



# LAB 2: CONNECTING MULTIPLE DATA SOURCES

BY

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EXCELTV

# LAB: CONNECTING TO AN ONLINE DATA SOURCE

## MODULE OUTCOMES

- ▶ Connect multiple data sets in power query
- ▶ Creating a new data model
- ▶ Create interesting charts with those connections

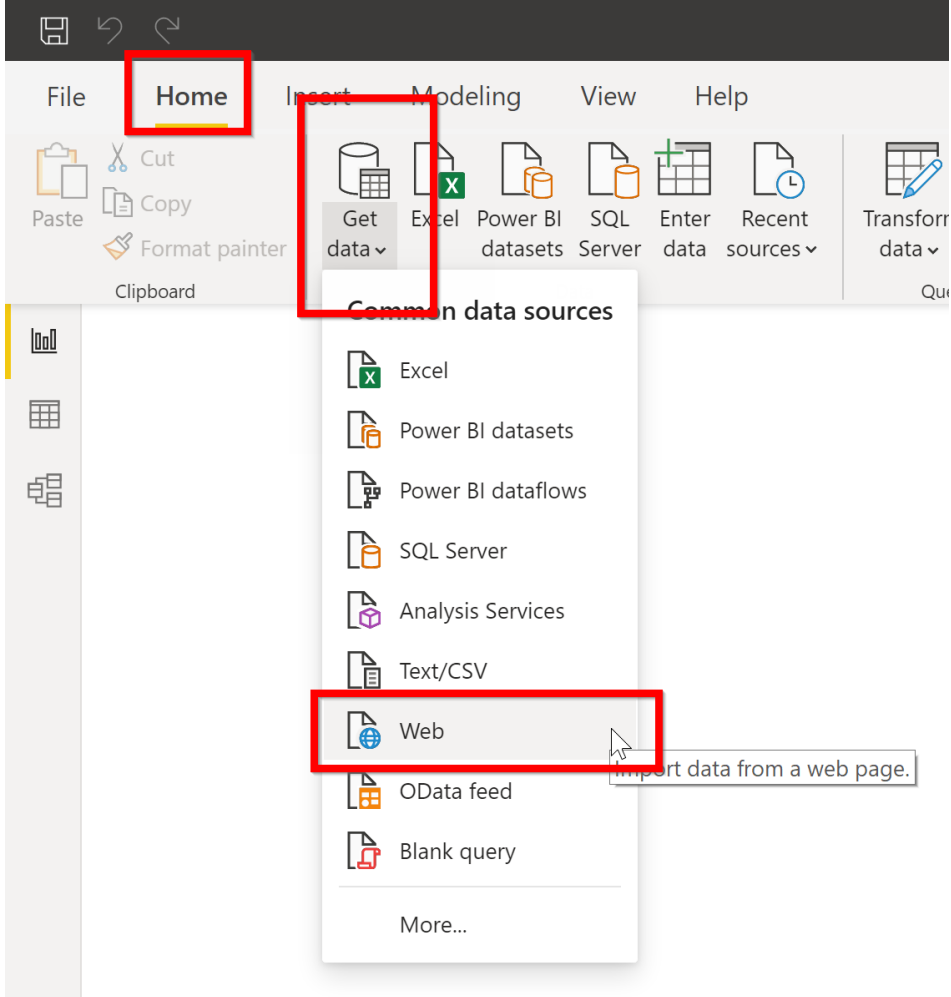
## DESCRIPTION

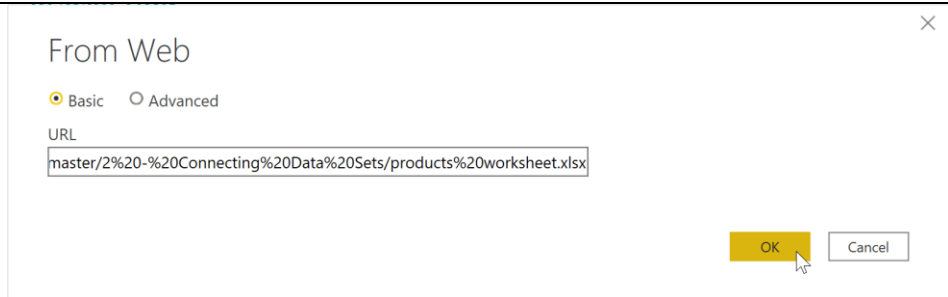
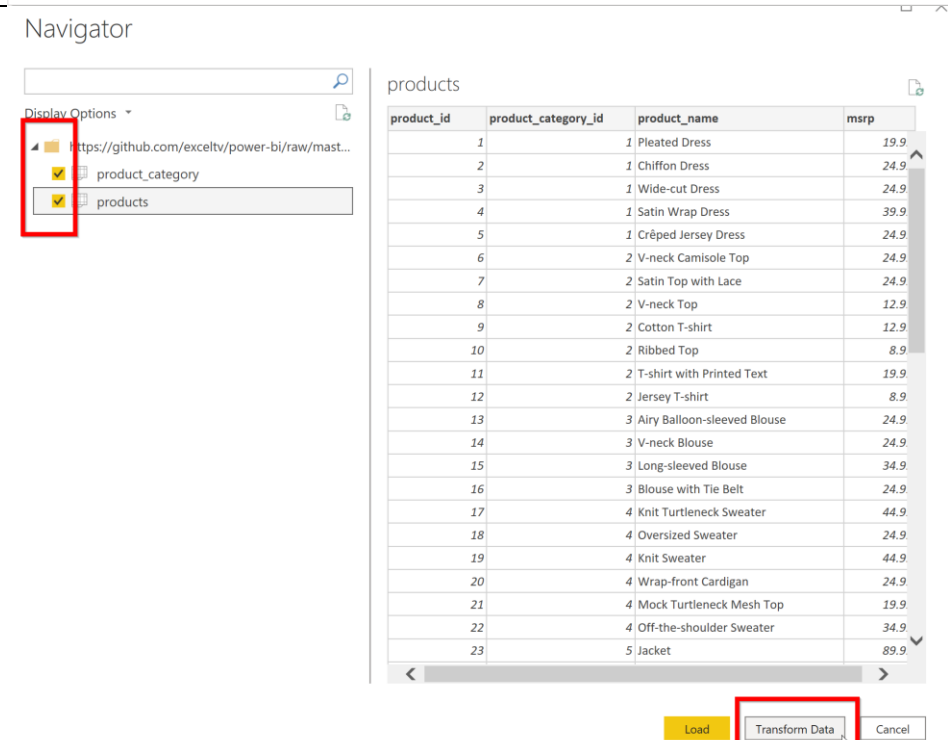
This lab relies on the following files:

