Microsoft Power BI

Download free copy (not necessary for class)

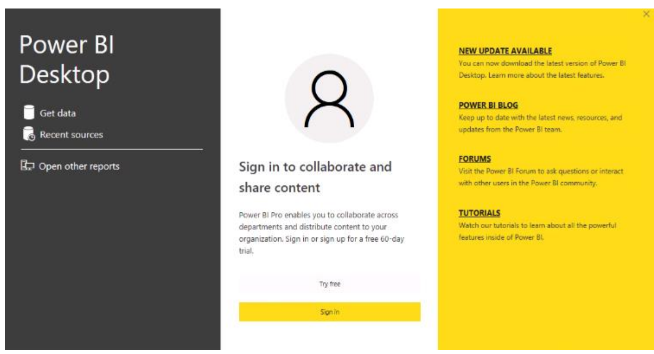
1. If you would like a free copy, go to the website:

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

2. Follow the download instructions

Power BI

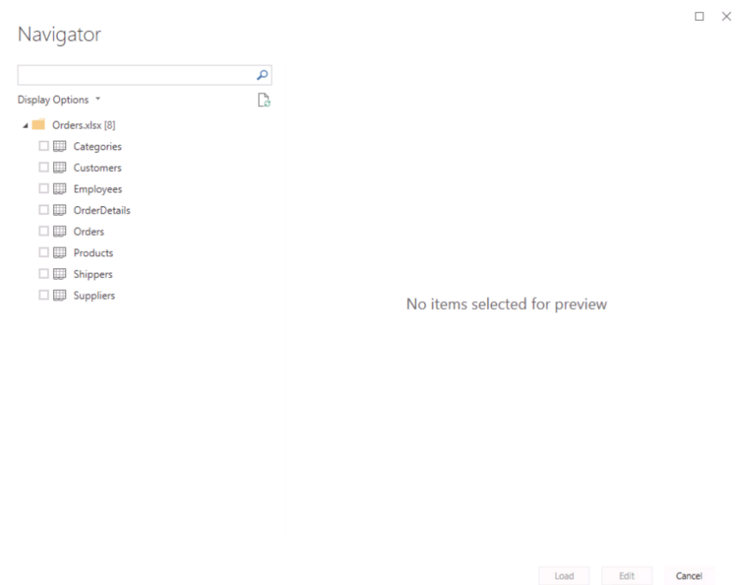
1. When the Power BI opens, you should see:



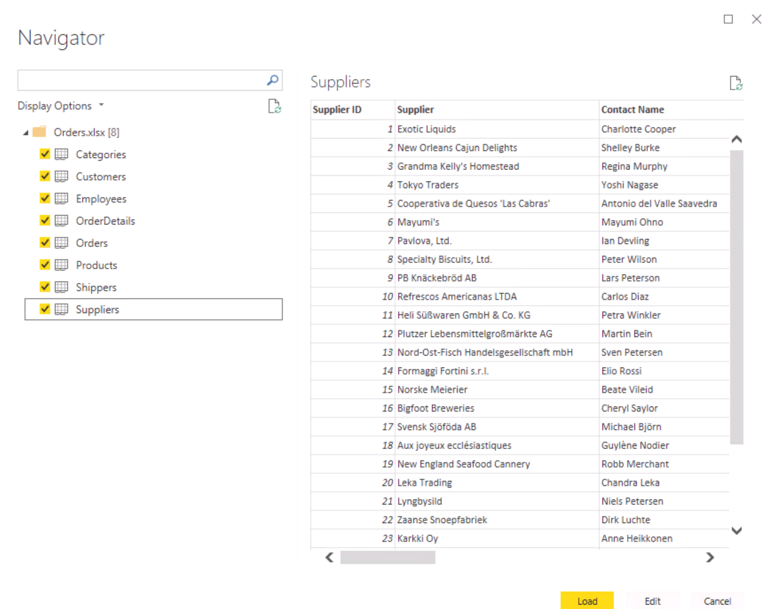
2. Do not sign in. Simply click on the X in the upper right corner of the image above to close the sign in screen

Connecting to Data

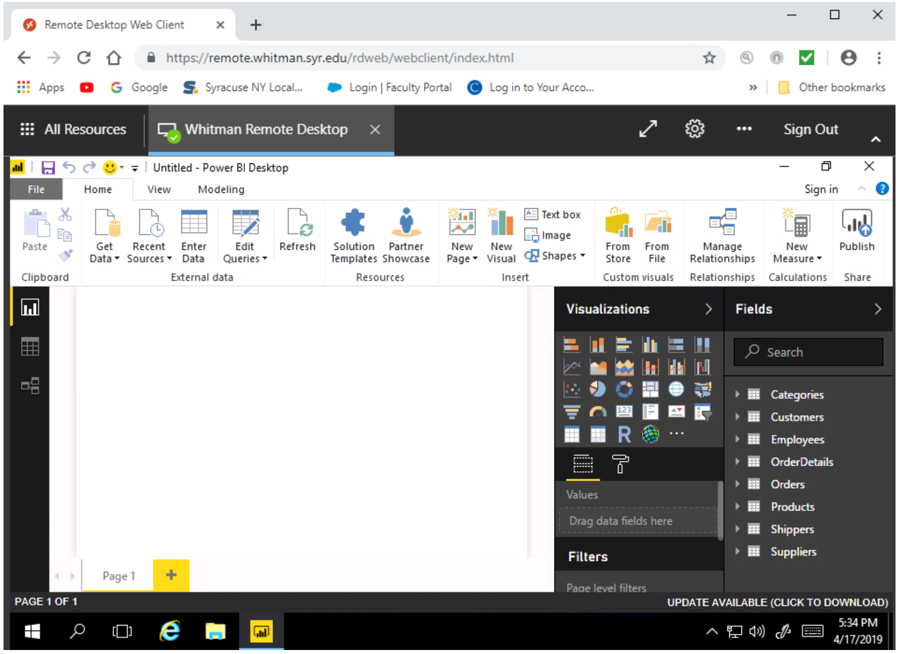
1. For this exercise, we will connect to the Orders.xls spreadsheet. This example was used in the Access, Tableau, and Excel examples.
2. In the upper left corner of Power BI, click on Get Data, then Excel
3. Find the Orders.xls file on your desktop, then click Open



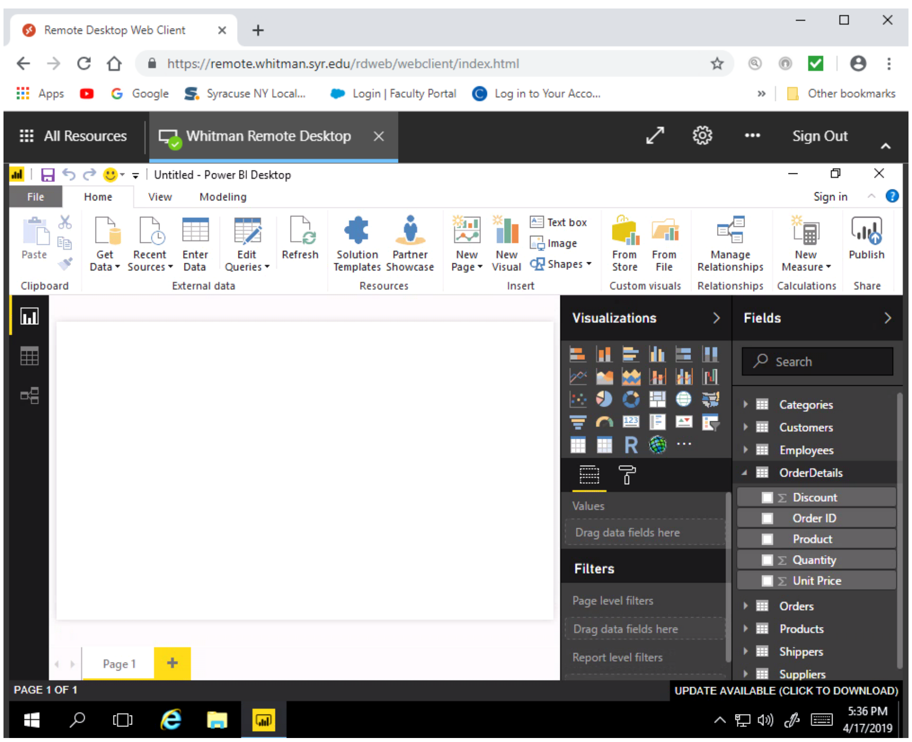
4. Note that this screen looks very similar to Tableau
5. Check each of the boxes



