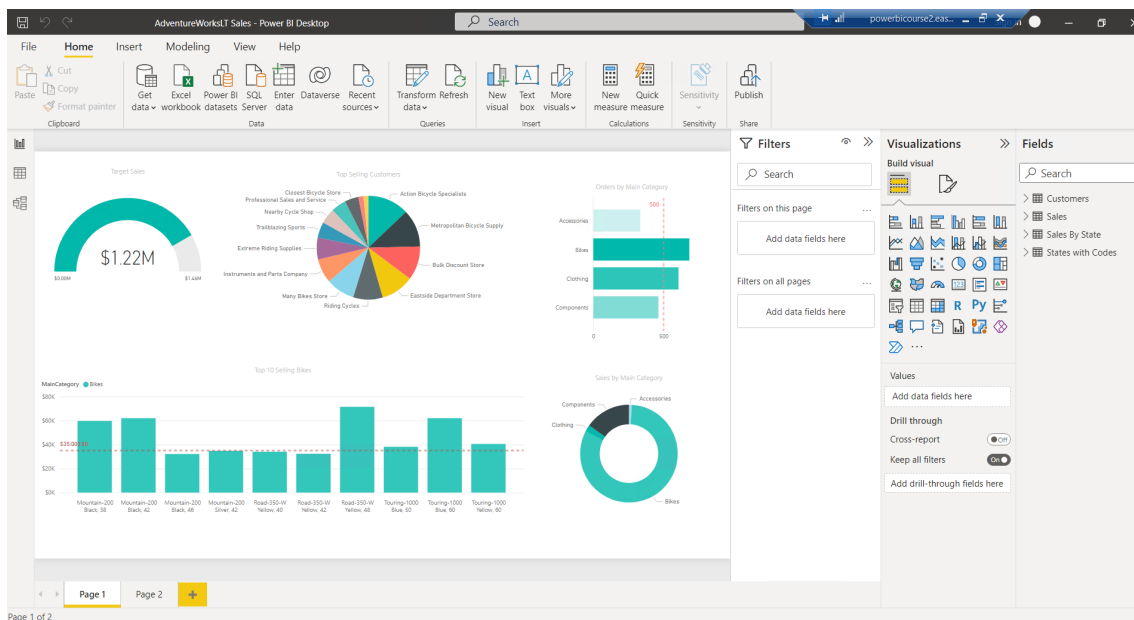


Module 6: Interactive Data Visualizations

- [Module 6: Interactive Data Visualizations](#)
 - [Lab: Creating a Power BI Report](#)
 - [Exercise 1: Connecting to Power BI Data](#)
 - [Task 1: Prepare the Environment](#)
 - [Task 2: Connect to Existing Data](#)
 - [Task 3: Shape Data](#)
 - [Task 4: Combine Data](#)
 - [Exercise 2: Building Power BI Reports](#)
 - [Task 1: Create a Chart](#)
 - [Task 2: Create a Map Visualization](#)

Note: Lab Solution is present in `D:\Labfiles\Lab06\Solution` folder:



Lab: Creating a Power BI Report

Exercise 1: Connecting to Power BI Data

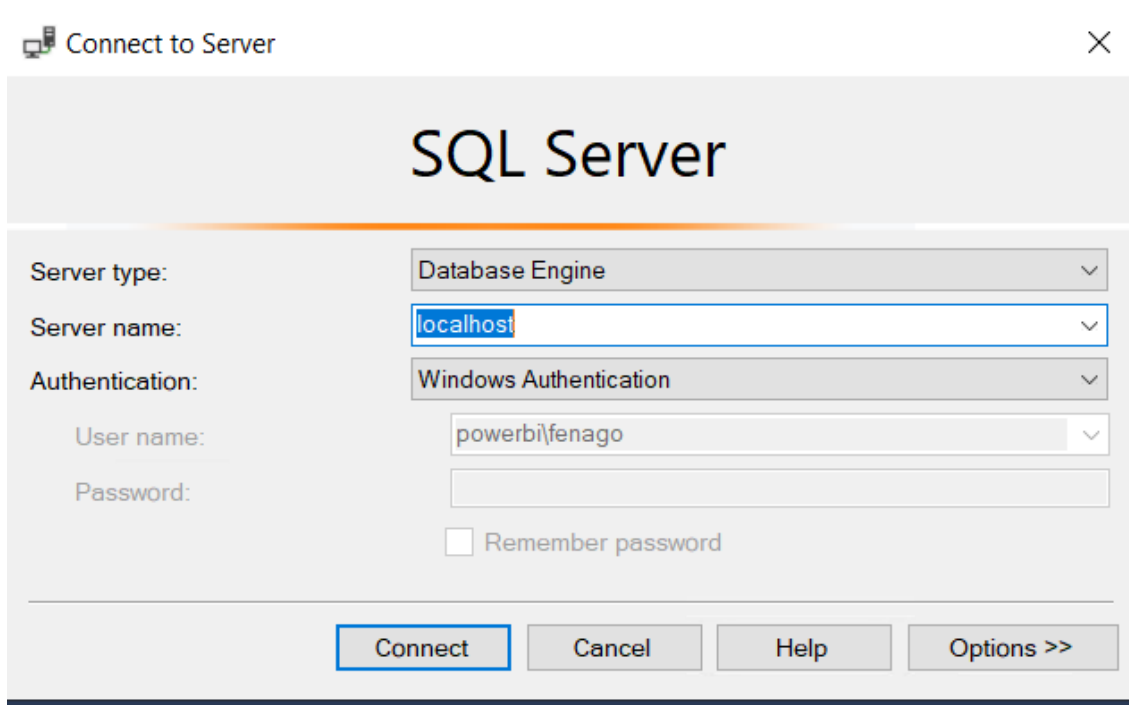
Task 1: Prepare the Environment

1. Ensure that you have copied all folders from `Desktop/power-bi-quickstart` folder into `*D:*` drive before starting the lab.
2. In the `D:\Labfiles\Lab06\Starter` folder, right-click **Setup.cmd**, and then click **Run as administrator**.
3. When the script completes, press any key to close the window.

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**.



Connect to Server

SQL Server

Server type: Database Engine

Server name: localhost

Authentication: Windows Authentication

User name: powerbi\fenago

Password:

☐ Remember password

Connect Cancel Help Options >>

3. On the **File** menu, point to **Open**, and then click **Project/Solution**.
4. In the **Open Project** dialog box, browse to the **D:\Labfiles\Lab06\Starter\Project** folder, and then double-click **Project.ssmssl.n**.

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.

