

# Module 4: Shaping and Combining Data

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**Note:** Lab Solution is present in `Desktop\power-bi-quickstart\Labfiles\Lab04\Solution` folder:

## Lab: Shaping and Combining Data

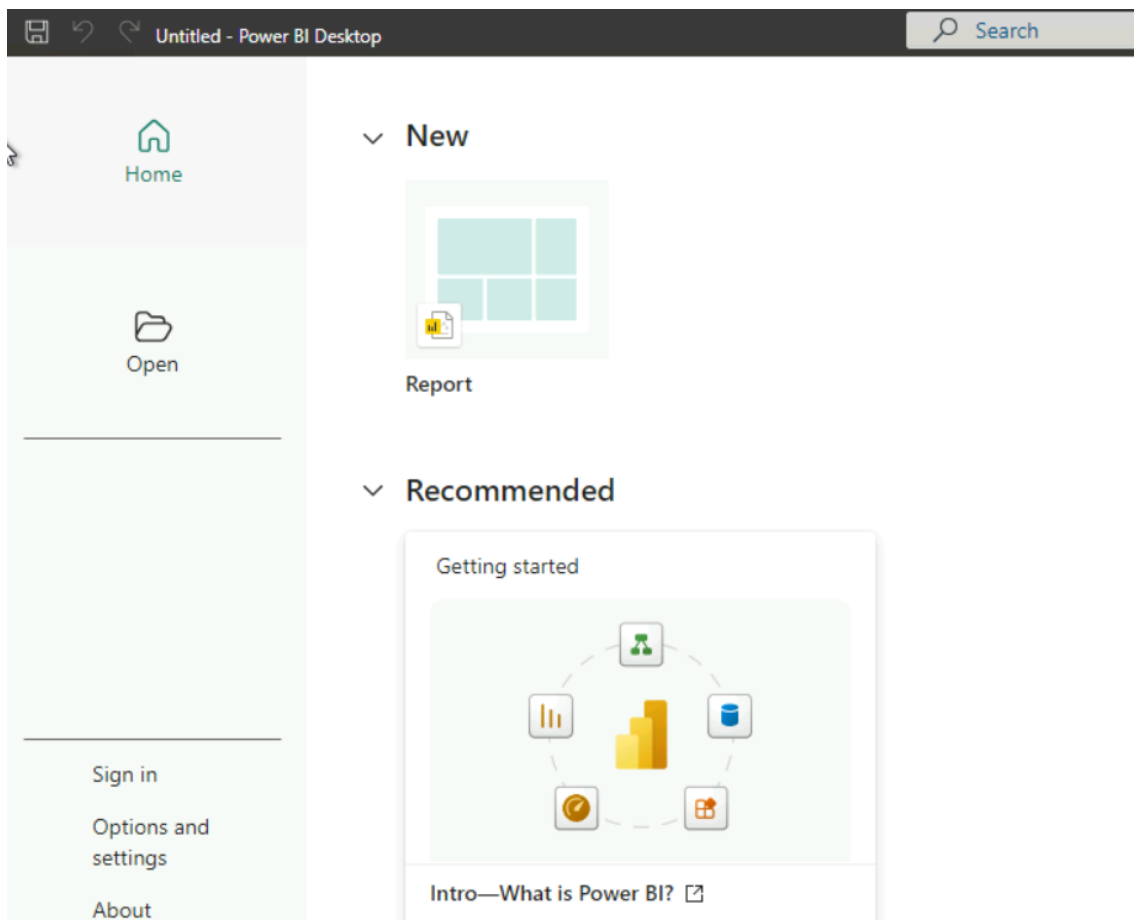
### Exercise 1: Shape Power BI Data

#### Task 1: Preparing the Environment

Lab environment is already setup.

