# **Module 6: Interactive Data Visualizations**

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# **Lab: Creating a Power BI Report**

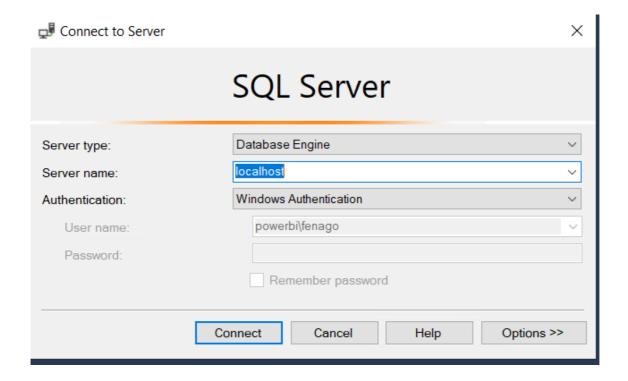
# **Exercise 1: Connecting to Power BI Data**

#### **Task 1: Prepare the Environment**

Lab environment is already setup.

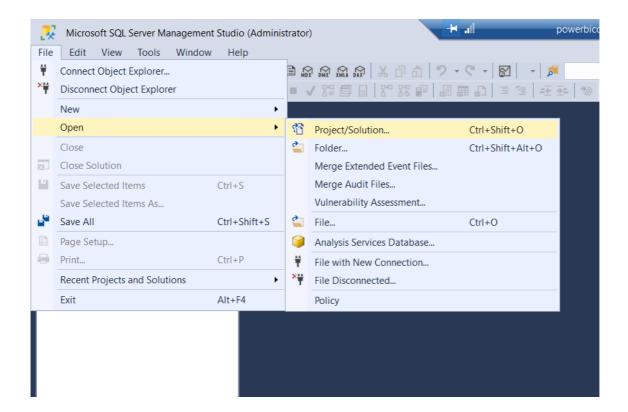
# Task 2: Connect to Existing Data

- 1. On the Taskbar, click Microsoft SQL Server Management Studio 18.
- 2. In the **Connect to Server** dialog box, ensure SQL Server is set to the **localhost** database engine instance using **Windows Authentication**, and then click **Connect**.

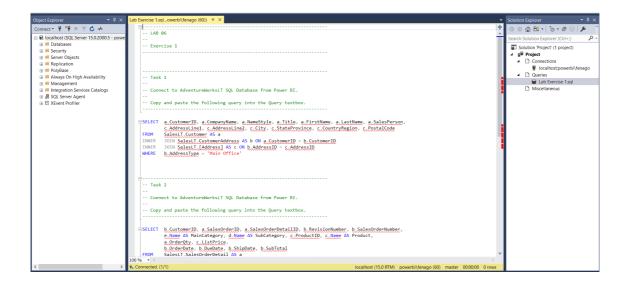


3. On the File menu, point to Open, and then click Project/Solution.

 In the Open Project dialog box, browse to the Desktop\power-biquickstart\Labfiles\Labfol\Starter\Project folder, and then double-click Project.ssmssIn.

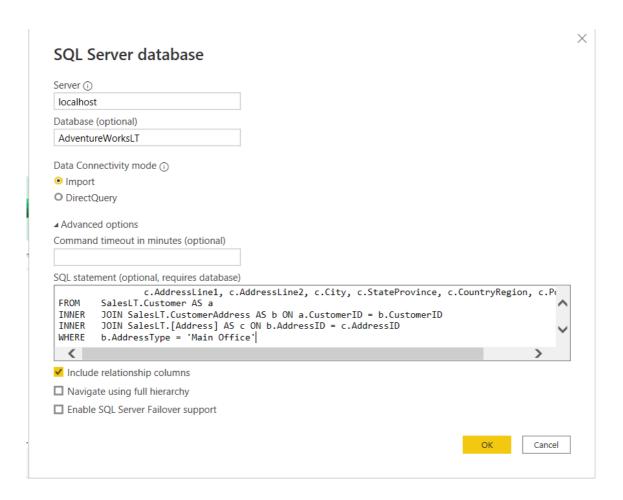


- 5. If Solution Explorer is not visible, on the **View** menu, click **Solution Explorer**.
- 6. In Solution Explorer, expand Queries, and then double-click Lab Exercise 1.sql.



- 7. On the Taskbar, click **Power BI Desktop**.
- 8. To close the getting started window, at the top-right of the window, click  $\mathbf{X}$ .

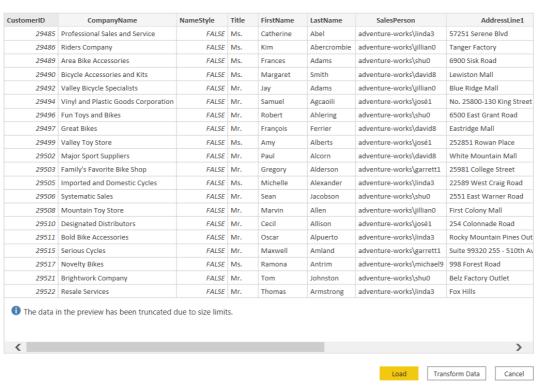
- 9. In the Power BI Desktop window, click Get data.
- 10. In the Get Data dialog box, click SQL Server, and then click Connect.
- 11. In the **SQL Server database** dialog box, type **localhost** in the **Server** box.
- 12. In the Database (optional) box, type AdventureWorksLT.
- 13. Expand the **Advanced options** box.
- 14. In SQL Server Management Studio, in the **Lab Exercise 1.sql** query, copy the query under **Task 1** to the clipboard.
- 15. In Power BI Desktop, in the SQL statement (optional, requires database) box, paste the query.