- ▶ products worksheet.xlsx - <https://github.com/exceltv/power-bi/raw/master/2%20-%20Connecting%20Data%20Sets/products%20worksheet.xlsx>
- ▶ store list.xlsx – <https://github.com/exceltv/power-bi/raw/master/2%20-%20Connecting%20Data%20Sets/store%20list.xlsx>
- ▶ transactions.csv – <https://github.com/exceltv/power-bi/raw/master/2%20-%20Connecting%20Data%20Sets/transactions.csv>

Use the links next to each of the files to connect the files.

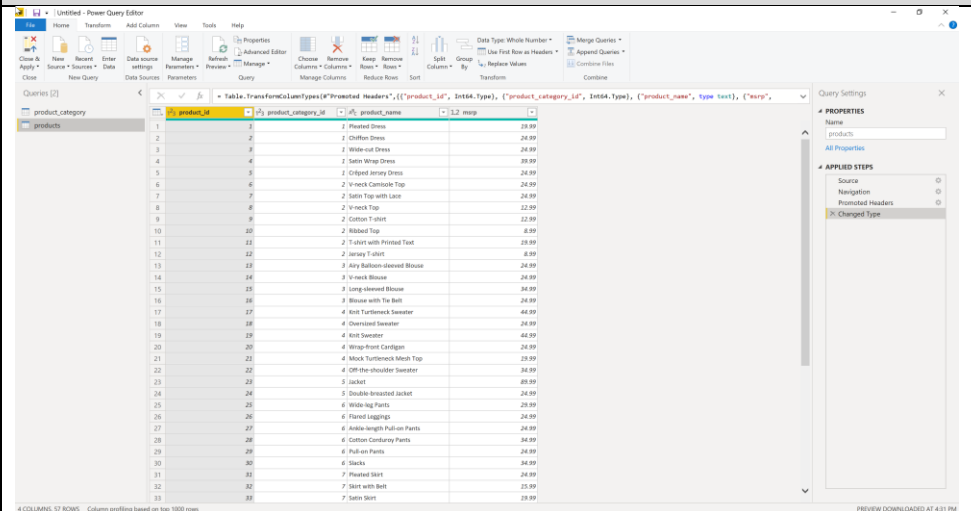
## STEP-BY-STEP INSTRUCTIONS

Click Steps	Screen Shots
<ol style="list-style-type: none"> <li>1. Open Power BI</li> <li>2. Click Home &gt; Get data &gt; Web</li> </ol>	
<ol style="list-style-type: none"> <li>3. We're going to bring the products worksheet.xlsx workbook into Power BI.</li> </ol> <p>Scroll up. Copy the URL next to the</p>	<p><b>DESCRIPTION</b></p> <p>This lab relies on the following files:</p> <ul style="list-style-type: none"> <li>▶ products worksheet.xlsx - <a href="https://github.com/exceltv/power-bi/raw/master/2%20Connecting%20Data%20Sets/products%20worksheet.xlsx">https://github.com/exceltv/power-bi/raw/master/2%20Connecting%20Data%20Sets/products%20worksheet.xlsx</a></li> </ul>

Click Steps	Screen Shots
filename. This is the URL we will use to connect to the file stored on GitHub	
<p>4. Paste the filepath into the URL text field.</p> <p>5. Click OK</p>	
<p>6. Check the product_category and products tables to bring them in.</p> <p>7. Click Transform Data.</p>	