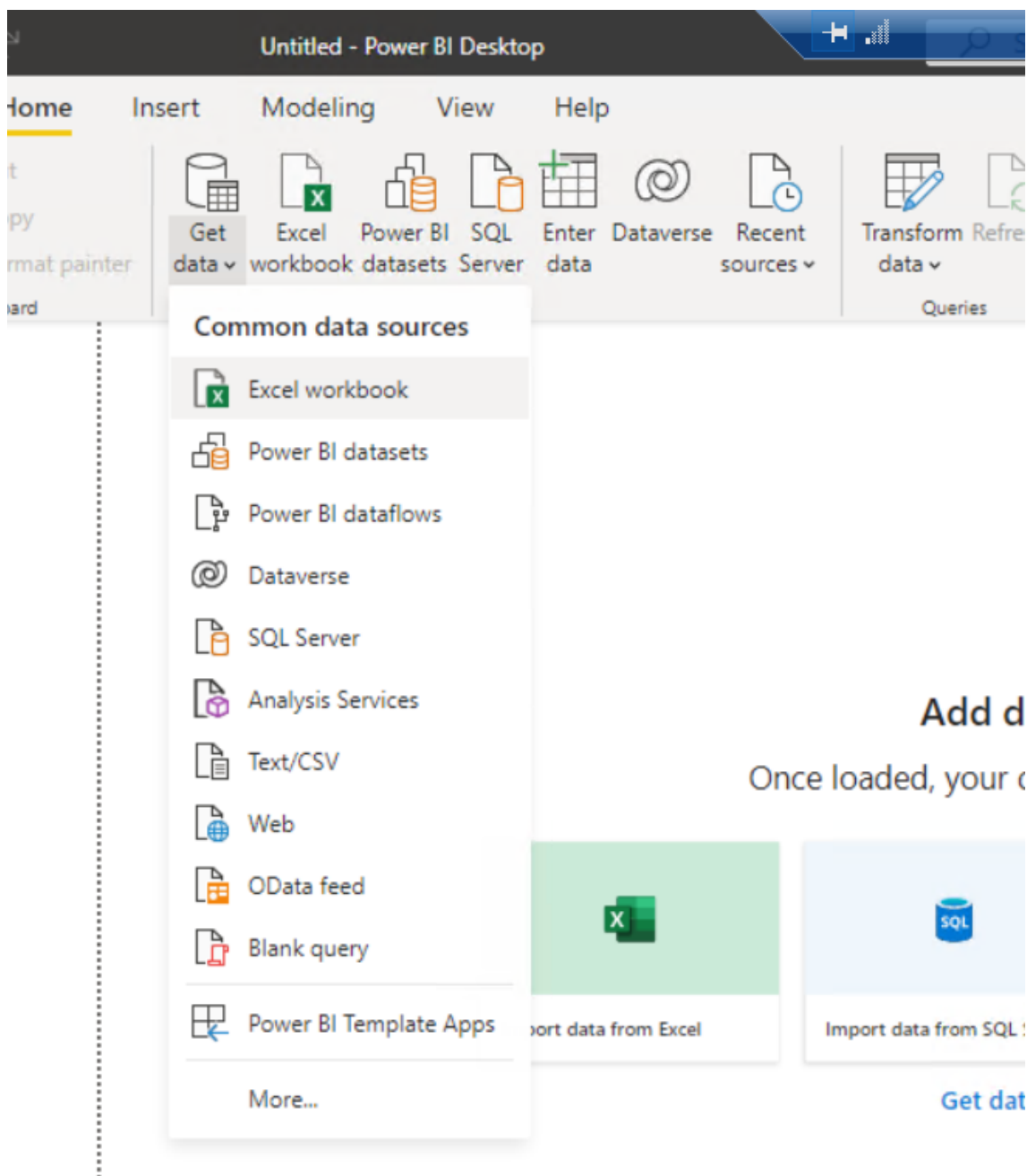
#### Task 2: Import Data from Excel

1. Make sure previous task was completed.
2. On the Taskbar, click **Power BI Desktop**.
3. Click **New > Report**:

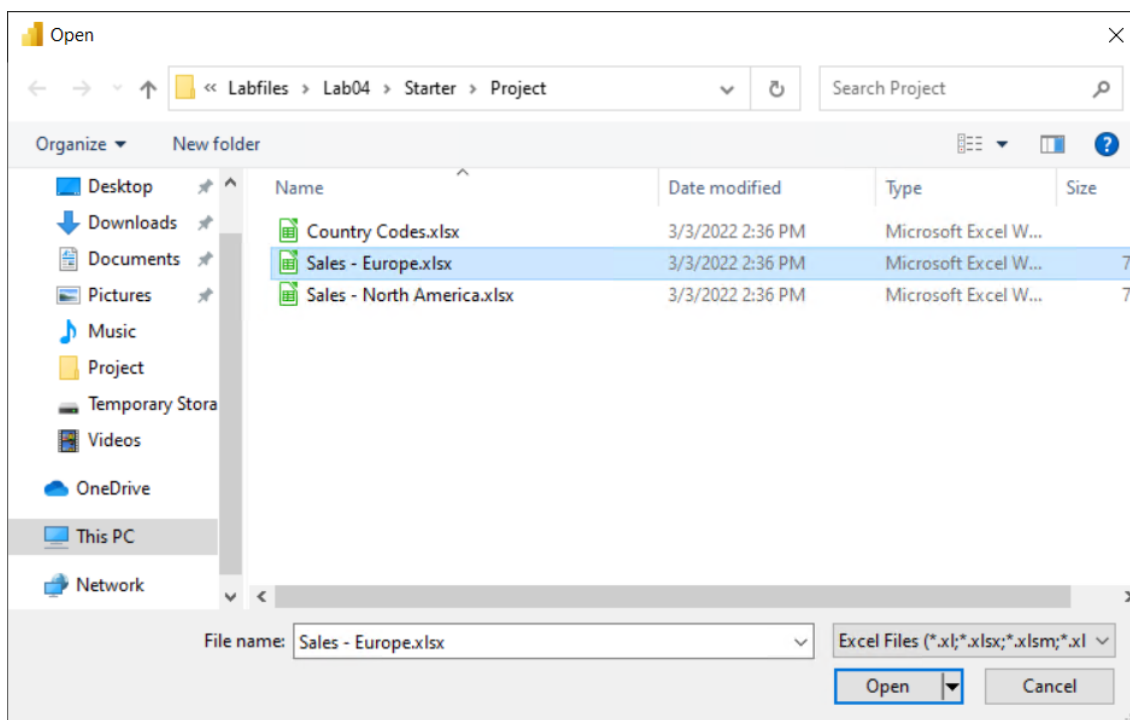


5. In the **Power BI Desktop** window, click **Get data**.

