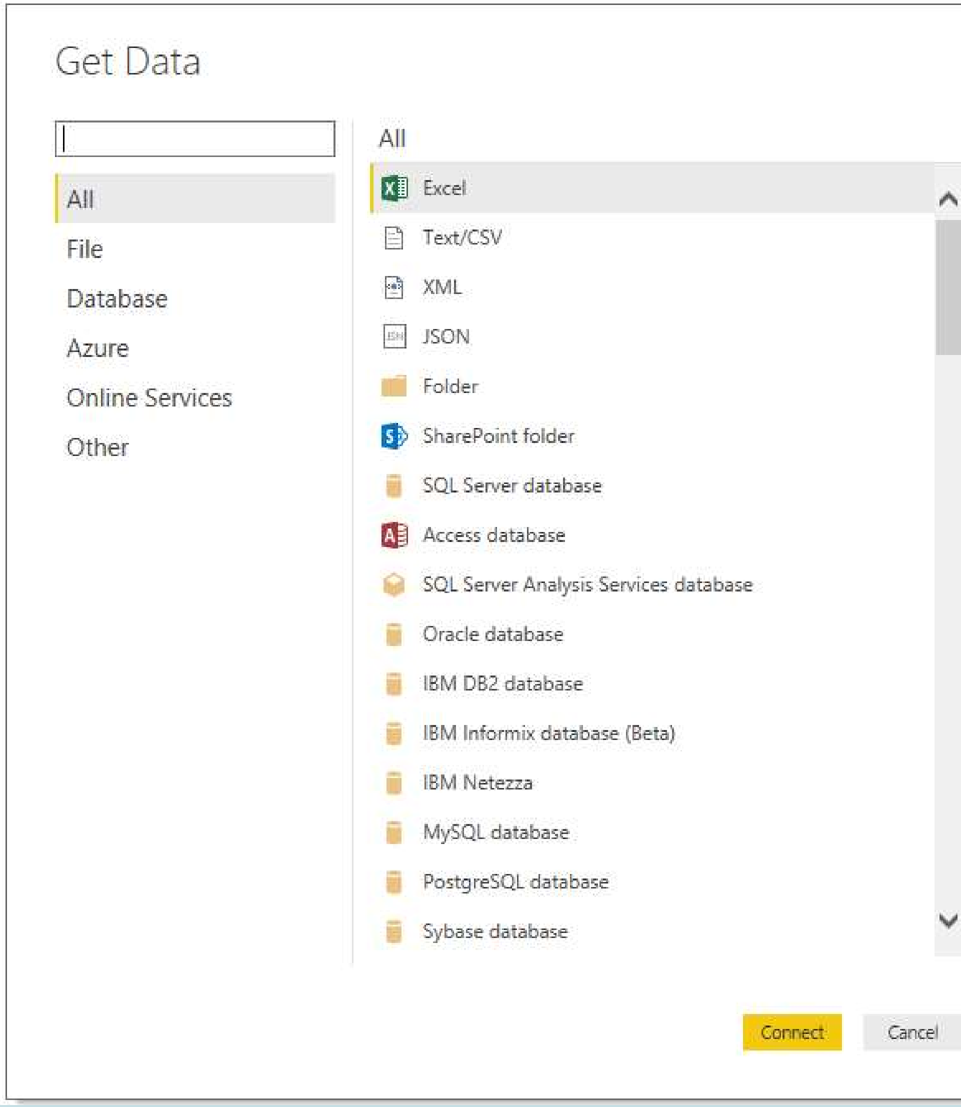
Power BI

Power BI Desktop

Power BI Desktop

- Open a model
  - Open powerBi desktop = open model -> pbix file
- Get data
  - Get data into your model by using several possible data sources
  - Click on “get Data” in the menu
  - Select among several possible connections
  - Follow instructions
  - Select Load or Edit



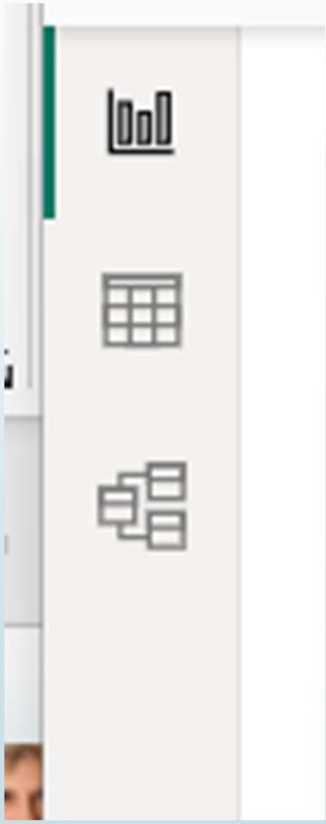


Exercise

- Exercise to get data

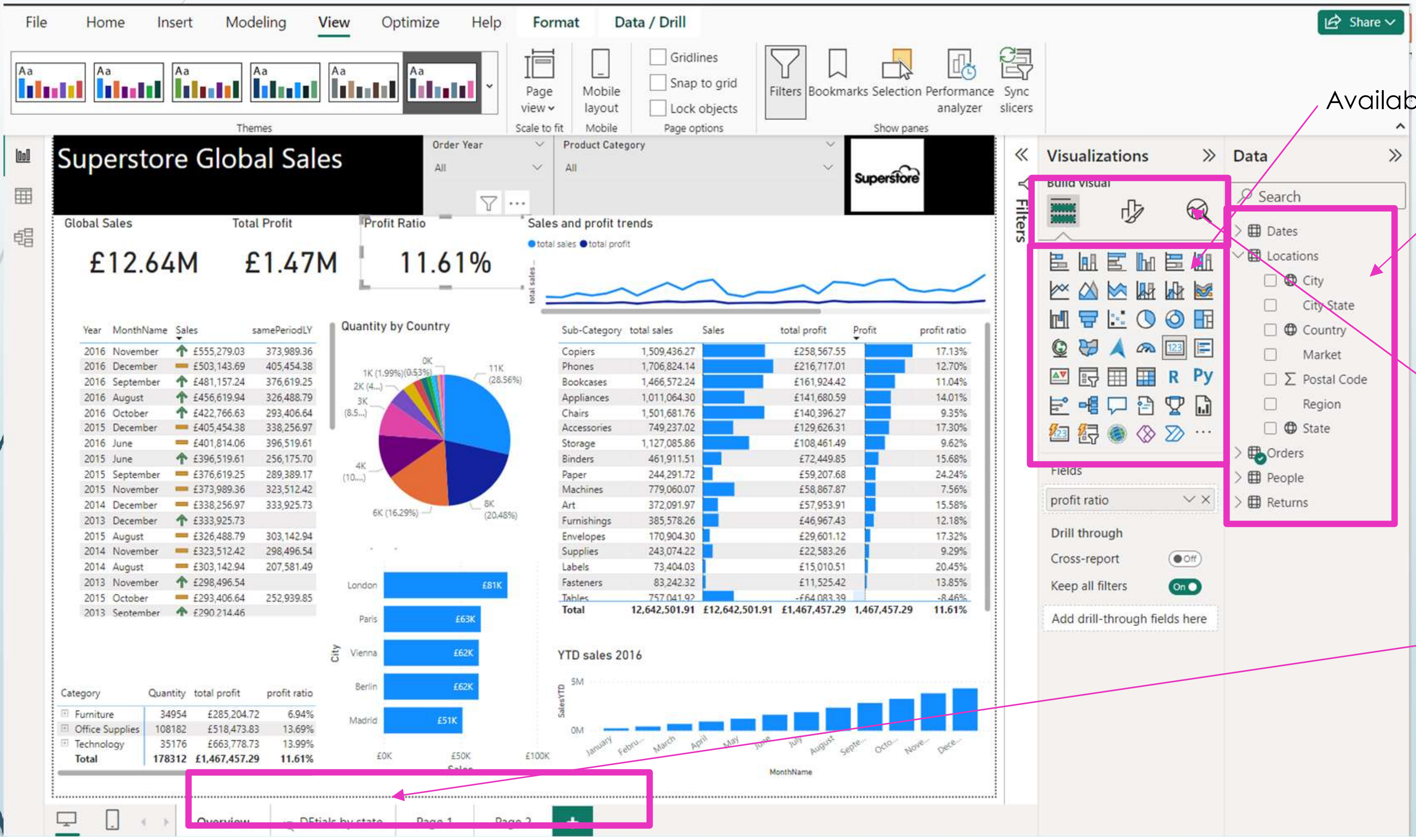
Explore Power Bi Desktop

- Report view
  - Create visuals
- Table view
  - Format data
  - Delete columns
  - Hide columns
- Model view
  - Create and edit relationships
  - View tables and column Properties



