Microsoft Power BI

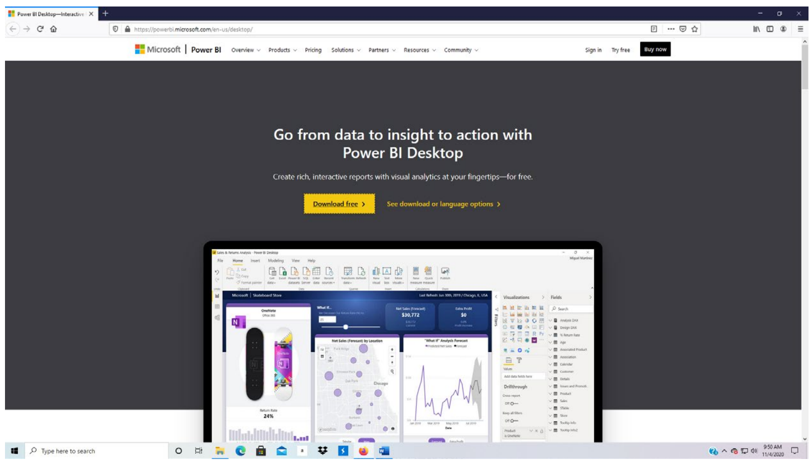
NOTE: Microsoft Power BI is not available on remote access

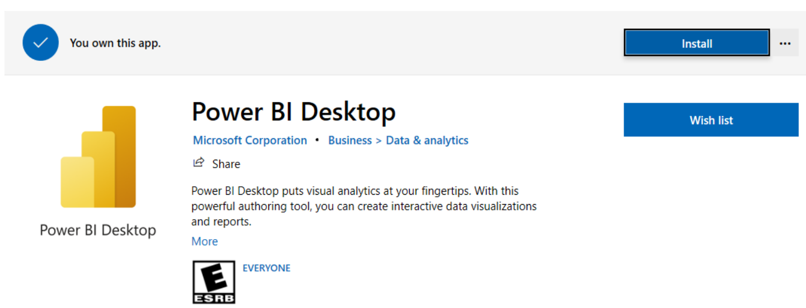
Download free copy

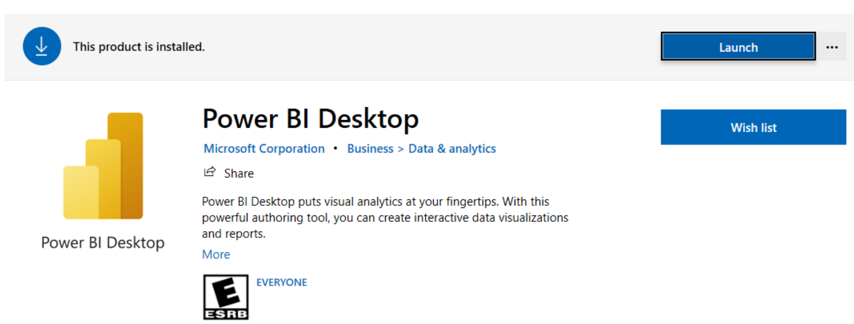
To download a free copy, go to the website:

https://powerbi.microsoft.com/en-us/desktop/

1. Follow the download instructions
2. Click Download, then Install, then Launch





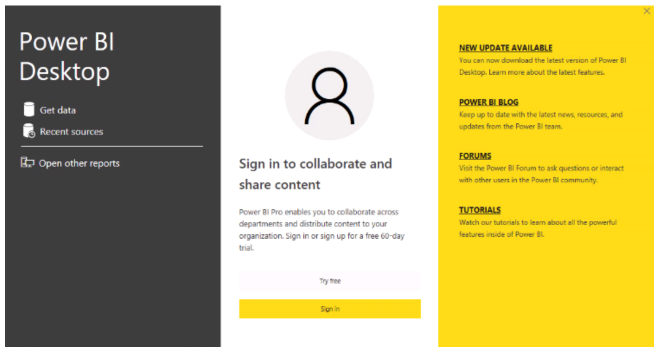


Data

1. Go to BlackBoard
2. Copy the file Orders.xls to your desktop

Power BI

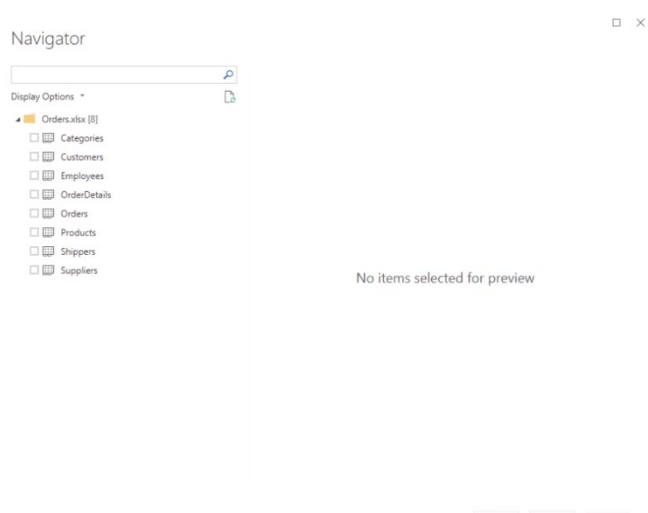
1. When the Power BI opens, you should see:



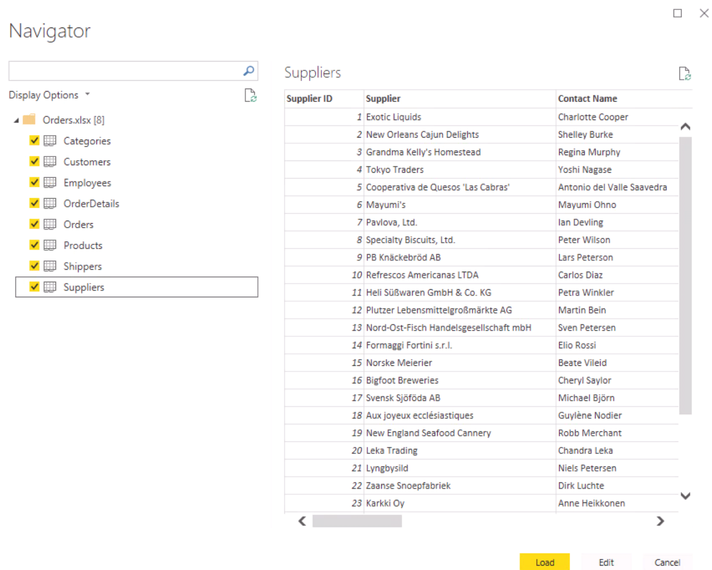
2. **Do not sign in.** Simply click on the X in the upper right corner of the image above to close the sign in screen

Connecting to Data

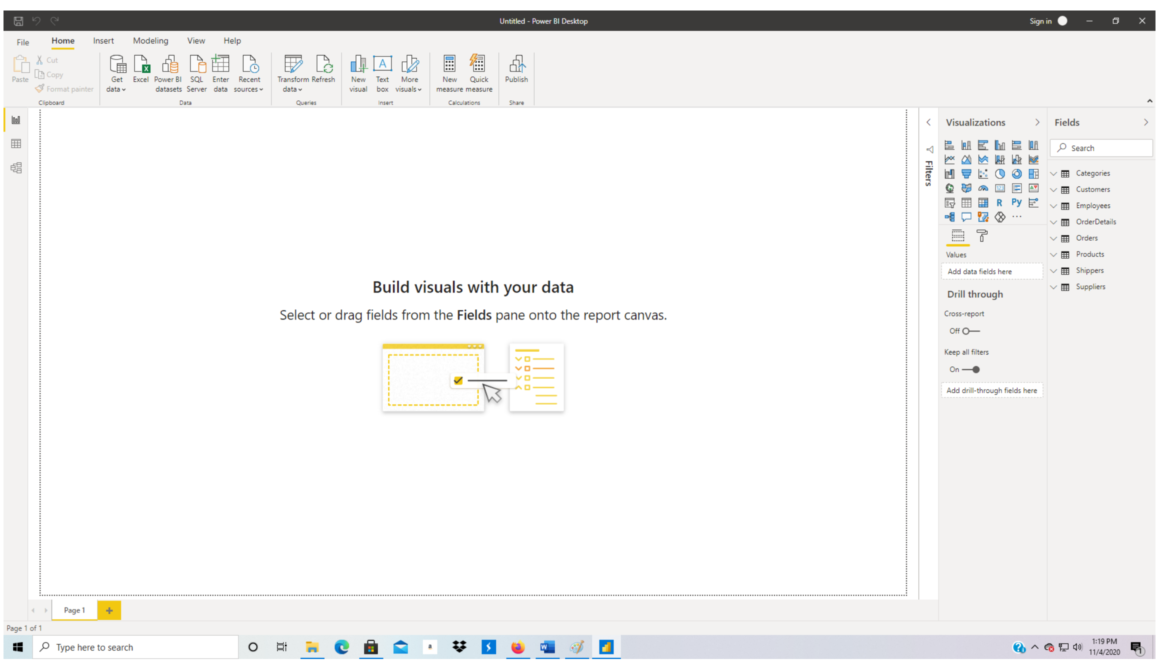
1. For this exercise, we will connect to the Orders.xls spreadsheet. This example was used in the Access, Tableau, and Excel examples.
2. In the upper left corner of Power BI, click on Get Data, then view the possible types of data that can be loaded
3. For this example, click on Excel
4. Find the Orders.xls file on your desktop, then click Open