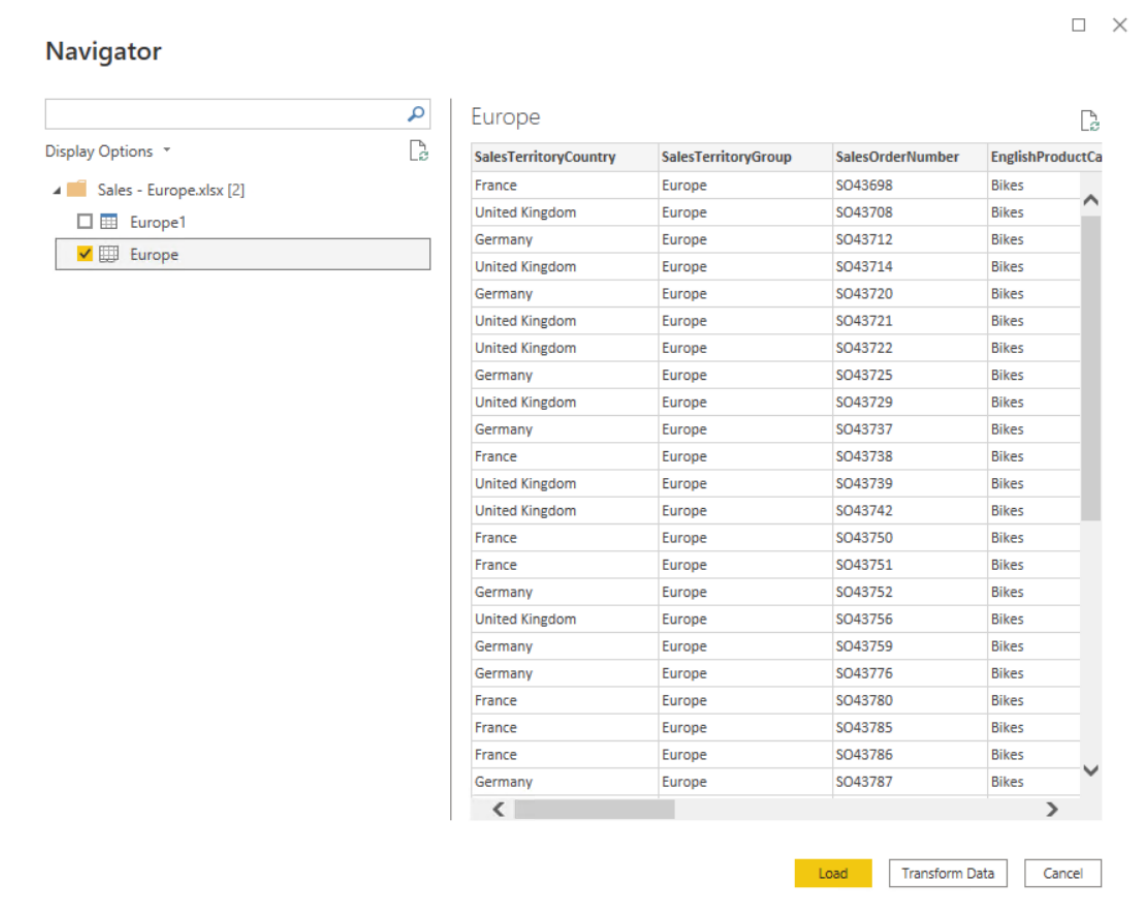
6. In the **Get Data** window, click **Excel Workbook**:



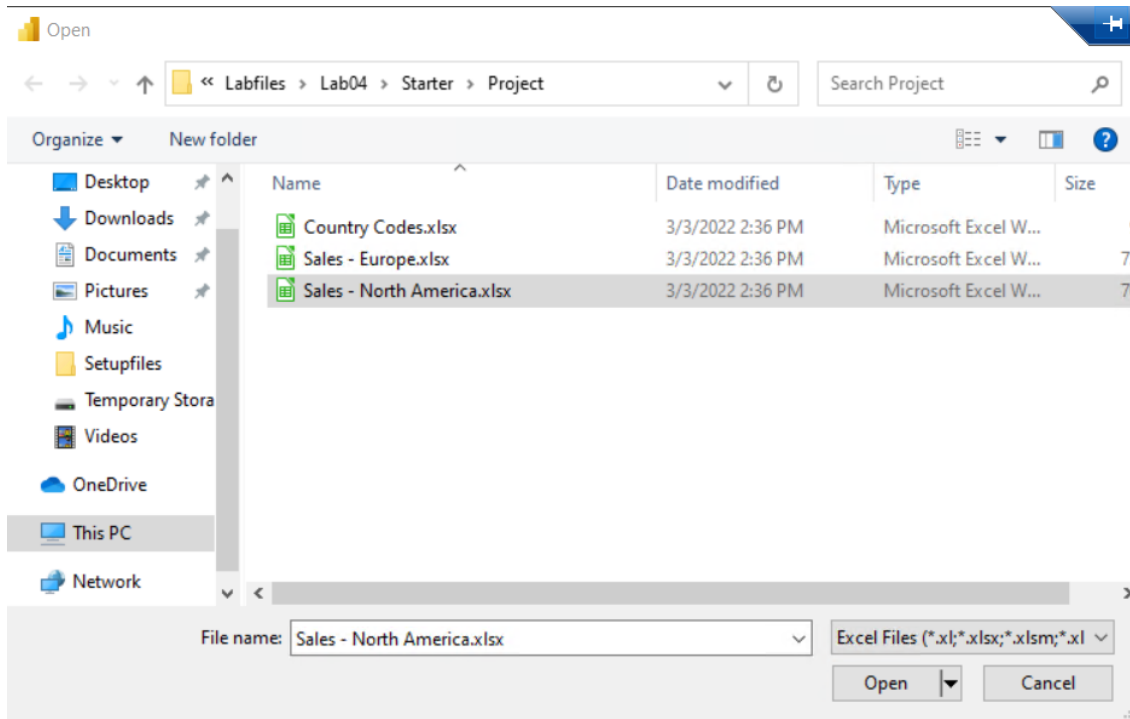
7. In the **Open** dialog box, browse to the **Desktop\power-bi-quickstart\Labfiles\Lab04\Starter\Project** folder, click **Sales - Europe.xlsx**, and then click **Open**.