Explore Power BI Desktop

- **Report view**
  - Canvas to create visuals and reports pages



Year	MonthName	Sales	samePeriodLY
2016	November	£555,279.03	373,989.36
2016	December	£503,143.69	405,454.38
2016	September	£481,157.24	376,619.25
2016	August	£456,619.94	326,488.79
2016	October	£422,766.63	293,406.64
2015	December	£405,454.38	338,256.97
2016	June	£401,814.06	396,519.61
2015	June	£396,519.61	256,175.70
2015	September	£376,619.25	289,389.17
2015	November	£373,989.36	323,512.42
2014	December	£338,256.97	333,925.73
2013	December	£333,925.73	
2015	August	£326,488.79	303,142.94
2014	November	£323,512.42	298,496.54
2014	August	£303,142.94	207,581.49
2013	November	£298,496.54	
2015	October	£293,406.64	252,939.85
2013	September	£290,214.46	

Category	Quantity	total profit	profit ratio
Furniture	34954	£285,204.72	6.94%
Office Supplies	108182	£518,473.83	13.69%
Technology	35176	£663,778.73	13.99%
Total	**178312**	**£1,467,457.29**	**11.61%**

Sub-Category	total sales	Sales	total profit	Profit	profit ratio
Copiers	1,509,436.27		£258,567.55		17.13%
Phones	1,706,824.14		£216,717.01		12.70%
Bookcases	1,466,572.24		£161,924.42		11.04%
Appliances	1,011,064.30		£141,680.59		14.01%
Chairs	1,501,681.76		£140,396.27		9.35%
Accessories	749,237.02		£129,626.31		17.30%
Storage	1,127,085.86		£108,461.49		9.62%
Binders	461,911.51		£72,449.85		15.68%
Paper	244,291.72		£59,207.68		24.24%
Machines	779,060.07		£58,867.87		7.56%
Art	372,091.97		£57,953.91		15.58%
Furnishings	385,578.26		£46,967.43		12.18%
Envelopes	170,904.30		£29,601.12		17.32%
Supplies	243,074.22		£22,583.26		9.29%
Labels	73,404.03		£15,010.51		20.45%
Fasteners	83,242.32		£11,525.42		13.85%
Tables	757,041.92		-£64,083.39		-8.46%
Total	**12,642,501.91**	**£12,642,501.91**	**£1,467,457.29**	**1,467,457.29**	**11.61%**

Available visuals

data tables in the model

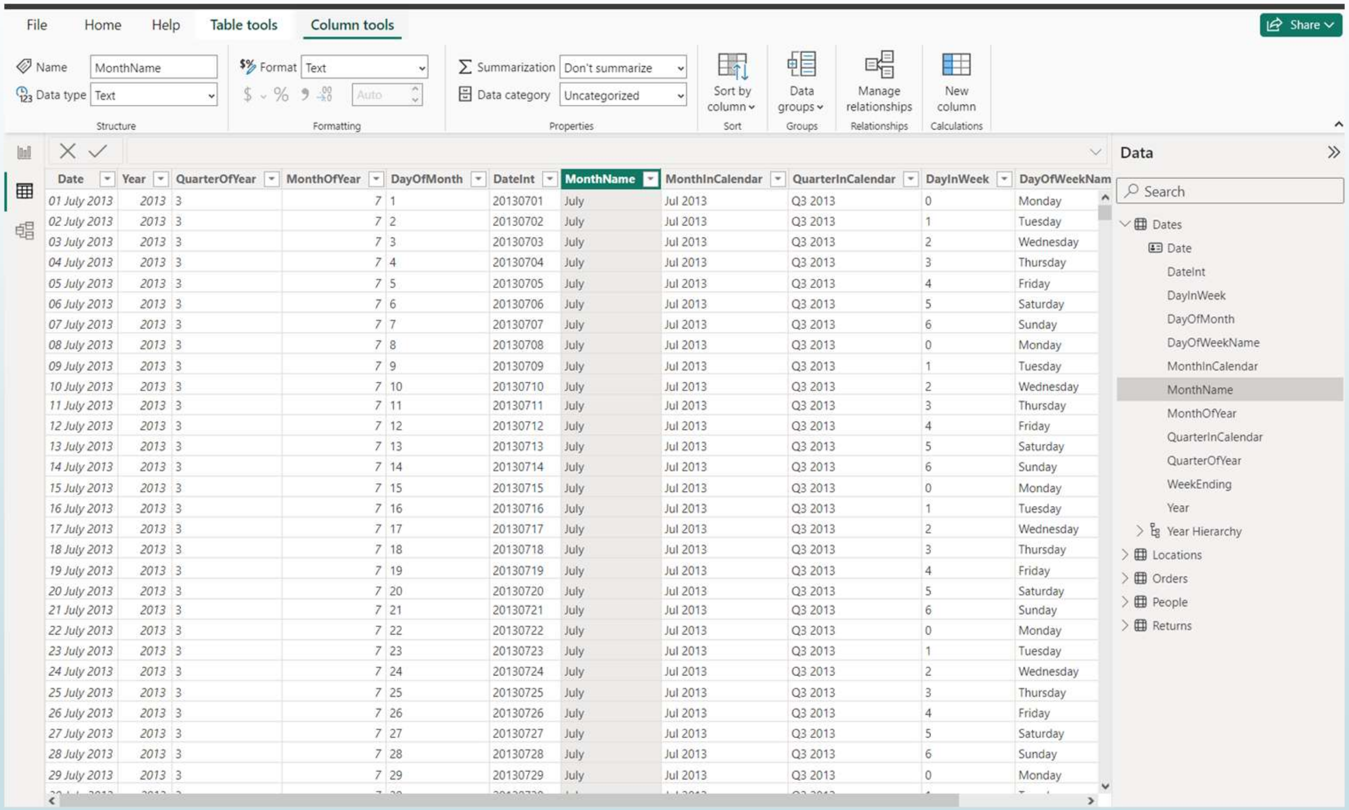
Fields and formatting menus

Report pages

Explore Power BI Desktop

Table view

- Look at data in tables
  - Select a table from Fields menu on the right end side
- Format fields and columns
  - Select a field and use Modelling tab to format
  - Sort columns by another column (e.g. Month name by month number)
- Hide columns from Report view
  - Right click column and select "hide in Report view" (e.g. key columns)



Name: MonthName
Data type: Text
Format: Text
Auto
Summarization: Don't summarize
Data category: Uncategorized