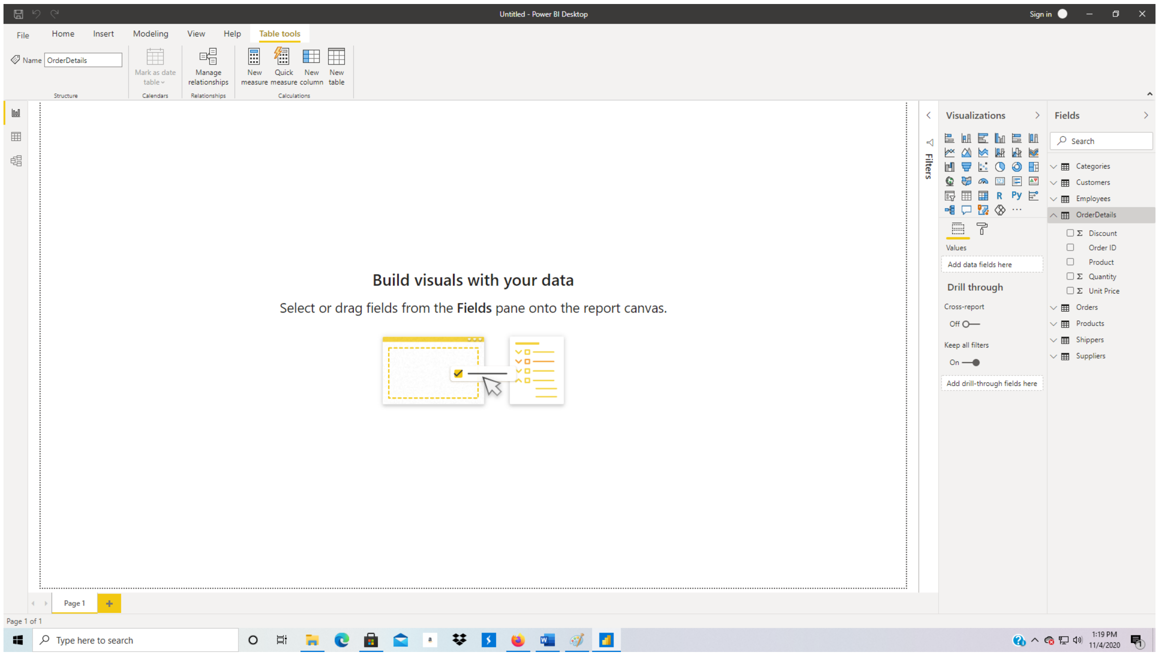
5. Note that this screen looks very similar to Tableau
6. Check each of the boxes



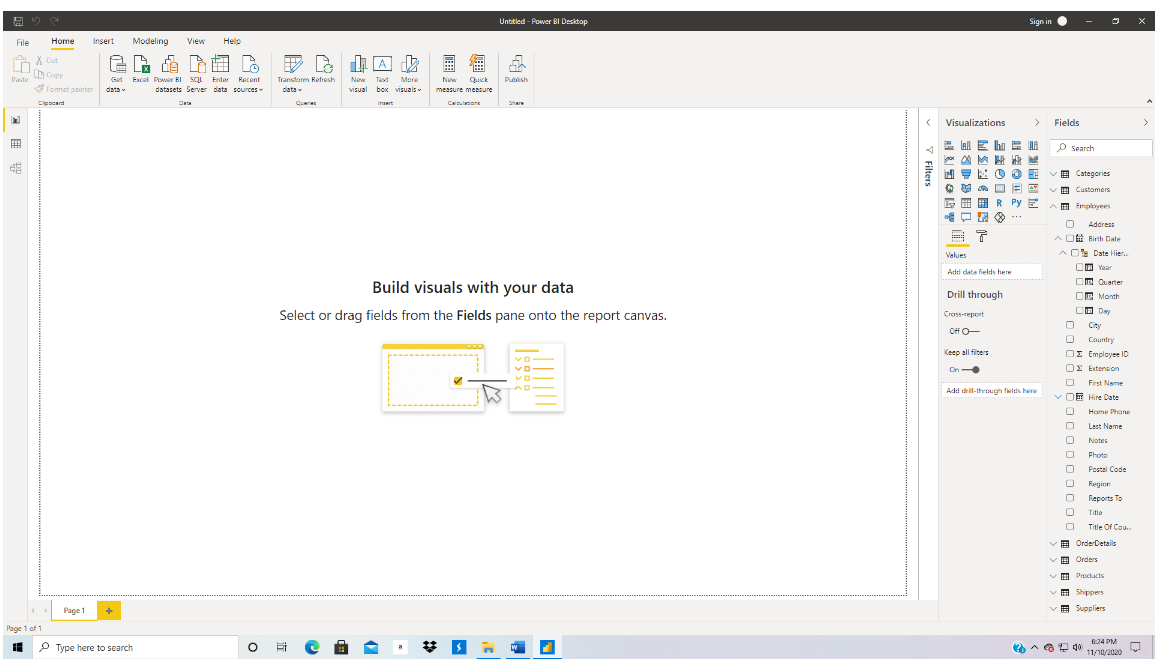
7. Click Load. Power BI will load and display the tables on the right.



8. Click on the arrow next to Order Details to expand the table and view the fields



9. Note that Discount, Quantity, and Unit Price have a summation sign (sigma) in front of the name. These fields can be used in calculations, such as sum, in a PivotTable
10. Click on Employees. Note that Birth Date and Hire Date have a picture of a calendar in front of the name. These are date fields
11. Click on the Birth Date arrow to expand, then click on Date Hierarchy
12. Power BI allows you to use part of a date, such as only Year or Quarter, in building a Pivot Table

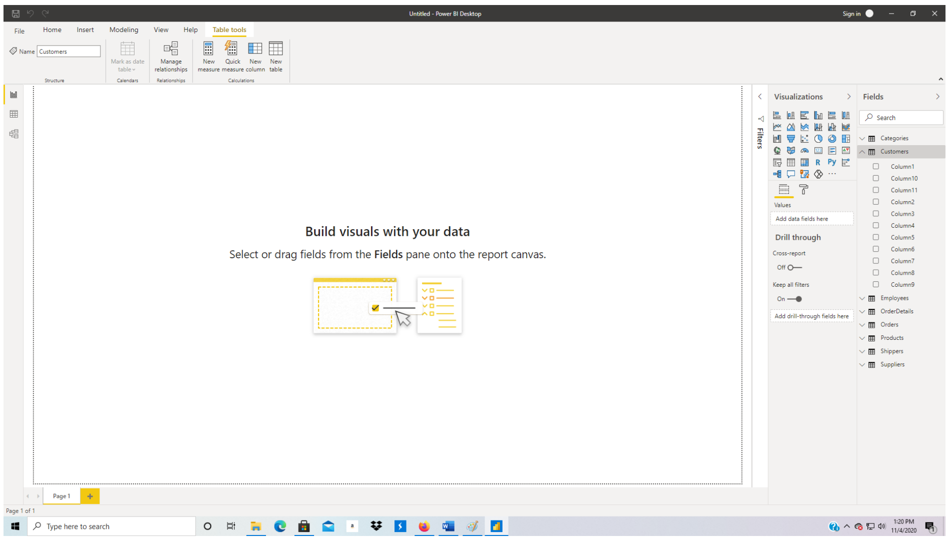


Correcting Labels

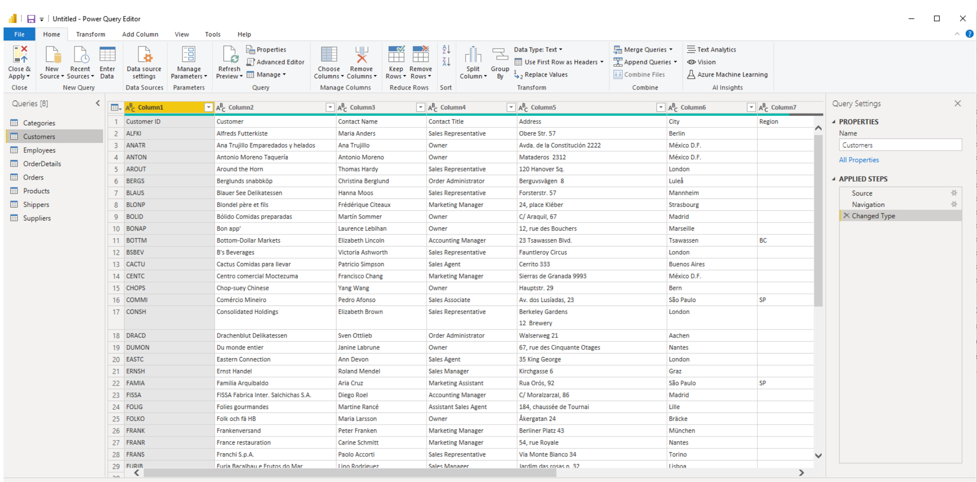
Click on the arrow to each table on the right. Do any of the tables look unusual?