8. In the **Navigator** window, select the **Europe** check box, and then click **Load**.



9. On the **Home** tab, click the **Get Data** arrow, and then click **Excel Workbook**.
10. In the **Open** dialog box, browse to the **Desktop\power-bi-quickstart\Labfiles\Lab04\Starter\Project** folder, click **Sales - North America.xlsx**, and then click **Open**.



11. In the **Navigator** window, select the **North America** check box, and then click **Transform Data**. This opens the Power Query Editor window.

## Navigator

Display Options

Sales - North America.xlsx [2]

☐ SalesNorthAmerica

☒ North America

### North America

SalesTerritoryCountry	SalesTerritoryGroup	SalesOrderNumber	EnglishProductCa
Canada	North America	SO43697	Bikes
United States	North America	SO43699	Bikes
United States	North America	SO43700	Bikes
United States	North America	SO43702	Bikes
United States	North America	SO43706	Bikes
United States	North America	SO43707	Bikes
United States	North America	SO43711	Bikes
United States	North America	SO43713	Bikes
United States	North America	SO43718	Bikes
United States	North America	SO43719	Bikes
United States	North America	SO43723	Bikes
United States	North America	SO43726	Bikes
United States	North America	SO43728	Bikes
United States	North America	SO43730	Bikes
United States	North America	SO43733	Bikes
United States	North America	SO43734	Bikes
United States	North America	SO43741	Bikes
United States	North America	SO43747	Bikes
United States	North America	SO43748	Bikes
United States	North America	SO43749	Bikes
United States	North America	SO43754	Bikes
United States	North America	SO43755	Bikes
United States	North America	SO43758	Bikes

Load
Transform Data
Cancel

### Task 3: Apply Formatting to the Existing Data

1. In the **Queries [2]** pane, click **Europe** to show the data preview if this is not already displayed.
2. Right-click the **ProductKey** column, and click **Remove**.

Queries [2]

Europe

North America

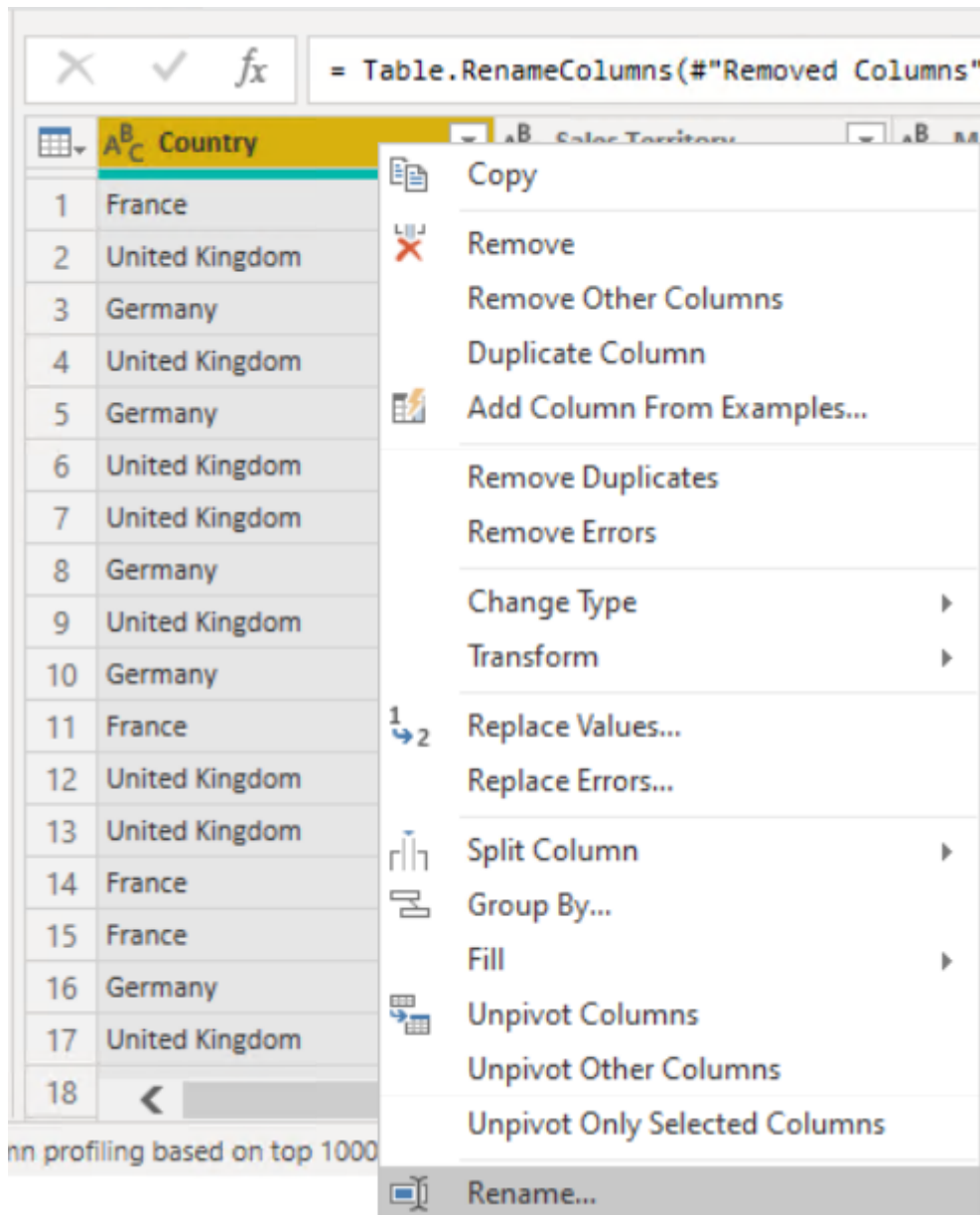
= Table.TransformColumnTypes(#"Promoted Headers",{{"SalesTerritoryCountry", type text},