SQL Server database

Server ⓘ
localhost

Database (optional)
AdventureWorksLT

Data Connectivity mode ⓘ
☒ Import
☐ DirectQuery

Advanced options
Command timeout in minutes (optional)

SQL statement (optional, requires database)
c.AddressLine1, c.AddressLine2, c.City, c.StateProvince, c.CountryRegion, c.P
FROM SalesLT.Customer AS a
INNER JOIN SalesLT.CustomerAddress AS b ON a.CustomerID = b.CustomerID
INNER JOIN SalesLT.[Address] AS c ON b.AddressID = c.AddressID
WHERE b.AddressType = 'Main Office'


☒ Include relationship columns
☐ Navigate using full hierarchy
☐ Enable SQL Server Failover support

OK Cancel

16. Click **OK**
17. In the data preview window, click **Load**.

localhost: AdventureWorksLT

CustomerID	CompanyName	NameStyle	Title	FirstName	LastName	SalesPerson	AddressLine1
29485	Professional Sales and Service	FALSE	Ms.	Catherine	Abel	adventure-works\linda3	57251 Serene Blvd
29486	Riders Company	FALSE	Ms.	Kim	Abercrombie	adventure-works\jillian0	Tanger Factory
29489	Area Bike Accessories	FALSE	Ms.	Frances	Adams	adventure-works\shu0	6900 Sisk Road
29490	Bicycle Accessories and Kits	FALSE	Ms.	Margaret	Smith	adventure-works\david8	Lewiston Mall
29492	Valley Bicycle Specialists	FALSE	Mr.	Jay	Adams	adventure-works\jillian0	Blue Ridge Mall
29494	Vinyl and Plastic Goods Corporation	FALSE	Mr.	Samuel	Agcaoili	adventure-works\josé1	No. 25800-130 King Street
29496	Fun Toys and Bikes	FALSE	Mr.	Robert	Ahlering	adventure-works\shu0	6500 East Grant Road
29497	Great Bikes	FALSE	Mr.	François	Ferrier	adventure-works\david8	Eastridge Mall
29499	Valley Toy Store	FALSE	Ms.	Amy	Alberts	adventure-works\josé1	252851 Rowan Place
29502	Major Sport Suppliers	FALSE	Mr.	Paul	Alcorn	adventure-works\david8	White Mountain Mall
29503	Family's Favorite Bike Shop	FALSE	Mr.	Gregory	Alderson	adventure-works\garrett1	25981 College Street
29505	Imported and Domestic Cycles	FALSE	Ms.	Michelle	Alexander	adventure-works\linda3	22589 West Craig Road
29506	Systematic Sales	FALSE	Mr.	Sean	Jacobson	adventure-works\shu0	2551 East Warner Road
29508	Mountain Toy Store	FALSE	Mr.	Marvin	Allen	adventure-works\jillian0	First Colony Mall
29510	Designated Distributors	FALSE	Mr.	Cecil	Allison	adventure-works\josé1	254 Colonnade Road
29511	Bold Bike Accessories	FALSE	Mr.	Oscar	Alpuerto	adventure-works\linda3	Rocky Mountain Pines Out
29515	Serious Cycles	FALSE	Mr.	Maxwell	Amland	adventure-works\garrett1	Suite 99320 255 - 510th Av
29517	Novelty Bikes	FALSE	Ms.	Ramona	Antrim	adventure-works\michael9	998 Forest Road
29521	Brightwork Company	FALSE	Mr.	Tom	Johnston	adventure-works\shu0	Belz Factory Outlet
29522	Resale Services	FALSE	Mr.	Thomas	Armstrong	adventure-works\linda3	Fox Hills

 The data in the preview has been truncated due to size limits.