Sometimes, Power BI does not load data correctly. Let’s correct the Customers table. The Customers table has Column1, Column2, etc., for the labels. We need to correct this

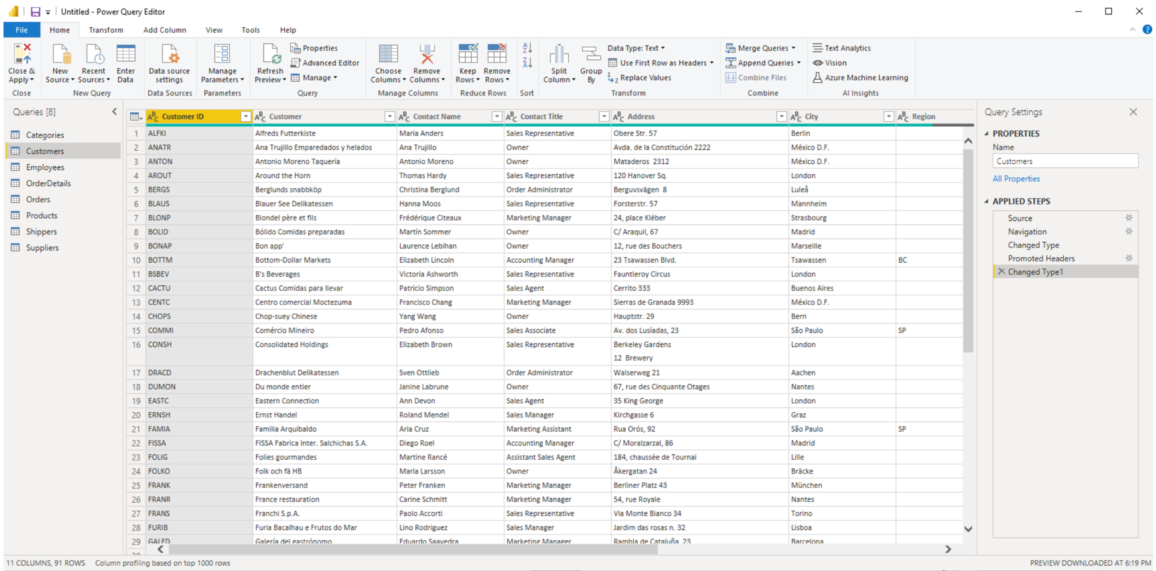
1. Right click on the icon to the left of the Customers table



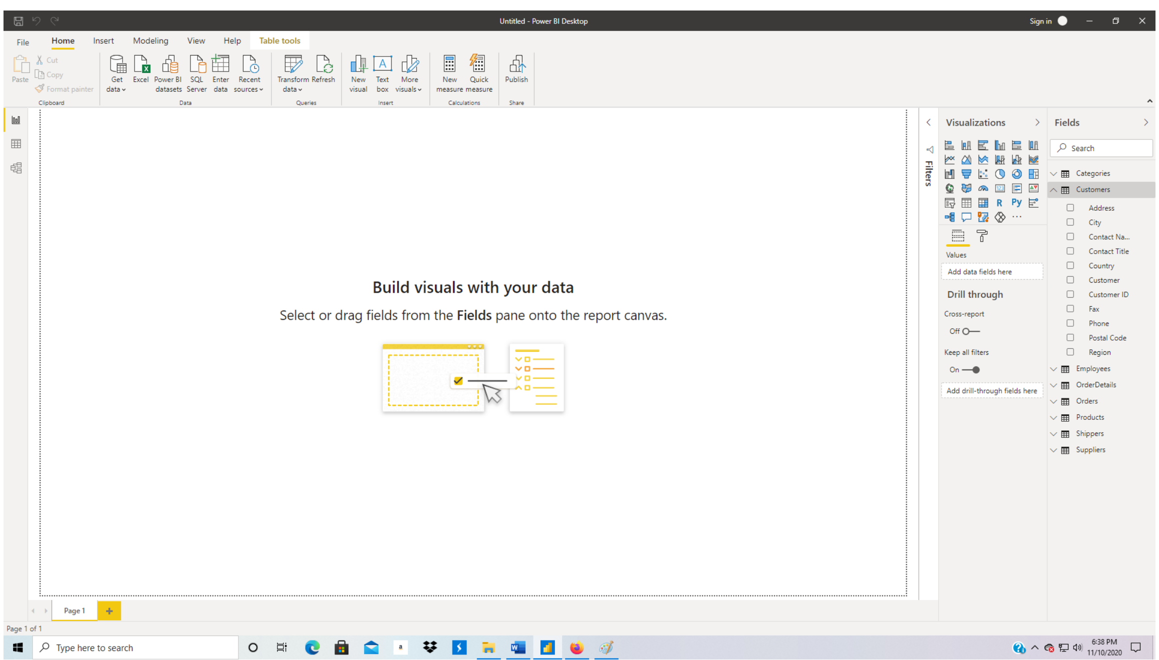
2. Click on the Home tab, then Transform data, and Transform data again
3. On the left side, under Queries, click on Customers. Note that the headings are Column1, Column2, etc.



