Bringing everything together

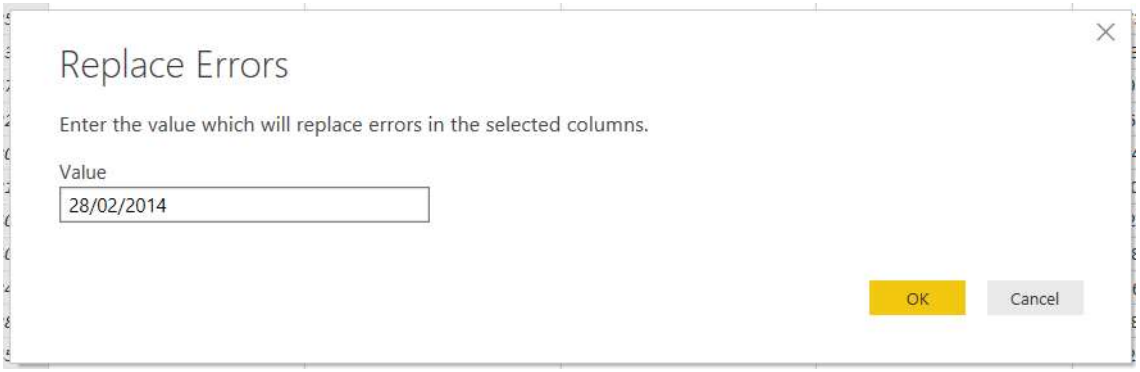
We will complete this project during the two days of basic PowerBI course. You will find a complete solution in the solution folder.

Start by opening a new empty Power BI file.

Using “get data”, import data from all 3 sheets of Excel file globalsuperstore.xls, and perform the following transformations in the query editor:

Query Editor

You will have an error message in the ShipDateColumn. Examine the error: it is an invalid date (29/02/2014). In order to fix this right click on the ShipDate column, select replace error and type a valid date:



In the Orders table:

- Promote first rows to headers (it might have been done automatically, check before doing this step)
- Duplicate column OrderDate
- Create an “Index” column starting from 1
- Duplicate column Sales
- Rename new column to "Sales w/o decimal"
- Change to Whole Number

Now, we want to separate all the geographic information into a new table “Locations” table. To do so, duplicate the Orders table, then apply the following transformations to the new table:

- Remove all columns except City, State, Country, Postal Code, Market Region
- Rename new table to “Locations”
- Add custom column “City-State” containing the concatenation of the values in the columns City and State (it is a good practice to put an hyphen or a comma in between the two columns.
- Remove duplicates values in the new column
- Create same concatenated column in tale Orders (if you used an hyphen to separate the two columns, make sure you use it here as well)
- In the Orders table, delete the columns City, State, Postal Code, Market and Region

In the tables Returns and People:

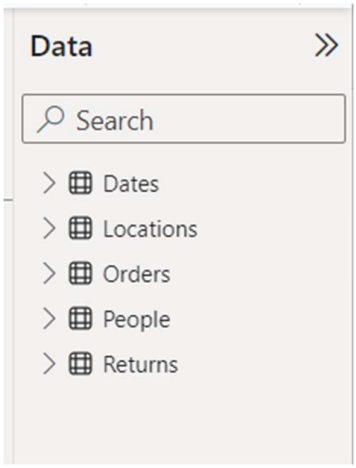
- Promote first row to headers

We now want to create a separate “Dates” table to use to navigate the data chronologically (for instance, to drill up and down the Year / Quarter / Month hierarchy). To do so, we will run a script that populates this table automatically, by executing the following steps (still from the Power Query Editor):

- Click New Source / Blank Query
- Open the file GenerateDateTable.txt
- Open the advance query editor
- Copy and paste the file’s content into advanced query editor, making sure to replace anything that was there
- Click Done
- This will create a function that takes a start date and end date as parameters and that will be used to create a date table.
- Insert 01/10/2013 as start date, 31/12/2020 as end date and “en” as colture
- Click on Invoke
- Rename the newly created table to “Dates”
- Make sure that the date type for the columns: Year, Quarter, Month Number and Day is set to whole numbers

Now close the Query Editor clicking on Close and Apply.