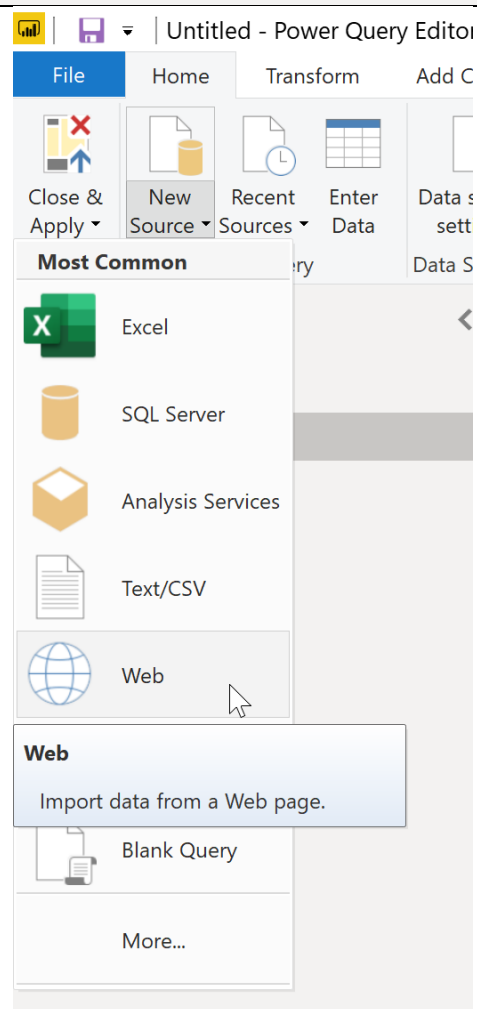
## Click Steps


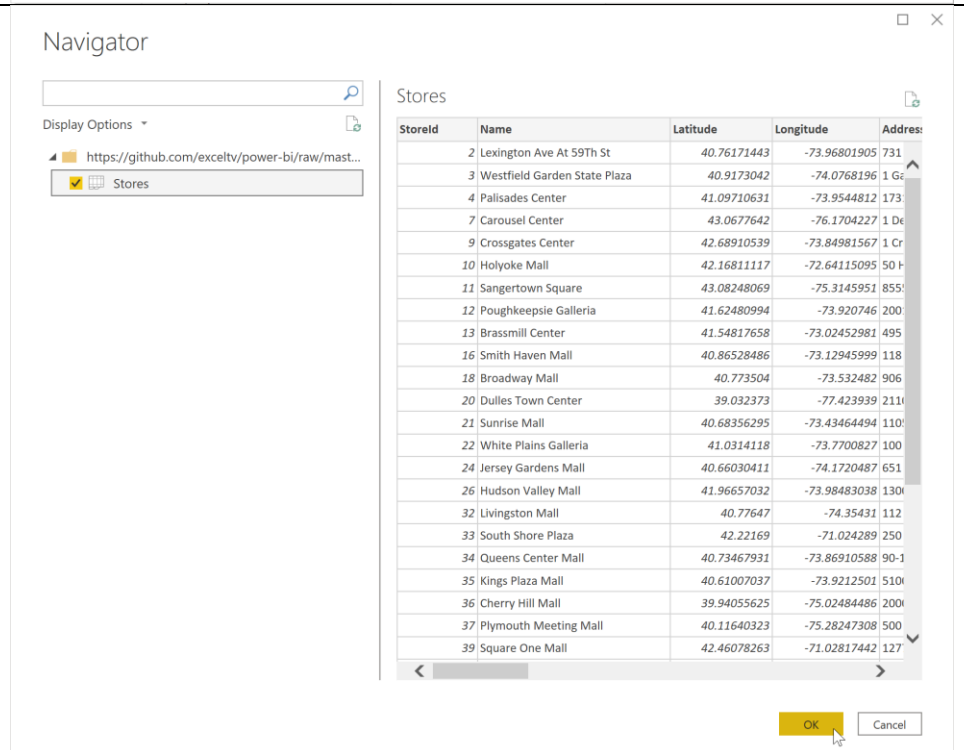
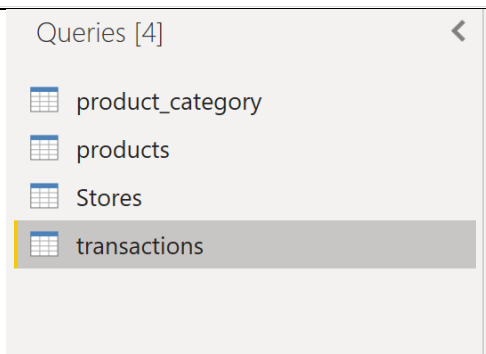
8. If everything goes according to plan, your screen should look like this.

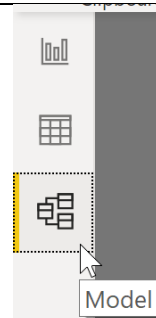


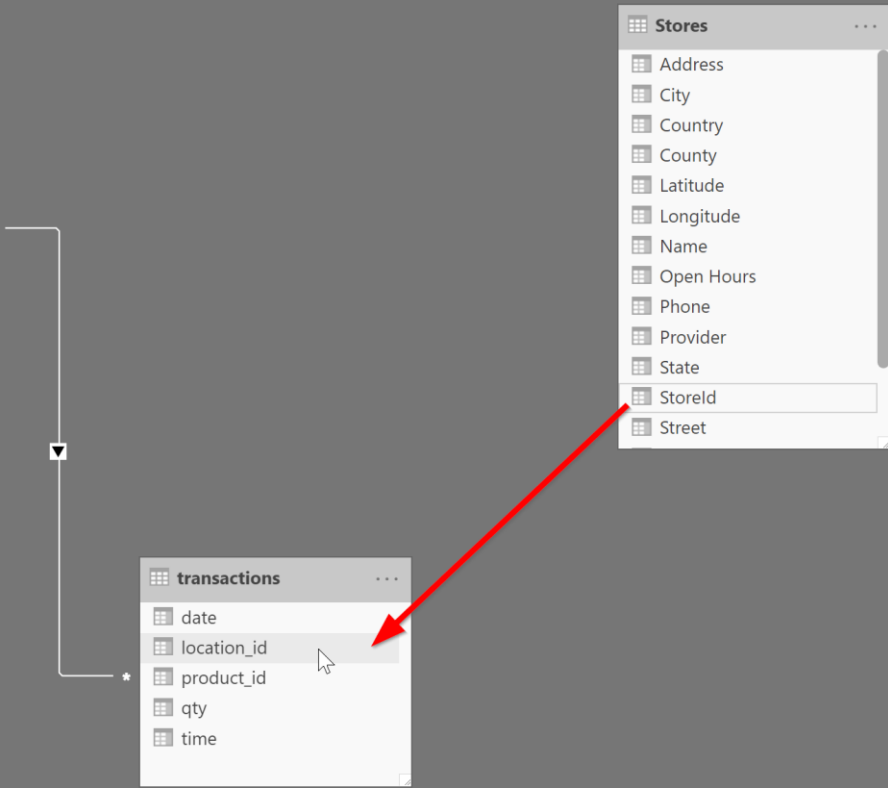
product_id	product_category_id	product_name	price
1	2	1. Pheasant Dress	28.00
2	2	2. Chicken Dress	24.00
3	2	3. Wildcat Dress	24.00
4	4	2. Sash Wrap Dress	35.00
5	5	2. Cropped Jersey Dress	24.00
6	6	2. V-neck Camisole Top	24.00
7	7	2. Satin Top with Lace	24.00
8	8	2. V-neck Top	22.00
9	9	2. Cotton T-shirt	12.00
10	10	2. Ribbed Top	8.00
11	11	2. T-shirt with Printed Text	15.00
12	12	2. Jersey T-shirt	8.00
13	13	3. Any Button-down Blouse	24.00
14	14	3. V-neck Blouse	24.00
15	15	3. Long-sleeved Blouse	34.00
16	16	3. Blouse with Tie Belt	24.00
17	17	4. Solid Turn-down Sweater	44.00
18	18	4. Open-neck Sweater	24.00
19	19	4. Knit Sweater	44.00
20	20	4. Wrap-front Cardigan	24.00
21	21	4. Stock Turn-down V-neck Top	22.00
22	22	4. Off-the-shoulder Sweater	34.00
23	23	5. Jacket	89.00
24	24	5. Double-breasted jacket	24.00
25	25	6. Wind-up Pants	24.00
26	26	6. Flared Leggings	24.00
27	27	6. Ankle-length Pull-on Pants	24.00
28	28	6. Cotton Casual Pants	34.00
29	29	6. Pull-on Pants	24.00
30	30	6. Slacks	34.00
31	31	7. Pleated Skirt	24.00
32	32	7. Skirt with Skirt	22.00
33	33	7. Satin Skirt	22.00