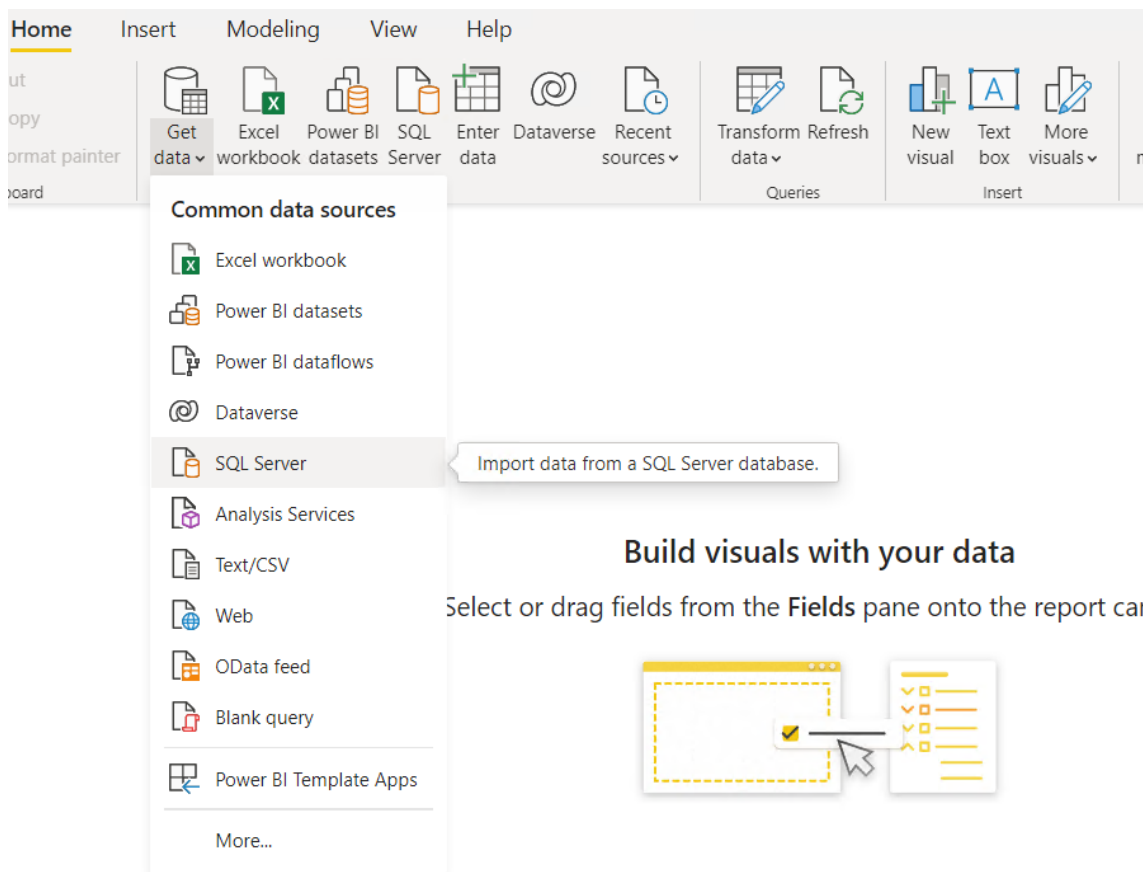
Load

Transform Data

Cancel

18. On the **Home** tab, click the **Get Data** arrow.

19. Click **SQL Server**, and then click **Connect**.

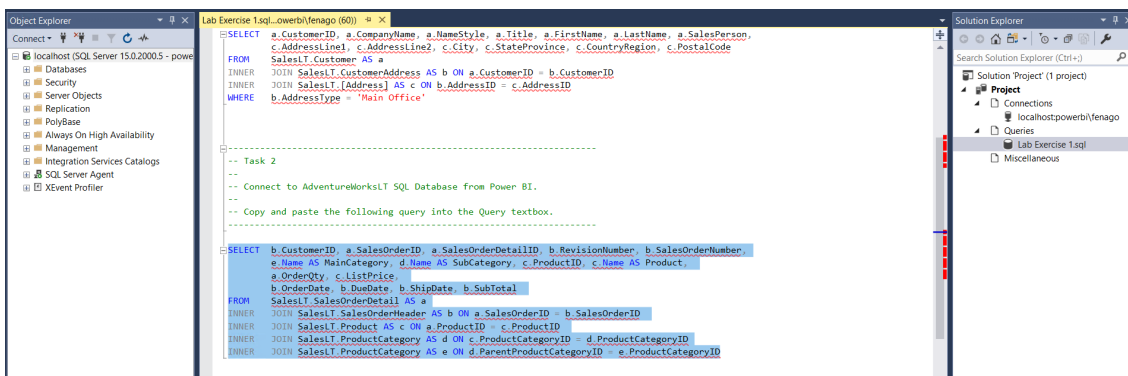


20. In the **SQL Server database** dialog box, in the **Server** box, type the URL of the server **localhost**.

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**.

SQL Server database

Server ⓘ

localhost

Database (optional)

AdventureWorksLT

Data Connectivity mode ⓘ

☒ Import
 ☐ DirectQuery

Advanced options

Command timeout in minutes (optional)

SQL statement (optional, requires database)

```

FROM SalesLT.SalesOrderDetail AS a
INNER JOIN SalesLT.SalesOrderHeader AS b ON a.SalesOrderID = b.SalesOrderID
INNER JOIN SalesLT.Product AS c ON a.ProductID = c.ProductID
INNER JOIN SalesLT.ProductCategory AS d ON c.ProductCategoryID = d.ProductCategoryID
INNER JOIN SalesLT.ProductCategory AS e ON d.ParentProductCategoryID = e.ProductCategoryID

```

☒ Include relationship columns
 ☐ Navigate using full hierarchy
 ☐ Enable SQL Server Failover support

OK

Cancel

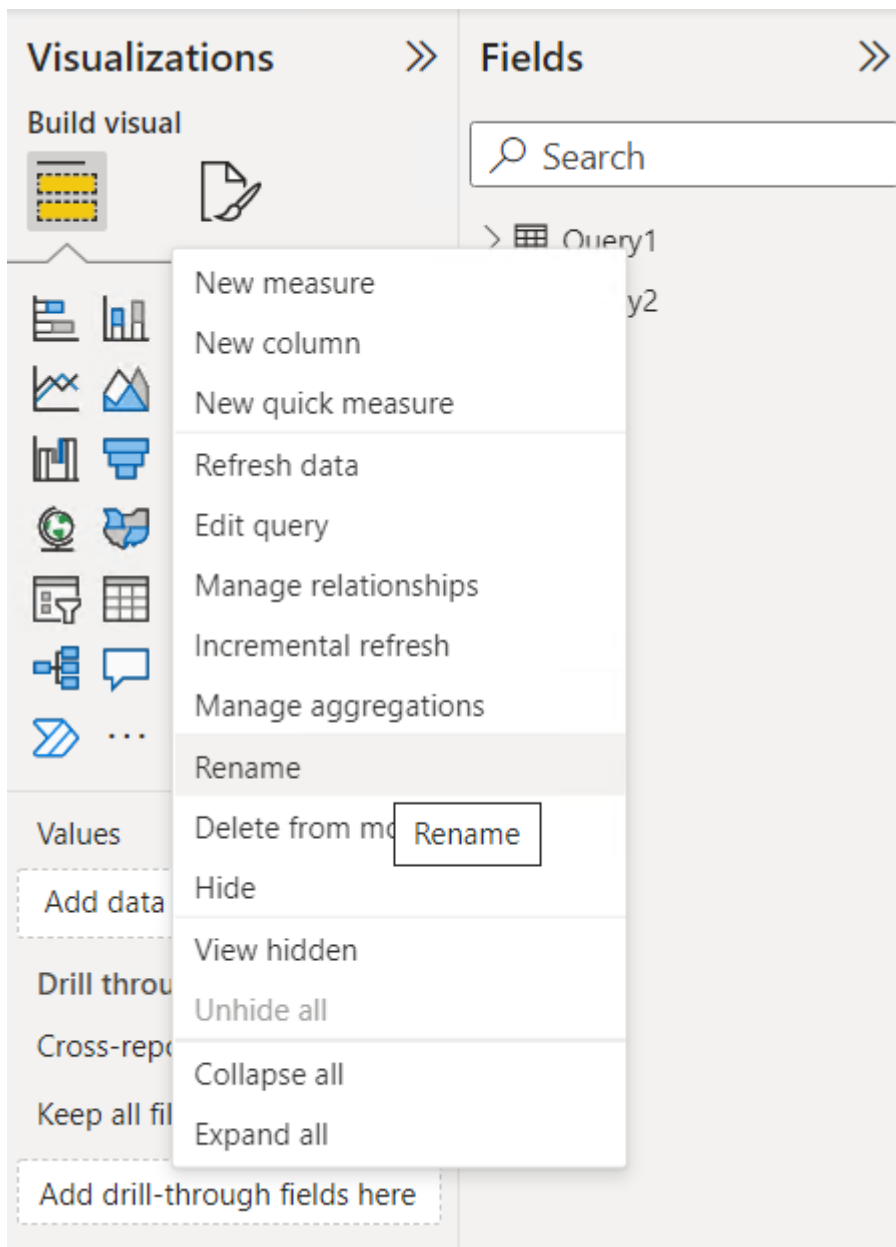
25. In the data preview window, click **Load**.