#### 16, Click OK

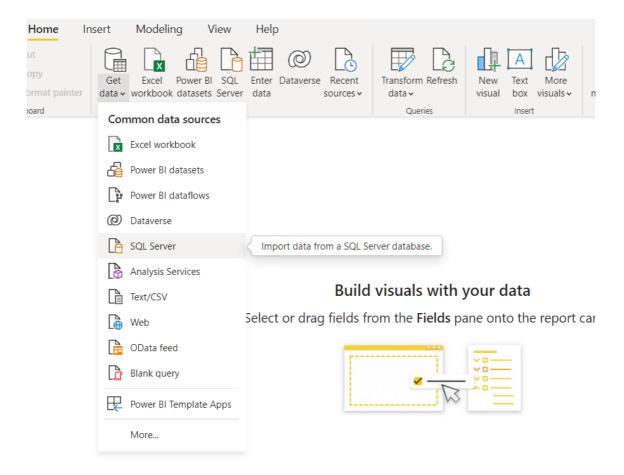
17. In the data preview window, click **Load**.

#### localhost: AdventureWorksLT

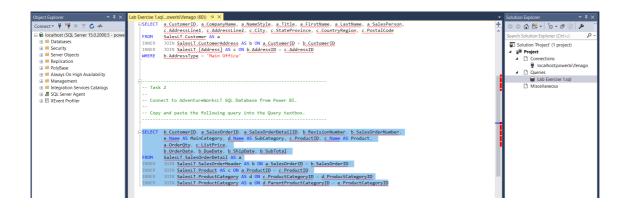


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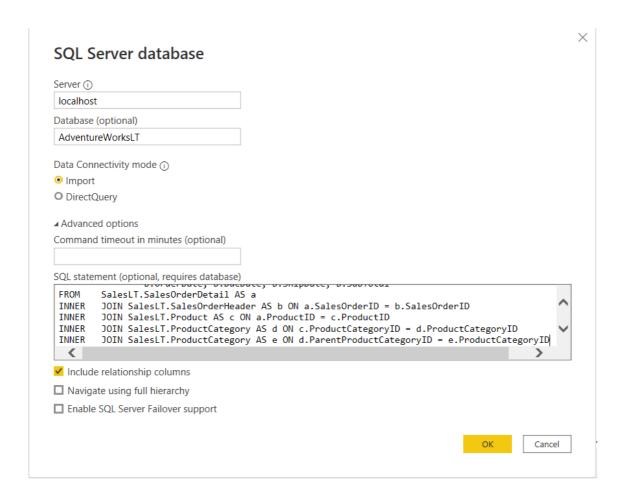
- 18. On the Home tab, click the Get Data arrow.
- 19. Click **SQL Server**, and then click **Connect**.



- 20. In the SQL Server database dialog box, in the Server box, type the URL of the server localhost.
- 21. In the Database (optional) box, type AdventureWorksLT.
- 22. Expand the **Advanced options** box.
- 23. In SQL Server Management Studio, in the **Lab Exercise 1.sql** query, copy the query under **Task 2** to the clipboard.



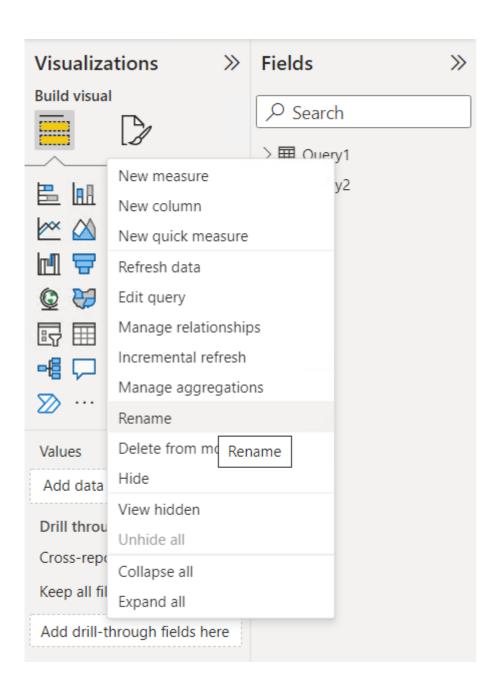
24. In Power BI Desktop, in the **SQL statement (optional, requires database)** box, paste the query, and then click **OK**.



