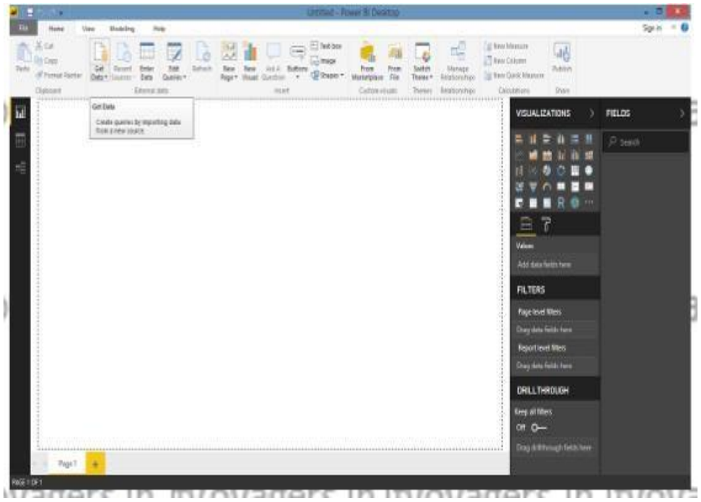
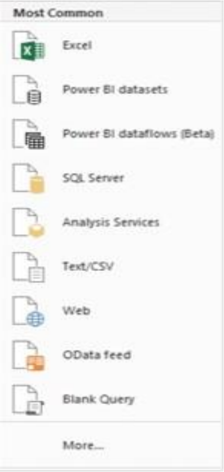
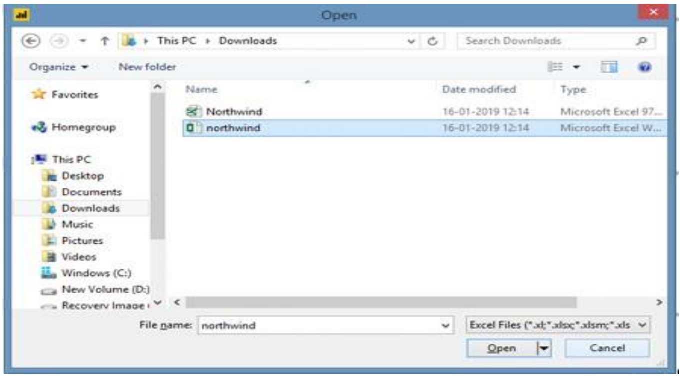
Step 1: Open Power BI



Step 2: Click on Get data following list will be displayed → select Excel



Step 3: Select required file and click on Open, Navigator screen appears

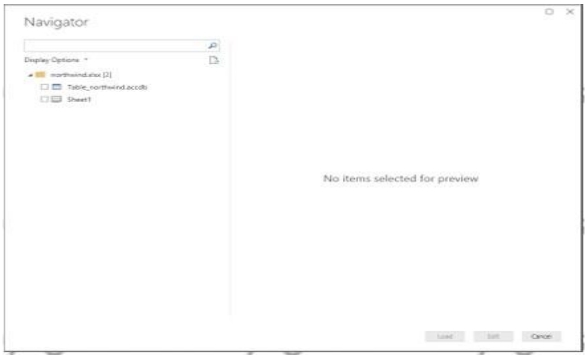


Name	Date modified	Type
Northwind	16-01-2019 12:14	Microsoft Excel 97...
northwind	16-01-2019 12:14	Microsoft Excel W...