You should have 5 tables in Power BI desktop:



Relationship and report formatting:

Go to the Relationship panel and click on Manage Relationships, create the following relationship (when not otherwise specified, as one-to-many relationships):

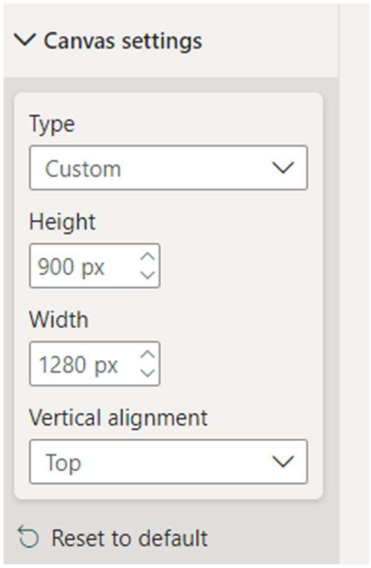
- Between Orders and Locations, based on the concatenate field City& State
- Between Location and People, based on the field Region
- Between Orders and Returns, based on the field orderID (many-to-many)
- Between Orders and Dates, based on the fields orderDat and Date

Create a title: go to the Report panel, click on Add Text Box (in the Home menu), add the tile “Superstores Global Sales”, in white text on black background, font 28. Format it to be 100 pixel height and as wide as the whole page.

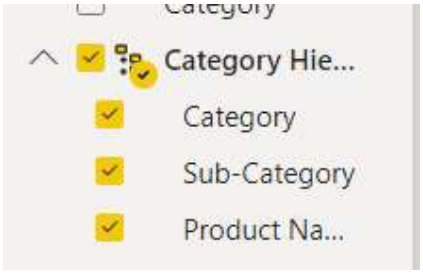
Add the image “logoSuperstore” (from the Exercises folder) into the title area.

In the View Tab, select the dropdown for Themes, and select Tidal.

Set page size like this:



Still in the Report panel, locate the field Category in the Orders table, right click on it and select Create Hierarchy, then move to the Sub-Category, right click and select Add to Hierarchy / Category Hierarchy. Repeat the same process for Product name. The resulting hierarchy will look as follows:

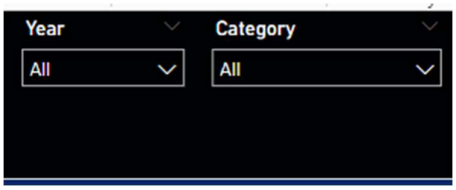


Visuals

Now we will need to add visuals to the page.

First, we will need to create a Map:
Use country in location field; sales in size; apply a filter on the visual on market = EU

Add 2 slicers: year (rename order year), category (rename Product Category). Move the slicer on to the title bar. Format both of them to be dropdown, no background, title and values font white.



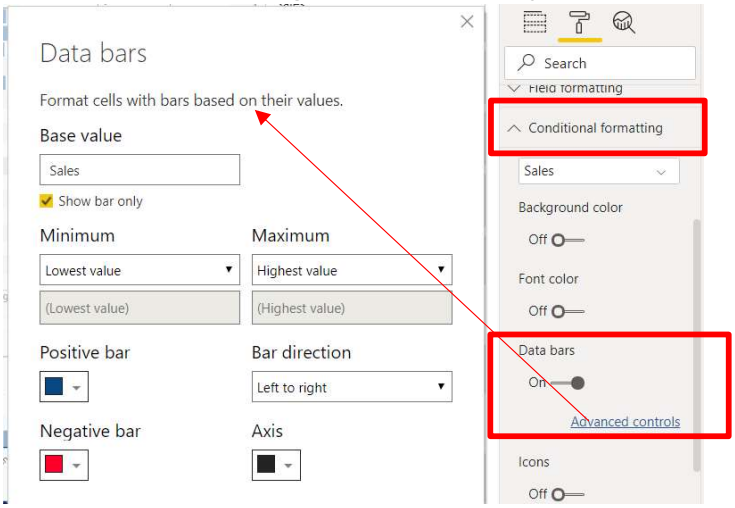
Add bar chart below map, use city and sales, apply a filter on Market EU and city: top 5 cities by sales, use formatting menu to add labels inside

Create measures:

- Total sales -> format as currency £
- Total profit -> format as currency £
- Profit ratio (profit divided by sales) -> format as a percentage

Create cards at the top left of the report, one per each of the above measures. Use three single cards or use a new Card Visual to position all three. Edit interaction so that these cards are never filtered by other visuals. This process will have to be repeated every time you add a new visual.