26. On the **File** menu, click **Save**.

27. In the **Save As** dialog box, navigate to **D:\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.

Build visuals with your data

Select or drag fields from the **Fields** pane onto the report canvas.



Visualizations

Build visual

Visualizations

Values

Add data fields here

Drill through

Cross-report

Keep all filters

Add drill-through fields here

Fields

Search

Customers

AddressLine1

AddressLine2

City

CompanyName

CountryRegion

CustomerID

FirstName

LastName

NameStyle

PostalCode

SalesPerson

StateProvince

Title

Sales

CustomerID

DueDate

ListPrice

MainCategory

OrderDate

OrderQty

Product

ProductID

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**.

CustomerID	CompanyName	NameStyle	Title	FirstName	LastName	SalesPerson	Line1	AddressLine2	City	StateProvince	CountryRegion	PostalCode
29492	Valley Bicycle Specialists	False	Mr.	Jay	Adams	adventur			Kansas City	Missouri	United States	64106
29496	Fun Toys and Bikes	False	Mr.	Robert	Ahlering	adventur			Tucson	Arizona	United States	85701
29497	Great Bikes	False	Mr.	Francois	Ferrier	adventur			Casper	Wyoming	United States	82601
29502	Major Sport Suppliers	False	Mr.	Paul	Alcorn	adventur			Rock Springs	Wyoming	United States	82901
29508	Systematic Sales	False	Mr.	Sean	Jacobson	adventur			Gilbert	Arizona	United States	85233
29508	Mountain Toy Store	False	Mr.	Marvin	Allen	adventur			Sugar Land	Texas	United States	77478
29521	Bold Bike Accessories	False	Mr.	Oscar	Alpuerto	adventur			Loveland	Colorado	United States	80537
29521	Brightwork Company	False	Mr.	Tom	Johnston	adventur			Las Vegas	Nevada	United States	89106
29522	Resale Services	False	Mr.	Thomas	Armstrong	adventur			Culver City	California	United States	90232
29523	The Gear Store	False	Mr.	John	Arthur	adventur			Houston	Texas	United States	77003
29524	Immense Manufacturing Company	False	Mr.	Chris	Ashton	adventur			Saint Ann	Missouri	United States	63074
29528	Work and Play Association	False	Mr.	Stephen	Ayers	adventur			Southgate	Michigan	United States	48195
29531	Remarkable Bike Store	False	Mr.	Cory	Booth	adventur			Las Vegas	Nevada	United States	89106
29532	Road-Way Mart	False	Mr.	James	Bailey	adventur			Missoula	Montana	United States	59801
29533	Small Cycle Store	False	Mr.	Douglas	Baldwin	adventur			Holland	Michigan	United States	49423
29535	Grand Bicycle Stores	False	Mr.	Wayne	Banack	adventur			Baytown	Texas	United States	77520
29536	Kickstand Sellers	False	Mr.	Robert	Barker	adventur			Westland	Michigan	United States	48185
29543	Center Cycle Shop	False	Mr.	John	Beaver	adventur			Bothell	Washington	United States	98011
29550	Another Bicycle Company	False	Mr.	Stanley	Alan	adventur			Millwaukie	Oregon	United States	97222
29554	Field Trip Inc	False	Mr.	Payton	Benson	adventure-works\michael9	997000 Telegraph Rd.		Southfield	Michigan	United States	48034
29559	Safe Cycles Shop	False	Mr.	Robert	Bernacchi	adventure-works\david8	25915 140th Ave Ne		Bellevue	Washington	United States	98004
29560	Number 1 Supply	False	Mr.	Matthias	Berndt	adventure-works\shu0	Escondido		Escondido	California	United States	92025
29562	Golf and Cycle Store	False	Mr.	Steven	Brown	adventure-works\shu0	5500 Grossmont Center Drive		La Mesa	California	United States	91941
29563	World Bike Discount Store	False	Mr.	Jimmy	Bischoff	adventure-works\linda3	3065 Santa Margarita Parkway		Trabuco Canyon	California	United States	92679
29568	Coalition Bike Company	False	Mr.	Donald	Blanton	adventure-works\shu0	Corporate Office		El Segundo	California	United States	90245
29570	Grease and Oil Products Company	False	Mr.	Michael	Blythe	adventure-works\jilland0	9903 Highway 6 South		Houston	Texas	United States	77003
29574	Third Bike Store	False	Mr.	Randall	Boseman	adventure-works\jilland0	2500 North Stemmons Freeway		Dallas	Texas	United States	75201

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

CustomerID		CompanyName	Title	FirstName	LastName	AddressLine1
			Mr.	Jay	Adams	Blue Ridge Mall
			Mr.	Robert	Ahlering	6500 East Grant Road
			Mr.	François	Ferrier	Eastridge Mall
			Mr.	Paul	Alcorn	White Mountain Mall
			Mr.	Sean	Jacobson	2551 East Warner Road
			Mr.	Marvin	Allen	First Colony Mall
			Mr.	Oscar	Alpuerto	Rocky Mountain Pines C
			Mr.	Tom	Johnston	Belz Factory Outlet
			Mr.	Thomas	Armstrong	Fox Hills
			Mr.	John	Arthur	2345 North Freeway
		company	Mr.	Chris	Ashton	70 N.W. Plaza
			Mr.	Stephen	Ayers	2533 Eureka Rd.
			Mr.	Cory	Booth	Eastern Beltway Center
			Mr.	James	Bailey	Southgate Mall
			Mr.	Douglas	Baldwin	Horizon Outlet Center
			Mr.	Wayne	Banack	48255 I-10 E. @ Eastpoi
			Mr.	Robert	Barker	6789 Warren Road
				John	Beaver	99300 223rd Southeast
			Mr.	Stanley	Alan	567 Sw Mcloughlin Blvd
29554	Field Trip Inc		Mr.	Payton	Benson	997000 Telegraph Rd.
29559	Safe Cycles Shop		Mr.	Robert	Bernacchi	25915 140th Ave Ne
29560	Number 1 Supply		Mr.	Matthias	Berndt	Escondido
29562	Golf and Cycle Store		Mr.	Steven	Brown	5500 Grossmont Center

11. Click the **AddressLine1** column header.

12. On the **Modeling** tab, in the **Properties** group, click **Data Category: Uncategorized**, and then click **Address**.