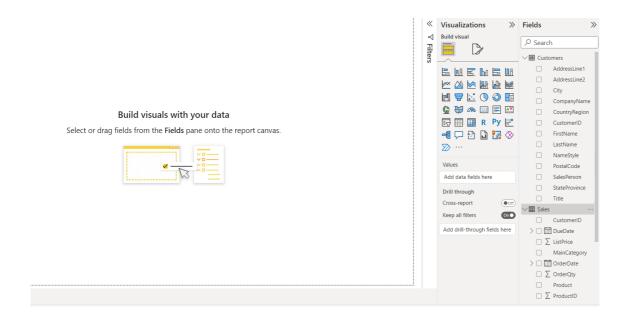
- 25. In the data preview window, click **Load**.
- 26. On the File menu, click Save.
- 27. In the Save As dialog box, navigate to Desktop\power-bi-quickstart\Labfiles\Lab06\Starter, in the File name box, type AdventureWorksLT Sales 6.pbix, and then click Save.

# Task 3: Shape Data

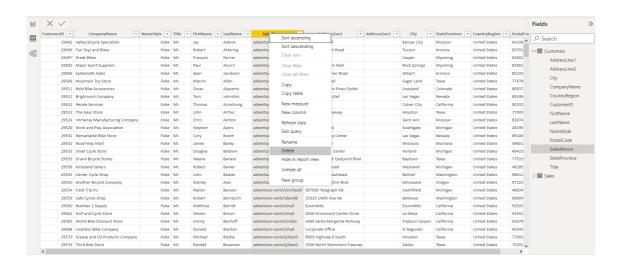
1. In the FIELDS pane, right-click Query1, click Rename, type Customers, and then press Enter.



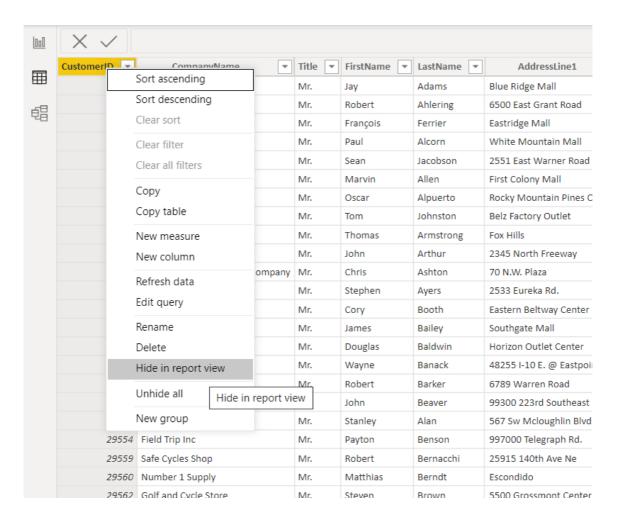
- 2. Right-click **Query2**, click **Rename**, type **Sales**, and then press Enter.
- 3. Expand the two tables to display all of the fields.



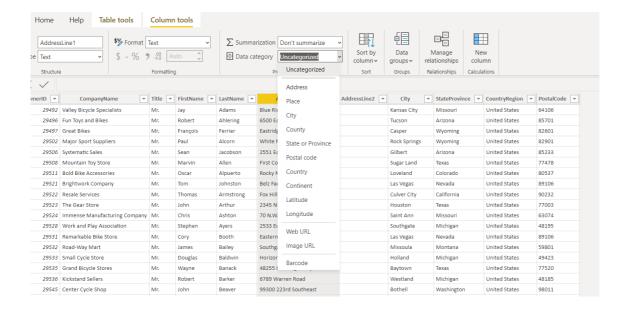
- 4. In the left navigation bar, click **Data**.
- 5. In the **FIELDS** pane, click the **Customers** table, if it is not already selected.
- 6. Right-click the NameStyle column, and click Delete.
- 7. In the **Delete column** dialog box, click **Delete**.
- 8. Right-click the SalesPerson column, and click Delete.



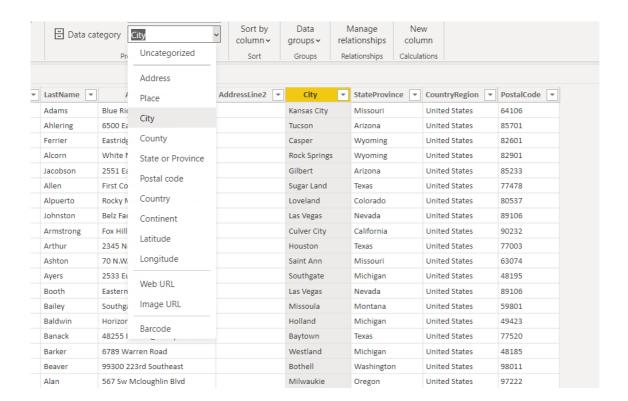
- 9. In the **Delete column** dialog box, click **Delete**.
- 10. Right-click the **CustomerID** column, and then click **Hide in report view**.



- 11. Click the **AddressLine1** column header.
- On the Modeling tab, in the Properties group, click Data Category: Uncategorized, and then click Address.



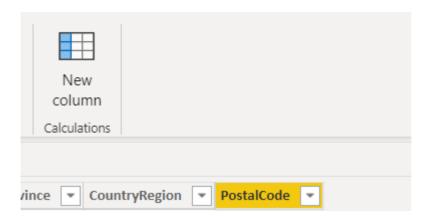
- 13. Click the City column header.
- 14. On the Modeling tab, in the Properties group, click Data Category: Uncategorized, and then click City.