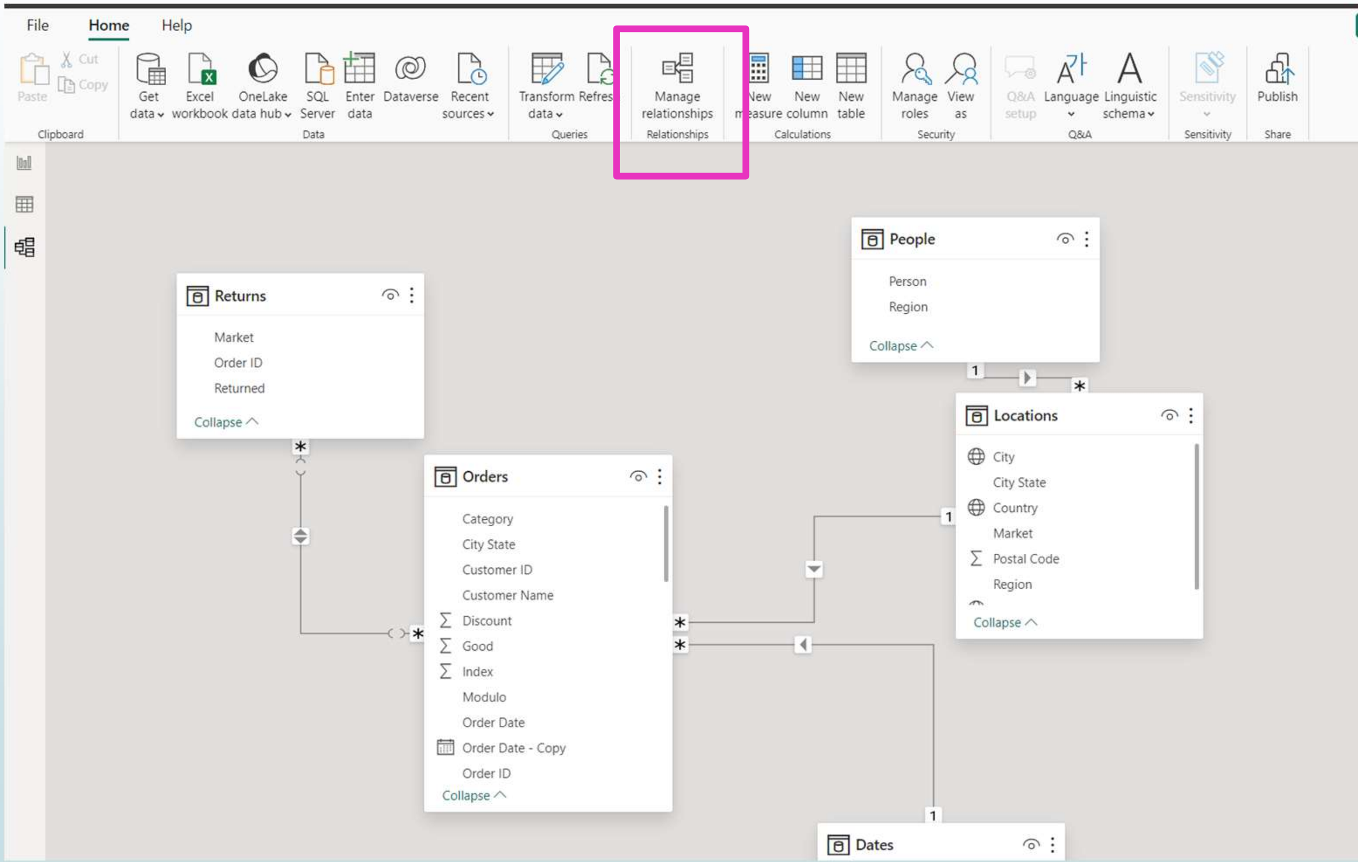
Date	Year	QuarterOfYear	MonthOfYear	DayOfMonth	DateInt	MonthName	MonthInCalendar	QuarterInCalendar	DayInWeek	DayOfWeekNam
01 July 2013	2013	3	7	1	20130701	July	Jul 2013	Q3 2013	0	Monday
02 July 2013	2013	3	7	2	20130702	July	Jul 2013	Q3 2013	1	Tuesday
03 July 2013	2013	3	7	3	20130703	July	Jul 2013	Q3 2013	2	Wednesday
04 July 2013	2013	3	7	4	20130704	July	Jul 2013	Q3 2013	3	Thursday
05 July 2013	2013	3	7	5	20130705	July	Jul 2013	Q3 2013	4	Friday
06 July 2013	2013	3	7	6	20130706	July	Jul 2013	Q3 2013	5	Saturday
07 July 2013	2013	3	7	7	20130707	July	Jul 2013	Q3 2013	6	Sunday
08 July 2013	2013	3	7	8	20130708	July	Jul 2013	Q3 2013	0	Monday
09 July 2013	2013	3	7	9	20130709	July	Jul 2013	Q3 2013	1	Tuesday
10 July 2013	2013	3	7	10	20130710	July	Jul 2013	Q3 2013	2	Wednesday
11 July 2013	2013	3	7	11	20130711	July	Jul 2013	Q3 2013	3	Thursday
12 July 2013	2013	3	7	12	20130712	July	Jul 2013	Q3 2013	4	Friday
13 July 2013	2013	3	7	13	20130713	July	Jul 2013	Q3 2013	5	Saturday
14 July 2013	2013	3	7	14	20130714	July	Jul 2013	Q3 2013	6	Sunday
15 July 2013	2013	3	7	15	20130715	July	Jul 2013	Q3 2013	0	Monday
16 July 2013	2013	3	7	16	20130716	July	Jul 2013	Q3 2013	1	Tuesday
17 July 2013	2013	3	7	17	20130717	July	Jul 2013	Q3 2013	2	Wednesday
18 July 2013	2013	3	7	18	20130718	July	Jul 2013	Q3 2013	3	Thursday
19 July 2013	2013	3	7	19	20130719	July	Jul 2013	Q3 2013	4	Friday
20 July 2013	2013	3	7	20	20130720	July	Jul 2013	Q3 2013	5	Saturday
21 July 2013	2013	3	7	21	20130721	July	Jul 2013	Q3 2013	6	Sunday
22 July 2013	2013	3	7	22	20130722	July	Jul 2013	Q3 2013	0	Monday
23 July 2013	2013	3	7	23	20130723	July	Jul 2013	Q3 2013	1	Tuesday
24 July 2013	2013	3	7	24	20130724	July	Jul 2013	Q3 2013	2	Wednesday
25 July 2013	2013	3	7	25	20130725	July	Jul 2013	Q3 2013	3	Thursday
26 July 2013	2013	3	7	26	20130726	July	Jul 2013	Q3 2013	4	Friday
27 July 2013	2013	3	7	27	20130727	July	Jul 2013	Q3 2013	5	Saturday
28 July 2013	2013	3	7	28	20130728	July	Jul 2013	Q3 2013	6	Sunday
29 July 2013	2013	3	7	29	20130729	July	Jul 2013	Q3 2013	0	Monday

Explore Power BI Desktop

Model view

- Create and edit relationships

- Importance of relationship
  - All tables in a model should be related in order to work together in visuals and filters



Exercise

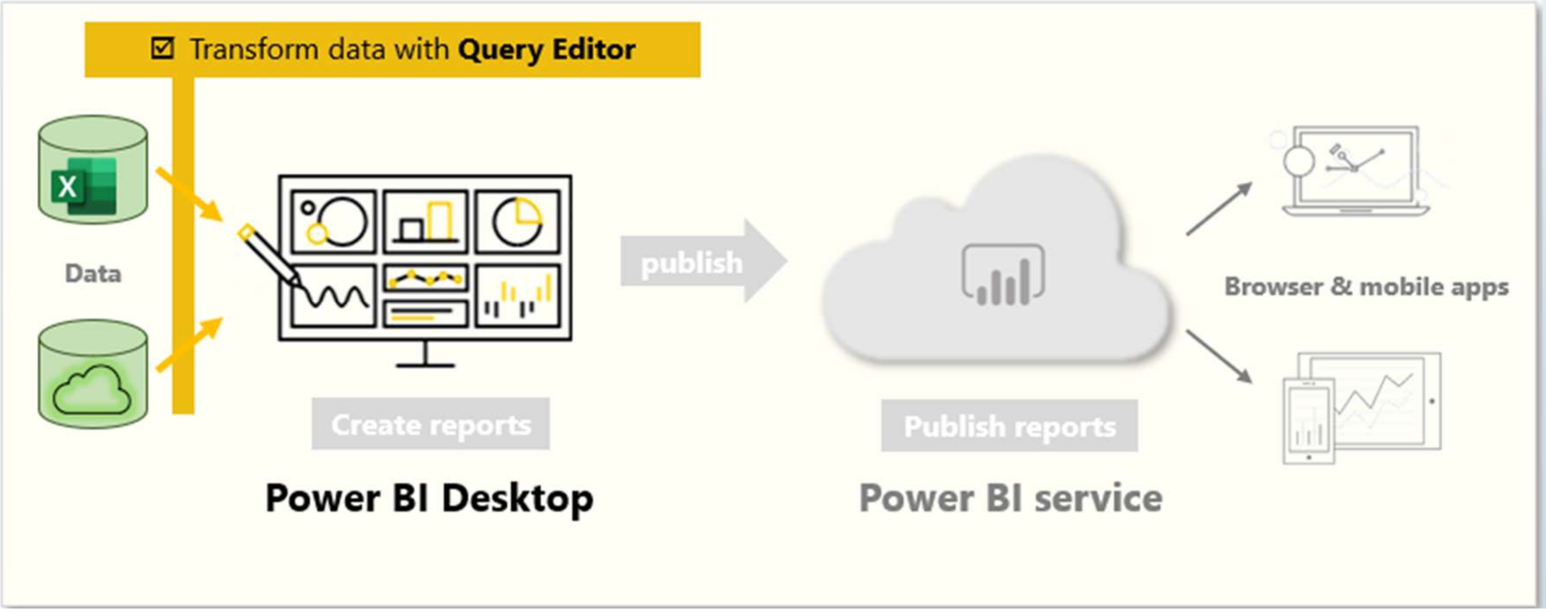
- **Exercise 2: Explore Power BI desktop**