	EnglishProductSubcategoryName	ProductKey	EnglishProductName	Color	OrderQuantity
1	Mountain Bikes				
2	Road Bikes				
3	Road Bikes				
4	Road Bikes				
5	Road Bikes				
6	Road Bikes				
7	Road Bikes				
8	Road Bikes				
9	Mountain Bikes				
10	Road Bikes				
11	Road Bikes				
12	Road Bikes				
13	Road Bikes				
14	Road Bikes				
15	Road Bikes				
16	Road Bikes				
17	Road Bikes				
18					

Copy
Remove
Remove Other Columns
Duplicate Column
Add Column From Examples...
Remove Duplicates
Remove Errors
Change Type
Transform
Replace Values...
Replace Errors...
Group By...
Fill
Unpivot Columns
Unpivot Other Columns
Unpivot Only Selected Columns

3. Right-click the **SalesOrderNumber** column, and click **Remove**.

- Right-click the **SalesTerritoryCountry** column, click **Rename**, type **Country**, and then press Enter.



- Right-click the **SalesTerritoryGroup** column, click **Rename**, type **Sales Territory**, and then press Enter.
- Right-click the **EnglishProductCategoryName** column, click **Rename**, type **Main Category**, and then press Enter.
- Right-click the **EnglishProductSubcategoryName** column, click **Rename**, type **Sub Category**, and then press Enter.
- Right-click the **EnglishProductName** column, click **Rename**, type **Product**, and then press Enter.

	A <sub>C</sub> <sup>B</sup> Country	A <sub>C</sub> <sup>B</sup> Sales Territory	A <sub>C</sub> <sup>B</sup> Main Category	A <sub>C</sub> <sup>B</sup> Sub Category	1 <sup>2</sup> <sub>3</sub> ProductKey	A <sub>C</sub> <sup>B</sup> En
1	France	Europe	Bikes	Mountain Bikes	346	Mo
2	United Kingdom	Europe	Bikes	Road Bikes	330	Roz
3	Germany	Europe	Bikes	Road Bikes	311	Roz
4	United Kingdom	Europe	Bikes	Road Bikes	311	Roz
5	Germany	Europe	Bikes	Road Bikes	311	Roz
6	United Kingdom	Europe	Bikes	Road Bikes	310	Roz
7	United Kingdom	Europe	Bikes	Road Bikes	312	Roz
8	Germany	Europe	Bikes	Road Bikes	311	Roz
9	United Kingdom	Europe	Bikes	Mountain Bikes	346	Mo
10	Germany	Europe	Bikes	Road Bikes	311	Roz
11	France	Europe	Bikes	Road Bikes	312	Roz
12	United Kingdom	Europe	Bikes	Road Bikes	310	Roz
13	United Kingdom	Europe	Bikes	Road Bikes	314	Roz
14	France	Europe	Bikes	Road Bikes	311	Roz
15	France	Europe	Bikes	Road Bikes	313	Roz
16	Germany	Europe	Bikes	Road Bikes	311	Roz
17	United Kingdom	Europe	Bikes	Road Bikes	332	Roz
18						

9. Right-click the **Color** column, point to **Move**, and then click **Left**.



A B C	Copy	1.2	UnitPrice
Silver	Remove	1	
Red	Remove Other Columns	1	
Red	Duplicate Column	1	
Red	Add Column From Examples...	1	
Red	Remove Duplicates	1	
Red	Remove Errors	1	
Red	Change Type	1	
Silver	Transform	1	
Red	Replace Values...	1	
Red	Replace Errors...	1	
Red	Split Column	1	
Red	Group By...	1	
Red	Fill	1	
Red	Unpivot Columns	1	
Black	Unpivot Other Columns	1	
	Unpivot Only Selected Columns		
	Rename...		
	Move	Left	
	Drill Down	Right	
	Add as New Query	To Beginning	
		To End	

10. In the **Queries [2]** pane, click **North America**.
11. Right-click the **ProductKey** column, and click **Remove**.
12. Right-click the **SalesOrderNumber** and click **Remove**.
13. Right-click the **SalesTerritoryCountry** column, click **Rename**, type **Country**, and then press Enter.
14. Right-click the **SalesTerritoryGroup** column, click **Rename**, type **Sales Territory**, and then press Enter.
15. Right-click the **EnglishProductCategoryName** column, click **Rename**, type **Main Category**, and then press Enter.