4. At the top of the screen, click on Use First Row as Headers. Power BI will change the headers to the correct label.

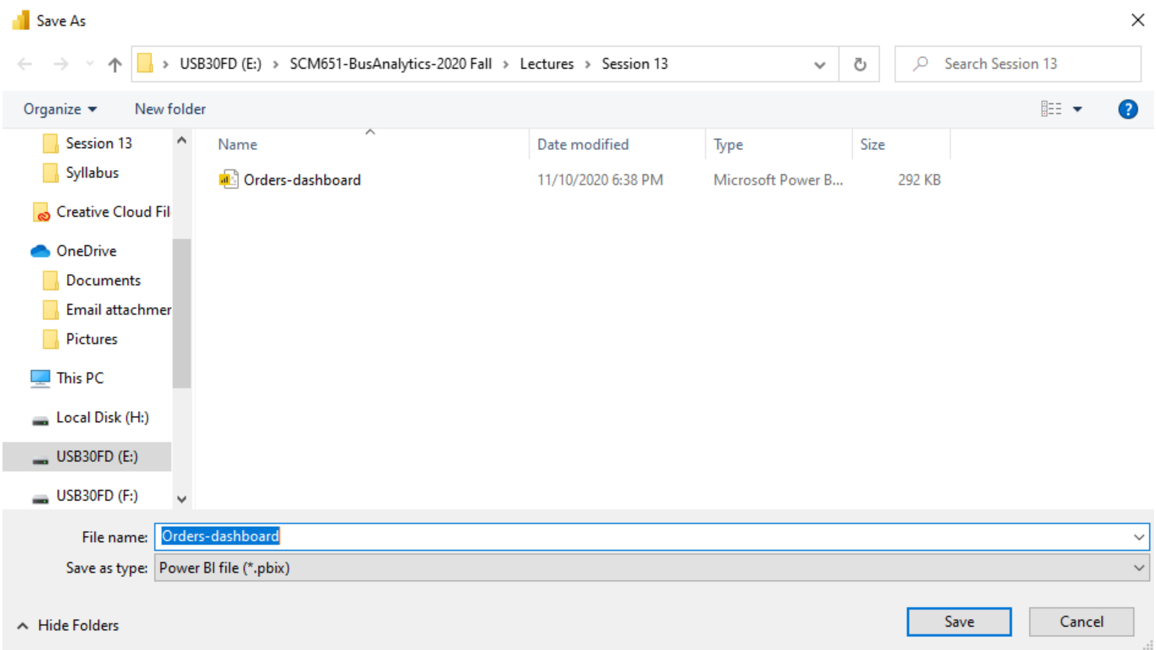


5. In the upper left corner, click on Close & Apply. The changes will be made to the data.



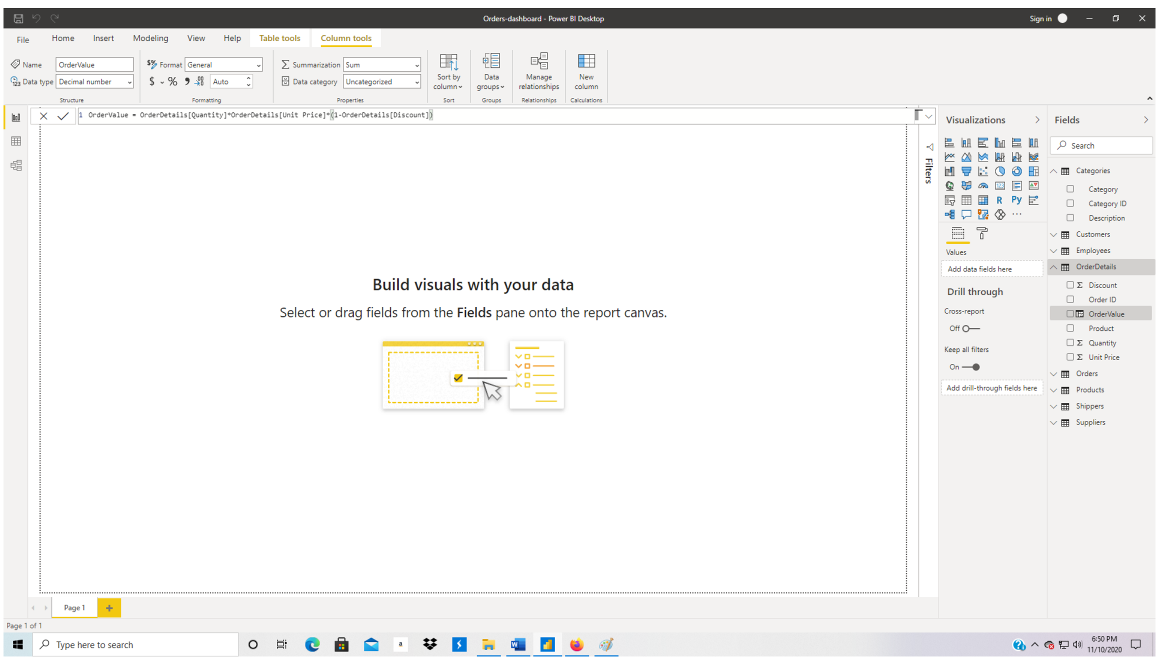
Saving your work

1. Click on File, Save As
2. Enter Orders-dashboard as the name of the file and click Save to save to your desktop



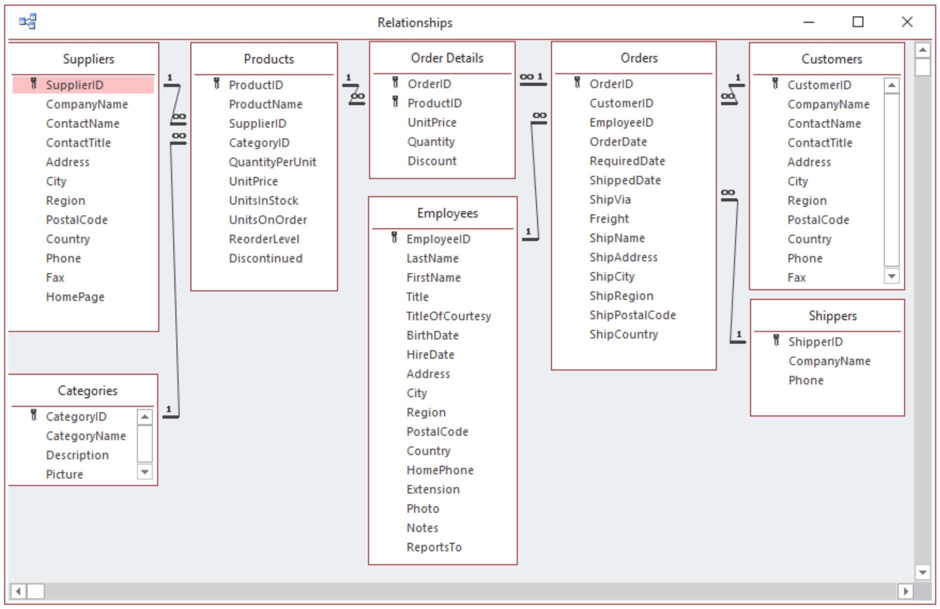
Adding a calculated field

1. Let's next add a new column. As we did in Tableau and Excel Dashboards, let's add OrderValue = Quantity * UnitPrice * (1 – Discount)
2. In the upper left of Power BI, click on Modeling
3. Click on OrderDetails on the right side of the screen
4. Click on New column
5. In the long blank box type in OrderValue = Quantity
6. Power BI will suggest OrderDetails[Quantity]; double click on this suggestion
7. Type * for multiplication
8. Start to type Unit Price; Power BI will suggest OrderDetails[UnitPrice]; double click on this suggestion
9. Type * for multiplication
10. Type (1-
11. Start to type Discount; Power BI will suggest OrderDetails[Discount]; double click on this suggestion
12. Type) to finish the equation
13. Click on the enter key to add OrderValue to the OrderDetails table



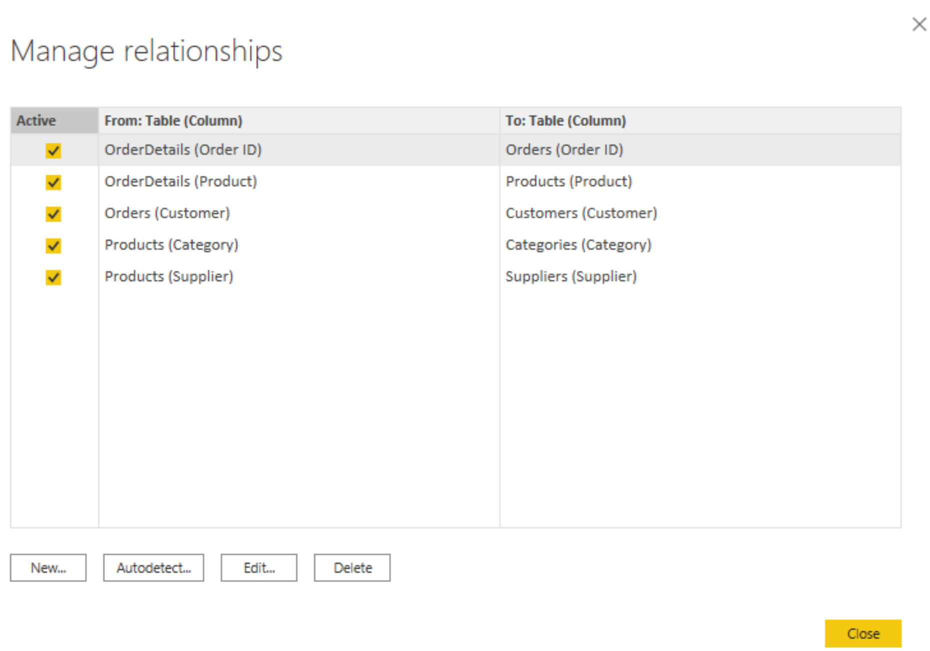
Creating Relationships

The Orders Access database that we used earlier had the following relationships. There are eight tables with seven relationships

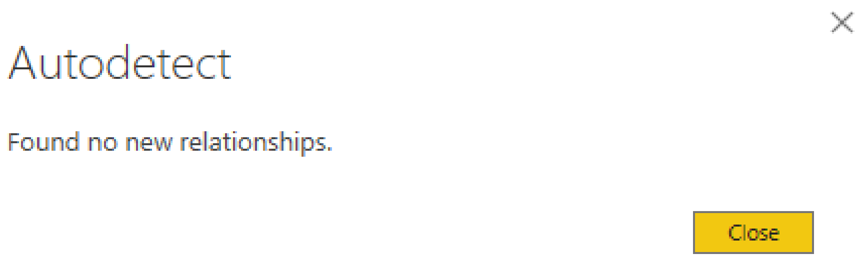


Power BI has the ability to detect some relationships between tables upon loading, can be forced to auto-detect relationships, and you can add relationships manually.

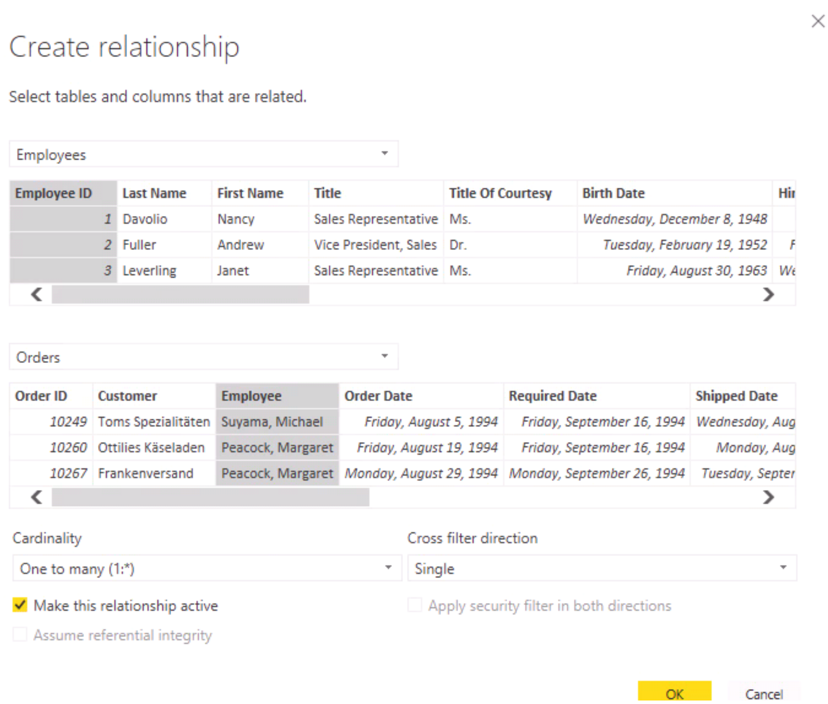
1. On the Modeling tab, click on Manage Relationships
2. When Power BI loaded the data, it created some of the relationships



3. Note that it only detected some relationships
4. Let's now force Power BI to detect more relationships
5. In the Manage Relationships window, click on Autodetect

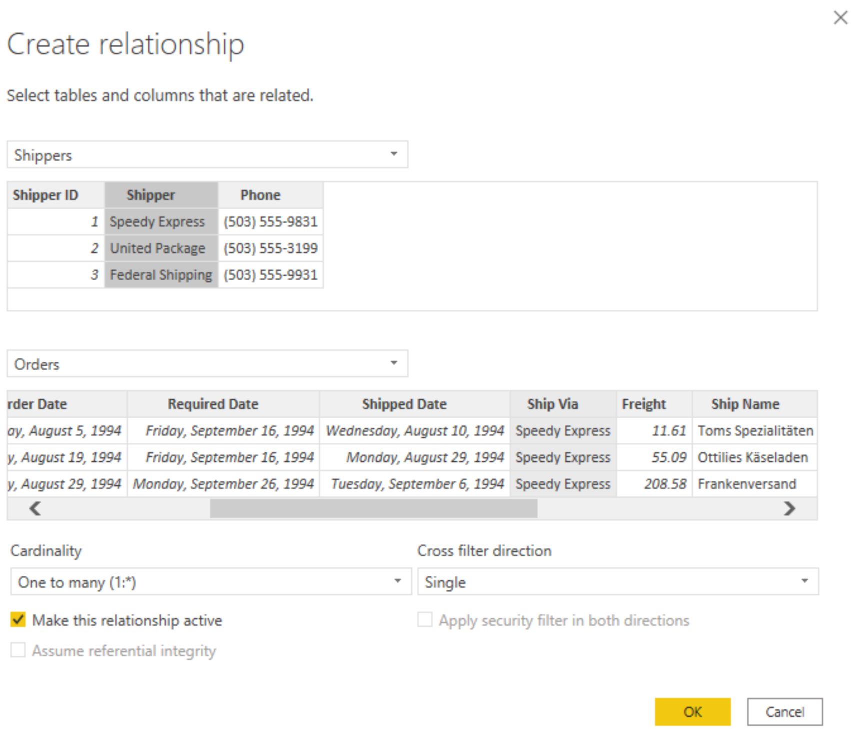


6. We are still missing some relationships. Reviewing the Access relationship diagram, it appears that Employees to Orders and Shippers to Orders are missing
7. In the Manage relationship window, click on New to add the missing relationships
8. In the first box, click on the drop down menu and select the Employees table
9. In the second box, click on the drop down menu and select the Orders table
10. To identify the fields that form the join, click on Employee ID in the Employees table
11. Then click on Employee in the Orders table