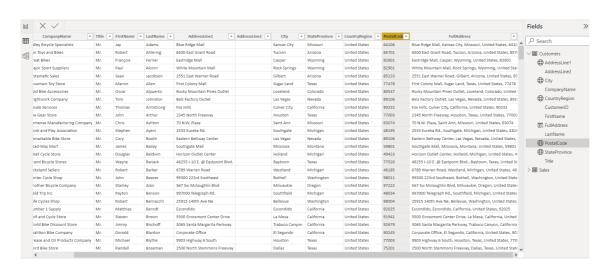


- 15. Click the **StateProvince** column header.
- 16. On the Modeling tab, in the Properties group, click Data Category: Uncategorized, and then click State or Province.
- 17. Click the CountryRegion column header.

- On the Modeling tab, in the Properties group, click Data Category: Uncategorized, and then click Country.
- 19. Click the PostalCode column header.
- 20. On the **Modeling** tab, in the **Properties** group, click **Data Category: Uncategorized**, and then click **Postal Code**.
- 21. On the **Modeling** tab, in the **Calculations** group, click **New Column**, and then in the formula bar, type the following expression, and then press Enter:

```
FullAddress = Customers[AddressLine1] & ", " & Customers[City] & ", " & Customers[StateProvince] & ", " & Customers[CountryRegion] & ", " & Customers[PostalCode]
```



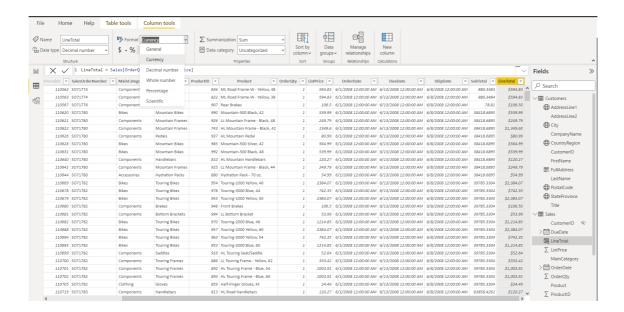


- 22. In the **FIELDS** pane, click **Sales**.
- 23. Right-click the RevisionNumber column, and click Delete.
- 24. In the **Delete column** dialog box, click **Delete**.
- 25. Right-click the SalesOrderNumber column, and click Delete.
- 26. In the Delete column dialog box, click Delete.

- 27. Right-click the CustomerID column, and click Hide in report view.
- 28. Right-click the SalesOrderID column, and click Hide in report view.
- 29. Right-click the SalesOrderDetailID column, and click Hide in report view.
- 30. On the **Modeling** tab, in the **Calculations** group, click **New Column**, and then in the formula bar, type the following expression, and then press Enter:

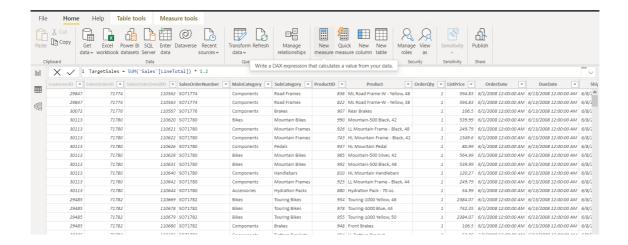
```
LineTotal = Sales[OrderQty] * Sales[ListPrice]
```

- 31. Click the **LineTotal** column header.
- On the Modeling tab, in the Formatting group, click Format: General, point to Currency, and then click \$
   English (United States).



33. On the **Modeling** tab, in the **Calculations** group, click **New Measure**, and then in the formula bar, type the following expression, and then press Enter:

```
TargetSales = SUM('Sales'[LineTotal]) * 1.2
```

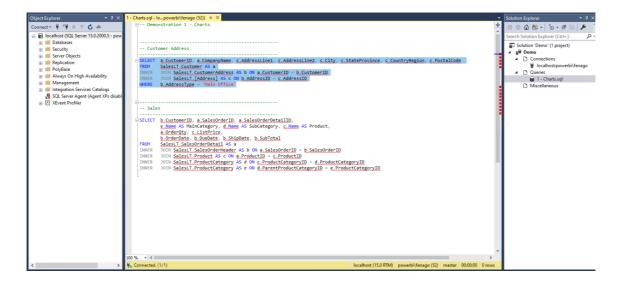


34. On the File menu, click Save and close Power BI Desktop.

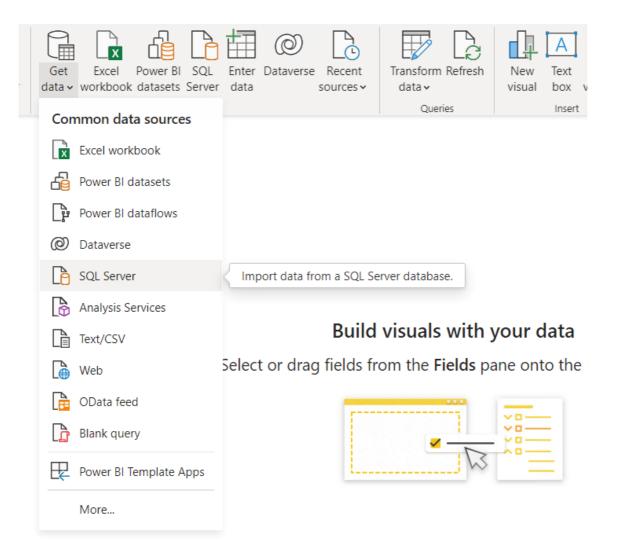
# **Demo 1: Adding Visualizations to a Report**