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



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

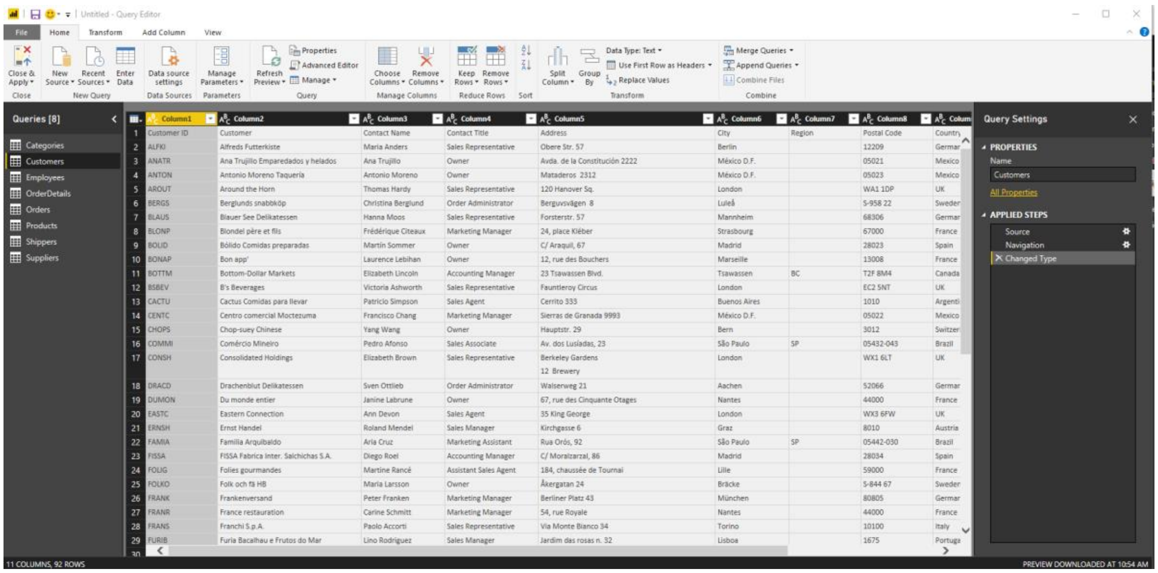


Correcting Labels

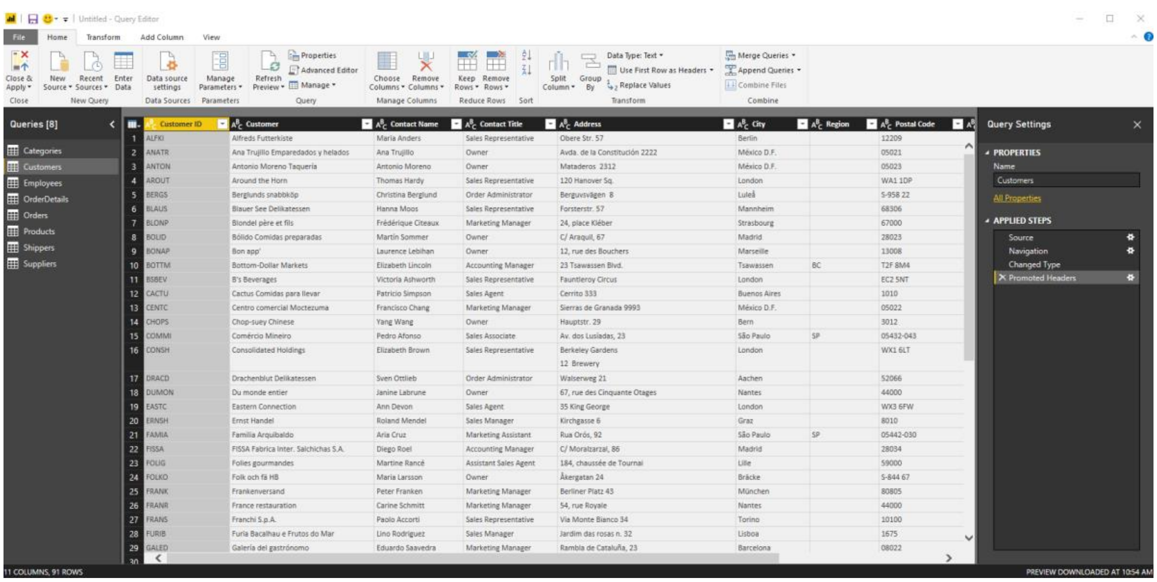
Click on the arrow to each table on the right. Do any of the tables look unusual?

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, click on Edit query



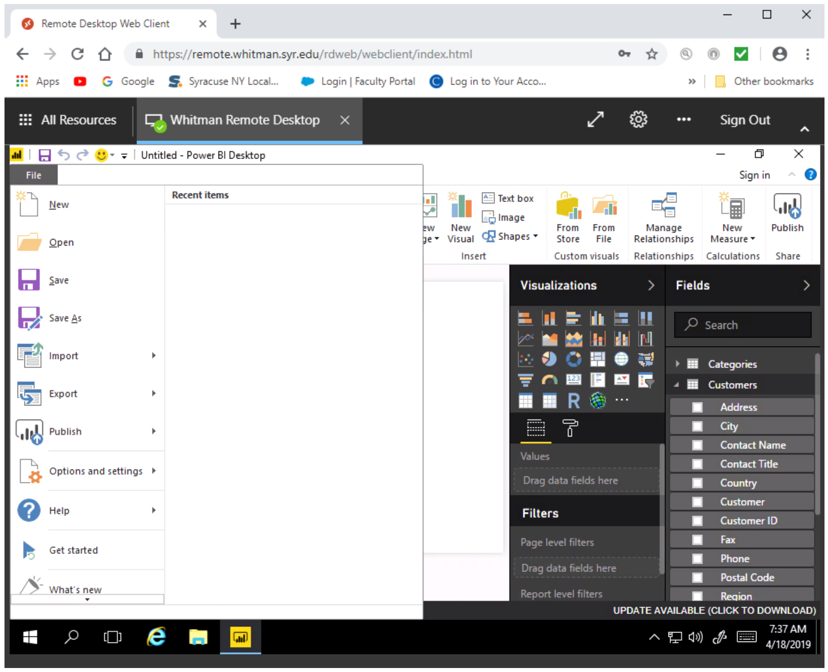
2. On the left side, click on the Customers Query (make sure it is highlighted)
3. In the upper right, click on Use First Row as Headers