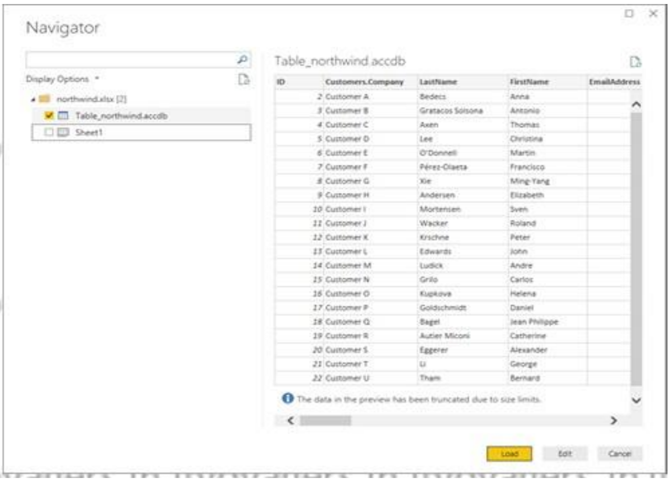
File name: northwind

Excel Files (*.xl;*.xlsx;*.xlsm;*.xls

Step 4: Select file and click on edit



No items selected for preview

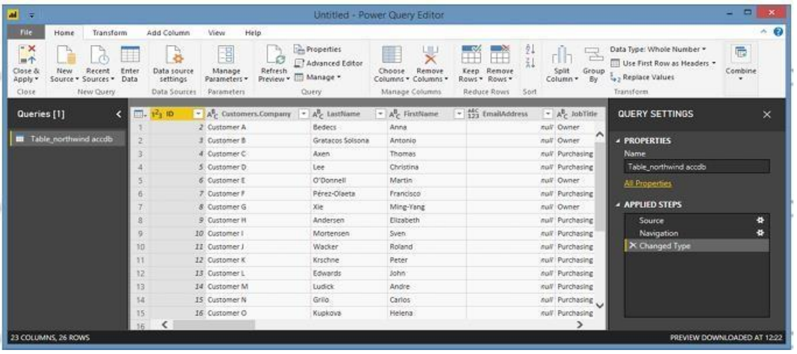


Table_northwind.accdb

ID	Customers.Company	LastName	FirstName	EmailAddress
2	Customer A	Bedecs	Anna	
3	Customer B	Gratacos Solsona	Antonio	
4	Customer C	Axen	Thomas	
5	Customer D	Lee	Christina	
6	Customer E	O'Donnell	Martin	
7	Customer F	Pérez-Olaeta	Francisco	
8	Customer G	Xie	Ming-Yang	
9	Customer H	Andersen	Elizabeth	
10	Customer I	Mortensen	Sven	
11	Customer J	Wacker	Roland	
12	Customer K	Krschne	Peter	
13	Customer L	Edwards	John	
14	Customer M	Ludick	Andre	
15	Customer N	Grilo	Carlos	
16	Customer O	Kupkova	Helena	
17	Customer P	Goldschmidt	Daniel	
18	Customer Q	Bagel	Jean Philippe	
19	Customer R	Autier Miconi	Catherine	
20	Customer S	Eggerer	Alexander	
21	Customer T	Li	George	
22	Customer U	Tham	Bernard	

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

Step 5: Power query editor appears



	ID	Customers.Company	LastName	FirstName	EmailAddress	JobTitle
1	2	Customer A	Bedecs	Anna	null	Owner
2	3	Customer B	Gratacos Solsona	Antonio	null	Owner
3	4	Customer C	Axen	Thomas	null	Purchasing
4	5	Customer D	Lee	Christina	null	Purchasing
5	6	Customer E	O'Donnell	Martin	null	Owner
6	7	Customer F	Pérez-Olaeta	Francisco	null	Purchasing
7	8	Customer G	Xie	Ming-Yang	null	Owner
8	9	Customer H	Andersen	Elizabeth	null	Purchasing
9	10	Customer I	Mortensen	Sven	null	Purchasing
10	11	Customer J	Wacker	Roland	null	Purchasing
11	12	Customer K	Krschne	Peter	null	Purchasing
12	13	Customer L	Edwards	John	null	Purchasing
13	14	Customer M	Ludick	Andre	null	Purchasing
14	15	Customer N	Grilo	Carlos	null	Purchasing
15	16	Customer O	Kupkova	Helena	null	Purchasing
16						

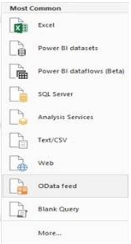
Name: Table_northwind accdb

- Source
- Navigation
- Changed Type

23 COLUMNS, 26 ROWS

PREVIEW DOWNLOADED AT 12:22

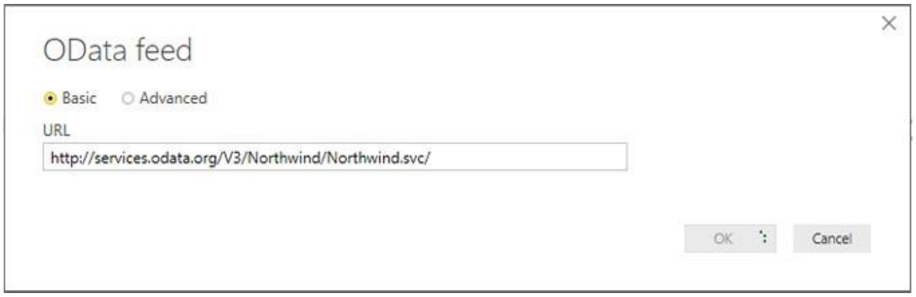
Step 6: Again, go to Get Data and select OData feed