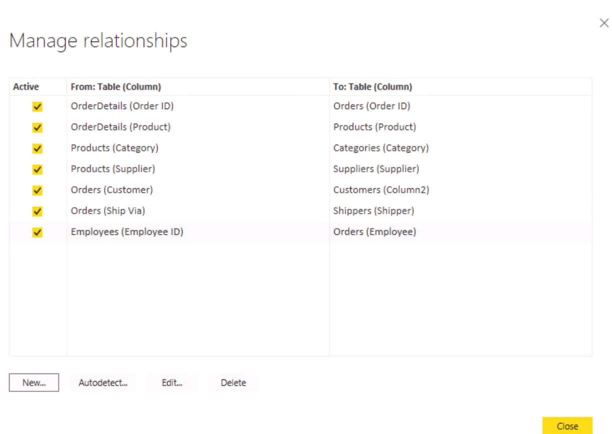


12. Finally click OK

13. Next, add the relationship between Shippers and Orders
14. In the Manage relationship window, click on New to add the missing relationship
15. In the first box, click on the drop-down menu and select the Shippers table
16. In the second box, click on the drop-down menu and select the Orders table
17. To identify the fields that form the join, click on Shipper in the Shippers table
18. Then click on Ship Via in the Orders table



19. Finally click OK

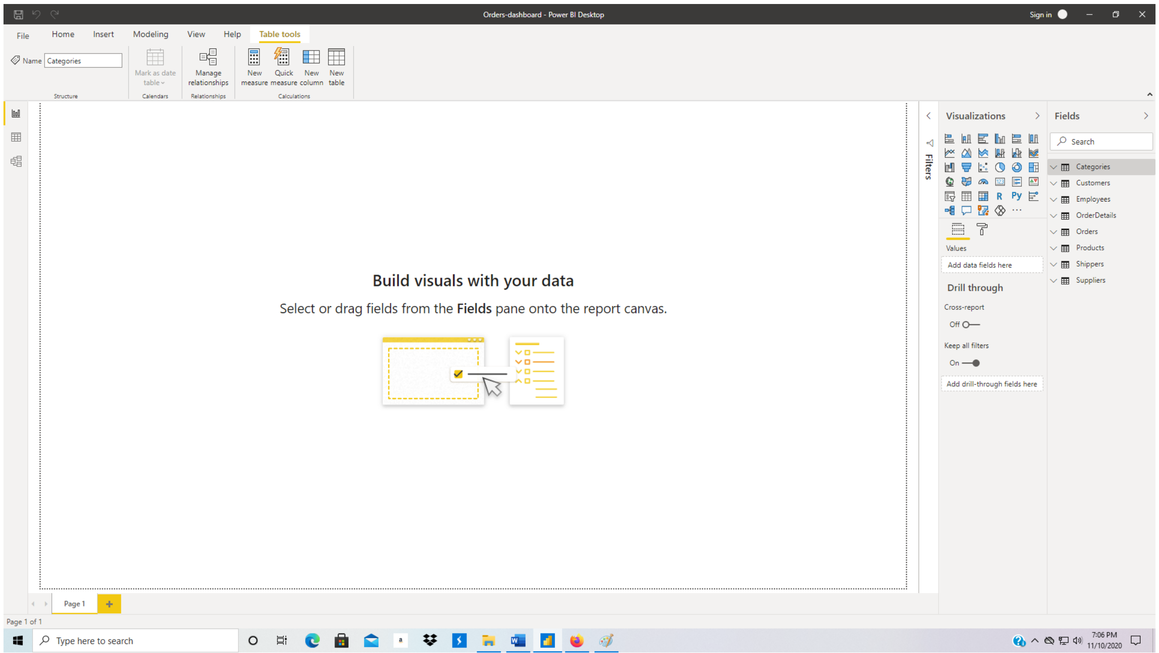


20. Now all relationships have been created
21. Click Close to close the Manage relationships window

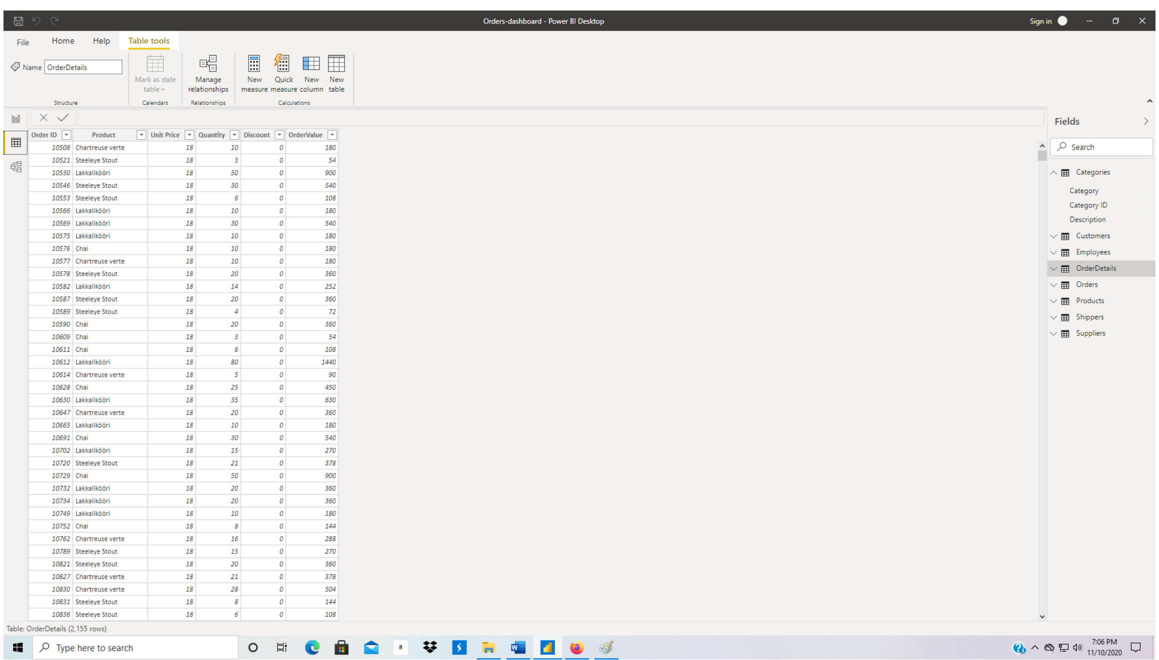
Viewing Options

On the left side of the screen are three viewing options: Report, Data, and Model.

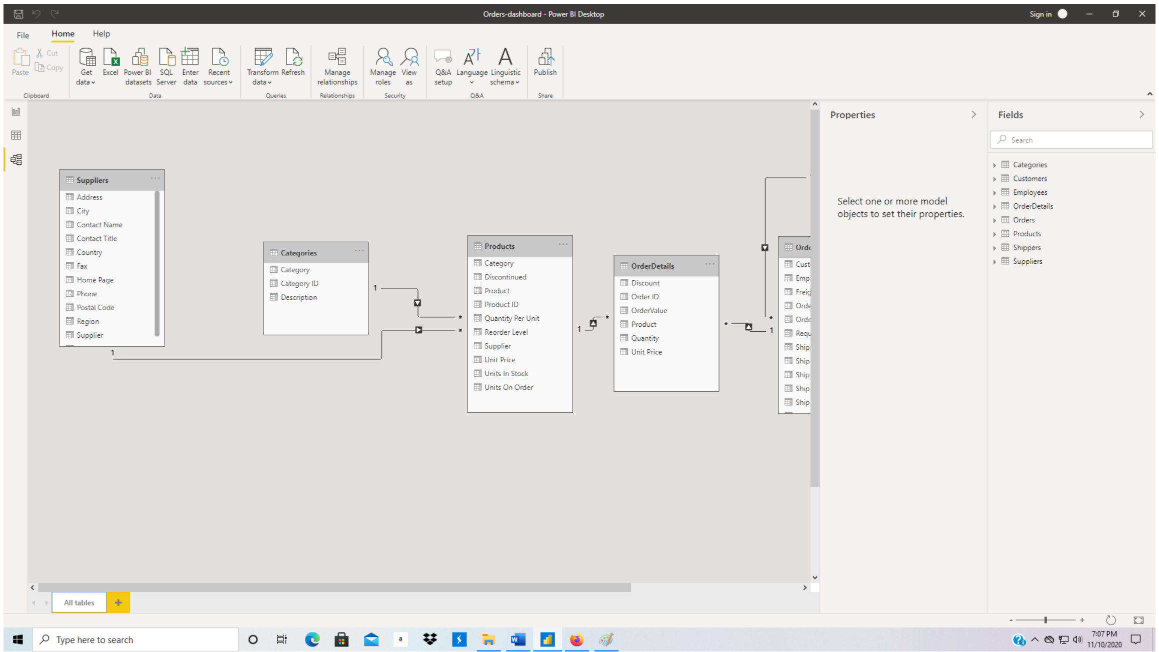
1. Click on Report for the default screen