9. Now let's bring in store list.xlsx.
10. From inside Power Query, click on the Home Ribbon. Then click New Source > Web.

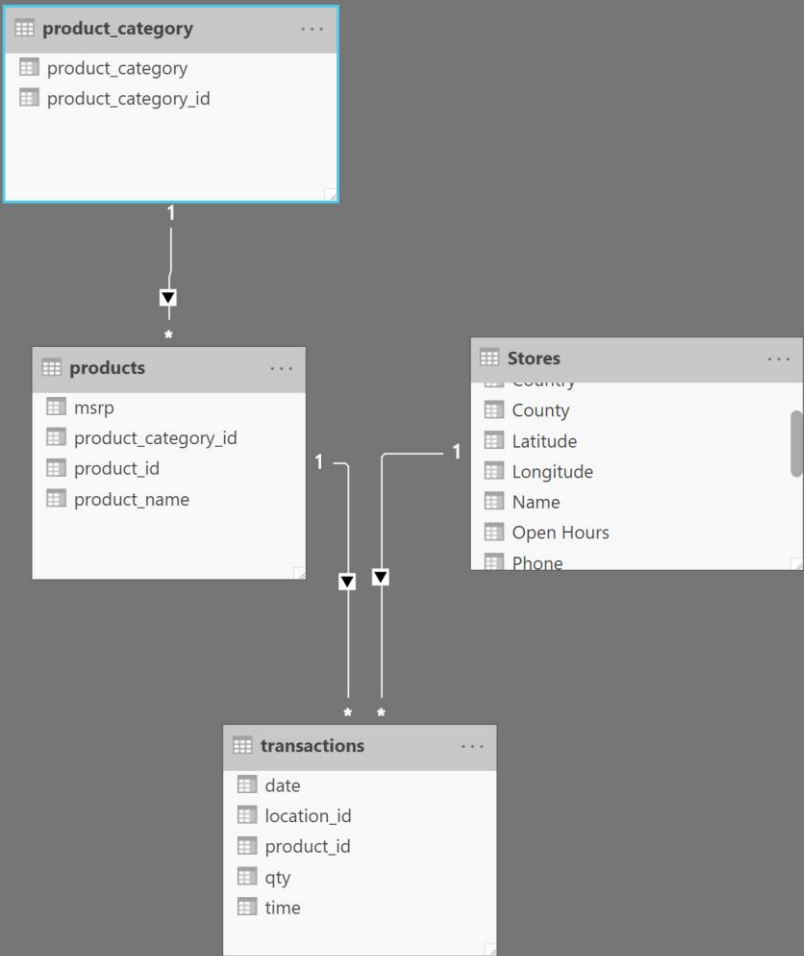


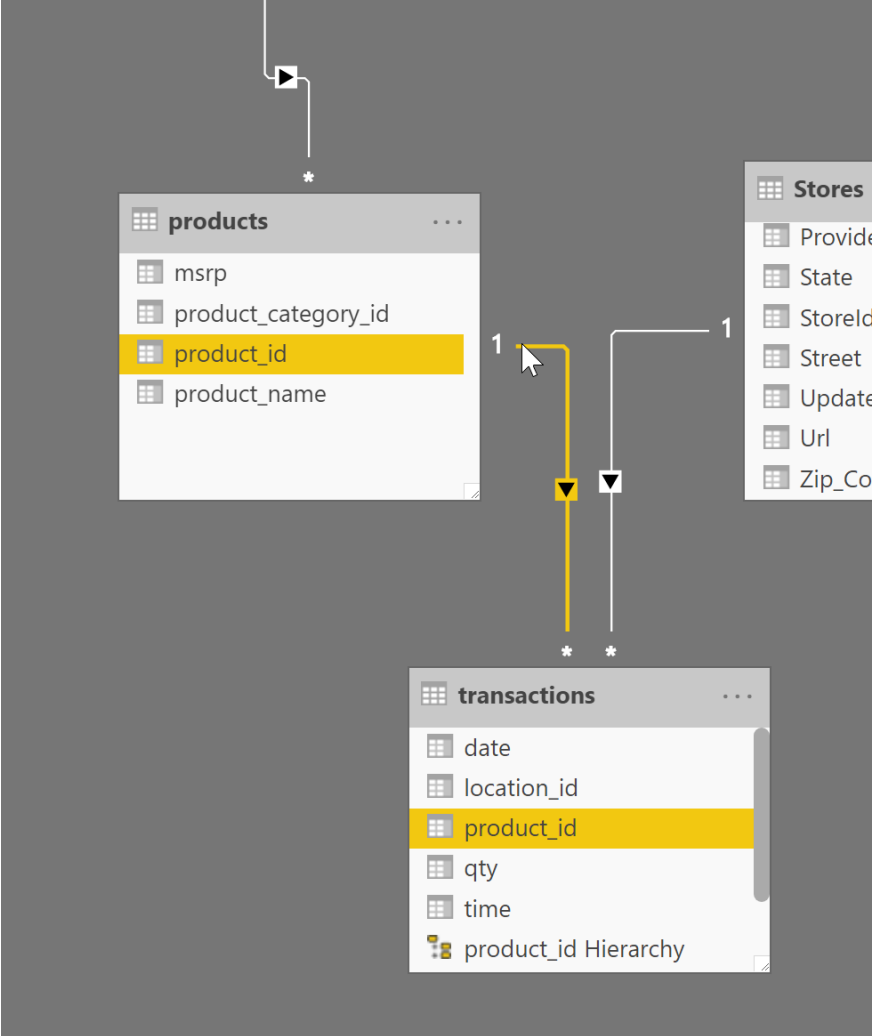
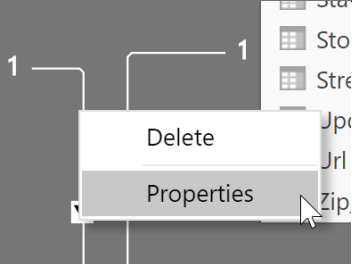
Click Steps	Screen Shots
<p>11. Copy the URL next to store list.xlsx. Paste it in the URL text field.</p> <p>12. Click OK.</p>	
<p>13. Click the checkbox next to Stores.</p> <p>14. Click OK.</p>	
<p>15. Now let's add the transactions.csv file. Click Home &gt; Get data &gt; Web.</p> <p>16. Copy the URL next to transactions.csv and paste it in the URL text field in the From Web dialog box. Click OK.</p> <p>17. If all went well, you should see the list of</p>	

Click Steps	Screen Shots
<p>queries as shown in the screen shot.</p> <p>18. Click Close &amp; Apply in the upper left hand corner.</p>	
<b>Creating the Data Model</b>	