POWER BI

Transforming data: Query Editor

Query editor

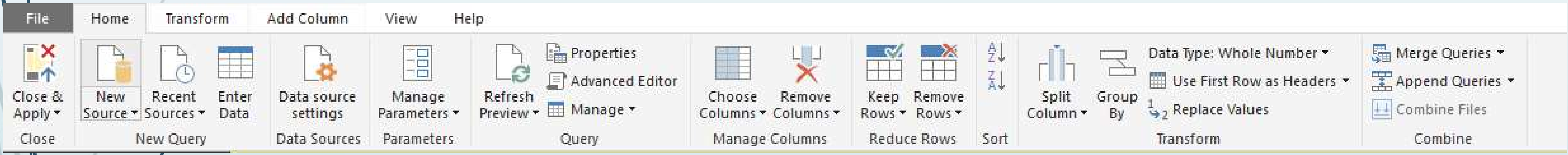
- Any data loaded into Power Bi Desktop **<u>always</u>** goes through Query Editor
  - Query Editors holds the connection with the source
  - Desktop hold a copy of the data
- Use query editor to **<u>prepare the data</u>**: **cleanse, edit, reduce the amount of data** loaded in desktop

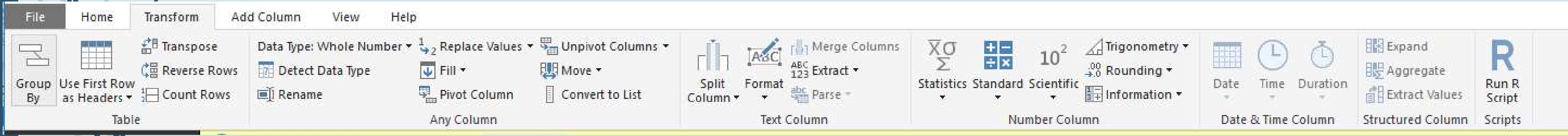


Query Editor

- Powerful and easy to use interface to **manipulate data**
- Click on Transform Data or click on Transform Data when loading data

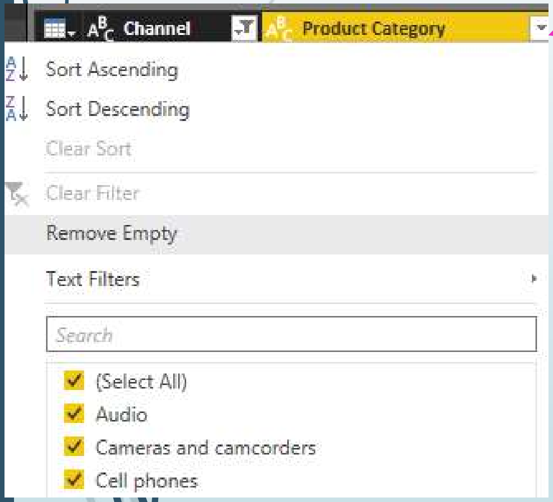
- Different tabs with commands to edit data:

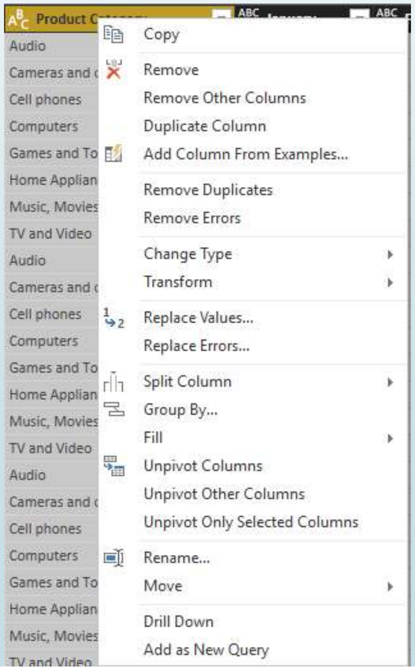


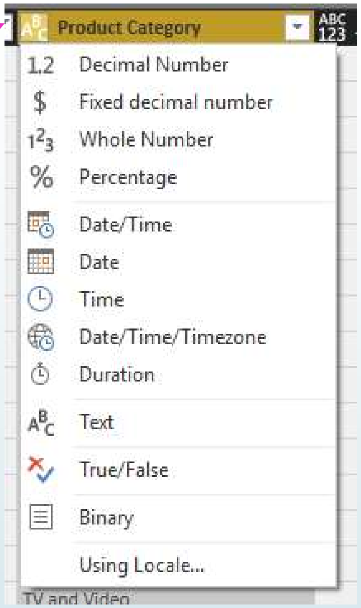


Query Editor

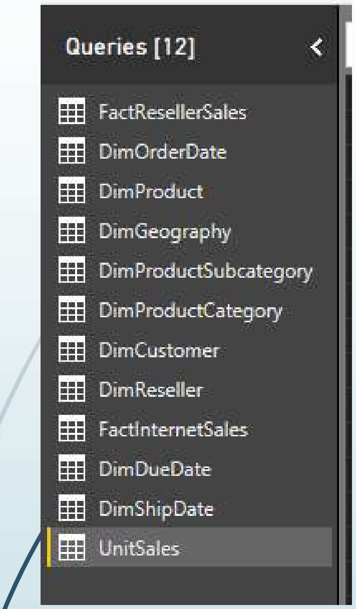
- Each column has different menus:
  - Data type on top right:
    - Can change data type from this menu
  - Sort and filters from drop down on left
  - Right click for more options







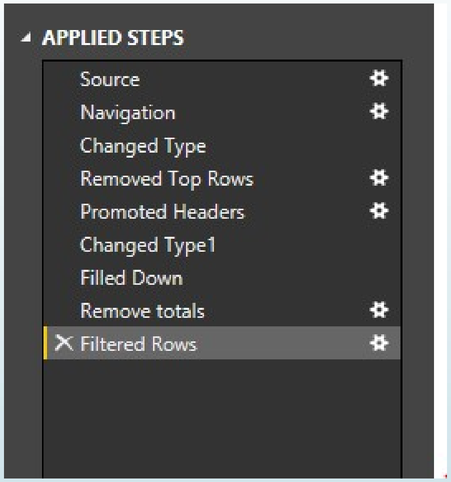
Query Editor



Queries [12]

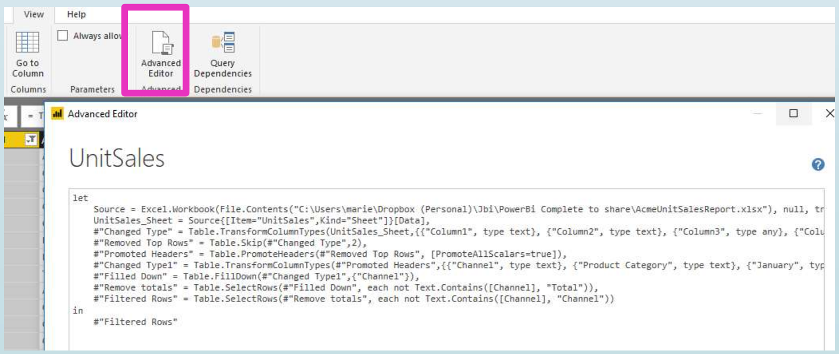
- FactResellerSales
- DimOrderDate
- DimProduct
- DimGeography
- DimProductSubcategory
- DimProductCategory
- DimCustomer
- DimReseller
- FactInternetSales
- DimDueDate
- DimShipDate
- UnitSales

- List of tables on right
  - Right click table to copy and paste, duplicate
- List of steps executed per each table (on left)
  - Each step can be deleted
  - “walk” up the steps to see status at that point
  - All steps are applied every time data refreshed
- Tab View -> advanced editor
  - Steps in script (M language)



APPLIED STEPS

- Source
- Navigation
- Changed Type
- Removed Top Rows
- Promoted Headers
- Changed Type1
- Filled Down
- Remove totals
- Filtered Rows



UnitSales

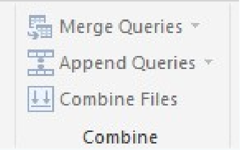
```
let
    Source = Excel.Workbook(File.Contents("C:\Users\marie\Dropbox (Personal)\Jbi\PowerBi Complete to share\AcmeUnitSalesReport.xlsx"), null, tr
    UnitSales_Sheet = Source{[Item="UnitSales",Kind="Sheet"]}[Data],
    #"Changed Type" = Table.TransformColumnTypes(UnitSales_Sheet,{{"Column1", type text}, {"Column2", type text}, {"Column3", type any}, {"Colu
    #"Removed Top Rows" = Table.Skip(#"Changed Type",2),
    #"Promoted Headers" = Table.PromoteHeaders(#"Removed Top Rows", [PromoteAllScalars=true]),
    #"Changed Type1" = Table.TransformColumnTypes(#"Promoted Headers",{{"Channel", type text}, {"Product Category", type text}, {"January", typ
    #"Filled Down" = Table.FillDown(#"Changed Type1",{"Channel"}),
    #"Remove totals" = Table.SelectRows(#"Filled Down", each not Text.Contains([Channel], "Total")),
    #"Filtered Rows" = Table.SelectRows(#"Remove totals", each not Text.Contains([Channel], "Channel"))
in
    #"Filtered Rows"
```