16. Right-click the **EnglishProductSubcategoryName** column, click **Rename**, type **Sub Category**, and then press Enter.
17. Right-click the **EnglishProductName** column, click **Rename**, type **Product**, and then press Enter.
18. Right-click the **Color** column, point to **Move**, and then click **Left**.
19. On the **Home** tab, in the **Query** group, click **Advanced Editor**. Notice that the query includes the changes you have made, and then click **Cancel**.

	Category	Sub Category	ProductKey	Color	Product	OrderQuantity
1		Road Bikes	310	Red	Road-150 Red, 62	
2		Mountain Bikes	346	Silver	Mountain-100 Silver, 44	
3		Road Bikes	336	Black	Road-650 Black, 62	
4		Road Bikes	311	Red	Road-150 Red, 44	
5		Road Bikes	312	Red	Road-150 Red, 48	
6		Road Bikes	312	Red	Road-150 Red, 48	
7		Road Bikes	314	Red	Road-150 Red, 56	
8		Road Bikes	310	Red	Road-150 Red, 62	
9		Road Bikes	311	Red	Road-150 Red, 44	
10		Road Bikes	312	Red	Road-150 Red, 48	
11		Road Bikes	332	Black	Road-650 Black, 58	
12		Road Bikes	332	Black	Road-650 Black, 58	
13		Road Bikes	313	Red	Road-150 Red, 52	
14		Mountain Bikes	346	Silver	Mountain-100 Silver, 44	
15		Road Bikes	312	Red	Road-150 Red, 48	
16		Road Bikes	312	Red	Road-150 Red, 48	
17		Road Bikes	310	Red	Road-150 Red, 62	
18						

20. Leave the Power Query Editor window open for the next exercise.

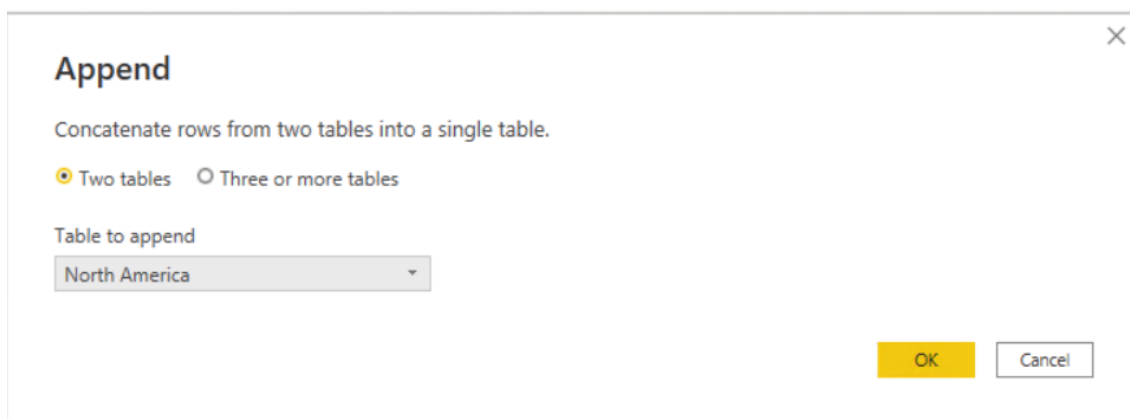
## Exercise 2: Combine Power BI Data

### Task 1: Add Related Data to the Shaped Data

1. In the **Queries [2]** pane, click **Europe**.
2. On the **Home** tab, in the **Combine** group, click **Append Queries**.

	Country	Sales Territory	Main Category	Sub Category	ProductKey	Color
1	France	Europe	Bikes	Mountain Bikes	346	Silver
2	United Kingdom	Europe	Bikes	Road Bikes	330	Red
3	Germany	Europe	Bikes	Road Bikes	311	Red
4	United Kingdom	Europe	Bikes	Road Bikes	311	Red
5	Germany	Europe	Bikes	Road Bikes	311	Red
6	United Kingdom	Europe	Bikes	Road Bikes	310	Red
7	United Kingdom	Europe	Bikes	Road Bikes	312	Red
8	Germany	Europe	Bikes	Road Bikes	311	Red
9	United Kingdom	Europe	Bikes	Mountain Bikes	346	Silver
10	Germany	Europe	Bikes	Road Bikes	311	Red
11	France	Europe	Bikes	Road Bikes	312	Red
12	United Kingdom	Europe	Bikes	Road Bikes	310	Red
13	United Kingdom	Europe	Bikes	Road Bikes	314	Red
14	France	Europe	Bikes	Road Bikes	311	Red

3. In the **Append** dialog box, in the **Table to append** list, click **North America**, and then click **OK**. The rows are combined.



**Append** ✕

Concatenate rows from two tables into a single table.

