Module 5: Modeling Data

Note: Lab Solution is present in `D:\Labfiles\Lab05\Solution` folder:

Lab: Modeling Data

Exercise 1: Create Relationships

Task 1: Preparing the Environment

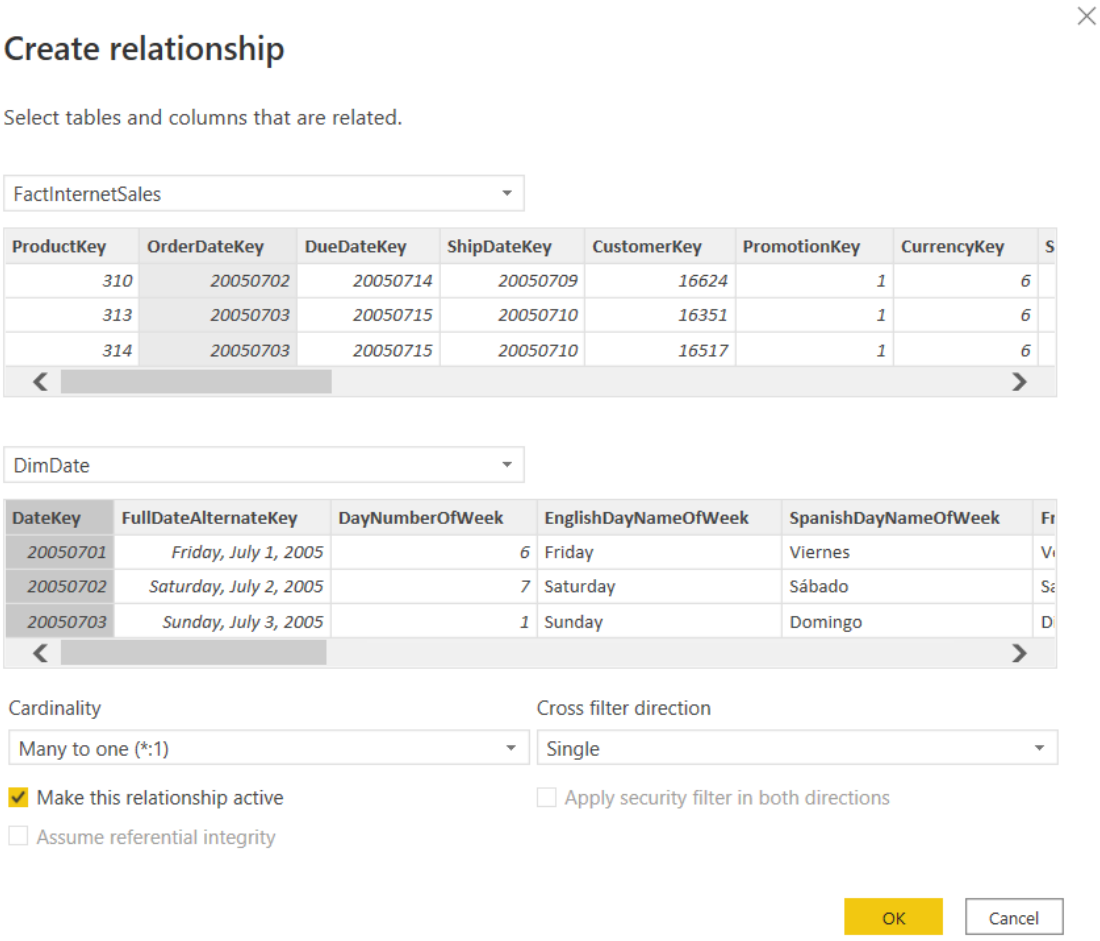
1. Ensure that you have copied all folders from `Desktop/power-bi-quickstart` folder into *D:* drive before starting the lab.
2. In File Explorer, in the **D:\Labfiles\Lab05\Starter** folder, right-click **Setup.cmd**, and then click **Run as administrator**.
3. In the **User Account Control** dialog box, click **Yes**.
4. If prompted to continue this operation, type **Y**, and then press Enter.
5. When the script completes, press any key to close the window.