#### Connect to a Database in SQL Database and Import Data

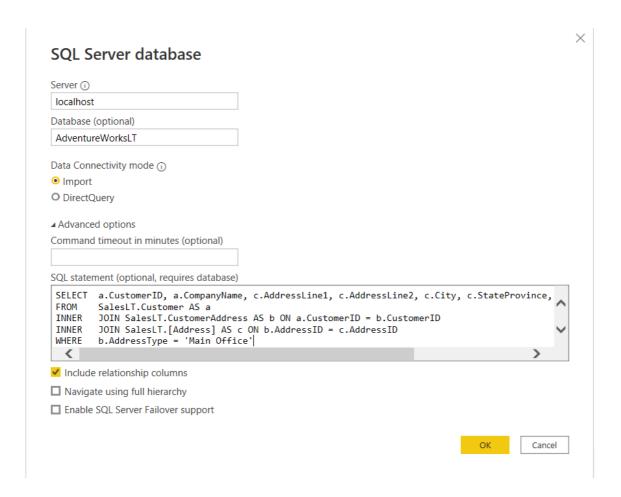
- 1. Open the **Desktop\power-bi-quickstart\Labfiles\Lab06** folder.
- 2. Start **Microsoft SQL Server Management Studio 18**, and then connect to the **localhost** database engine instance by using Windows® authentication.
- 3. In the Desktop\power-bi-quickstart\Labfiles\Lab06\Demo folder, open the Demo.ssmssIn solution.
- 4. In Solution Explorer, expand Queries, and then open the 1 Charts.sql script file.



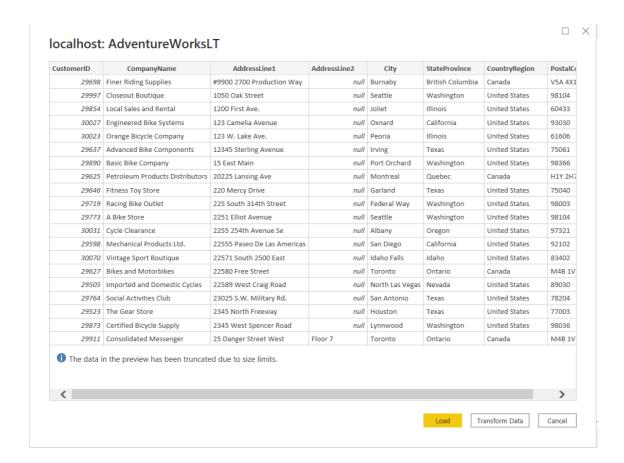
- 7. On the Taskbar, click Power BI Desktop.
- 8. To close the getting started window, at the top-right of the window, click  ${\bf X}$ .
- 9. In the Power BI Desktop window, click Get data.
- 10. In the Get Data dialog box, click SQL Server.



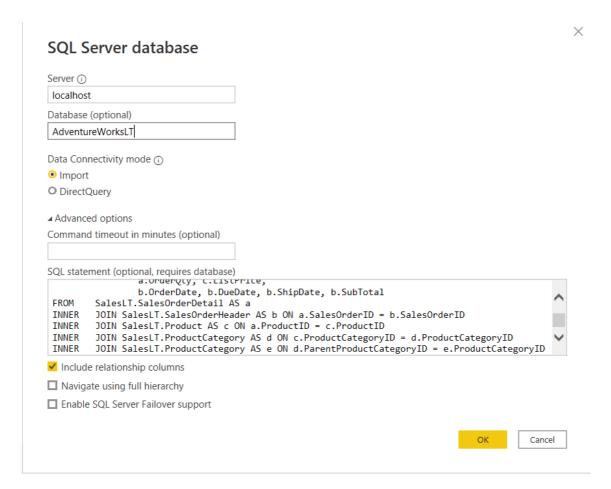
- 11. In the **SQL Server database** dialog box, in the **Server** box, type the URL of the server **localhost** .
- 12. In the Database (optional) box, type AdventureWorksLT.
- 13. Expand the **Advanced options** box.
- 14. In SQL Server Management Studio, in the **1 Charts.sql** query, copy the query under **Customer Address** to the clipboard.
- 15. In Power BI Desktop, in the **SQL statement (optional, requires database)** box, paste the query, and then click **OK**.