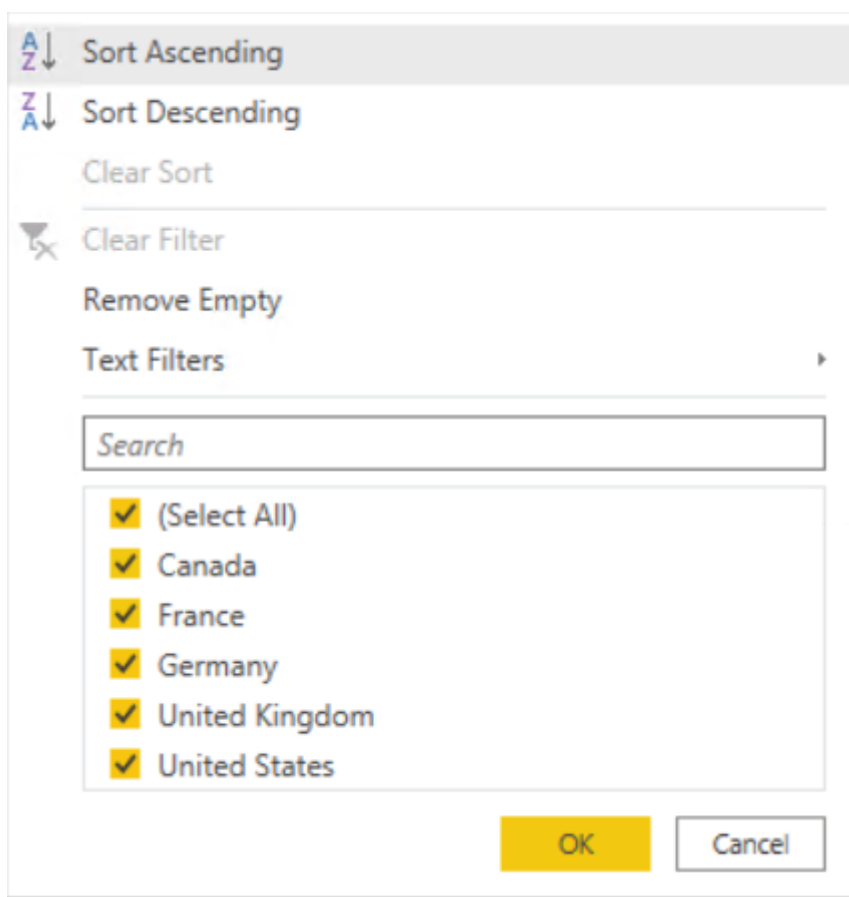
☒ Two tables
 ☐ Three or more tables

Table to append

North America ▼

OK
Cancel

4. On the **Country** column header, click the **Arrow**, and then click **Load more**. You should now see that **United States** and **Canada** are included, and then click **Cancel**.



A Z ↓ Sort Ascending  
Z A ↓ Sort Descending  
 Clear Sort

---

✕ Clear Filter  
 Remove Empty

Text Filters ▶

Search

☒ (Select All)

☒ Canada

☒ France

☒ Germany

☒ United Kingdom

☒ United States

OK
Cancel

5. On the **Home** tab, click the **New Source** arrow, and then click **Excel Workbook**.
6. In the **Open** dialog box, browse to the **Desktop\power-bi-quickstart\Labfiles\Lab04\Starter\Project** folder, click **Country Codes.xlsx**, and then click **Open**.
7. In the **Navigator** dialog box, select the **Country Codes** check box, and then click **OK**.

## Navigator

Display Options ▾

Country Codes.xlsx [1]

☒ Country Codes

## Country Codes

Column1	Column2	Column3
Territory	Country	Code
North America	Canada	CA
Europe	France	FR
Europe	Germany	DE
Europe	Italy	IT
Europe	Spain	SP
Europe	Switzerland	SZ
Europe	United Kingdom	UK
North America	United States	US

OK

Cancel

8. Click **Use First Row as Headers** as shown below:

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply ▾ New Source ▾ Recent Sources ▾ Enter Data ▾ Data source settings ▾ Manage Parameters ▾ Refresh Preview ▾ Advanced Editor ▾ Choose Columns ▾ Remove Columns ▾ Keep Rows ▾ Remove Rows ▾ Split Column ▾ Group By ▾ Replace Values ▾ Data Type: Text ▾ Merge Queries ▾ Append Queries ▾ Combine Files

Close New Query Data Sources Parameters Query Manage Columns Reduce Rows Sort Transform Combine

Queries [3]

Europe

North America

Country Codes

Table.TransformColumnTypes(#"Country Codes\_Sheet",{{"Column1", type text}, {"Column2", type text}, {"Column3", type text}})

Column1 Column2 Column3

1 Territory Country Code

2 North America Canada CA

3 Europe France FR

4 Europe Germany DE

5 Europe Italy IT

6 Europe Spain SP

7 Europe Switzerland SZ

8 Europe United Kingdom UK

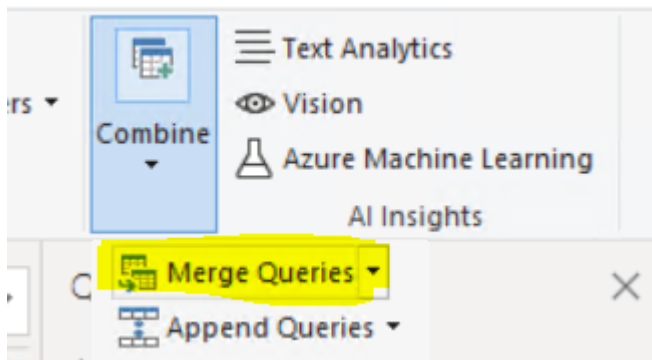
9 North America United States US

Use First Row as Headers

Promote the first row of this table into column headers.

9. In Power Query Editor, in the **Queries [3]** pane, click **Europe**.

10. On the **Home** tab, in the **Combine** group, click **Merge Queries**.



11. In the **Merge** dialog box, click the **Country** column to select it.
12. In the list below the table, click **Country Codes**, click the **Country** column, and then click **OK**.

## Merge

Select a table and matching columns to create a merged table.