<p>19. Now let's create the data model. This part is very similar to Microsoft Access.</p> <p>20. Click the Model view button on the left hand side.</p>	

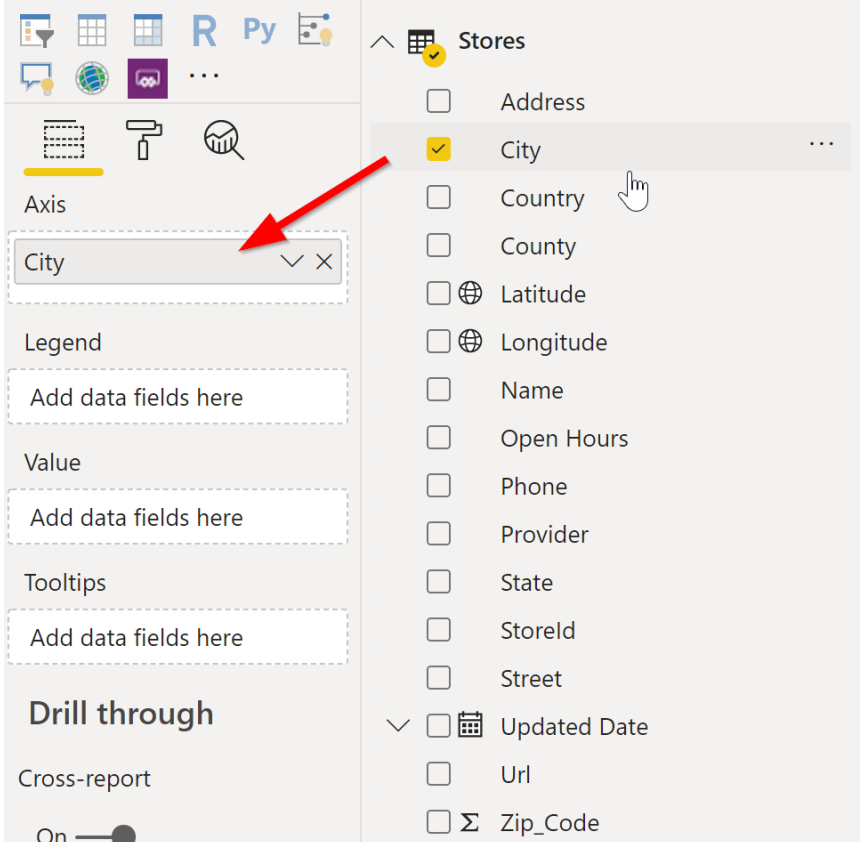
Click Steps	Screen Shots
<p>21. Notice Power BI has already connected multiple tables</p> <p>22. Make the final connection by dragging StoreID on top of location_id. Store ID is the primary key to location_id.</p>	 <p>The screenshot shows the Power BI data model interface. On the left, the 'transactions' table is listed with fields: date, location_id, product_id, qty, and time. On the right, the 'Stores' table is listed with fields: Address, City, Country, County, Latitude, Longitude, Name, Open Hours, Phone, Provider, State, StoreID, and Street. A relationship line connects the 'location_id' field in the 'transactions' table to the 'StoreID' field in the 'Stores' table. A red arrow points to the 'StoreID' field in the 'Stores' table.</p>