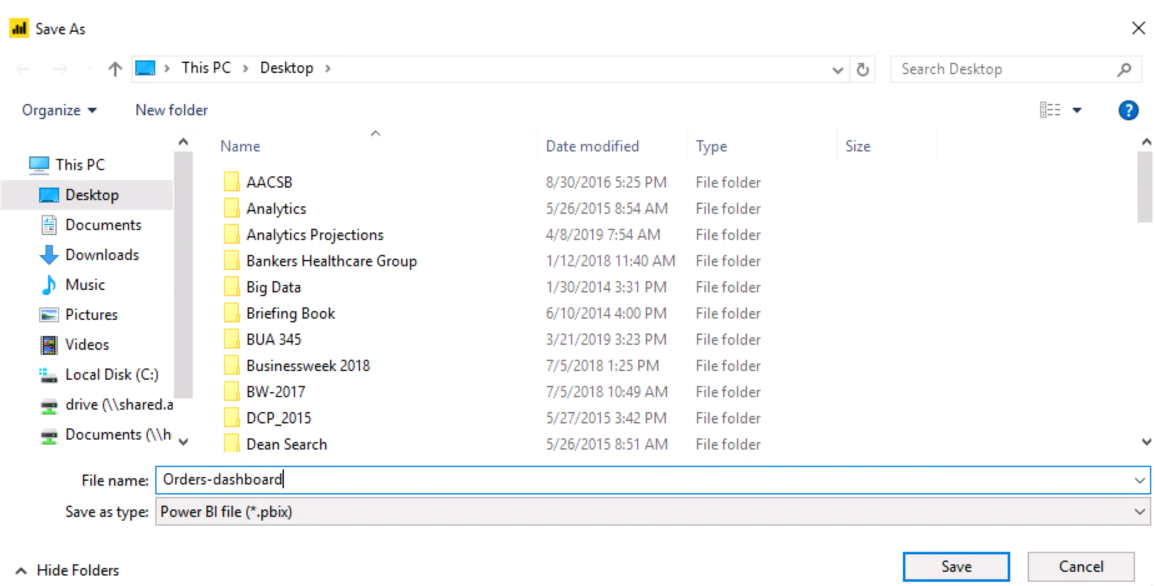
4. Click on the X in the upper right corner of Query Editor
5. When prompted "Do you want to apply your changes now?", click Yes
6. Click on Customers to confirm the correction was made

Saving your work

1. Click on File, Save As

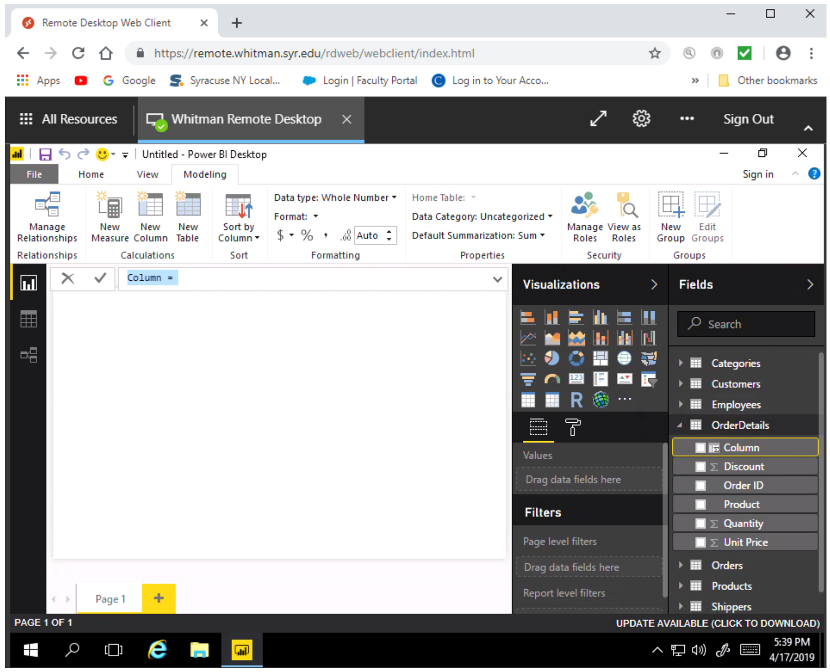


2. Enter Orders-dashboard as the name of the file and click Save to save to your desktop

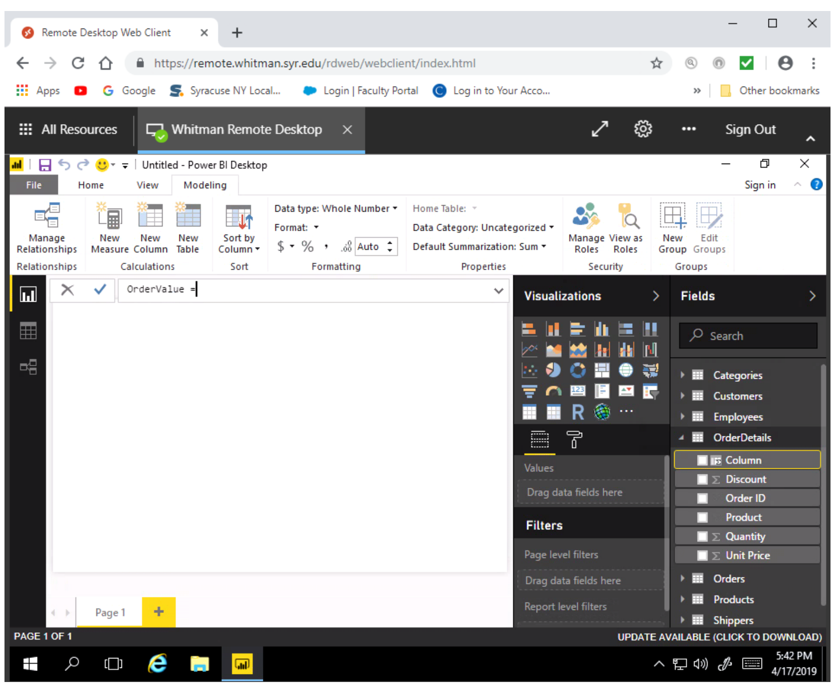


Adding a calculated field

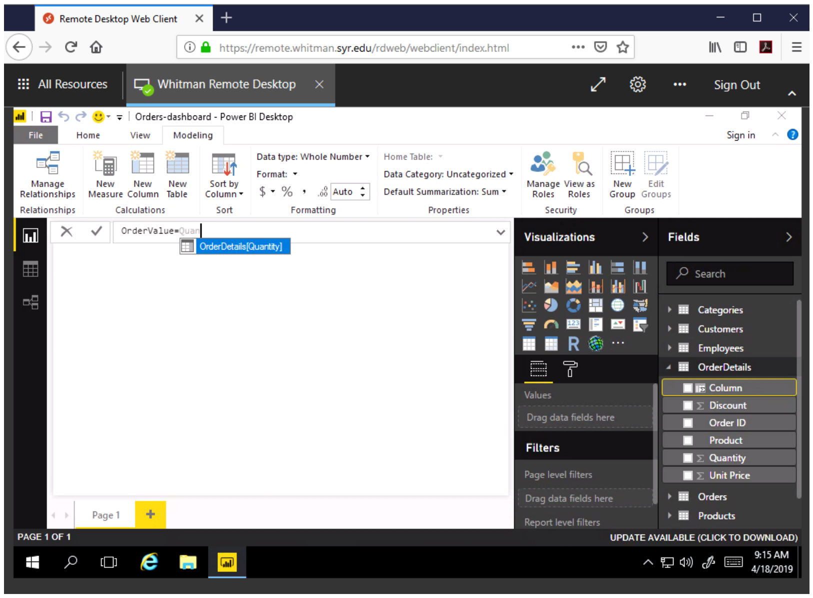
1. Let's next add a new column. As we did in Tableau and Excel Dashboards, let's add OrderValue = Quantity * UnitPrice * (1 – Discount)
2. While still clicked on OrderDetails, in the upper left of Power BI, click on Modeling
3. Next click on New Column
4. Note that it creates a new field in OrderDetails called Column