Europe

Country	Sales Territory	Main Category	Sub Category	Color	Product	OrderQuantity
France	Europe	Bikes	Mountain Bikes	Silver	Mountain-100 Silver, 44	
United Kingdom	Europe	Bikes	Road Bikes	Red	Road-650 Red, 52	
Germany	Europe	Bikes	Road Bikes	Red	Road-150 Red, 44	
United Kingdom	Europe	Bikes	Road Bikes	Red	Road-150 Red, 44	

Country Codes

Territory	Country	Code
North America	Canada	CA
Europe	France	FR
Europe	Germany	DE
Europe	Italy	IT
Europe	Spain	SP

Join Kind

Left Outer (all from first, matching from second)

☐ Use fuzzy matching to perform the merge

> Fuzzy matching options

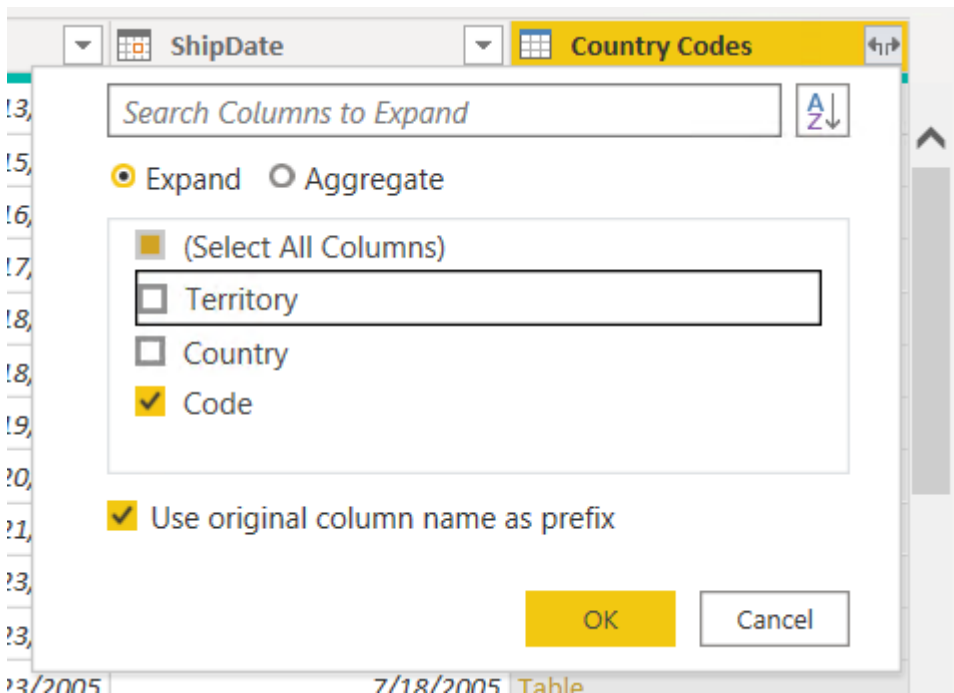
✓ The selection matches 2000 of 2000 rows from the first table.

OK

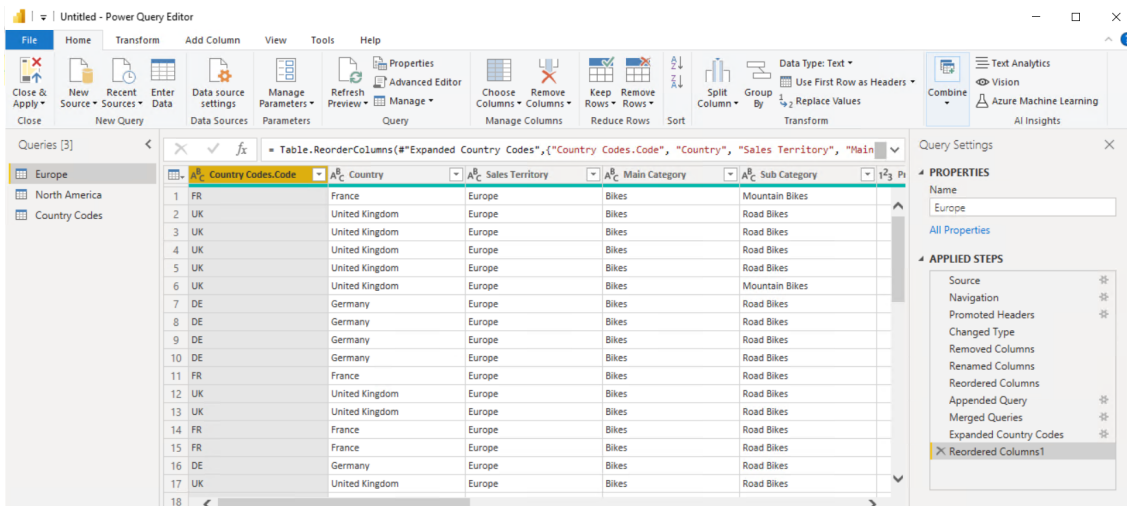
Cancel

13. The **Country Codes** is added to the **Europe** query.

14. In the **Country Codes** header, click the **double-arrow** icon, clear the **Territory**, **Country**, and **Use original column name as prefix** check boxes, and then click **OK**.



15. Right-click the **Code** column, point to **Move**, and click **To Beginning**.
16. Right-click the **Code** column, click **Rename**, type **Country Code**, and then press Enter.



17. On the **Home** tab, click the **Close & Apply** arrow, and then click **Apply**.
18. Close Power Query Editor, and then close Power BI Desktop without saving any changes.