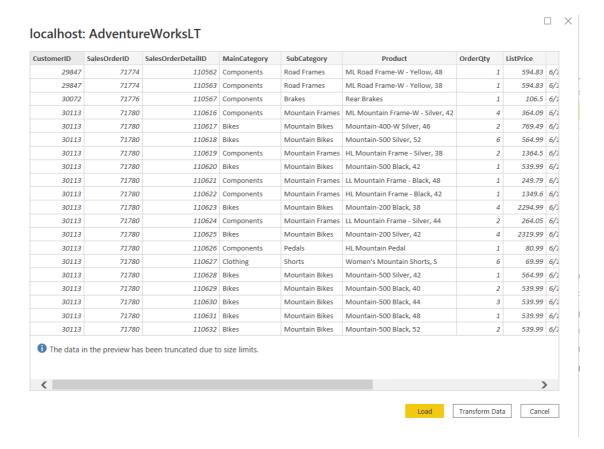
16. In the data preview window, click **Load**.



- 17. On the **Home** tab, click **Get Data**.
- 18. In the Get Data dialog box, click SQL Server.
- 19. In the SQL Server database dialog box, in the Server box, type the URL of the server localhost .
- 20. In the Database (optional) box, type AdventureWorksLT.
- 21. Expand the Advanced options box.
- 22. In SQL Server Management Studio, in the 1 Charts.sql query, copy the query under Sales to the clipboard.
- 23. In Power BI Desktop, in the **SQL statement (optional, requires database)** box, paste the query, and then click **OK**.



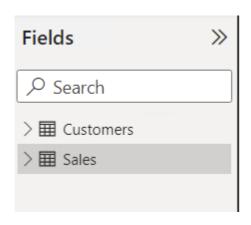
24. In the data preview window, click **Load**.



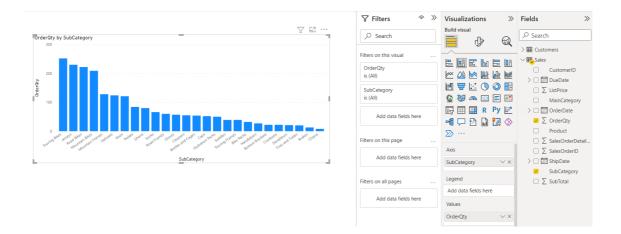
25. The window will close and return to the report.

### Add Visualizations to a Report

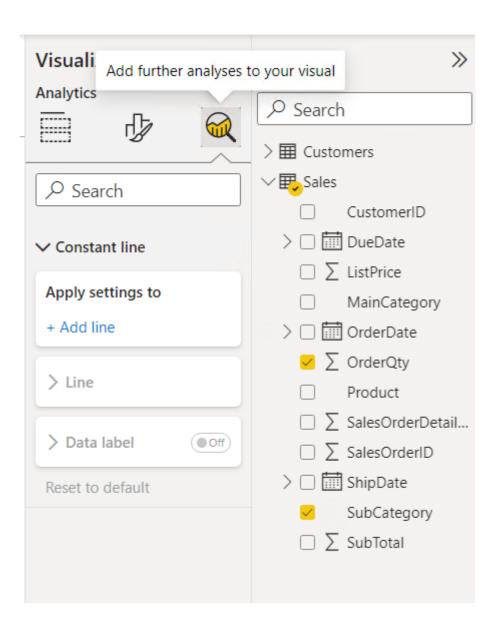
- 1. In the **FIELDS** pane, right-click **Query1**, click **Rename**, type **Customers**, and then press Enter.
- 2. Right-click **Query2**, click **Rename**, type **Sales**, and then press Enter. Expand the two tables to display all the fields.



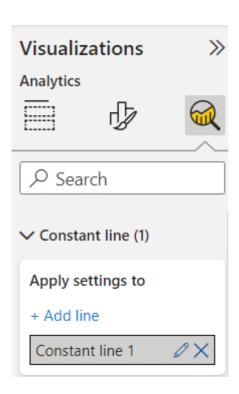
- In the FIELDS pane, under Sales, select the SubCategory, and OrderQty check boxes. Power BI creates a table.
- 4. In the VISUALIZATIONS pane, click Stacked column chart.



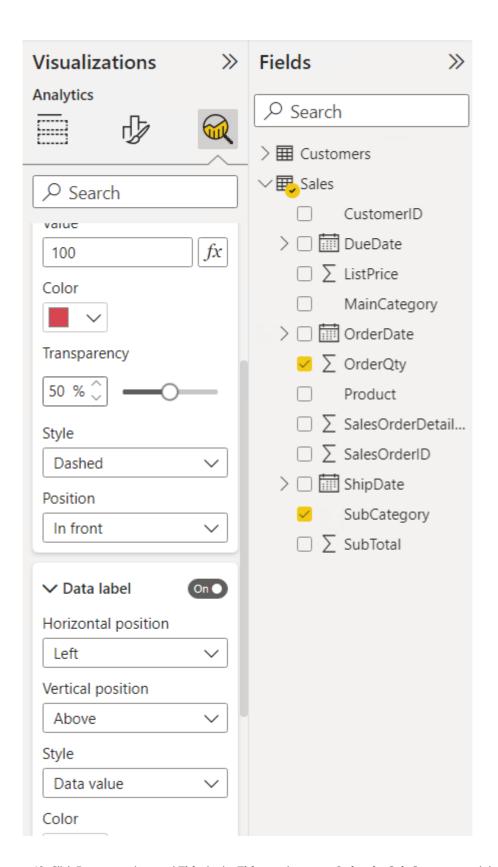
- 5. Grab the expander on the right edge of the chart, and then widen the chart so that all category labels are visible.
- 6. Ensure that the chart is still selected, and then in the **VISUALIZATIONS** pane, click **Analytics**.