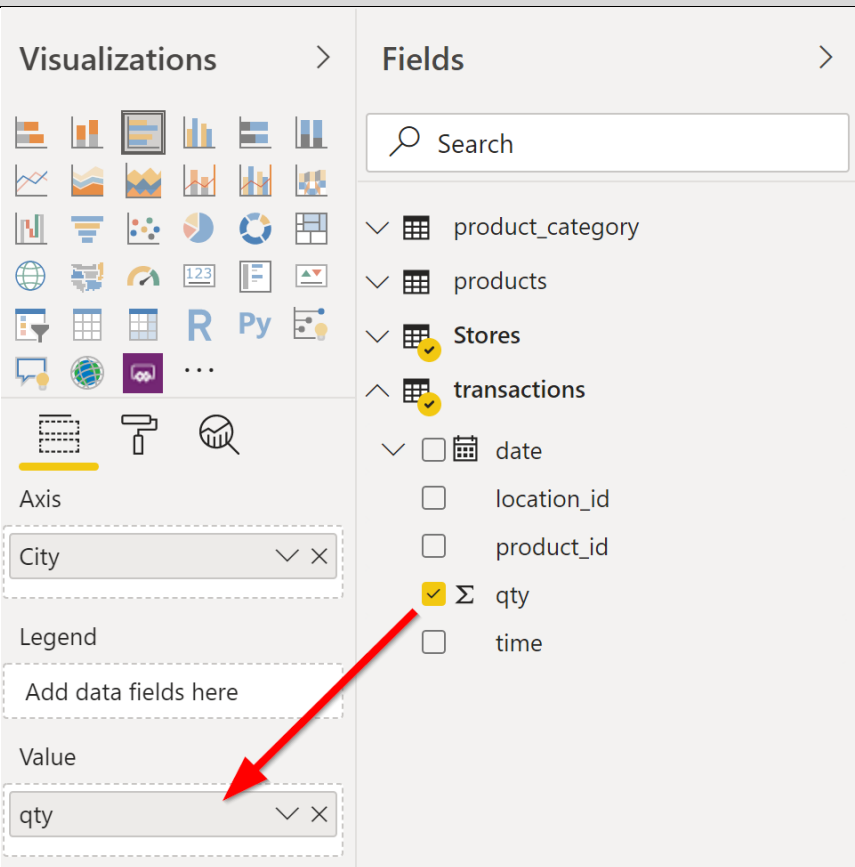


Click Steps	Screen Shots
<p>23. Redraw the tables so that they appear in a funnel shape.</p>	 <pre> graph TD     PC[product_category] -- "1 to many" --&gt; P[products]     P -- "1 to many" --&gt; T[transactions]     P -- "1 to many" --&gt; S[Stores]     S -- "1 to many" --&gt; T     </pre> <p>The screenshot shows a Power BI data model diagram with four tables arranged in a funnel shape from top to bottom:</p> <ul style="list-style-type: none"> <li><b>product_category</b>: Contains fields <code>product_category</code> and <code>product_category_id</code>.</li> <li><b>products</b>: Contains fields <code>msrp</code>, <code>product_category_id</code>, <code>product_id</code>, and <code>product_name</code>.</li> <li><b>Stores</b>: Contains fields <code>Country</code>, <code>County</code>, <code>Latitude</code>, <code>Longitude</code>, <code>Name</code>, <code>Open Hours</code>, and <code>Phone</code>.</li> <li><b>transactions</b>: Contains fields <code>date</code>, <code>location_id</code>, <code>product_id</code>, <code>qty</code>, and <code>time</code>.</li> </ul> <p>The relationships are as follows:</p> <ul style="list-style-type: none"> <li><b>product_category</b> (1) to <b>products</b> (many).</li> <li><b>products</b> (1) to <b>transactions</b> (many).</li> <li><b>products</b> (1) to <b>Stores</b> (many).</li> <li><b>Stores</b> (1) to <b>transactions</b> (many).</li> </ul>

Click Steps	Screen Shots
<p>24. Place your mouse over the relationship between products and transactions. The link will highlight product_id between both links.</p>	
<p>25. Right click onto the link and select properties.</p>	

Click Steps	Screen Shots																																				
<p>26. From the Cross filter direction dropdown select Both to make the connection cross directional.</p> <p>27. Click OK.</p>	<div><div>Edit relationship</div><div>Select tables and columns that are related.</div><div><div>transactions</div><table><thead><tr><th>date</th><th>time</th><th>location_id</th><th>product_id</th><th>qty</th></tr></thead><tbody><tr><td>Sunday, May 5, 2013</td><td>4:55:00 PM</td><td>189</td><td>24</td><td>3</td></tr><tr><td>Saturday, December 28, 2013</td><td>4:57:00 PM</td><td>178</td><td>24</td><td>3</td></tr><tr><td>Sunday, March 24, 2013</td><td>10:31:00 AM</td><td>368</td><td>24</td><td>3</td></tr></tbody></table></div><div><div>products</div><table><thead><tr><th>product_id</th><th>product_category_id</th><th>product_name</th><th>msrp</th></tr></thead><tbody><tr><td>1</td><td>1</td><td>Pleated Dress</td><td>19.99</td></tr><tr><td>2</td><td>1</td><td>Chiffon Dress</td><td>24.99</td></tr><tr><td>3</td><td>1</td><td>Wide-cut Dress</td><td>24.99</td></tr></tbody></table></div><div>Cardinality</div><div>Many to one (*:1)</div><div><div><input checked="" type="checkbox"/> Make this relationship active</div><div><input type="checkbox"/> Assume referential integrity</div></div><div><div>Cross filter direction</div><div>Both</div><div><input type="checkbox"/> Apply security filter in both directions</div></div><div><div>OK</div><div>Cancel</div></div></div>	date	time	location_id	product_id	qty	Sunday, May 5, 2013	4:55:00 PM	189	24	3	Saturday, December 28, 2013	4:57:00 PM	178	24	3	Sunday, March 24, 2013	10:31:00 AM	368	24	3	product_id	product_category_id	product_name	msrp	1	1	Pleated Dress	19.99	2	1	Chiffon Dress	24.99	3	1	Wide-cut Dress	24.99
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Create an interesting report																																					
<p>28. Click the Report view button</p>																																					
<p>29. Let's create chart for sales by the top cities.</p> <p>Click the clustered bar chart to insert a new bar chart.</p>																																					