Step 7: Paste url as

http://services.odata.org/V3/Northwind/Northwind.svc/

Click on ok



OData feed

● Basic ○ Advanced

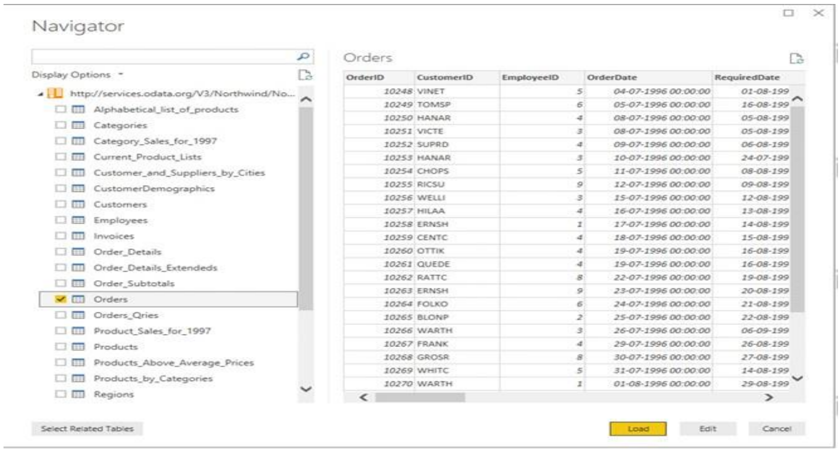
URL

http://services.odata.org/V3/Northwind/Northwind.svc/

Step 8: Select orders table and click on edit

Note: If you just want to see preview you can just click on table name without clicking on checkbox

Click on edit to view table



Navigator

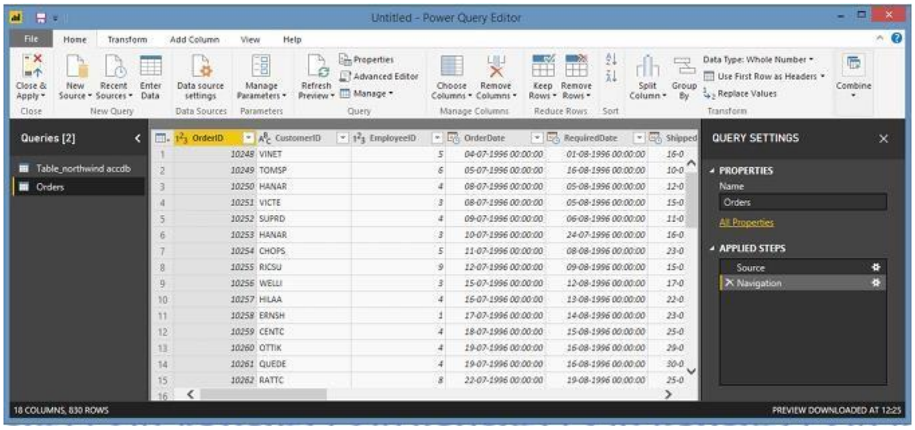
Display Options

http://services.odata.org/V3/Northwind/No...

- □ Alphabetical_list_of_products
- □ Categories
- □ Category_Sales_for_1997
- □ Current_Product_Lists
- □ Customer_and_Suppliers_by_Cities
- □ CustomerDemographics
- □ Customers
- □ Employees
- □ Invoices
- □ Order_Details
- □ Order_Details_Extendeds
- □ Order_Subtotals
- ☑ Orders
- □ Orders_Qries
- □ Product_Sales_for_1997
- □ Products
- □ Products_Above_Average_Prices
- □ Products_by_Categories
- □ Regions

Orders

OrderID	CustomerID	EmployeeID	OrderDate	RequiredDate
10248	VINET	5	04-07-1996 00:00:00	01-08-199
10249	TOMSP	6	05-07-1996 00:00:00	16-08-199
10250	HANAR	4	08-07-1996 00:00:00	05-08-199
10251	VICTE	3	08-07-1996 00:00:00	05-08-199
10252	SUPRD	4	09-07-1996 00:00:00	06-08-199
10253	HANAR	3	10-07-1996 00:00:00	24-07-199
10254	CHOPS	5	11-07-1996 00:00:00	08-08-199
10255	RICSU	9	12-07-1996 00:00:00	09-08-199
10256	WELLI	3	15-07-1996 00:00:00	12-08-199
10257	HILAA	4	16-07-1996 00:00:00	13-08-199
10258	ERNSH	1	17-07-1996 00:00:00	14-08-199
10259	CENTC	4	18-07-1996 00:00:00	15-08-199
10260	OTTIK	4	19-07-1996 00:00:00	16-08-199
10261	QUEDE	4	19-07-1996 00:00:00	16-08-199
10262	RATTC	8	22-07-1996 00:00:00	19-08-199
10263	ERNSH	9	23-07-1996 00:00:00	20-08-199
10264	FOLKO	6	24-07-1996 00:00:00	21-08-199
10265	BLONP	2	25-07-1996 00:00:00	22-08-199
10266	WARTH	3	26-07-1996 00:00:00	06-09-199
10267	FRANK	4	29-07-1996 00:00:00	26-08-199
10268	GROSR	8	30-07-1996 00:00:00	27-08-199
10269	WHITC	5	31-07-1996 00:00:00	14-08-199
10270	WARTH	1	01-08-1996 00:00:00	29-08-199