Home Help Table tools Column tools

AddressLine1 Text \$% Format Text Don't summarize Summarization

Text \$ % -00 -0 Auto Data category Uncategorized

Structure Formatting Properties

Uncategorized

Address

Place

City

County

State or Province

Postal code

Country

Continent

Latitude

Longitude

Web URL

Image URL

Barcode

merID	CompanyName	Title	FirstName	LastName	Address	AddressLine2	City	StateProvince	CountryRegion	PostalCode
29492	Valley Bicycle Specialists	Mr.	Jay	Adams	Blue Ridge		Kansas City	Missouri	United States	64106
29496	Fun Toys and Bikes	Mr.	Robert	Ahlering	6500 East		Tucson	Arizona	United States	85701
29497	Great Bikes	Mr.	François	Ferrier	Eastridge		Casper	Wyoming	United States	82601
29502	Major Sport Suppliers	Mr.	Paul	Alcorn	White Mountain		Rock Springs	Wyoming	United States	82901
29506	Systematic Sales	Mr.	Sean	Jacobson	2551 East		Gilbert	Arizona	United States	85233
29508	Mountain Toy Store	Mr.	Marvin	Allen	First Colorado		Sugar Land	Texas	United States	77478
29511	Bold Bike Accessories	Mr.	Oscar	Alpuerto	Rocky Mountain		Loveland	Colorado	United States	80537
29521	Brightwork Company	Mr.	Tom	Johnston	Belz Falls		Las Vegas	Nevada	United States	89106
29522	Resale Services	Mr.	Thomas	Armstrong	Fox Hill		Culver City	California	United States	90232
29523	The Gear Store	Mr.	John	Arthur	2345 North		Houston	Texas	United States	77003
29524	Immense Manufacturing Company	Mr.	Chris	Ashton	70 N.W.		Saint Ann	Missouri	United States	63074
29528	Work and Play Association	Mr.	Stephen	Ayers	2533 East		Southgate	Michigan	United States	48195
29531	Remarkable Bike Store	Mr.	Cory	Booth	Eastern		Las Vegas	Nevada	United States	89106
29532	Road-Way Mart	Mr.	James	Bailey	Southgate		Missoula	Montana	United States	59801
29533	Small Cycle Store	Mr.	Douglas	Baldwin	Horizon		Holland	Michigan	United States	49423
29535	Grand Bicycle Stores	Mr.	Wayne	Banack	48255 I		Baytown	Texas	United States	77520
29536	Kickstand Sellers	Mr.	Robert	Barker	6789 Warren Road		Westland	Michigan	United States	48185
29545	Center Cycle Shop	Mr.	John	Beaver	99300 223rd Southeast		Bothell	Washington	United States	98011

13. Click the **City** column header.

14. On the **Modeling** tab, in the **Properties** group, click **Data Category: Uncategorized**, and then click **City**.

Data category City Sort by column Sort Data groups Groups Manage relationships Relationships New column Calculations

Uncategorized

Address

Place

City

County

State or Province

Postal code

Country

Continent

Latitude

Longitude

Web URL

Image URL

Barcode

LastName	Address	AddressLine2	City	StateProvince	CountryRegion	PostalCode
Adams	Blue Ridge		Kansas City	Missouri	United States	64106
Ahlering	6500 East		Tucson	Arizona	United States	85701
Ferrier	Eastridge		Casper	Wyoming	United States	82601
Alcorn	White Mountain		Rock Springs	Wyoming	United States	82901
Jacobson	2551 East		Gilbert	Arizona	United States	85233
Allen	First Colorado		Sugar Land	Texas	United States	77478
Alpuerto	Rocky Mountain		Loveland	Colorado	United States	80537
Johnston	Belz Falls		Las Vegas	Nevada	United States	89106
Armstrong	Fox Hill		Culver City	California	United States	90232
Arthur	2345 North		Houston	Texas	United States	77003
Ashton	70 N.W.		Saint Ann	Missouri	United States	63074
Ayers	2533 East		Southgate	Michigan	United States	48195
Booth	Eastern		Las Vegas	Nevada	United States	89106
Bailey	Southgate		Missoula	Montana	United States	59801
Baldwin	Horizon		Holland	Michigan	United States	49423
Banack	48255 I		Baytown	Texas	United States	77520
Barker	6789 Warren Road		Westland	Michigan	United States	48185
Beaver	99300 223rd Southeast		Bothell	Washington	United States	98011
Alan	567 Sw Mccloughlin Blvd		Millwaukie	Oregon	United States	97222

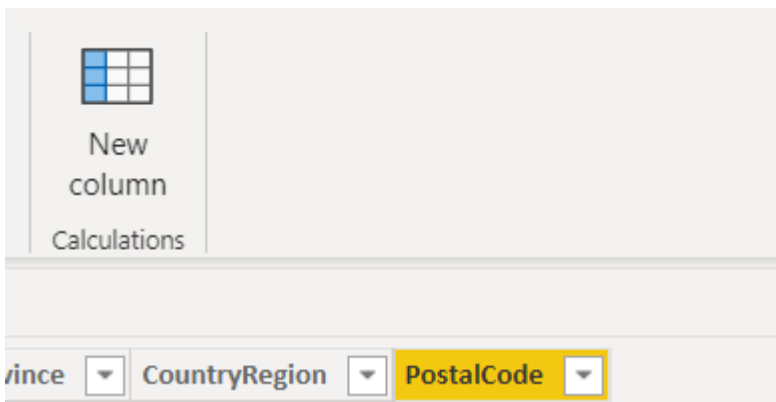
15. Click the **StateProvince** column header.

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.