2. Click on Data to see data in the table



3. Click on Model for the relationships between tables

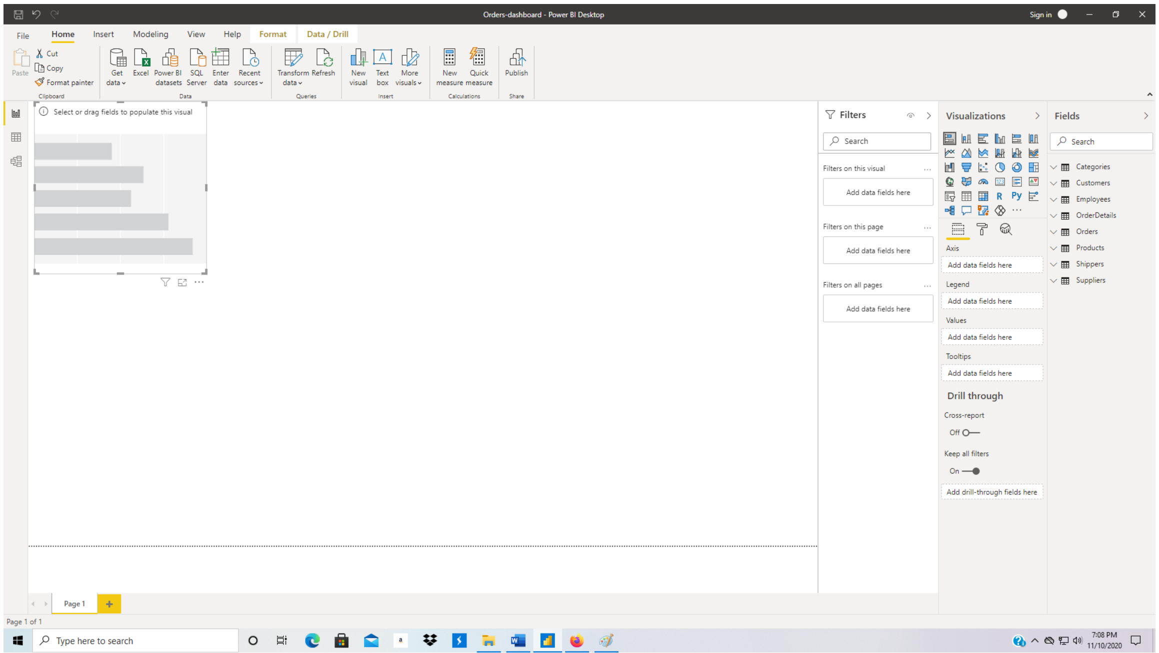


4. Click on Report to return to the default.

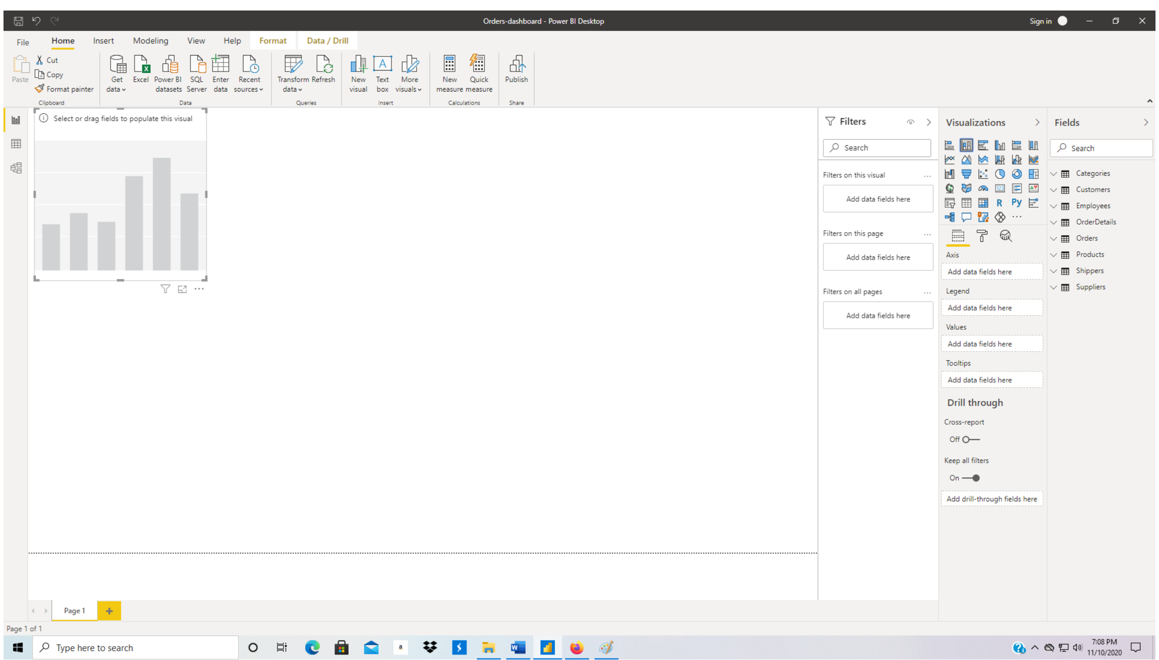
Visualizations – adding a chart

In Tableau, we first created Pivot Tables, then selected a chart format. In Power BI, you select a chart, then drag and drop into fields.

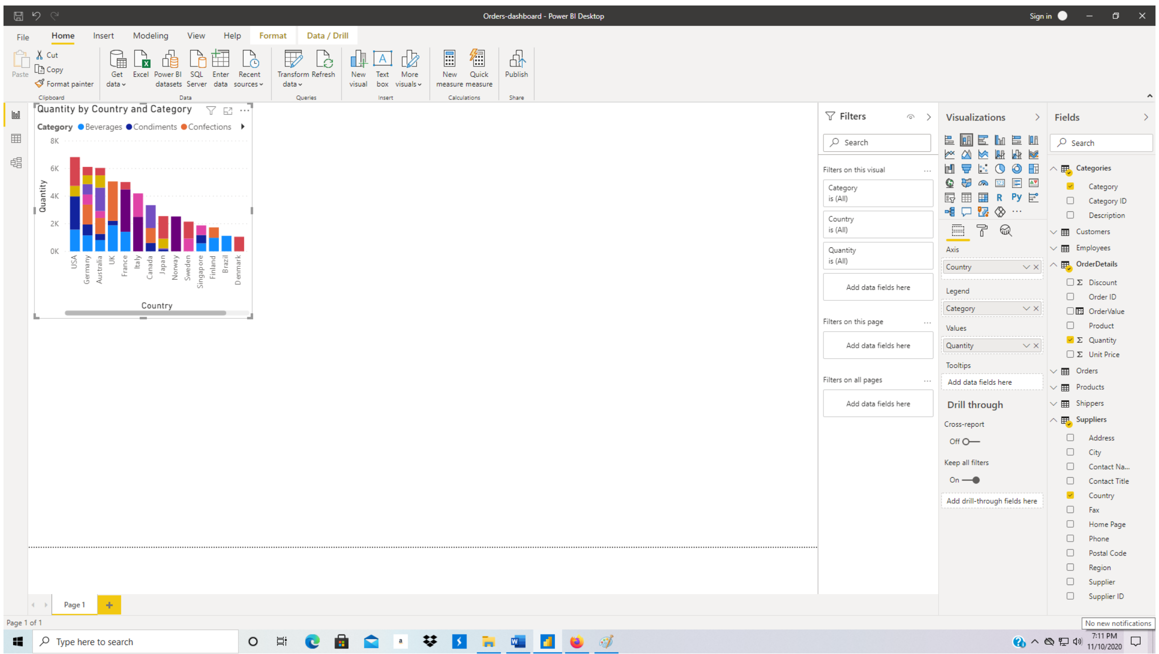
1. Under Visualizations, click on the first picture in the upper left (Stacked Bar Chart).



2. Power BI will show a sample chart in the left side of the Reports area
3. Click on the Stacked Column Chart (top row, second from left)



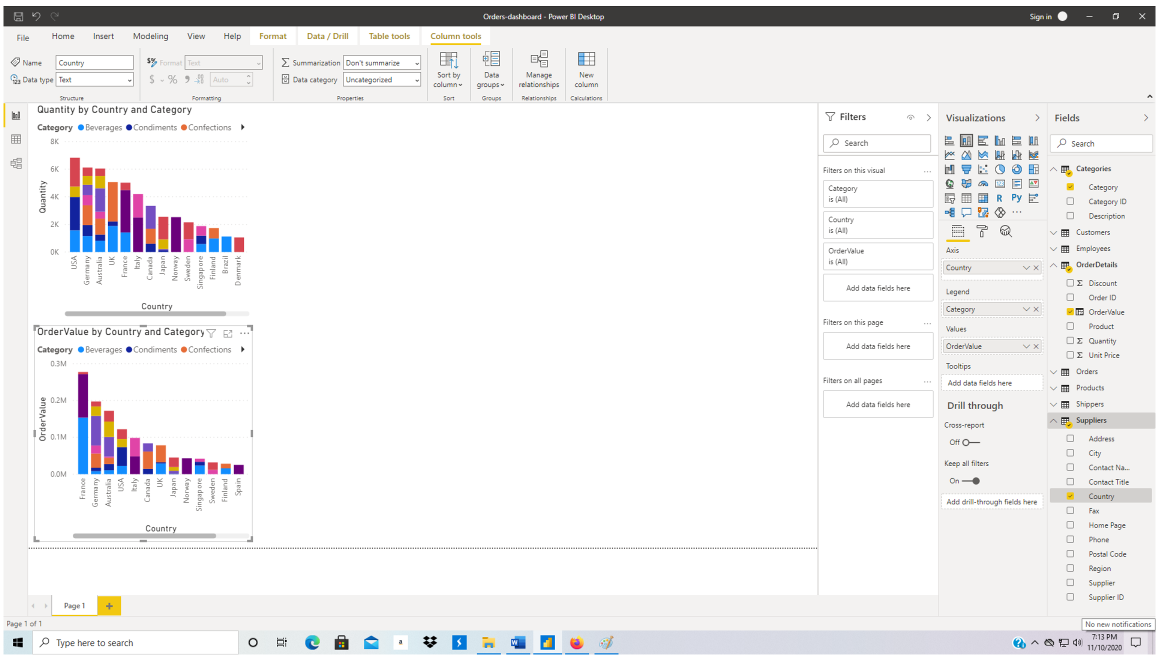
4. Note that the sample diagram changes on the left portion of the Reports area.
5. The list of chart requirements appears under the Visualization section.
6. Click through all of the other options in Visualization.
7. Click on the Stacked Column chart
8. Click on the arrow next to Suppliers table to display the fields
9. Click on Country to add it to the Axis box
10. Click on the arrow next to Categories table to display the fields
11. Drag Category to the Legend box
12. Click on the arrow next to Order Details table to display the fields
13. Click on Quantity to add it to the Values box



Visualizations – adding a second chart to the same dashboard

To add a second chart:

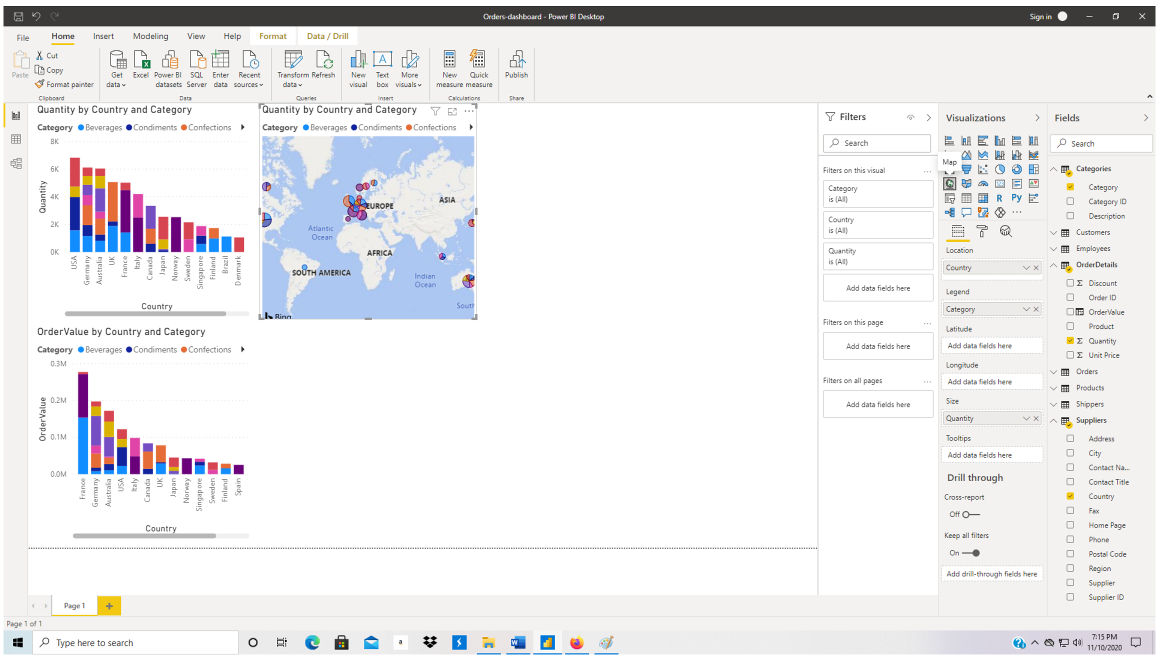
1. Click on the Home tab
2. Click on New Visual
3. Use the Stacked Column Chart again
4. Drag Suppliers: Country to Axis
5. Drag Categories: Category to Legend
6. Drag OrderDetails: OrderValue to Value



Visualizations – adding a third chart to the same dashboard - Maps

To add a third chart:

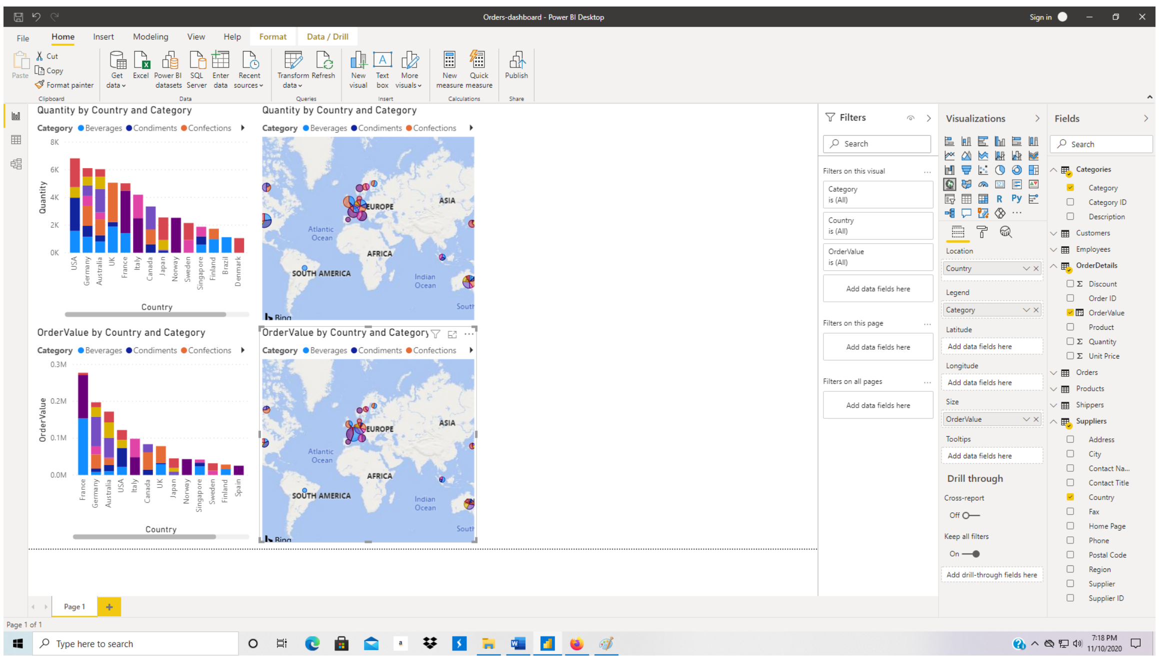
1. Click on the Home tab
2. Click on New Visual
3. Click on Map (4th row, left option)
4. Drag Suppliers: Country to Location
5. Drag Categories: Category to Legend
14. Drag OrderDetails: Quantity to Size



Visualizations – adding a fourth chart to the same dashboard - Maps

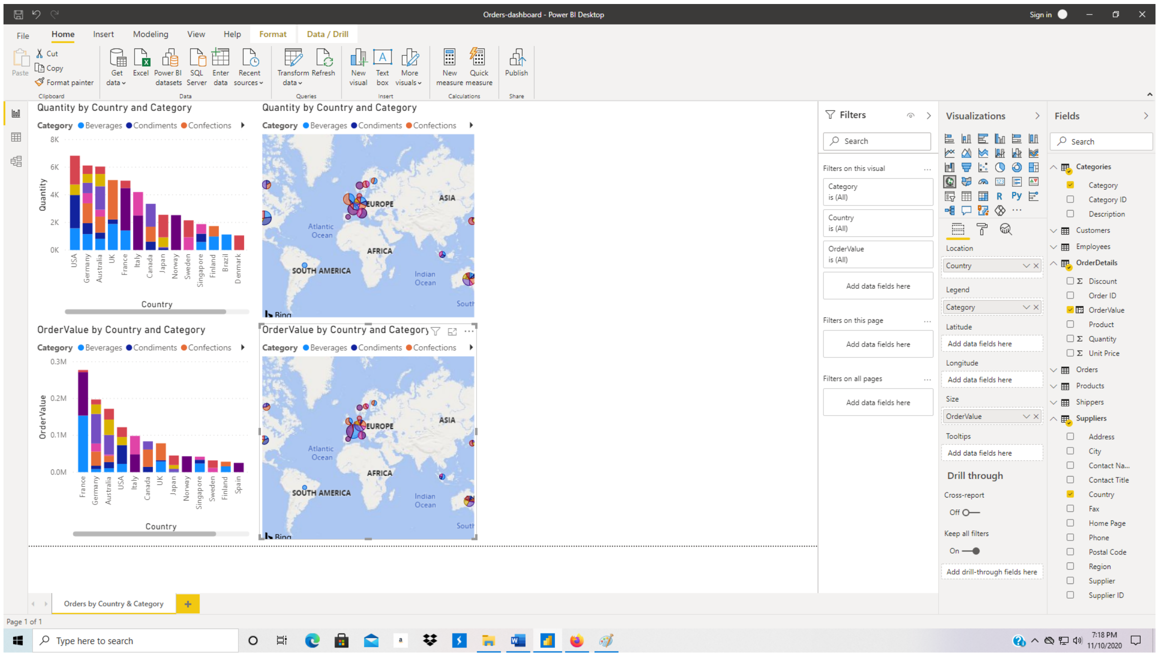
To add a fourth chart:

1. Click on the Home tab
2. Click on New Visual
3. Click on Map
4. Drag Suppliers: Country to Location
5. Drag Categories: Category to Legend
6. Drag OrderDetails: OrderValue to Size
7. Click on the lower right corner of the chart and drag it to expand the size of the chart