Query Editor

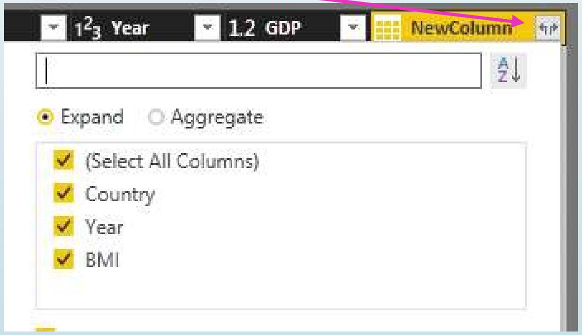
- **Do now**: import and clean “AcmeUnitSalesReport.xls”
  - Remove first 2 rows
  - Promote first row as header
  - Fill down first column
  - Remove rows with “Total”
  - Remove rows with “channel”
  - Remove last two columns
  - Unpivot
  - Change column type

Query Editor

- Combine tables



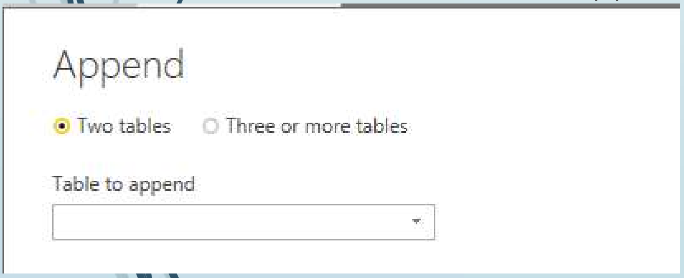
  - **Merge**
    - Tables are merged into one
    - Select 2 tables
    - Select common fields
    - Select type of join (left, right, inner)
    - In merged table expand to select fields



● Expand ○ Aggregate

☑ (Select All Columns)
☑ Country
☑ Year
☑ BMI

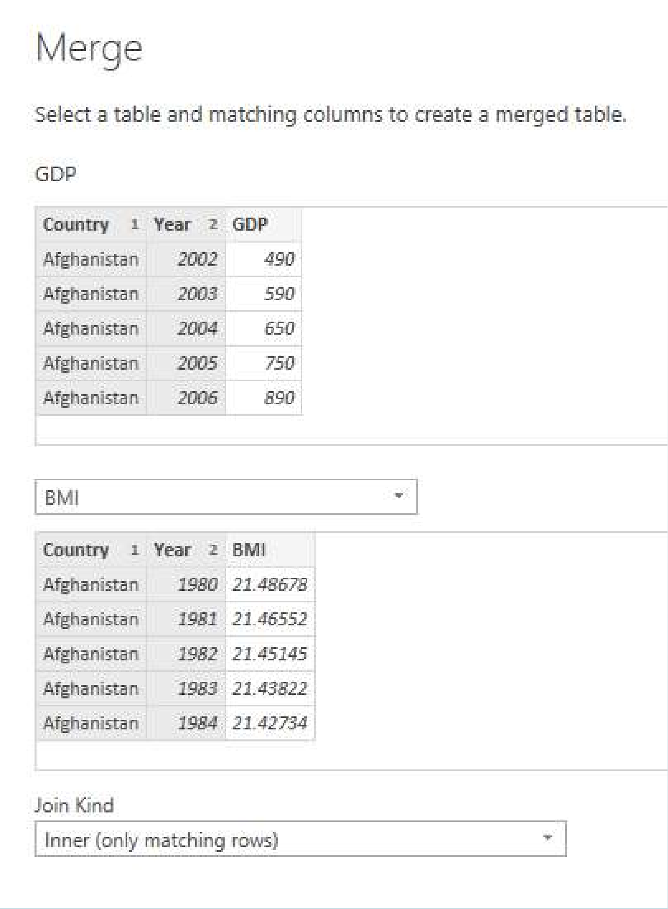
  - **Append**
    - Select table to append



Append

● Two tables ○ Three or more tables

Table to append



Merge

Select a table and matching columns to create a merged table.

GDP

Country 1	Year 2	GDP
Afghanistan	2002	490
Afghanistan	2003	590
Afghanistan	2004	650
Afghanistan	2005	750
Afghanistan	2006	890

BMI

Country 1	Year 2	BMI
Afghanistan	1980	21.48678
Afghanistan	1981	21.46552
Afghanistan	1982	21.45145
Afghanistan	1983	21.43822
Afghanistan	1984	21.42734

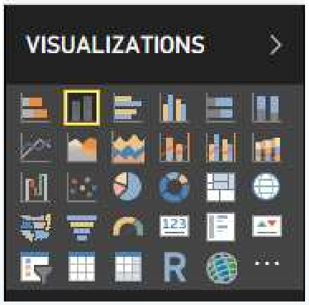
Join Kind

Inner (only matching rows)

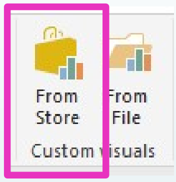
Exercise

- Exercise 3: Transforming Data
- Exercise 4: From Spreadsheet to Scatter Chart

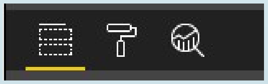
Visuals: create and format



- All available visuals are listed in the VISUALIZATION area
- Custom visuals can be added
  - A rich list of custom visuals are available clicking on



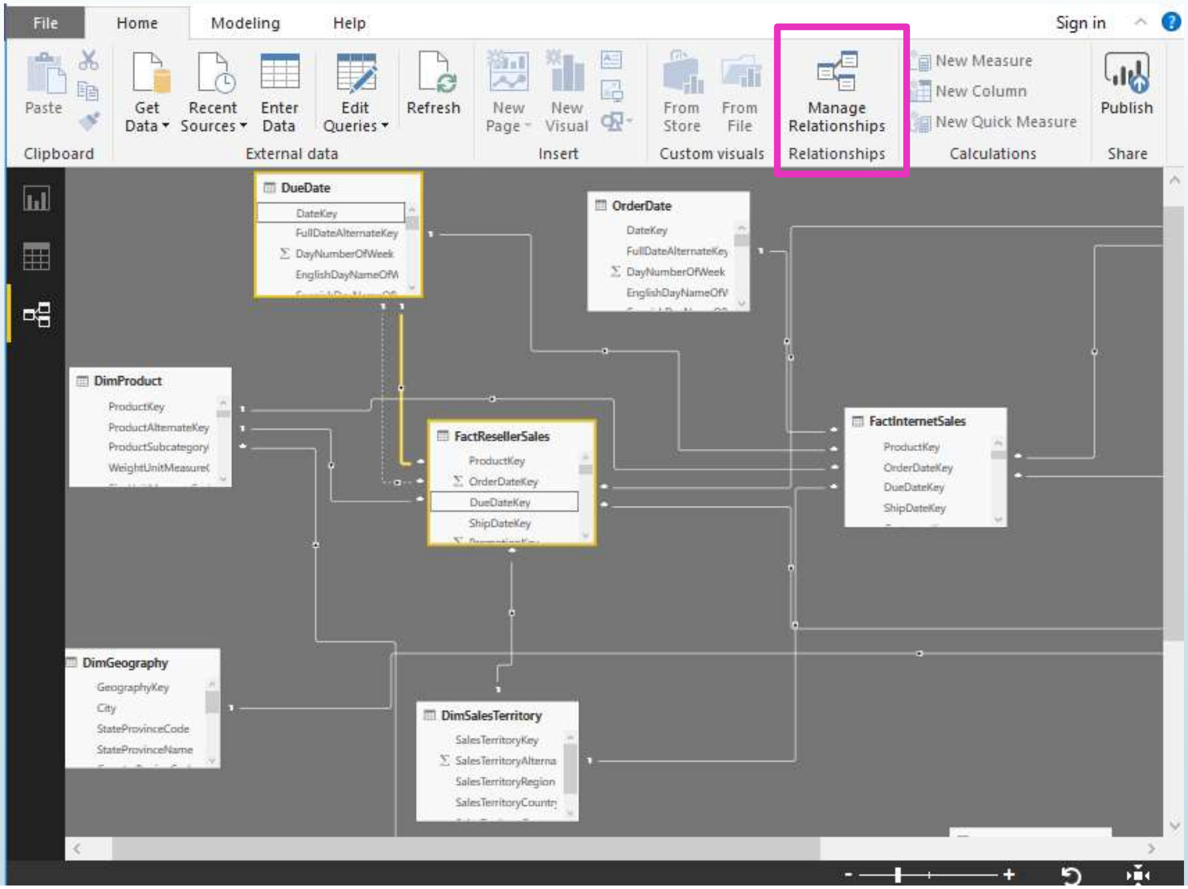
  - Select the visual and click Add
  - Visual is added in the VISUALIZATION area and can be used like any other visuals
- Two ways to create visual on a report
  - Drag and drop a field in the report canvas: a visual is automatically created
  - Alternatively, select a visual from the menu and then add fields
  - Visualization can be changed at any time clicking on another visuals from menu
- Fields, format and analytics menus