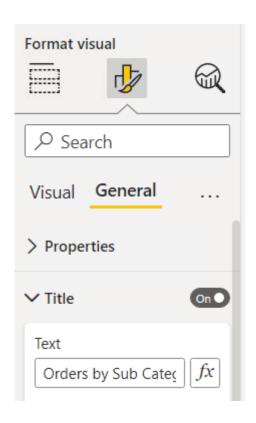
7. Expand Constant Line, and click Add.



- 8. In the **Value** box, type **100**.
- 9. Change the color to **red**.
- 10. Toggle **Data label** to **On**.
- 11. Change the color to **red** to match the reference line.



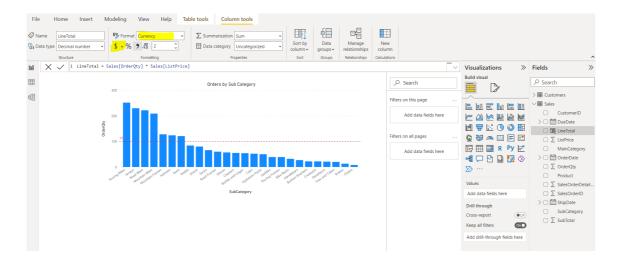
12. Click **Format**, and expand **Title**, in the **Title text** box, type **Orders by Sub Category**, and then click **Center** to align to the center.



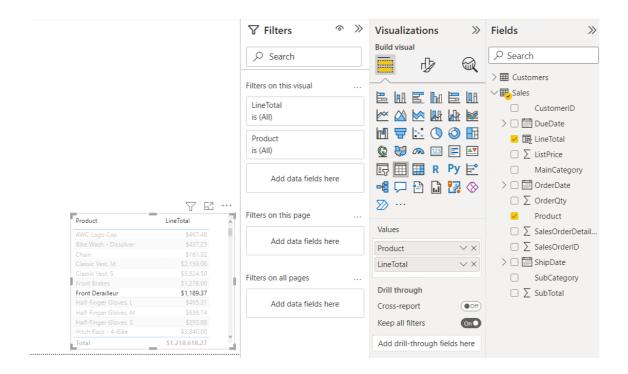
- 13. In the FIELDS pane, right-click Sales, and then click New column.
- 14. In the formula bar, highlight **Column =**, type the following script, and then press Enter:

```
LineTotal = Sales[OrderQty] * Sales[ListPrice]
```

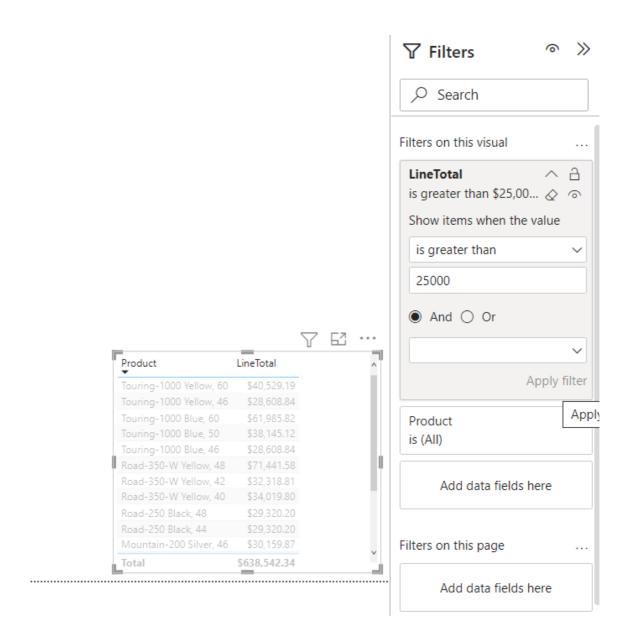
15. On the Modeling tab, click Format: General, point to Currency, and then click \$ English (United States).



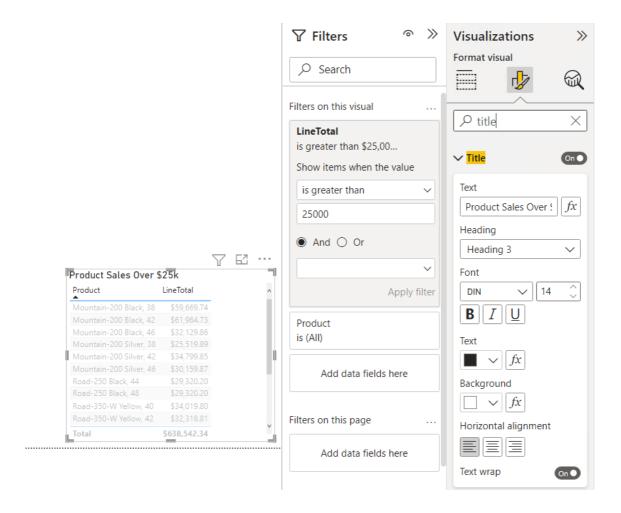
- 16. Click a blank area of the page.
- 17. In the **FIELDS** pane, under **Sales**, select the **Product** check box, which adds a table, and then select the **LineTotal** check box.