Click Steps	Screen Shots
<p>30. Drag City (from the Stores table)</p>	 <p>The screenshot shows the Power BI interface. On the right, the 'Stores' table is expanded in the Fields pane, listing fields: Address, City, Country, County, Latitude, Longitude, Name, Open Hours, Phone, Provider, State, StoreId, Street, Updated Date, Url, and Zip_Code. The 'City' field is checked and highlighted. On the left, the 'Axis' section of the Visuals pane shows the 'City' field being added to the axis. A red arrow points from the 'City' field in the Fields pane to the 'City' field in the Axis section.</p>

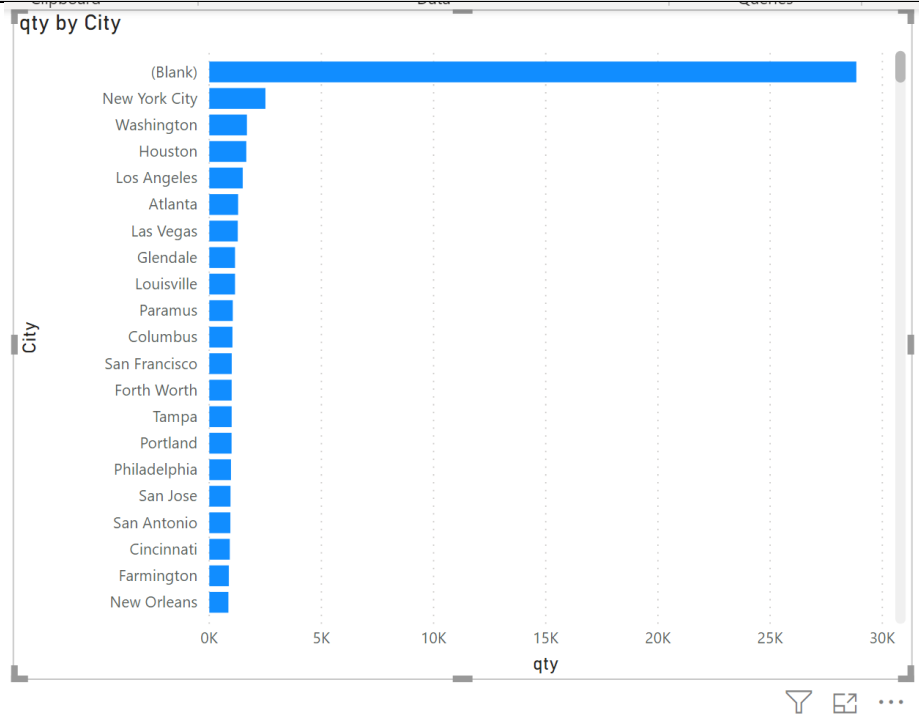
Click Steps	Screen Shots
<p>31. Drag qty over to the Value field well.</p>	 <p>The screenshot shows the Power BI interface. On the left, the 'Visualizations' pane has four field wells: 'Axis' (empty), 'City' (containing 'City'), 'Legend' (empty), and 'Value' (containing 'qty'). On the right, the 'Fields' pane shows a list of tables: 'product_category', 'products', 'Stores', and 'transactions'. Under 'transactions', the fields 'date', 'location_id', 'product_id', 'qty', and 'time' are listed. The 'qty' field is checked with a yellow checkmark and a summation symbol (Σ). A red arrow points from the 'qty' field in the 'Fields' pane to the 'Value' field well in the 'Visualizations' pane.</p>



### Click Steps

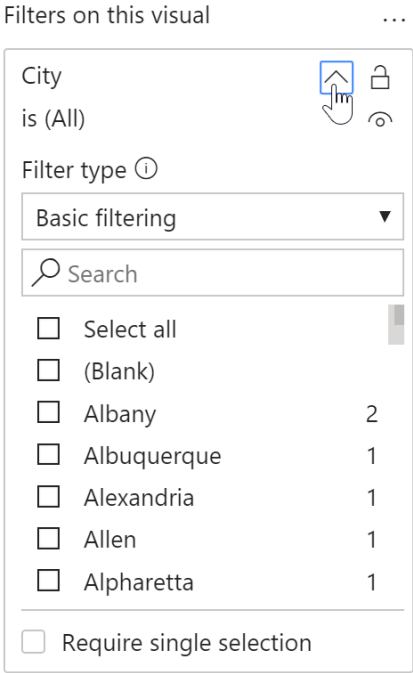
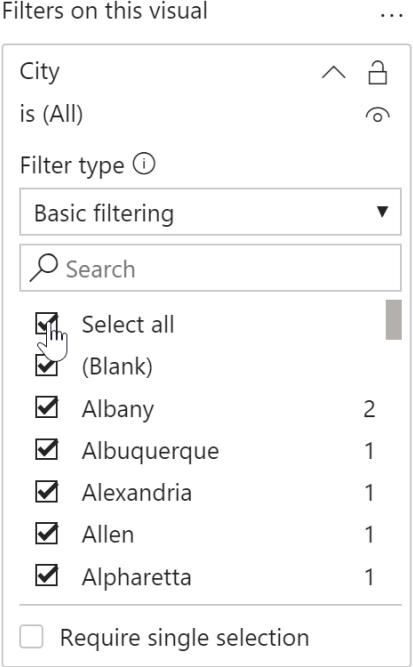
32. Notice there are a lot of blank rows in our city column in the database. Let's remove those.