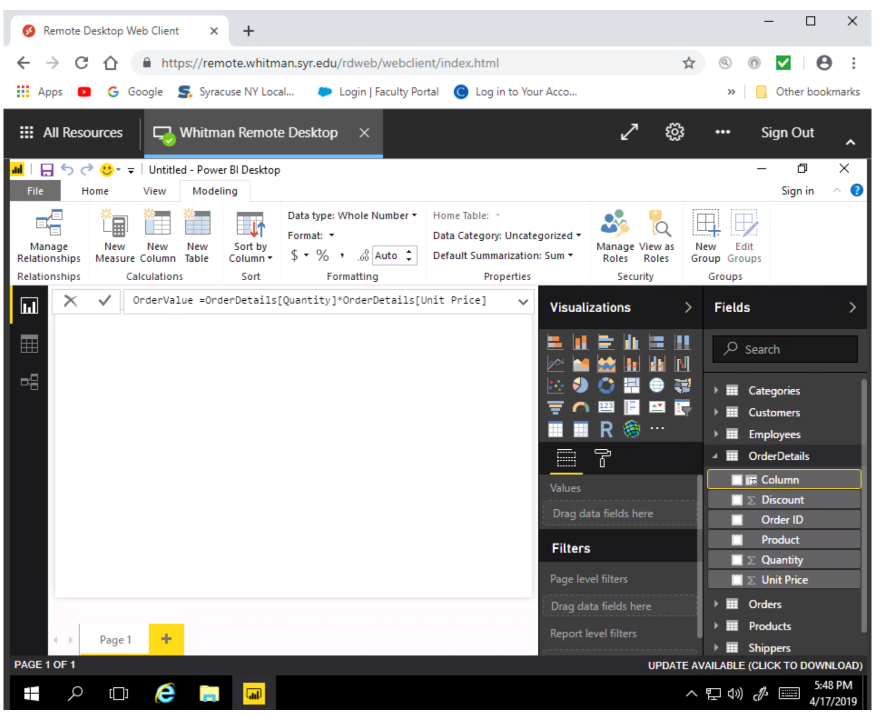
5. It also creates a formula under New Column with "Column ="



6. Change the word Column to OrderValue
7. After “OrderValue =”, slowing type Quantity, then backspace one character
8. A list of fields should appear

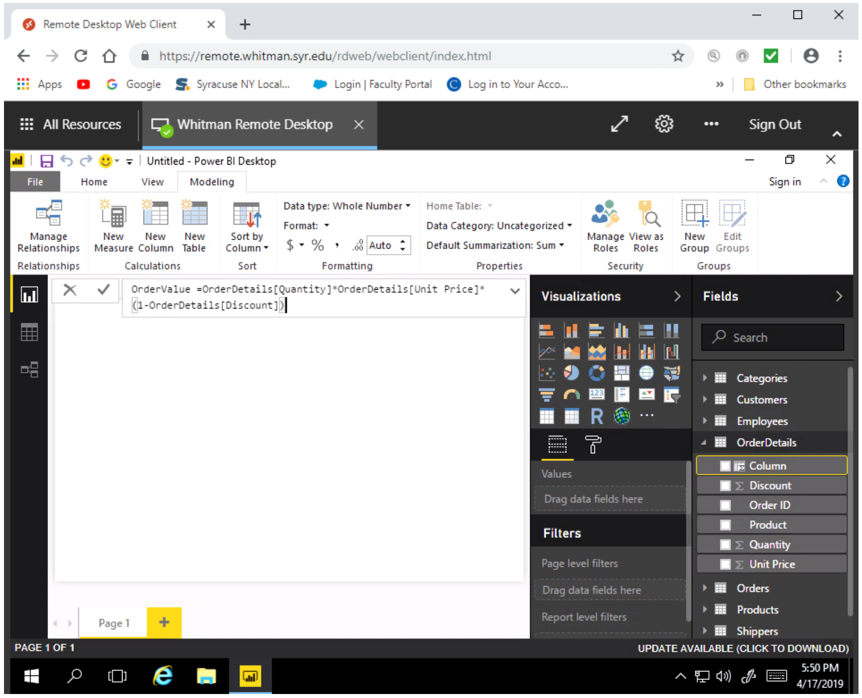


9. Double click on OrderDetails[Quantity]
10. Enter * for multiplication
11. Slowly type Unit Price, then backspace one character
12. A list of fields should appear again
13. Double click on OrderDetails[Unit Price]

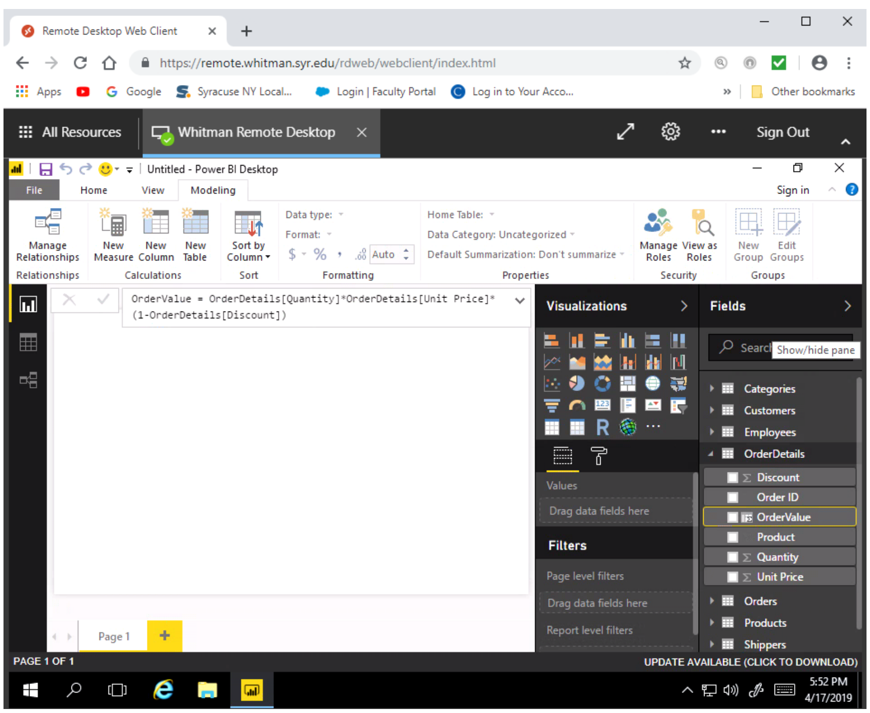


14. Enter * for multiplication

15. For discount, we will need (1-Discount)
16. Enter (1 –
17. Slowly type Discount, then backspace one character
18. Type) to close the equation