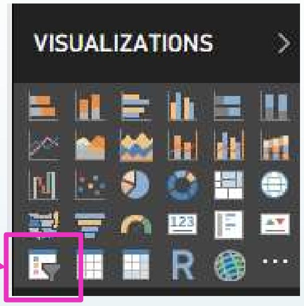
  - Content of these menus change per each visual
  - Explore formatting menu as several options are available
  - analytics menu (available on some visuals only) to add “comparison” lines: constant, min, max etc

Relationships

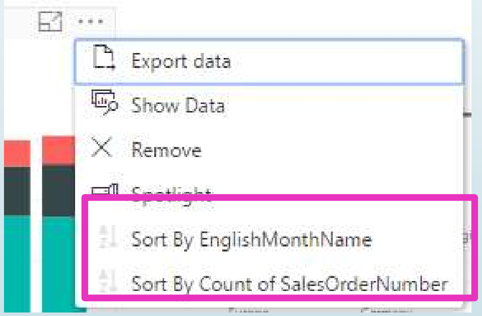
- **Model view**
  - Create and edit relationships
    - Drag and drop fields or use "manage Relationship"
    - Requested condition: fields to be same type
  - Relationship cardinality
    - One to many
    - One-to-one
    - Many-to-many not directly supported
  - Relationship direction
  - Active and inactive relationship
    - Only one active relationship per each couple of tables
    - Dax function USERELATIONSHIP for inactive relationship
    - Workaround: create duplicate of table (e.g. date table)



Visuals: create and format



- Slicer
  - It is a visual -> drag and drop it from menu to canvas
  - Add fields
  - Choose list or drop-down
  - Format-> selection control -> single selection = off to get multiple select



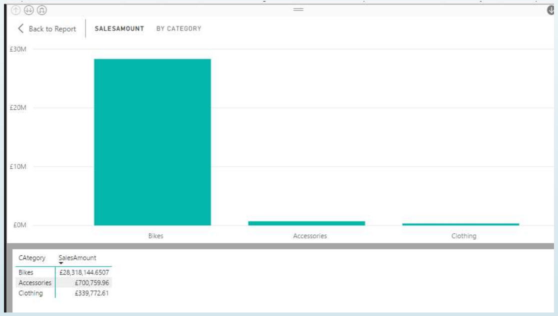
- Sort data in visual
  - Use top left ellipsis to get menu that allows sort by fields in the visual

- Highlight filter -> edit interaction
  - Click on an area of one visual to filter all the page by that category
  - This behaviour can be controlled by "Edit Interaction" in Format tab

- Maps
  - In modelling Tab, select Data Category for each geographic field to get a better mapping

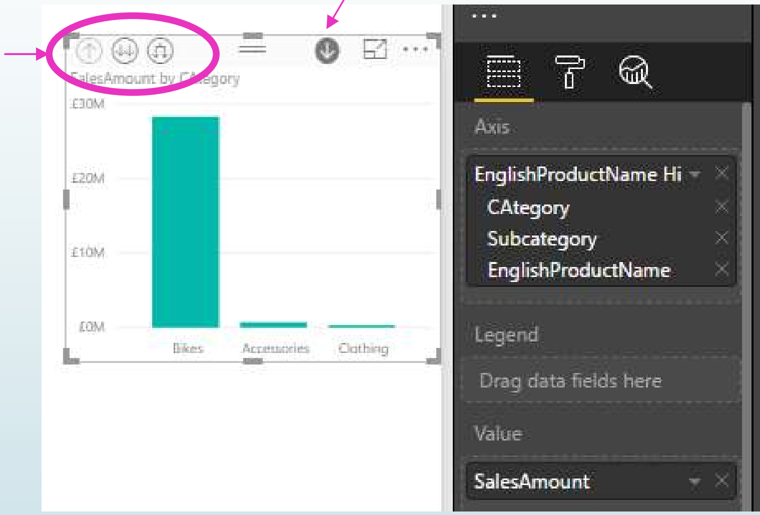
Visuals : hierarchies and drill down

- Adding hierarchy into visuals will automatically enable drill down feature
  - Click on categories to drill down or use the top left arrows
  - Right click for "show data"

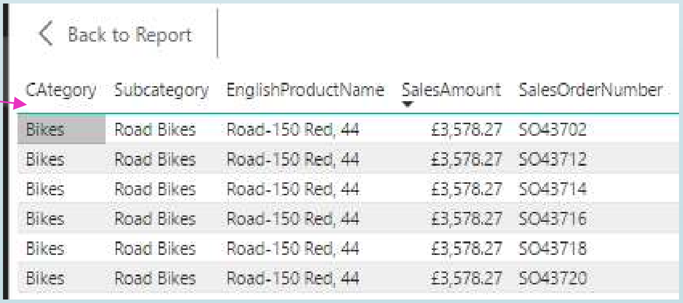


CAtegory	SalesAmount
Bikes	£28,318,144.6507
Accessories	£700,759.96
Clothing	£339,772.61

Enable click drilldown



  - Or "see records"



CAtegory	Subcategory	EnglishProductName	SalesAmount	SalesOrderNumber
Bikes	Road Bikes	Road-150 Red, 44	£3,578.27	SO43702
Bikes	Road Bikes	Road-150 Red, 44	£3,578.27	SO43712
Bikes	Road Bikes	Road-150 Red, 44	£3,578.27	SO43714
Bikes	Road Bikes	Road-150 Red, 44	£3,578.27	SO43716
Bikes	Road Bikes	Road-150 Red, 44	£3,578.27	SO43718
Bikes	Road Bikes	Road-150 Red, 44	£3,578.27	SO43720

- Date hierarchies are automatically created by Power BI

Exercise : create visuals

- Exercise 5- Getting started with report authoring
- If you finish early you can try
  - Exercise 6 - Create Visuals in Power Bi Desktop (note this is a free exercise without step-by-step exercise)

Power BI

Calculated columns and measures: DAX

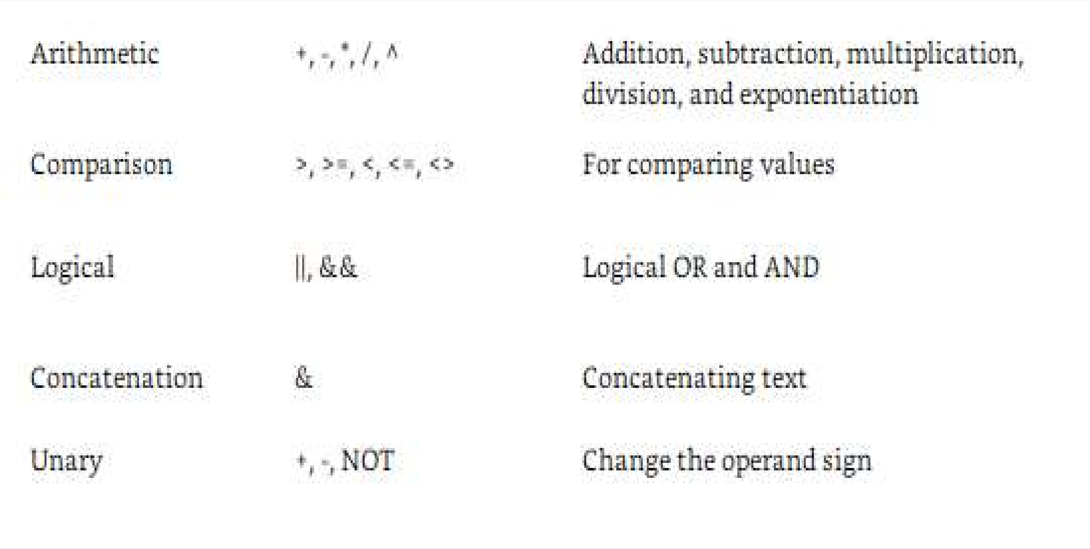
DAX

- Data Analysis EXpressions (DAX)
  - Functional language -> every expression is function
  - Syntax for both queries and expressions
  - Supported by Power BI, tabular model projects and PowerPivot
  - To build advanced queries DAX Studio is recommended
  - Meant to be Excel formula–like, and therefore, easy to use