Create table visual:
Add subcategory, total sales, sales, total profit, profit, Profit ratio.
Use conditional formatting to convert **sales** ad **profit** in bar charts



Your table should look like this:
Subcategory, total sales (in number), sales as a bar, total profit (number), profit (bar), sales ratio

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%**

Time intelligence:

(mark date table as a date, order monthName column by monthOfYear column)

Create hierarchy: year, MonthName

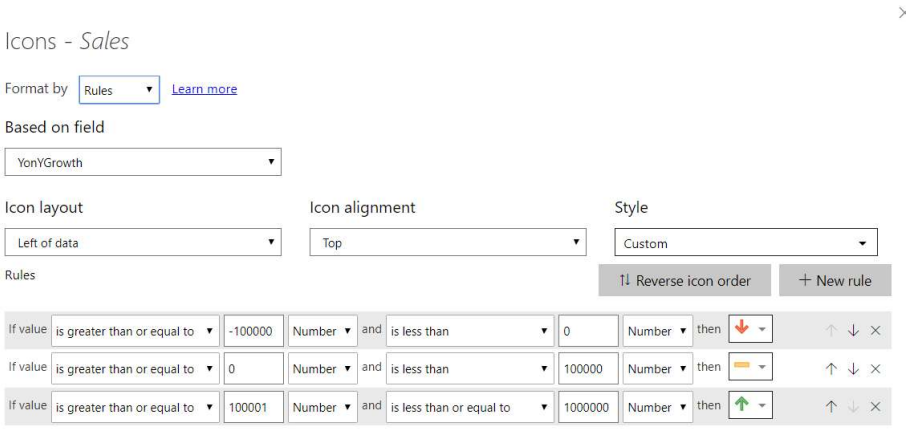
Create two measure:

sales YTD: `calculate([total sales], DATESYTD((Dates[Date])))`

sales Same period last year: `CALCULATE([total sales], SAMEPERIODLASTYEAR(Dates[Date]))`

Create bar chart with month name, YTD sales, filtered on year 2016, call it YTD sales for 2016

Create table with YearHierarchy, sales, salesLY.
Create a measure YonYgrowth as TotalSAles – SalesLTY, this measure is going to be used for formatting.
Conditional format sales so that font is red when YonYgrowth is less than 0; add conditional formatting icon to sales:



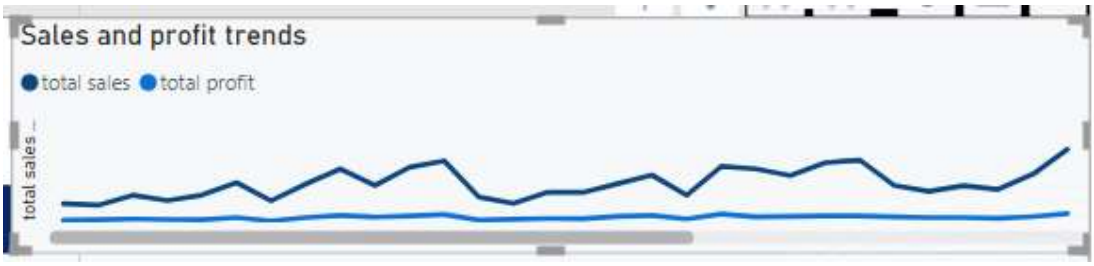
Remove totals from the table. Your final table should look like this:

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	

Optional:
Add other two visuals to fill the remaining space.
I have used a matrix with Category Hierarchy

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%**

And a line chart showing sales and profit trends:



Fell free to use different visuals according to your choice.

Arrange the visuals in the page.

Save your Project to be published on line.

Publish Report:

Sign in to Power BI with your id or using a school id.
From the home page of your report, in desktop, click publish and select a Workspace to publish your report.
Go to Power BI on line and vie your report.

Create a dashboard pinning 4 or 5 visuals, add the logo and a title to the dashboard.

Share your dashboard with one of the other attendees.

When you receive the email from your colleague, click on the link and view the dashboard.