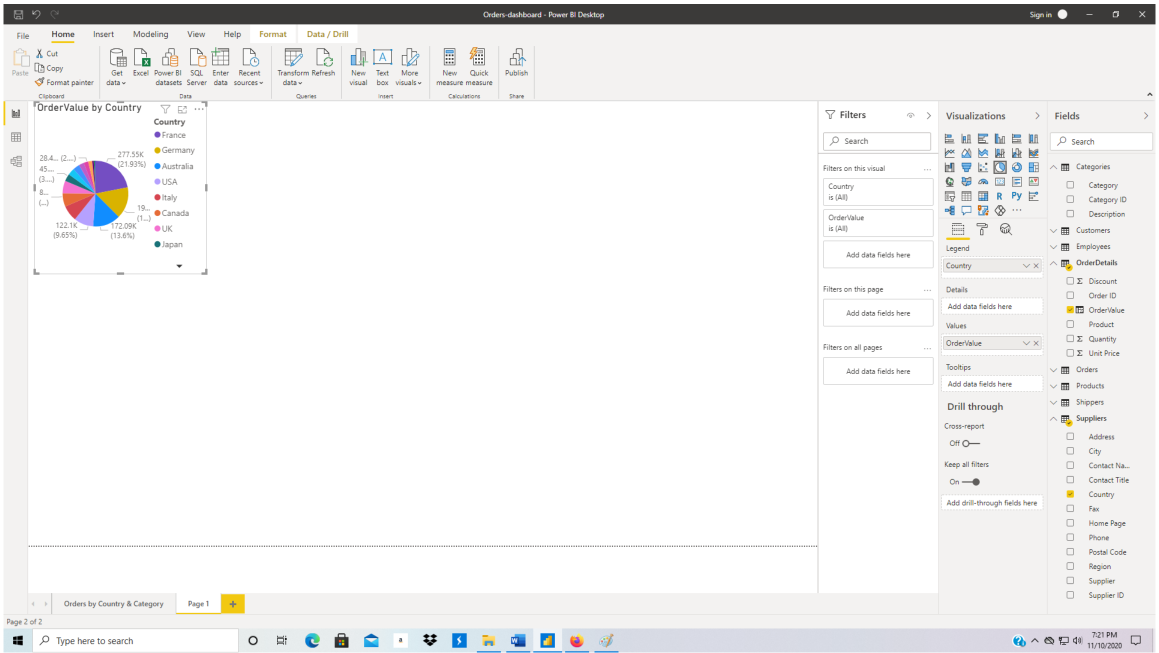
Naming the Dashboard

1. Double click on the Page 1 at the lower left of the screen
2. Rename Page 1 to Orders by Country & Category



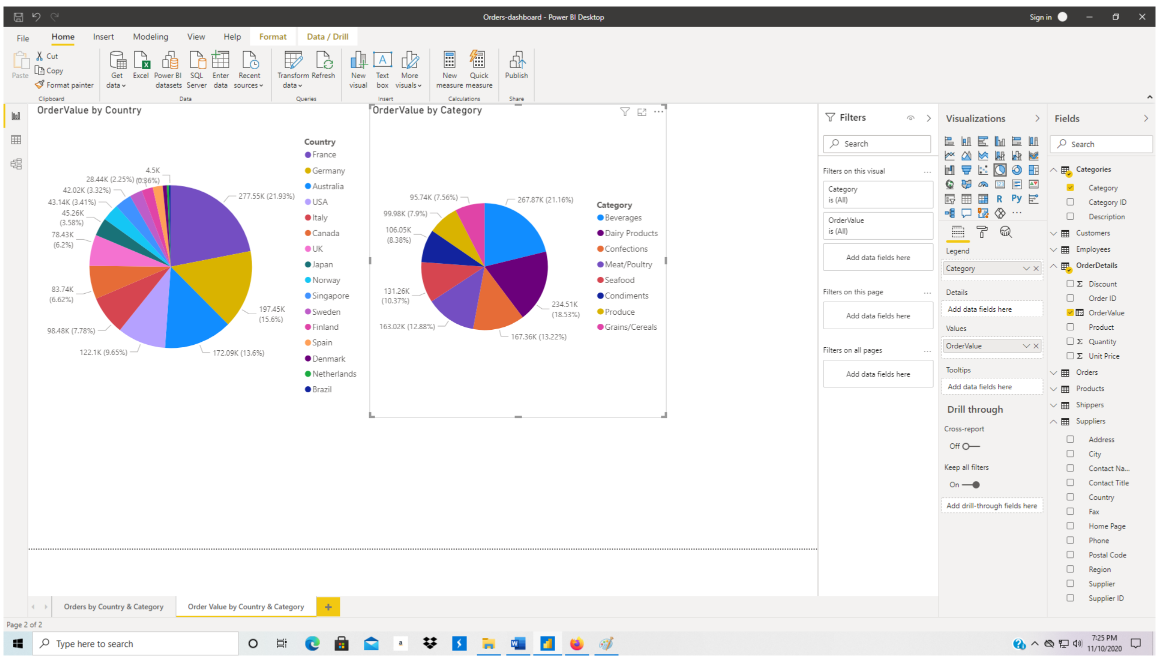
Adding more Dashboard Pages – Pie Charts

1. To add another Dashboard, in the Home tab, click on the + at the bottom of the screen (New page)
2. Click on the Pie Chart
3. Drag Suppliers: Country to Legend
4. Drag OrderDetails: OrderValue to Values



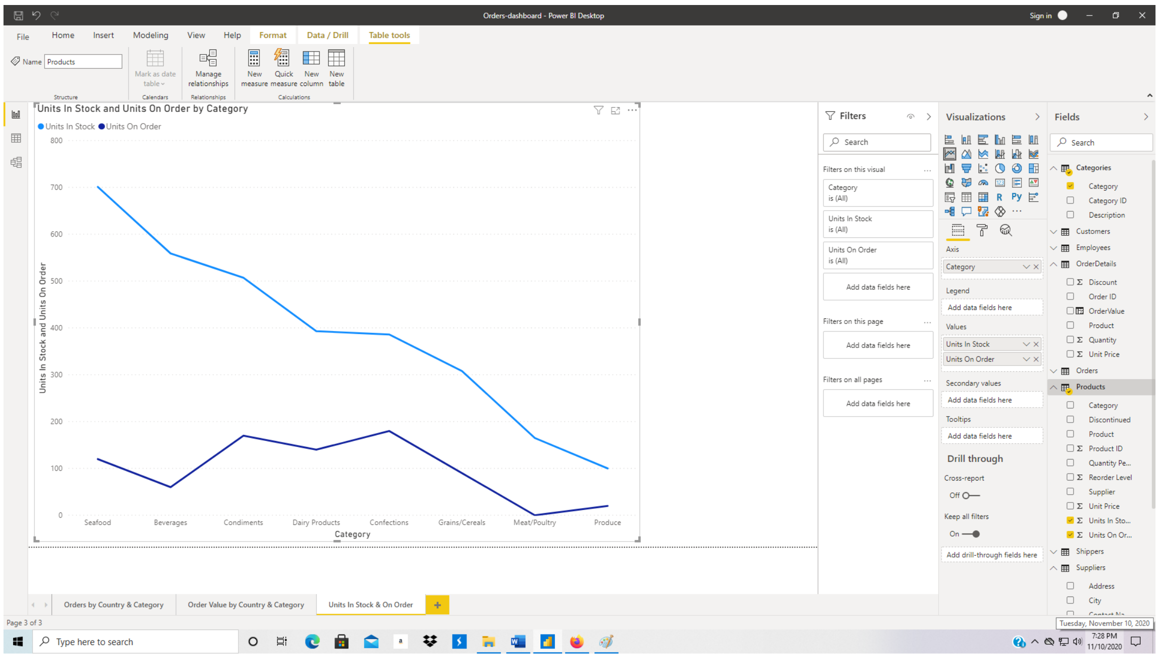
Add a second pie chart

1. Add a second pie chart by clicking on New Visual
2. Change it to Pie Chart
3. Drag Categories: Category to Legend
4. Drag OrderDetails: OrderValue to Values
5. Move the second pie chart to the right of the first by clicking on the second chart, hold the mouse button down, and drag
6. Expand the pictures by clicking on the right lower corner and dragging
7. Note when expanding, a red dashed line appears when the pictures line up
8. Rename the page Order Value by Country & Category by double clicking on the page number at the bottom of the screen



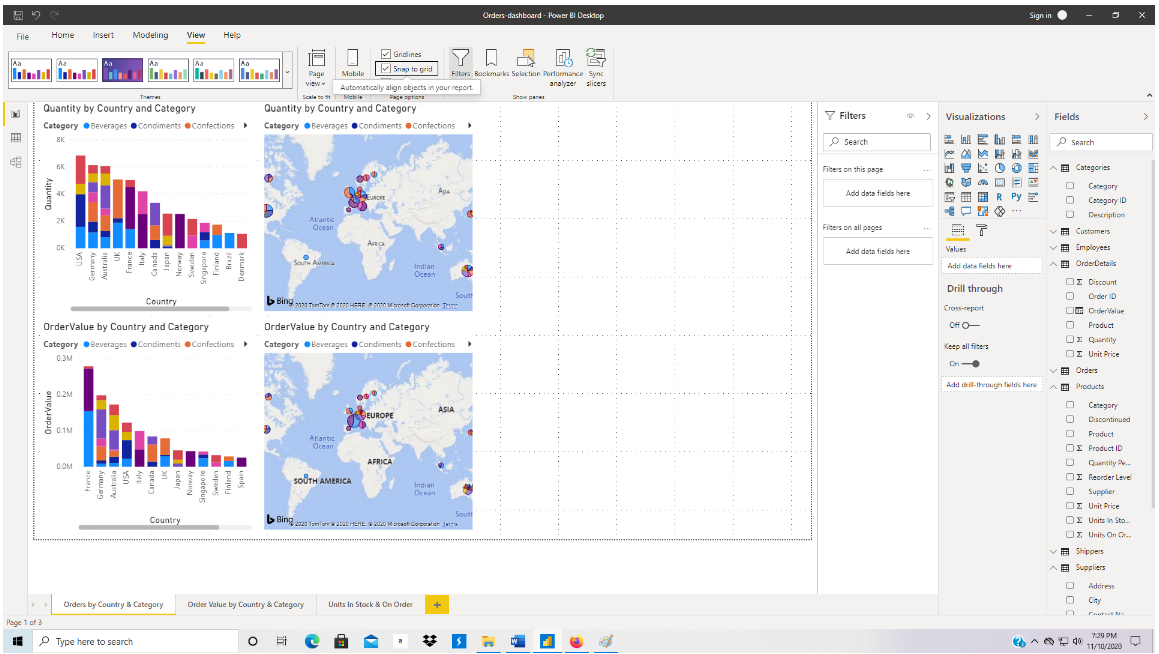
Adding more Dashboard Pages - Line Graphs with Multiple Data Fields

1. You can add more pages by clicking on the + button at the bottom of the screen
2. Click on the Line chart (second row, chart on left)
3. Drag Products: Category to Axis
4. Note that for Values, it now says “Drag data fields here”, plural for more than one
5. Drag Products: Units in Stock to Values
6. Drag Products: Units on Order to Values
7. Expand the graph by dragging the lower right corner
8. Rename the page Units In Stock & On Order



Cleaning up Alignment

1. Click on the first dashboard page, Orders by Country & Category
2. Often, the graphs will not be perfectly aligned
3. To fix this problem, click on the View tab
4. Check the box Gridlines
5. Check the box Snap Objects to Grid
6. Move the charts until they look aligned
7. Uncheck Show Gridlines



Refreshing Data

1. To refresh the data, click on the Home tab, then Refresh