18. 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]
```



	Company Name	Title	FirstName	LastName	AddressLine1	AddressLine2	City	StateProvince	CountryRegion	PostalCode	FullAddress
	Blue Bicycle Specialists	Mr.	Jay	Adams	Blue Ridge Mall		Kansas City	Missouri	United States	64106	Blue Ridge Mall, Kansas City, Missouri, United States, 64106
	Fun Toys and Bikes	Mr.	Robert	Ahlering	6500 East Grant Road		Tucson	Arizona	United States	85701	6500 East Grant Road, Tucson, Arizona, United States, 85701
	Fast Bikes	Mr.	Francis	Ferrier	Earlridge Mall		Casper	Wyoming	United States	82601	Earlridge Mall, Casper, Wyoming, United States, 82601
	Major Sport Suppliers	Mr.	Paul	Alcorn	White Mountain Mall		Rock Springs	Wyoming	United States	82901	White Mountain Mall, Rock Springs, Wyoming, United States, 82901
	Stemmatic Sales	Mr.	Sean	Jacobson	2551 East Warner Road		Gilbert	Arizona	United States	85233	2551 East Warner Road, Gilbert, Arizona, United States, 85233
	Mountain Toy Store	Mr.	Marvin	Allen	First Colony Mall		Sugar Land	Texas	United States	77478	First Colony Mall, Sugar Land, Texas, United States, 77478
	Old Bike Accessories	Mr.	Oscar	Alpuerto	Rocky Mountain Pine Outlet		Loveland	Colorado	United States	80537	Rocky Mountain Pine Outlet, Loveland, Colorado, United States, 80537
	Lightwork Company	Mr.	Tom	Johnston	Belz Factory Outlet		Las Vegas	Nevada	United States	89106	Belz Factory Outlet, Las Vegas, Nevada, United States, 89106
	Isale Services	Mr.	Thomas	Armstrong	Fox Hills		Culver City	California	United States	90232	Fox Hills, Culver City, California, United States, 90232
	Isa Gear Store	Mr.	John	Arthur	2345 North Freeway		Houston	Texas	United States	77003	2345 North Freeway, Houston, Texas, United States, 77003
	Immense Manufacturing Company	Mr.	Chris	Ashton	70 N.W. Plaza		Saint Ann	Missouri	United States	63074	70 N.W. Plaza, Saint Ann, Missouri, United States, 63074
	York and Play Association	Mr.	Stephen	Ayers	2533 Eureka Rd.		Southgate	Michigan	United States	48195	2533 Eureka Rd., Southgate, Michigan, United States, 48195
	Remarkable Bike Store	Mr.	Cory	Booth	Eastern Beltway Center		Las Vegas	Nevada	United States	89106	Eastern Beltway Center, Las Vegas, Nevada, United States, 89106
	Rad-Way Mart	Mr.	James	Bailey	Southgate Mall		Missoula	Montana	United States	59801	Southgate Mall, Missoula, Montana, United States, 59801
	Wall Cycle Store	Mr.	Douglas	Baldwin	Horizon Outlet Center		Holland	Michigan	United States	49423	Horizon Outlet Center, Holland, Michigan, United States, 49423
	Walmart Stores	Mr.	Wayne	Banack	48255 I-10 E. @ Eastpoint Blvd.		Baytown	Texas	United States	77520	48255 I-10 E. @ Eastpoint Blvd., Baytown, Texas, United States, 77520
	Wickand Cycles	Mr.	Robert	Barker	6789 Warren Road		Westland	Michigan	United States	48185	6789 Warren Road, Westland, Michigan, United States, 48185
	Winter Cycle Shop	Mr.	John	Beaver	99300 223rd Southeast		Bothell	Washington	United States	98011	99300 223rd Southeast, Bothell, Washington, United States, 98011
	Winter Bicycle Company	Mr.	Stanley	Alan	567 Sw McLaughlin Blvd		Milwaukie	Oregon	United States	97222	567 Sw McLaughlin Blvd, Milwaukie, Oregon, United States, 97222
	World Trip Inc	Mr.	Payton	Benson	997000 Telegraph Rd.		Southfield	Michigan	United States	48034	997000 Telegraph Rd., Southfield, Michigan, United States, 48034
	Wre Cycles Shop	Mr.	Robert	Bernacchi	25915 140th Ave Ne		Bellevue	Washington	United States	98004	25915 140th Ave Ne, Bellevue, Washington, United States, 98004
	Wumber 1 Supply	Mr.	Matthias	Berndt			Escondido	California	United States	92025	Escondido, Escondido, California, United States, 92025
	Woff and Cycle Store	Mr.	Steven	Brown	5500 Grossmont Center Drive		La Mesa	California	United States	91941	5500 Grossmont Center Drive, La Mesa, California, United States, 91941
	World Discount Store	Mr.	Jimmy	Bischoff	3065 Santa Margarita Parkway		Trabuco Canyon	California	United States	92679	3065 Santa Margarita Parkway, Trabuco Canyon, California, United States, 92679
	Walton Bike Company	Mr.	Donald	Blanton	Corporate Office		El Segundo	California	United States	90245	Corporate Office, El Segundo, California, United States, 90245
	Wase and Oil Products Company	Mr.	Michael	Blythe	9903 Highway 6 South		Houston	Texas	United States	77003	9903 Highway 6 South, Houston, Texas, United States, 77003
	Ward Bike Store	Mr.	Randall	Boseman	2500 North Stemmons Freeway		Dallas	Texas	United States	75201	2500 North Stemmons Freeway, Dallas, Texas, United States, 75201

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.

32. On the **Modeling** tab, in the **Formatting** group, click **Format: General**, point to **Currency**, and then click **\$ English (United States)**.

OrderDetailID	SalesOrderNumber	MainCategory	Whole number	ProductID	Product	OrderQty	ListPrice	OrderDate	DueDate	ShipDate	SubTotal	LineTotal
110562	5071774	Component	Percentage	836	ML Road Frame-W - Yellow, 48	1	594.83	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	880.3484	\$594.83
110563	5071774	Component	Scientific	832	ML Road Frame-W - Yellow, 38	1	594.83	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	880.3484	\$594.83
110567	5071776	Component		907	Rear Brakes	1	106.5	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	78.81	\$106.50
110620	5071780	Bikes	Mountain Bikes	990	Mountain-500 Black, 42	1	539.99	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	38418.6895	\$539.99
110621	5071780	Components	Mountain Frames	926	LL Mountain Frame - Black, 48	1	249.79	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	38418.6895	\$249.79
110622	5071780	Components	Mountain Frames	743	HL Mountain Frame - Black, 42	1	1349.6	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	38418.6895	\$1,349.60
110626	5071780	Components	Pedals	937	HL Mountain Pedal	1	80.99	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	38418.6895	\$80.99
110628	5071780	Bikes	Mountain Bikes	985	Mountain-500 Silver, 42	1	564.99	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	38418.6895	\$564.99
110631	5071780	Bikes	Mountain Bikes	992	Mountain-500 Black, 48	1	539.99	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	38418.6895	\$539.99
110640	5071780	Components	Handlebars	810	HL Mountain Handlebars	1	120.27	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	38418.6895	\$120.27
110642	5071780	Components	Mountain Frames	925	LL Mountain Frame - Black, 44	1	249.79	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	38418.6895	\$249.79
110644	5071780	Accessories	Hydration Packs	880	Hydration Pack - 70 oz.	1	54.99	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	38418.6895	\$54.99
110659	5071782	Bikes	Touring Bikes	954	Touring-3000 Yellow, 45	1	2384.07	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$2,384.07
110678	5071782	Bikes	Touring Bikes	978	Touring-3000 Blue, 44	1	742.35	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$742.35
110679	5071782	Bikes	Touring Bikes	955	Touring-1000 Yellow, 50	1	2384.07	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$2,384.07
110680	5071782	Components	Brakes	948	Front Brakes	1	106.5	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$106.50
110681	5071782	Components	Bottom Brackets	994	LL Bottom Bracket	1	52.99	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$52.99
110682	5071782	Bikes	Touring Bikes	970	Touring-2000 Blue, 46	1	1214.85	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$1,214.85
110684	5071782	Bikes	Touring Bikes	957	Touring-3000 Yellow, 54	1	2384.07	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$2,384.07
110686	5071782	Bikes	Touring Bikes	963	Touring-3000 Yellow, 60	1	742.35	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$742.35
110695	5071782	Bikes	Touring Bikes	953	Touring-2000 Blue, 60	1	1214.85	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$1,214.85
110699	5071782	Components	Saddles	916	HL Touring Seat/Saddle	1	52.64	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$52.64
110700	5071782	Components	Touring Frames	886	LL Touring Frame - Yellow, 62	1	333.42	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$333.42
110701	5071782	Components	Touring Frames	892	HL Touring Frame - Blue, 54	1	1003.91	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$1,003.91
110702	5071782	Components	Touring Frames	893	HL Touring Frame - Blue, 60	1	1003.91	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$1,003.91
110705	5071782	Clothing	Gloves	859	Half-Finger Gloves, M	1	24.49	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	39785.3304	\$24.49
110719	5071783	Components	Handlebars	813	HL Road Handlebars	1	120.27	6/1/2008 12:00:00 AM	6/13/2008 12:00:00 AM	6/8/2008 12:00:00 AM	83858.4261	\$120.27

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
```