Task 2: Automatic Relationships

1. Make sure previous tasks was completed.
2. On the Taskbar, click **Power BI Desktop**.
3. To close the getting started window, at the top-right of the window, click **X**.
4. In the **Power BI Desktop** window, click **Get data**.
5. In the **Get Data** dialog box, ensure **Excel WorkBook** is selected, and click **Connect**.
6. In the **Open** dialog box, navigate to **D:\Labfiles\Lab05\Starter\Project**, click **Adventure Works Sales Data.xlsx**, and then click **Open**.
7. In the **Navigator** dialog box, select the **DimCurrency**, **DimCustomer**, **DimDate**, **DimProduct**, **DimPromotion**, **DimSalesTerritory**, and **FactInternetSales** check boxes, and then click **Load**.
8. In the views pane on the left-hand side, click **Model**.
9. On the **Home** tab, click **Manage Relationships**.
10. In the **Manage relationships** dialog box, click **New**.
11. In the **Create relationship** dialog box, in the top table list, click **FactInternetSales**. When the table preview appears below, click the **OrderDateKey** column.

12. In the bottom table list, click **DimDate**. When the table preview appears below, click the **DateKey** column.

13. Check that the **Cardinality** is selected to **Many to one (*:1)**, the **Cross filter direction** is **Single**, and **Make this relationship active** is selected, and then click **OK**.



20. In the **Manage relationships** dialog box, click **Close**.

21. In the diagram, in the **FactInternetSales** table, click the **DueDateKey** column. Drag the **DueDateKey** column to the **DateKey** column of the **DimDate** table.

22. In the diagram, in the **FactInternetSales** table, click the **ShipDateKey** column. Drag the **ShipDateKey** column to the **DateKey** column of the **DimDate** table.

23. On the **Home** tab, click **Manage Relationships**.

24. In the **Manage relationships** dialog box, double-click the **FactInternetSales (CurrencyKey)** relationship.

25. In the **Edit relationships** dialog box, in the **Cross filter direction** list, ensure **Single** is selected, and then click **OK**.

26. In the **Manage relationships** dialog box, double-click the **FactInternetSales (ProductKey)** relationship.

27. In the **Edit relationships** dialog box, in the **Cross filter direction** list, ensure **Single** is selected, and then click **OK**.

28. In the **Manage relationships** dialog box, double-click the **FactInternetSales (PromotionKey)** relationship.
29. In the **Edit relationships** dialog box, in the **Cross filter direction** list, ensure **Single** is selected, and then click **OK**.
30. In the **Manage relationships** dialog box, double-click the **FactInternetSales (SalesTerritoryKey)** relationship.
31. In the **Edit relationships** dialog box, in the **Cross filter direction** list, ensure **Single** is selected, and then click **OK**.
32. In the **Manage relationships** dialog box, click **Close**.
33. Right-click the relationship line between **FactInternetSales** and **DimCustomer**, and then click **Delete**.
34. In the **Delete Relationship** dialog box, click **Delete**.
35. On the **Home** tab, click **Manage Relationships**.
36. In the **Manage relationships** dialog box, click **New**.
37. In the **Create relationship** dialog box, in the top table list, click **FactInternetSales**, and in the data preview, click **CustomerKey**.
38. In the bottom table list, click **DimCustomer**, and in the data preview, click **CustomerKey**.
39. In the **Cardinality** list, click **Many to one (*:1)**, and then click **OK**.
40. In the **Manage relationships** dialog box, click **Close**.
41. On the **File** menu, click **Save**.
42. In the **Save As** dialog box, navigate to the **D:\Labfiles\Lab05\Starter** folder, and in the **File name** box, type **Adventure Works Sales 5.pbix**, and then click **Save**.