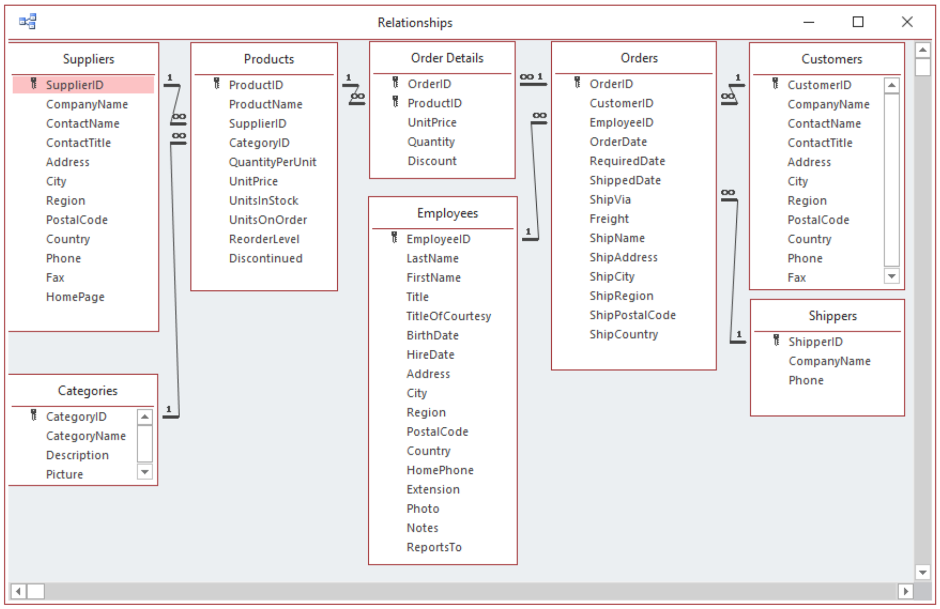


19. Click on the enter key to add OrderValue to the OrderDetails table.



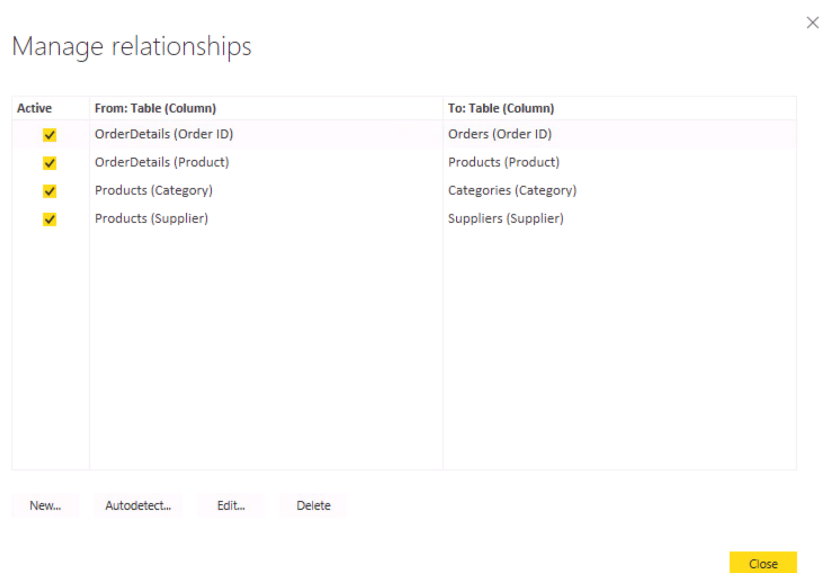
Creating Relationships

The Orders Access database that we used earlier had the following relationships. There are a total of 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


Manage relationships

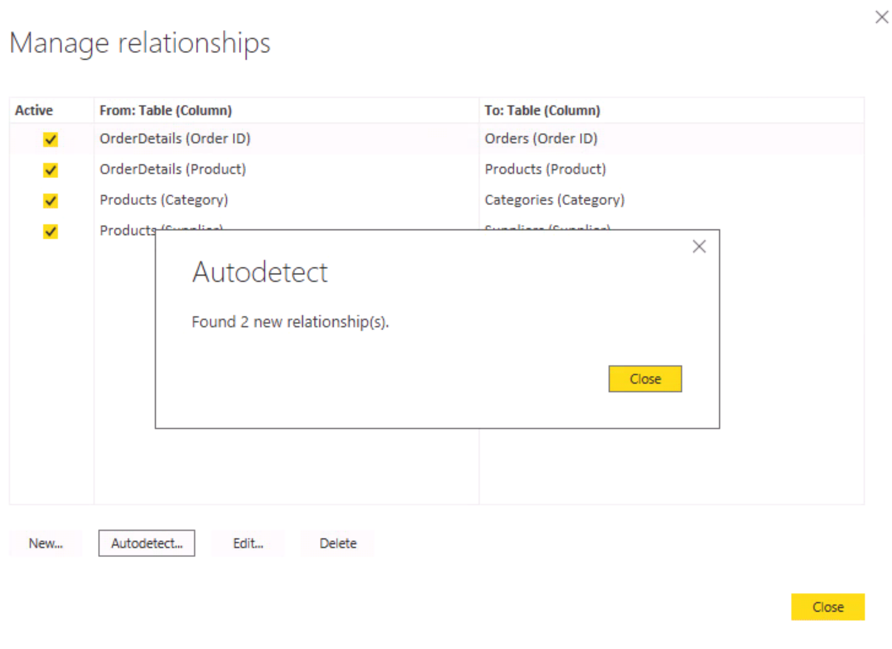
Active	From: Table (Column)	To: Table (Column)
✓	OrderDetails (Order ID)	Orders (Order ID)
✓	OrderDetails (Product)	Products (Product)
✓	Products (Category)	Categories (Category)
✓	Products (Supplier)	Suppliers (Supplier)