Navigator

Display Options ▾

States.xlsx [2]

Table3

☒ States

States

States	SalesYTD
Alabama	0
Alaska	0
Arizona	0
Arkansas	0
California	444120.48
Colorado	17641.75
Connecticut	0
Delaware	0
District of Columbia	0
Florida	0
Georgia	0
Hawaii	0
Idaho	0
Illinois	0
Indiana	0
Iowa	0
Kansas	0
Kentucky	0
Louisiana	0
Maine	0
Maryland	0
Massachusetts	0
Michigan	0
Minnesota	0

Load

Transform Data

Cancel

4. In the **FIELDS** pane, right-click **States**, click **Rename**, type **Sales by State**, and then press Enter.

States SalesYTD

Alabama	0
Alaska	0
Arizona	0
Arkansas	0
California	444120.48
Colorado	17641.75
Connecticut	0
Delaware	0
District of Columbia	0
Florida	0
Georgia	0
Hawaii	0
Idaho	0
Illinois	0
Indiana	0
Iowa	0
Kansas	0
Kentucky	0
Louisiana	0
Maine	0
Maryland	0
Massachusetts	0
Michigan	0
Minnesota	0
Mississippi	0
Missouri	0
Montana	0
Nebraska	0

Fields

Search

- Customers
- Sales
- Sales by State

5. On the **Home** tab, the **Get Data** arrow, and then click **Web**.

6. In the **From Web** dialog box, in the **URL** box, type [http://en.wikipedia.org/wiki/List of U.S. state abbreviations](http://en.wikipedia.org/wiki/List_of_U.S._state_abbreviations), and then click **OK**.

From Web

☒ Basic ☐ Advanced

URL

http://en.wikipedia.org/wiki/List_of_U.S._state_abbreviations

OK

Cancel

- In the **Navigator** dialog box, select the **Codes and abbreviations for U.S. states, federal district, territories, and other regions** check box, and then click **Load**.
- In the **FIELDS** pane, click **Codes and abbreviations for U.S. states, federal district, territories, and other regions** to display the data. The table has 26 rows at the bottom and 3 rows at the top that are not needed.

Column1	Column2	Column3	Column4	Column5
Codes: ISO 3166 codes (2-letter, 3-letter, and 3-digit)	Codes: ISO 3166 codes (2-letter, 3-letter, and 3-digit)	Codes: ISO 3166 codes (2-letter, 3-letter, and 3-digit)	Codes: ISO 3166 codes (2-letter, 3-letter, and 3-digit)	Codes: ISO 3166 codes (2-letter, 3-letter, and 3-digit)
Name and status of region	Name and status of region	ISO	ANSI	ANSI
United States of America	Federal state	USUSABAD	US	00
Alabama	State	US-AL	AL	01
Alaska	State	US-AK	AK	02
Arizona	State	US-AZ	AZ	04
Arkansas	State	US-AR	AR	05
California	State	US-CA	CA	06
Colorado	State	US-CO	CO	08
Connecticut	State	US-CT	CT	09
Delaware	State	US-DE	DE	10
District of Columbia	Federal district	US-DC	DC	11
Florida	State	US-FL	FL	12
Georgia	State	US-GA	GA	13
Hawaii	State	US-HI	HI	15
Idaho	State	US-ID	ID	16
Illinois	State	US-IL	IL	17
Indiana	State	US-IN	IN	18
Iowa	State	US-IA	IA	19
Kansas	State	US-KS	KS	20
Kentucky	State	US-KY	KY	21
Louisiana	State	US-LA	LA	22
Maine	State	US-ME	ME	23
Maryland	State	US-MD	MD	24
Massachusetts	State	US-MA	MA	25
Michigan	State	US-MI	MI	26

- On the **Home** tab, in the **External data** group, click the **Edit Queries** arrow, and then click **Edit Queries**.
- In Power Query Editor, in the **Queries [4]** pane, click **Codes and abbreviations for U.S. states, federal district, territories, and other regions**.
- On the **Home** tab, in the **Reduce Rows** group, click the **Remove Rows** arrow, and then click **Remove Bottom Rows**.
- In the **Remove Bottom Rows** dialog box, in the **Number of rows** box, type **26**, and then click **OK**.
- On the **Home** tab, in the **Reduce Rows** group, click the **Remove Rows** arrow, and then click **Remove Top Rows**.
- In the **Remove Top Rows** dialog box, in the **Number of rows** box, type **3**, and then click **OK**.
- Click the **ANSI2** column header, and then hold down the Ctrl key while selecting all of the columns to the right. This selects multiple rows.
- Still holding down Ctrl, click the **Name and status of region2** and **Header** columns to include this in the selection.