DAX : function types

- DAX supports many function types
  - Excel functions
    - More than 80 supported
    - DAX does not support cell references
      - Only column names
  - Aggregate functions
  - Filter functions
  - Context functions
  - Time-intelligence functions
  - Ranking functions
  - Information functions
  - Table functions

Dax operators



Arithmetic	+, -, *, /, ^	Addition, subtraction, multiplication, division, and exponentiation
Comparison	>, >=, <, <=, <>	For comparing values
Logical	||, &&	Logical OR and AND
Concatenation	&	Concatenating text
Unary	+, -, NOT	Change the operand sign

DAX Columns

- Like any other column
- Visible at right end of table
- Computed at process time
  - Columns calculated insteps use more memory than one complex calculated column
- Can be text or calculations
  - Add calculated column: type name and formula

GROSSMARGIN = SALES[SALESAMOUNT] - SALES[TOTALPRODUCTCOST]

Initial =LEFT([FirstName], 1)

Full name=[FirstName] & " " & [LastName]

DAX : Measures

Measures create aggregated values

Three types of measures

- **Implicit measures**
  - Automatically created when adding a value into visual
  - Aggregating function can be changed by clicking on menu on added field
- **Explicit measures**
  - Created with “Add Measure” and DAX
  - Refer to the whole table
  - Result only visible when added to visual
- **Power Bi Quick measure**
  - Enabled in Preview
  - Created in value menu
  - Select calculation and fields to be used
  - Will automatically create DAX script

Measures vs calculated columns

- **Columns**
- Computed on creation or refresh
- Use only row context of table

- **Measures**
- Only calculated in the report context => depends on other values and filters on report
- Do not consume memory for storage

Measures vs calculated columns

- **Use Columns**
- Place the calculated results in **a slicer**, or see results **in rows or columns** in a table , or in the **axes of a chart**, or use the result as a filter condition in a DAX query.
- Define an expression that is strictly bound to the current row. For example, Price * Quantity
- Categorize text or numbers. For example, a range of values for a measure, a range of ages of customers, such as 0–18, 18–25, and so on.

- **Use Measures**
- whenever you want to display resulting calculation values that reflect user selections and see them in the **values area**

DAX : Aggregate Functions

- DAX supports Excel aggregate functions
  - `SUM`, `MAX`, `MIN`, `AVERAGE`, etc.
  - For example, `=SUM([SalesAmount])`
- DAX supports additional aggregate functions with `X` suffix
  - `SUMX`, `MAXX`, `MINX`, `AVERAGEX`, etc.
  - Functions take two parameters: a table and expression to be aggregated
  - Allows expressions like `SUMX('Internet Sales', [UnitPrice]*[OrderQty] )` to be done in one step
    - The alternative is to create a calculated column of `[UnitPrice]*[OrderQty]`, then apply a `SUM` function on result

DAX: Aggregate Functions

- Select the Internet Sales table, right click and select New Measure
- In the Calculation Area within the Internet Sales table, type `NumberOfTransactions =DISTINCTCOUNT(InternetSales[SalesOrderNumber])`
- On the InternetSales table, create another measure that calculates the sales per transaction. Type: `SalesPerTrans = sum(InternetSales[SAlesAmount])/[NumberOfTransactions]`
- Create a new calculated column called OrdYear to determine the year each order date was made: OrdYear = YEAR(InternetSales[OrderDate])
- Create a matrix or a visualizations that displays the `OrdYear` in the rows and the `NumberOfTransactions` and `SalesPerTrans` in the Values section
- Use the `SUMX()` function to create a calculation

```
TotalOrderValue = SUMX(InternetSales,
(1- InternetSales[UnitPriceDiscountPct]) * InternetSales[OrderQuantity] *
InternetSales[UnitPrice])
```

n the name appears as you type, press the Tab key to autocomplete

DAX: Cross Table Lookups

- The `RELATED` function follows a many-to-one relationship to return a value
  - To return the product name of each product in the Internet Sales table:

```
=RELATED(Product[EnglishProductName])
```

- The `RELATEDTABLE` function is used to follow a one-to-many relationship
  - To return the total Internet sales amount of each product:

```
=SUMX(RELATEDTABLE('Internet Sales'), 'Internet
   Sales'[SalesAmount])
```

Exercise

- Dax Exercise
  - Step 2 to 4 (5 and 6 are optional)

DAX: CALCULATE Function

- The `CALCULATE` function is useful for changing the context of a calculation
  - Allows filters to be included: `CALCULATE(`*`<expr>`*`, `*`<filter1>`*`, `*`<filter2>`*…`)`
  - Filter context is determined by CALCULATE filters
    - Filters are evaluated to create the context
    - Expression is evaluated in the context created by the filter
    - Applies filters from the slicer
  - <u>CALCULATE is the ONLY function that can change the context</u>
- Example:

```
Sales of MountainBikes = CALCULATE (
  SUM( InternetSales[SalesAmount]),
        'Product'[ProductSubcategory] = "Mountain Bikes"
)
```

DAX: CALCULATE Function

- First we create a SalesAmount colum per row
- In a new column type
  - =Sales[Unit Price] *Sales[Quantity]
- Rename the column SalesAmountRow
- In the Calculation Area within the Sales table, type

```
SalesOfRedProducts:= CALCULATE
( sum(Sales[SalesAmountRow])
  , Product[Color]="Red")
```

- Format as currency and save
- Test your new measures:
  - Select Model on column, SalesAmount and SalesOfRedProduct as values
  - Put a slicer on color

DAX: USERELATIONSHIP Function

- Tabular Mode does not support role-playing
  - Each table can have only 1 active relationship
  - Tables can have inactive relationship
  - To use an inactive relationship in a calculation USERELATIONSHIP has to be specified, together with CALCULATE
- Example:

```
DeliveredAmount2007:=CALCULATE(
  SUM( Sales[SalesAmountRow]),
FILTER(CALCULATETABLE(Sales,
USERELATIONSHIP(Sales[DeliveryDateKey], 'Date'[DateKey])),
  RELATED('Date'[Calendar Year Number]) =2007))
```

DAX: Time-Intelligence Functions

- DAX features many time-intelligence functions
  - STARTOFMONTH, ENDOFYEAR, etc.
    - Return a single date
  - PREVIOUSQUARTER, NEXTYEAR, etc., each return a table of dates
    - Typically nested inside an aggregate function
    - To return total Internet sales amounts for the previous year:

```
=CALCULATE(SUM('Internet Sales'[SalesAmount]),
  PREVIOUSYEAR('Date'[FullDateAlternateKey]))
```

  - DATESQTD, DATESYTD, DATESMTD each return a table of all dates up to and including the current date in quarter, year, or month
    - To return the quarterly total sales to date:

```
=CALCULATE([Total Sales], DATESQTD('Date'[FullDateAlternateKey]))
```

DAX: Time-Intelligence

- Conditions for time intelligence
  - Calendar table
    - All dates should be present
    - No gaps between dates or time intelligence will not work
    - Best practice
      - One view for each “role dimension”
  - In the function use field from the right dimension
    - Field from Date
    - NOT field from Fact

Time Intelligence Functions

Reference

- CLOSINGBALANCEMONTH
- CLOSINGBALANCEQUARTER
- CLOSINGBALANCEYEAR
- DATEADD
- DATESBETWEEN
- DATESINPERIOD
- DATESMTD
- DATESQTD
- DATESYTD
- ENDOFMONTH
- ENDOFQUARTER
- ENDOFYEAR
- FIRSTDATE
- FIRSTNONBLANK
- LASTDATE
- LASTNONBLANK
- NEXTDAY
- NEXTMONTH
- NEXTQUARTER
- NEXTYEAR
- OPENINGBALANCEMONTH
- OPENINGBALANCEQUARTER
- OPENINGBALANCEYEAR
- PARALLELPERIOD
- PREVIOUSDAY
- PREVIOUSMONTH
- PREVIOUSQUARTER
- PREVIOUSYEAR
- SAMEPERIODLASTYEAR
- STARTOFMONTH
- STARTOFQUARTER
- STARTOFYEAR
- TOTALMTD
- TOTALQTD
- TOTALYTD