New... Autodetect... Edit... Delete

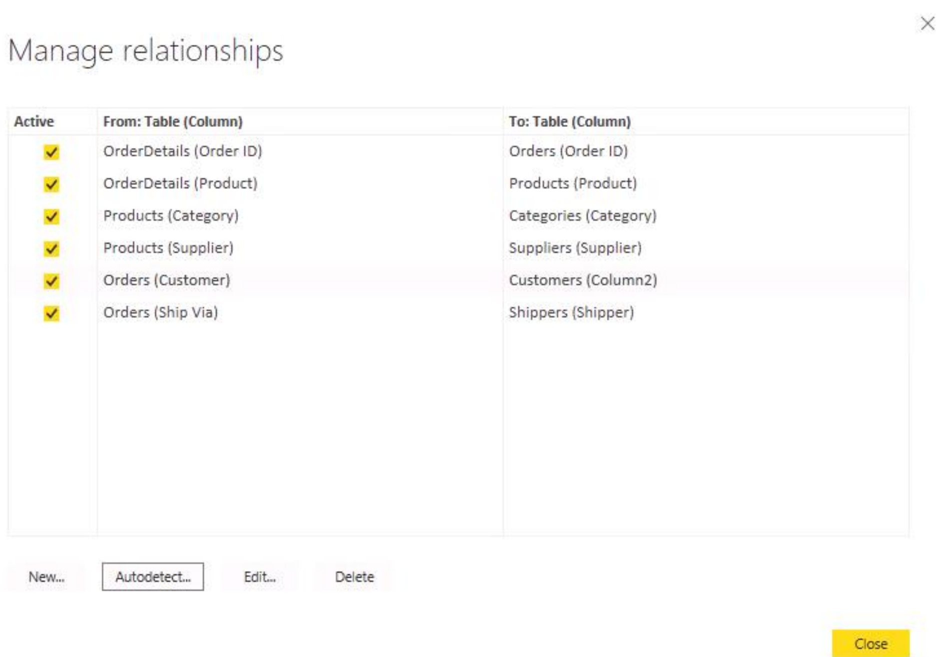
Close

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

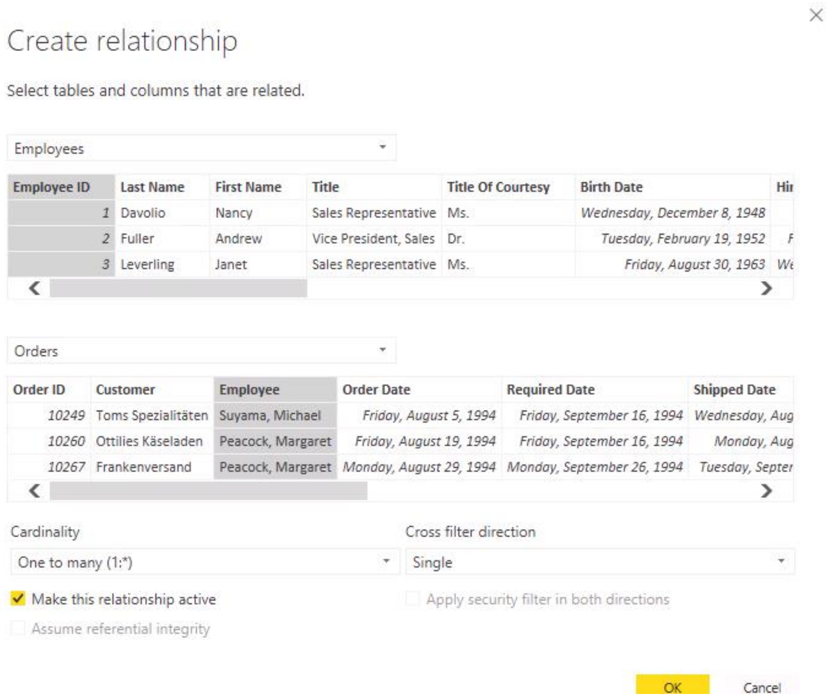


6. Autodetect found new relationships. Click on Close in the Autodetect window

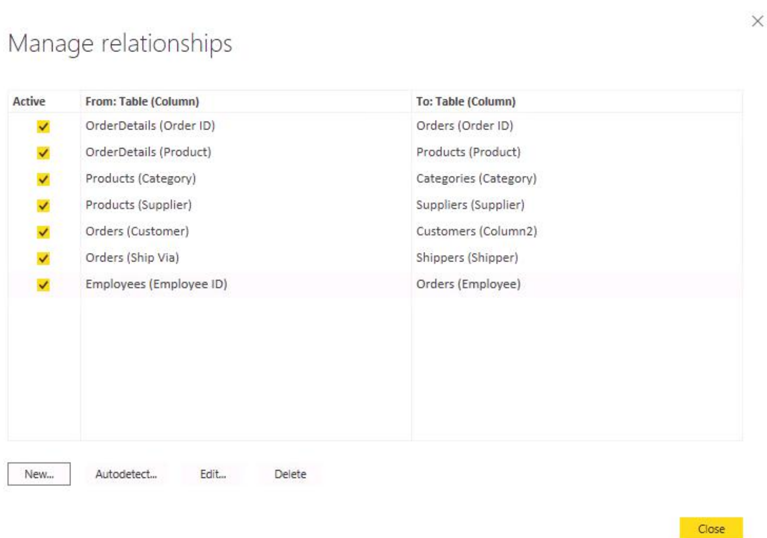


7. We are still missing the seventh relationship. Reviewing the Access relationship diagram, it appears that Employees to Orders is missing

8. In the Manage relationship window, click on New to add the last relationship
9. In the first box, click on the drop down menu and select the Employees table
10. In the second box, click on the drop down menu and select the Orders table
11. To identify the fields that form the join, click on Employee ID in the Employees table
12. Then click on Employee in the Orders table



13. Finally click OK

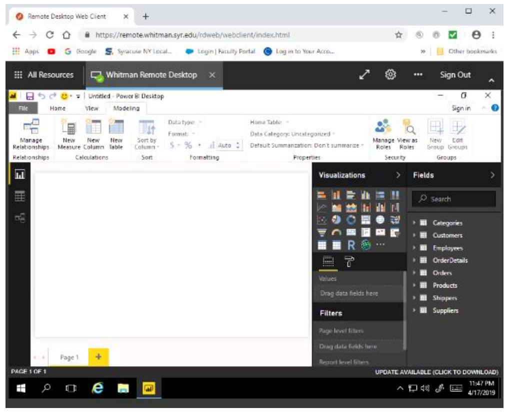


14. Now all relationships have been created
15. Click Close to close the Manage relationships window

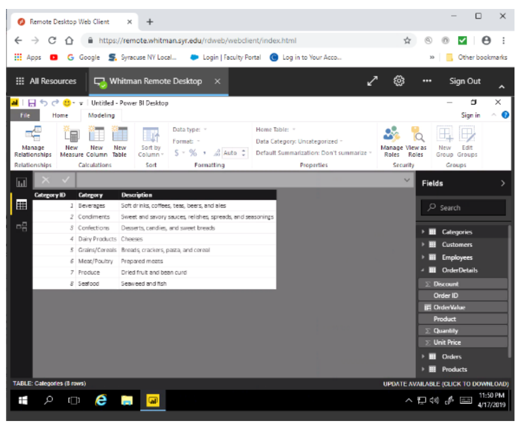
Viewing Options

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

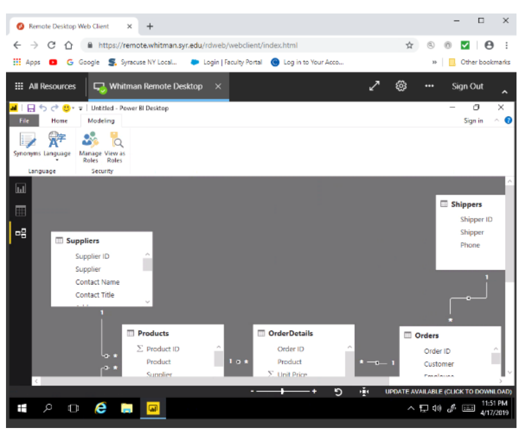
1. Click on Report for the default screen