17. On the **Home** tab, in the **Manage Columns** group, click the **Remove Columns** arrow, and then click **Remove Columns**.
18. In the **QUERY SETTINGS** pane, under **Properties**, in the **Name** box, type **States with Codes**, and then press Enter.
19. On the **Home** tab, in the **Transform** group, click **Use First Row as Headers**.
20. Right-click the **United States of America** column header, click **Rename**, type **State Name**, and then press Enter.
21. Right-click the **US USA 840** column header, click **Rename**, type **State Code Long**, and then press Enter.
22. In the **Queries [4]** pane, click **Sales by State**.
23. On the **Home** tab, click **Combine**, and then click **Merge Queries**.
24. In the **Merge** dialog box, in the **Sales by State** table, click the **States** column.
25. In the list, click **States with Codes**, and then click the **State Name** column.
26. If the **Privacy levels** dialog box appears, in both the right-hand list boxes, click **Organizational**, and then click **Save**.
27. In the **Merge** dialog box, click **OK**. The new column is added to the table and contains the merged **States with Codes** table.
28. If the **Information is required about data privacy** message appears, click **Continue**.
29. In the **States with Codes** column header, click the **Expand** icon, clear **(Select All Columns)**, select **State Code Long**, and then click **OK**. The column now shows just the state codes.
30. Right-click the **States with Codes.State Code Long** column, click **Rename**, type **State Code**, and then press Enter.
31. On the **File** menu, click **Close & Apply**.
32. If the **Apply query changes** dialog box appears, click **Close**.
33. If the **There are pending changes in your queries that haven't been applied** message appears, click **Apply changes**.
34. In the **FIELDS** pane, right-click **States with Codes**, and then click **Hide in report view**.
35. On the **File** menu, click **Save**.
36. Leave Power BI Desktop open for the next exercise.

Exercise 2: Building Power BI Reports

Task 1: Create a Chart

1. In Power BI Desktop, in the left navigation bar, click **Report**.
2. In the **VISUALIZATIONS** pane, click **Gauge**.
3. In the **FIELDS** pane, in the **Sales** table, drag the **LineTotal** field to the **Value** property of the gauge.
4. In the **FIELDS** pane, in the **Sales** table, drag the **TargetSales** measure to the **Target value** property of the gauge.

5. In the **VISUALIZATIONS** pane, click **Format**, expand **Gauge axis**, and then in the **Max** box, type **1460000**.
6. Expand **Title**, in the **Title text** box, type **Target Sales**, and then click **Center**.
7. Click an empty area on the report canvas.
8. In the **FIELDS** pane, in the **Customers** table, drag the **CompanyName** field onto the report.
9. In the **FIELDS** pane, in the **Sales** table, select the **LineTotal** check box.
10. In the **VISUALIZATIONS** pane, click **Pie chart**.
11. Expand the chart to make all of the company names visible by using the resizer handles on the edge of the chart.
12. With the focus still on the pie chart, in the **VISUALIZATIONS** pane, click **Format**, and then click **Title**.
13. In the **Title text** box, type **Top Selling Customers**, and then click **Center**.
14. In the **FIELDS** pane, in the **Sales** table, drag the **MainCategory** field onto the report canvas.
15. In the **FIELDS** pane, in the **Sales** table, drag the **OrderQty** field onto the table.
16. In the **VISUALIZATIONS** pane, click **Stacked bar chart**.
17. In the **VISUALIZATIONS** pane, click **Analytics**, expand **Constant Line**, and then click **Add**.
18. In the **Value** box, type **500**.
19. Change **Color** to red, toggle **Data label** to **On**, and then change the color to **red**.
20. In the **VISUALIZATIONS** pane, click **Format**, and expand **Title**.
21. In the **Title Text** box, type **Orders by Main Category**, and then click **Center**.
22. Click the report canvas to give it focus, and then in the **VISUALIZATIONS** pane, click **Donut chart**.
23. In the **FIELDS** pane, in the **Sales** table, select the **MainCategory** and **LineTotal** check boxes.
24. In the **VISUALIZATIONS** pane, click **Format**, and then expand **Title**.
25. In the **Title Text** box, type **Sales by Main Category**, and then click **Center**.
26. In the **FIELDS** pane, in the **Sales** table, drag the **Product** field onto the report canvas.
27. In the **FIELDS** pane, in the **Sales** table, drag the **LineTotal** field onto the products table chart.
28. In the **FIELDS** pane, in the **Sales** table, select the **MainCategory** check box.
29. In the **VISUALIZATIONS** pane, click **Fields**.
30. In the **Filters** pane, expand **LineTotal is (All)**.
31. In the **Show items when the value** list, click **is greater than**, in the box below, type **32000**, and then click **Apply filter**.
32. Expand **MainCategory is (All)**, and then select the **Bikes** check box.
33. In the **VISUALIZATIONS** pane, click **Stacked column chart**.
34. In the **VISUALIZATIONS** pane, click **Format**, and then expand **Title**.
35. In the **Title Text** box, type **Top Selling Bikes**, and then click **Center**.

36. In the **VISUALIZATIONS** pane, click **Analytics**, expand **Constant Line**, and then click **Add**.
37. In the **Value** box, type **35000**, and then set **Color** to **red**.
38. Toggle **Data label** to **On**, and then set **Color** to **red**.
39. Expand the chart to fill the remaining space on the report canvas. If necessary, move your visuals around to make them fit.
40. On the **File** menu, click **Save**.

Task 2: Create a Map Visualization

1. At the bottom of the report, click the **+** icon to add a new page.
2. In the **FIELDS** pane, in the **Customers** table, select the **City** check box.
3. In the **FIELDS** pane, in the **Sales** table, select the **LineTotal** check box.
4. Using the grabber tool on the right side of the chart, resize the map to show all of the bubbles.
5. Notice that the bubbles are proportionally sized to represent the data.
6. In the **VISUALIZATIONS** pane, click **Format**, and then expand **Title**.
7. In the **Title Text** box, type **World Sales by City**, and then click **Center**.
8. Click the report canvas, and then in the **Sales by State** table, select the **State Code** check box.
9. In the **Sales by State** table, select the **SalesYTD** check box.
10. Using the grabber tool on the right side and at the bottom of the chart, resize the map to show all the states.
11. Notice that the sales cluster in one area.
12. Position the cursor on **US-CA** to see the sales figure. The value has not been formatted as currency.
13. In the **FIELDS** pane, in the **Sales by State** table, click **SalesYTD**.
14. On the **Modeling** tab, click **Format: General**, point to **Currency**, and then click **\$ English (United Stated)**.
15. Position the cursor on **US-CA** on the map, and notice that the value has been formatted.
16. In the **VISUALIZATIONS** pane, click **Format**, and then expand **Title**.
17. In the **Title Text** box, type **Sales by State**, and then click **Center**.
18. On the **File** menu, click **Save**.
19. Close Power BI Desktop, and then close SQL Server Management Studio without saving any changes.