Task 3: Manual Relationships

1. In Power BI Desktop, on the **Home** tab, click the **Get Data** arrow, and then click **Excel**.
2. In the **Open** dialog box, navigate to **D:\Labfiles\Lab05\Starter\Project**, click **Adventure Works Product Categories.xlsx**, and then click **Open**.
3. In the **Navigator** dialog box, select the **DimProductCategory**, and **DimProductSubcategory** check boxes, and then click **Load**.
4. In the Model pane, look at the relationship that Power BI has created between the two tables.
5. Right-click the relationship line between **DimProductCategory**, and **DimProductSubcategory**, and then click **Delete**.
6. In the **Delete Relationship** dialog box, click **Delete**.
7. In the **DimProductSubcategory** table, drag the **CategoryKey** column to the **CategoryKey** column in the **DimProductCategory** table.
8. Double-click the relationship line between **DimProductCategory**, and **DimProductSubcategory**.
9. In the **Edit relationship** dialog box, ensure the **Cardinality** is set to a **Many to one (*:1)** relationship.
10. In the **Cross filter direction** list, click **Both**, and then click **OK**.

11. In the **DimProduct** table, drag the **ProductSubcategoryKey** column to the **SubcategoryKey** column in the **DimProductSubcategory** table, to create a **Many to one (*:1)** relationship.
12. Right-click the relationship line between **DimProductSubcategory**, and **DimProduct**, and then click Properties.
13. In the **Edit relationship** dialog box, in the **Cross filter direction** list, click **Both**, and then click **OK**.
14. On the **File** menu, click **Save**.
15. Leave Power BI Desktop open for the next exercise.

Exercise 2: Calculations

Task 1: Adding Calculated Columns

1. In Power BI Desktop, in the views pane on the left-hand side, click **Data**.
2. In the **FIELDS** pane, right-click **DimCustomer**, and then click **New column**.
3. In the formula bar, highlight **Column =**, type the following script, and then press Enter:

```
IncomeStatus = IF (DimCustomer[YearlyIncome] < 25000, "Lower Income",

IF (AND(DimCustomer[YearlyIncome] >= 25000, DimCustomer[YearlyIncome] < 60000),
"Middle Income",

IF (AND(DimCustomer[YearlyIncome] >= 60000, DimCustomer[YearlyIncome] <
100000), "Higher Income",

IF (DimCustomer[YearlyIncome] >= 100000, "Very High Income", "Other"))))
```

4. On the **Modeling** tab, in the **Calculations** group, click **New Column**.
5. In the formula bar, highlight **Column =**, type the following script, and then press Enter:

```
DaysSinceFirstPurchase = DATEDIFF(DimCustomer[DateFirstPurchase], TODAY(), DAY)
```

6. On the **Modeling** tab, in the **Calculations** group, click **New Column**.
7. In the formula bar, highlight **Column =**, type the following script, and then press Enter:

```
FullName = [FirstName] & " " & [LastName]
```

8. On the **Modeling** tab, in the **Calculations** group, click **New Column**.
9. In the formula bar, highlight **Column =**, type the following script, and then press Enter:

```
MaleFemale = IF([Gender] = "M", "Male", "Female")
```

10. On the **Modeling** tab, in the **Calculations** group, click **New Column**.
11. In the formula bar, highlight **Column =**, type the following script, and then press Enter:

```
Relationship = IF([MaritalStatus] = "M", "Married", "Single")
```

12. In the **FIELDS** pane, right-click **DimProductSubcategory**, and then click **New column**.

13. In the formula bar, highlight **Column =**, type the following script, and then press Enter:

```
MainCategory = RELATED(DimProductCategory[CategoryName])
```

14. In the **FIELDS** pane, right-click **DimPromotion**, and then click **New column**.

15. In the formula bar, highlight **Column =**, type the following script, and then press Enter:

```
PromotionLengthDays = DATEDIFF(DimPromotion[StartDate], DimPromotion[EndDate],
DAY)
```

16. In the **FIELDS** pane, right-click **FactInternetSales**, and then click **New column**.

17. In the formula bar, highlight **Column =**, type the following script, and then press Enter:

```
Profit = CURRENCY(FactInternetSales[UnitPrice] -
FactInternetSales[ProductStandardCost])
```

18. Close Power BI Desktop, saving any changes.