### Screen Shots

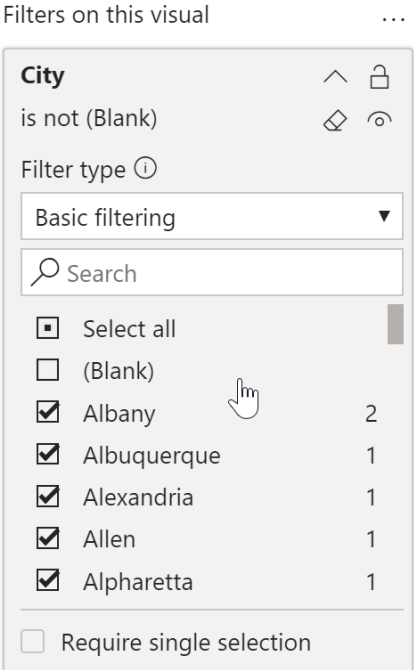
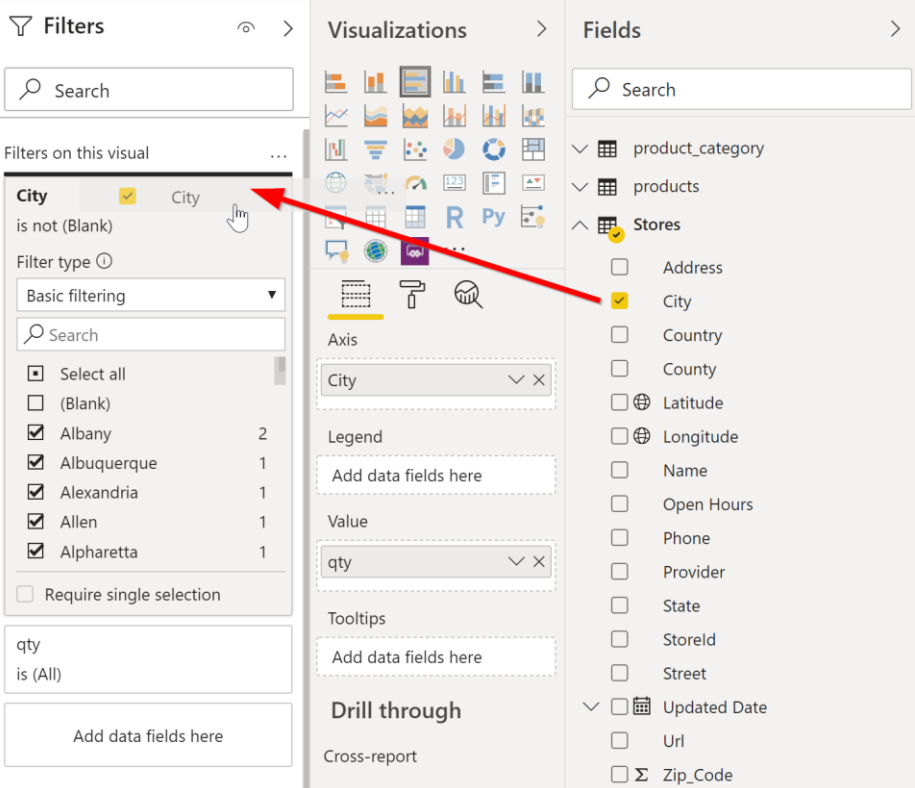


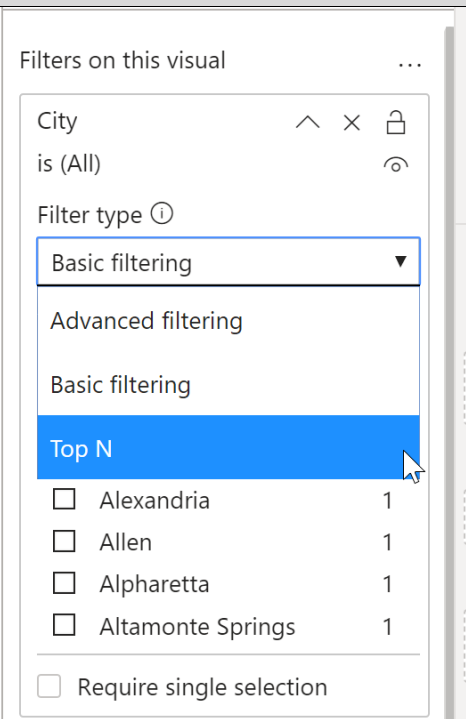


Click Steps	Screen Shots
33. Make sure your Filters tab is expanded.	

Click Steps	Screen Shots	
<p>34. Click on City to expand it.</p>		
<p>35. Click Select All to select everything.</p>		



Click Steps	Screen Shots
<p>36. Uncheck (blank) to remove it.</p>	
<p>37. Now let's show only the top 10.</p> <p>You'll need to place another city filter onto the visual.</p>	

Click Steps	Screen Shots
<p>38. When the new filter is placed. Click the Filter Type drop down and select Top N.</p>	
<p>39. Type 10 in the Show Items value field.</p> <p>40. Drag qty from the transactions table to the By value field well.</p>	