DAX: exercises

- DAX time intelligence

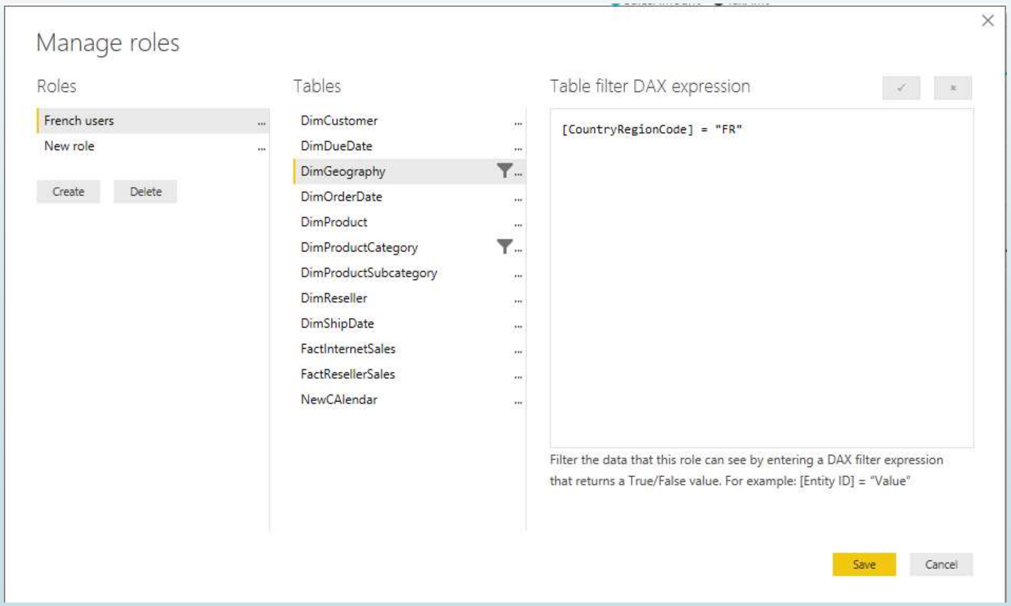
Power BI

Security

Power BI: Role Level Security

- Security can be managed creating roles in Power Bi Desktop and associating them with emails on Power BI Services
- Click on "Manage Roles" Manage Roles
- Create a role using filters on tables
- Test your roles using View as Roles

- After publishing report on line:
  - Select Dataset -> Security
  - List emails addresses of users to be added to the role



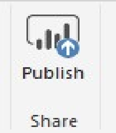
Manage roles

```
[CountryRegionCode] = "FR"
```

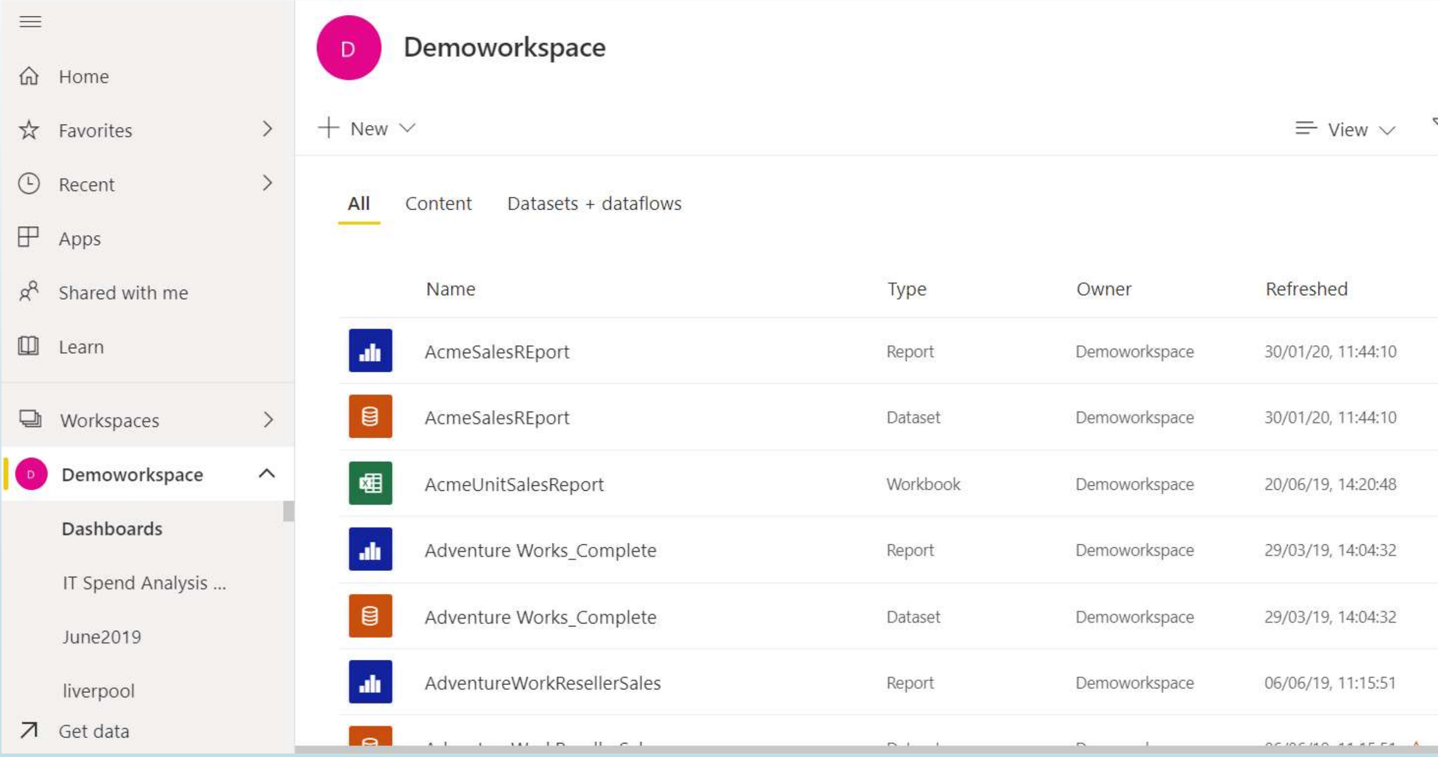
Filter the data that this role can see by entering a DAX filter expression that returns a True/False value. For example: [Entity ID] = "Value"

Publish reports to Power Bi services

- From desktop click on "publish"



- Login if needed
- Publishing reports will add dataset and Report in power Bi services



Name	Type	Owner	Refreshed
AcmeSalesREport	Report	Demoworkspace	30/01/20, 11:44:10
AcmeSalesREport	Dataset	Demoworkspace	30/01/20, 11:44:10
AcmeUnitSalesReport	Workbook	Demoworkspace	20/06/19, 14:20:48
Adventure Works_Complete	Report	Demoworkspace	29/03/19, 14:04:32
Adventure Works_Complete	Dataset	Demoworkspace	29/03/19, 14:04:32
AdventureWorkResellerSales	Report	Demoworkspace	06/06/19, 11:15:51

Putting it all together

- Exercise: base project

Power BI

Thank you for following this course and good luck with your reports!!!

Power BI and DAX references

- https://www.daxpatterns.com
- https://www.sqlbi.com/
- Guy in the cube videos on youTube
- Chris Webb BI blog: https://blog.crossjoin.co.uk/
- https://community.powerbi.com/
- Power Bi Blog and updates: https://powerbi.microsoft.com/en-us/blog/2018/06/
- PowerBI user group: https://www.meetup.com/en-AU/London-PUG/

Power BI: next steps
Beyond the basics

Power Bi – Advanced DAX

- DAX Basics review
- Variables
- Review of Filter context
- CALCULATE
- Common functions
- Table Functions
- Semi additive measures
- Time Intelligence Calculations

- Advanced Evaluation Context DAX
  - Context transition
  - Iterator -> nested row context
- Creating Dynamic titles
- Using parameter table

Appendix: DAX Studio

- Dax as a query language
- Capturing and debugging queries with Dax Studio

Power Bi – Advanced Power Query and Power Bi Administration

TRANSFORMING DATA

- Shaping & Cleansing Data
- Basic Transformations
- Combining Datasets (append, join)

Advances Power Query and M

- Create tables
- Custom Column, conditional column, column from example

M language:

- The M Syntax
- M Query Basics
- Variables and Parameters
- M Query Functions
  - Automated import
- Create date table using M

DataFlow

- Create a dataflow
- Cleanse data using Dataflow
- Connect PowerBi Desktop to dataflow

Power Bi –Advanced Data Modelling and visualization

Advanced visualization

- Digital Storytelling
- Buttons and Bookmarks
- Selection Pane
- Drillthrough
- Tooltip Page

- Use of Custom Visuals
- Custom Themes
- Multiple pages slicers
- Layout
- Conditional Colour formatting

Advanced Modelling

- Many to many relationship
- Cross Filtering
- Role Playing dimension