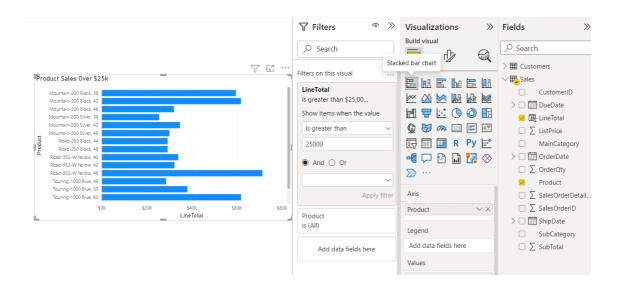
- 18. In the VISUALIZATIONS pane, click Fields, under Filters, expand LineTotal is (All).
- 19. In the list, click is greater than, and in the box, type 25000.
- 20. Click **Apply filter**, and then note that the number of products in the table is reduced.



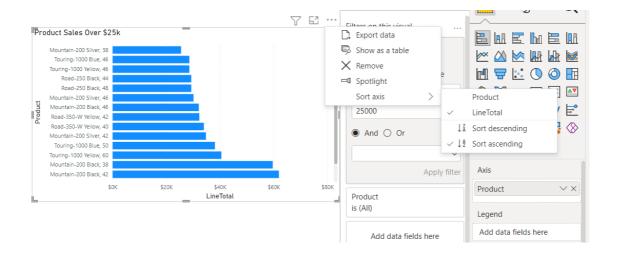
- 21. In the VISUALIZATIONS pane, click Format, click Title, and change the Title slider to On.
- 22. Under Title, in the Title text box, type Product Sales Over \$25k, and then click Center.



- 23. Select the table, and then click Stacked bar chart.
- 24. Use the expander to widen the chart to the same width as the column chart.



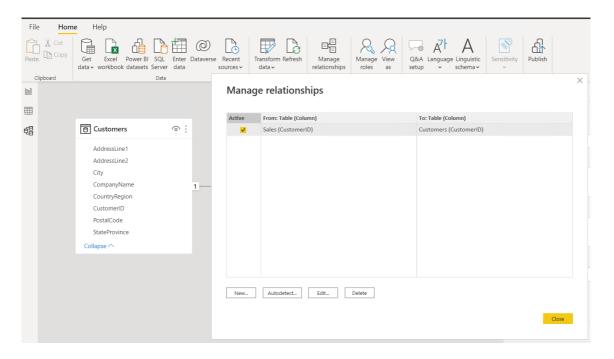
25. On the chart, click three dot icon, point to  ${\bf Sort\ axis}$ , and then click  ${\bf LineTotal}$ .



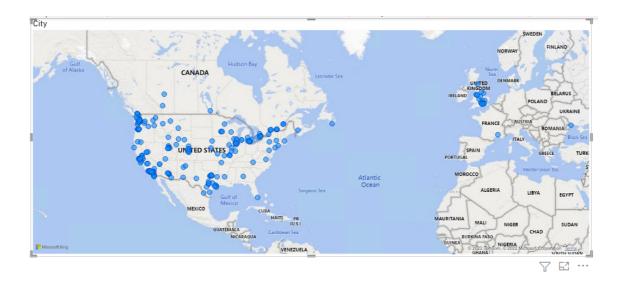
26. At the bottom of the window, click the + icon to add a new report.



27. Click Model tab from the left Menu, click **Manage Relationships**, and then point out that Power BI has auto-detected the relationship on the **CustomerID** columns, and then click **Close**.

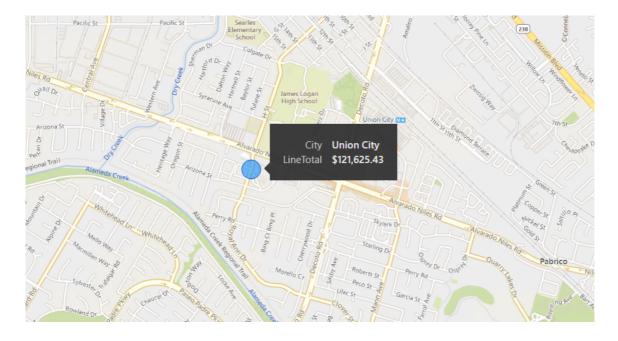


28. In the **FIELDS** pane, expand **Customers**, and then select the **City** check box. Power BI automatically adds a map chart.



**Note:** Enable map and filled map visuals options if you get an error.

- 29. In the **FIELDS** pane, under **Sales**, select the **LineTotal** check box to add it to the map. Grab the right corner of the map, and then drag it to fill the whole of the report page.
- 30. Zoom in on the map to focus on any place. Point out that the bubbles now represent the sales for each customer, and are proportionately sized. Position the cursor over some of the bubbles to display the data labels.



31. Close Power BI Desktop, and then close SQL Server Management Studio without saving any changes.