2. Click on Data to see data in the table



3. Click on Relationships for the relationships between tables

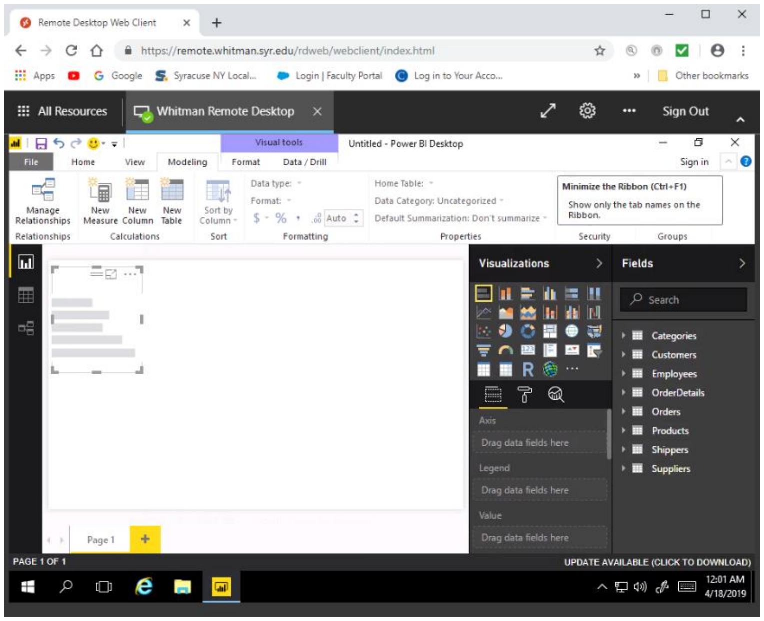


4. Click on Report to return to the default.

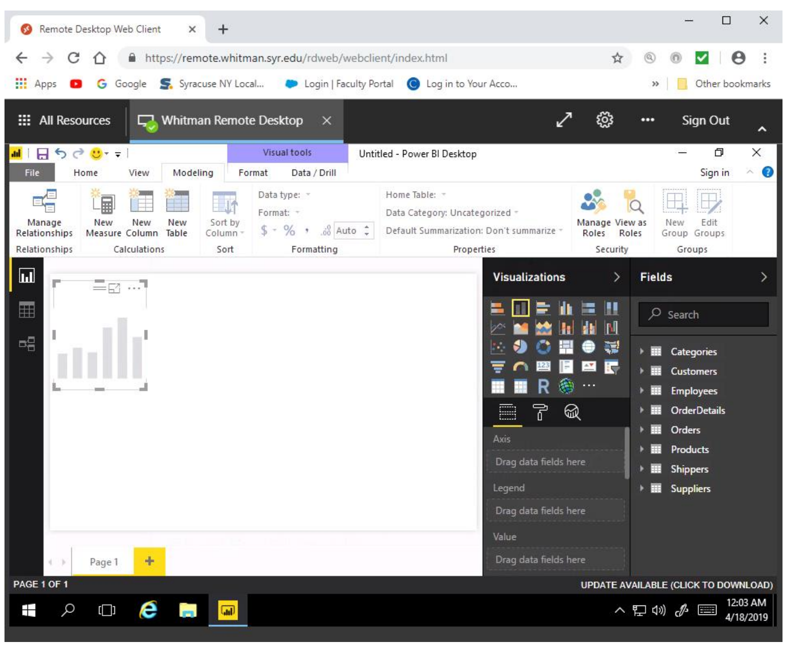
Visualizations – adding a chart

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).

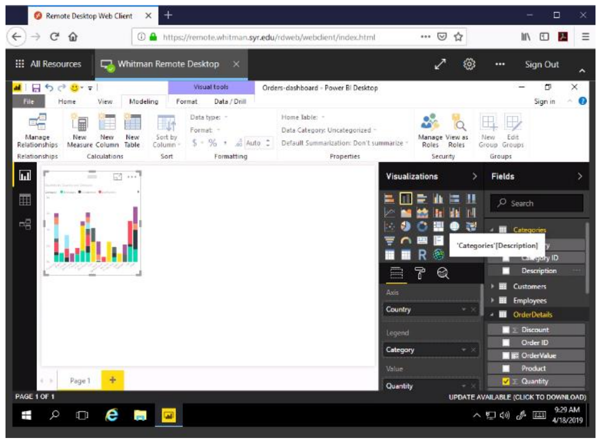


2. Power BI will show a sample chart in the left side of the Reports area
3. Click on the Stacked Column Chart (top row, second from left)



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.

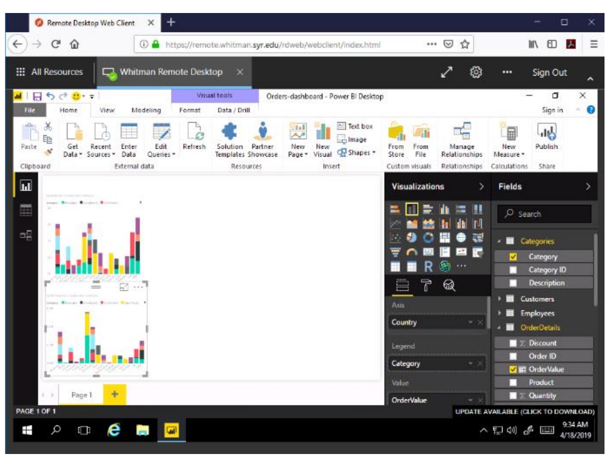
7. Click on the Stacked Column chart
8. Click on the arrow next to Suppliers table to display the fields
9. Drag Country to the Axis box
10. Click on the arrow next to Categories table to display the fields
11. Drag Category to the Legend box
12. Click on the arrow next to Order Details table to display the fields
13. Drag Quantity to the Value box
14. Click on the lower right corner of the chart and drag it to expand the size of the chart



Visualizations – adding a second chart to the same dashboard

To add a second chart:

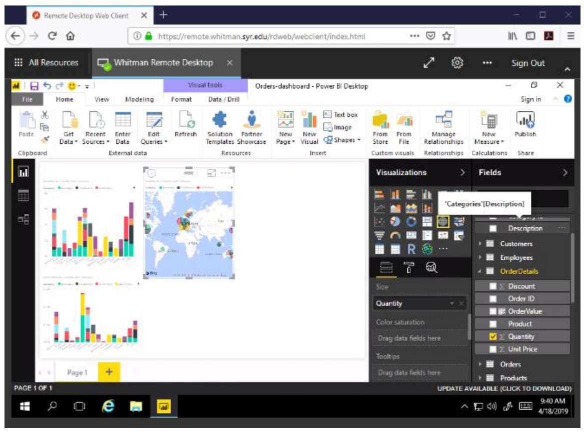
1. Click on the Home tab
2. Click on New Visual
3. Use the Stacked Bar Chart again
4. Drag Suppliers: Country to Axis
5. Drag Categories: Category to Legend
6. Drag OrderDetails: OrderValue to Value
7. Click on the lower right corner of the chart and drag it to expand the size of the chart



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

To add a third chart:

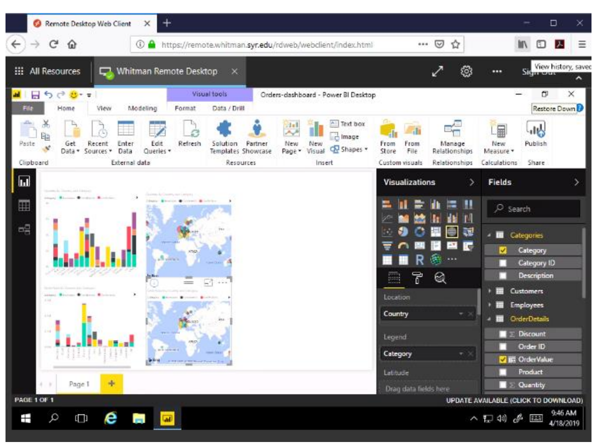
1. Click on the Home tab
2. Click on New Visual
3. Click on Map
4. Drag Suppliers: Country to Location
5. Drag Categories: Category to Legend
15. Drag OrderDetails: Quantity to Size
16. Click on the lower right corner of the chart and drag it to expand the size of the chart



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

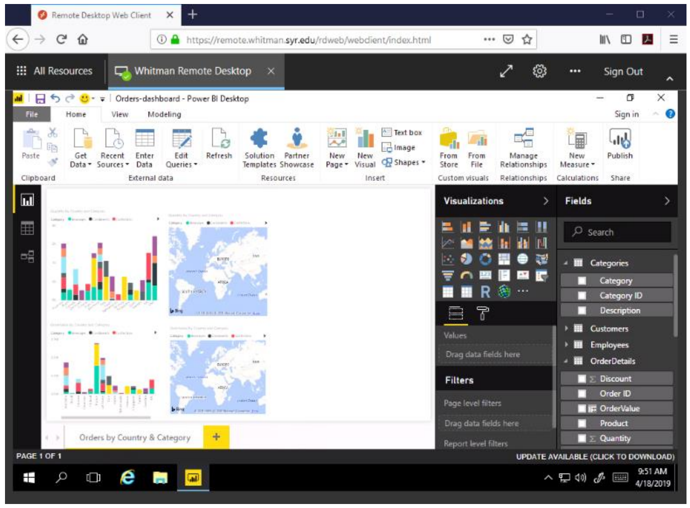
To add a fourth chart:

6. Click on the Home tab
7. Click on New Visual
8. Click on Map
9. Drag Suppliers: Country to Location
10. Drag Categories: Category to Legend
17. Drag OrderDetails: OrderValue to Size
18. Click on the lower right corner of the chart and drag it to expand the size of the chart



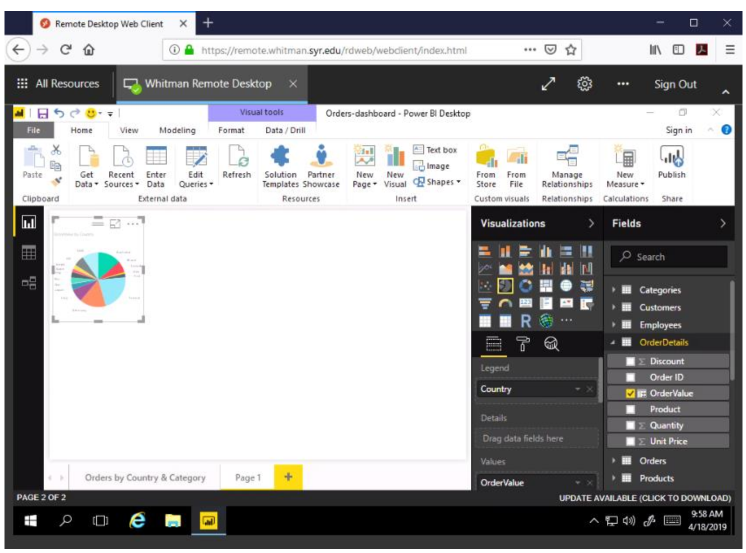
Naming the Dashboard

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

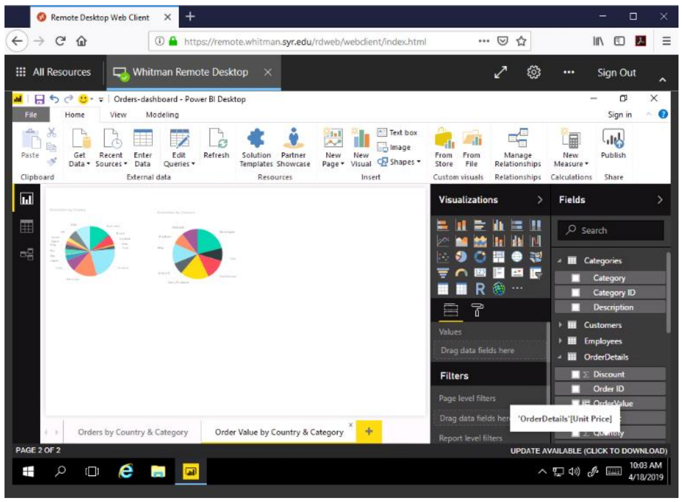


Adding more Dashboard Pages – Pie Charts

1. To add another Dashboard, in the Home tab, click on the down arrow for New Page
2. You have the option of a Blank Page or Duplicate Page
3. Click on Blank Page
4. Click on the Pie Chart
5. Drag Suppliers: Country to Legend
6. Drag OrderDetails: OrderValue to Values

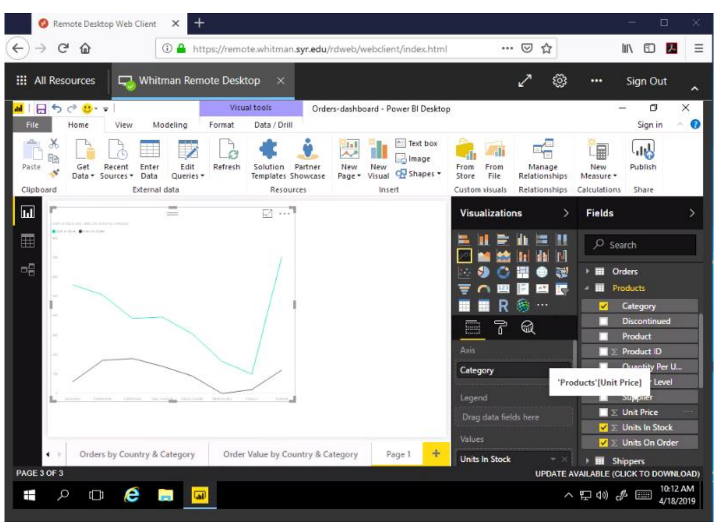


7. Add a second pie chart by clicking on New Visual
8. Change it to Pie Chart
9. Drag Categories: Category to Legend
10. Drag OrderDetails: OrderValue to Values
11. Move the second pie chart to the right of the first by clicking on the second chart, hold the mouse button down, and drag
12. Rename the page Order Value by Country & Category by double clicking on the page number at the bottom of the screen

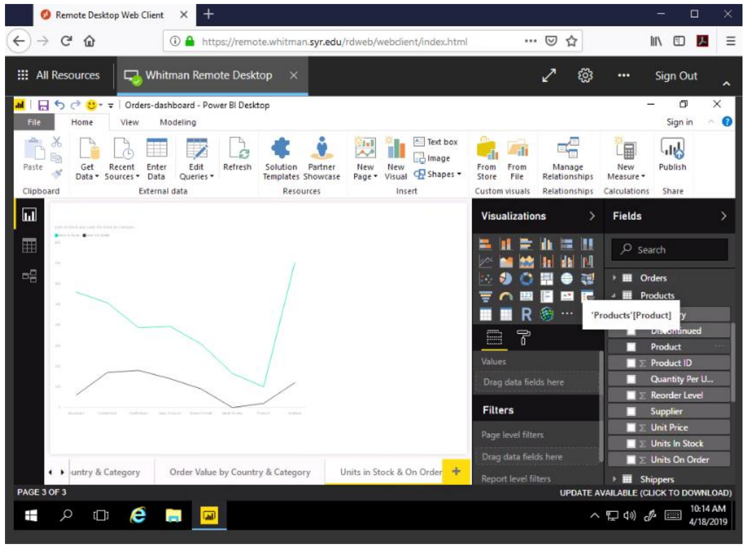


Adding more Dashboard Pages –Line Graphs with Multiple Data Fields

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

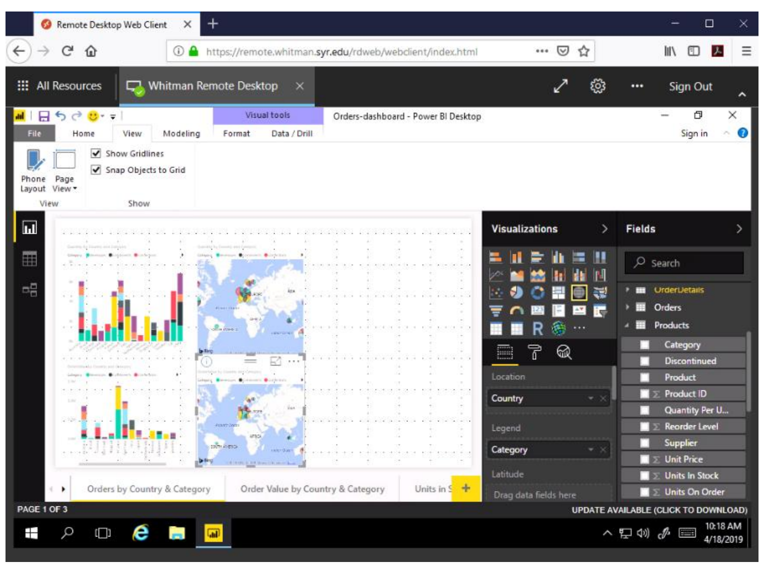


8. Rename the page Units In Stock & On Order



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 Show 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