Untitled - Power Query Editor

Queries [2]

- Table_northwind accdb
- Orders

	OrderID	CustomerID	EmployeeID	OrderDate	RequiredDate	Shipped
1	10248	VINET	5	04-07-1996 00:00:00	01-08-1996 00:00:00	16-0
2	10249	TOMSP	6	05-07-1996 00:00:00	16-08-1996 00:00:00	10-0
3	10250	HANAR	4	08-07-1996 00:00:00	05-08-1996 00:00:00	12-0
4	10251	VICTE	3	08-07-1996 00:00:00	05-08-1996 00:00:00	15-0
5	10252	SUPRD	4	09-07-1996 00:00:00	06-08-1996 00:00:00	11-0
6	10253	HANAR	3	10-07-1996 00:00:00	24-07-1996 00:00:00	16-0
7	10254	CHOPS	5	11-07-1996 00:00:00	08-08-1996 00:00:00	23-0
8	10255	RICSU	9	12-07-1996 00:00:00	09-08-1996 00:00:00	15-0
9	10256	WELLI	3	15-07-1996 00:00:00	12-08-1996 00:00:00	17-0
10	10257	HILAA	4	16-07-1996 00:00:00	13-08-1996 00:00:00	22-0
11	10258	ERNSH	1	17-07-1996 00:00:00	14-08-1996 00:00:00	23-0
12	10259	CENTC	4	18-07-1996 00:00:00	15-08-1996 00:00:00	25-0
13	10260	OTTIK	4	19-07-1996 00:00:00	16-08-1996 00:00:00	29-0
14	10261	QUEDE	4	19-07-1996 00:00:00	16-08-1996 00:00:00	30-0
15	10262	RATTC	8	22-07-1996 00:00:00	19-08-1996 00:00:00	25-0
16						

QUERY SETTINGS

PROPERTIES

Name: Orders

All Properties

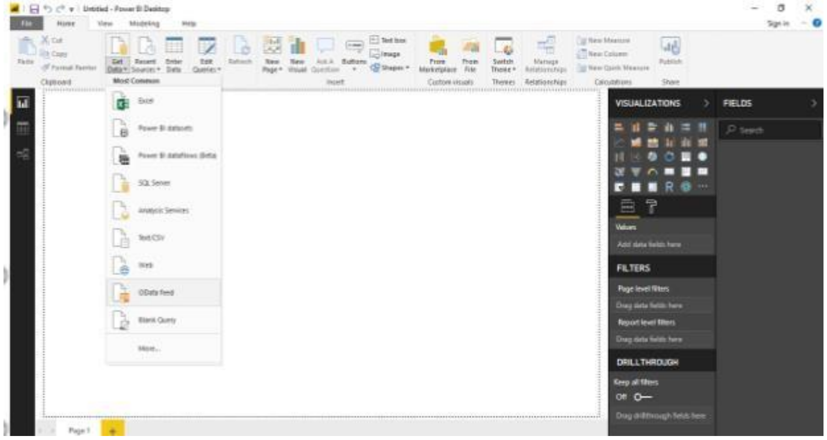
APPLIED STEPS

- Source
- Navigation

18 COLUMNS, 830 ROWS

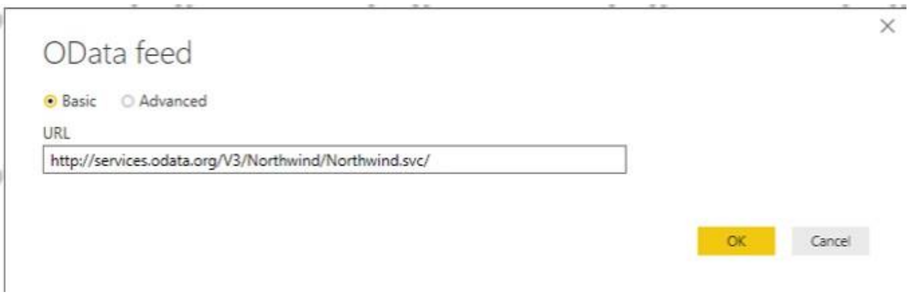
PREVIEW DOWNLOADED AT 12:25

Step 1: Open Power BI, Click on Get Data → OData Feed



Paste Url : http://services.odata.org/V3/Northwind/Northwind.svc/

And Click OK



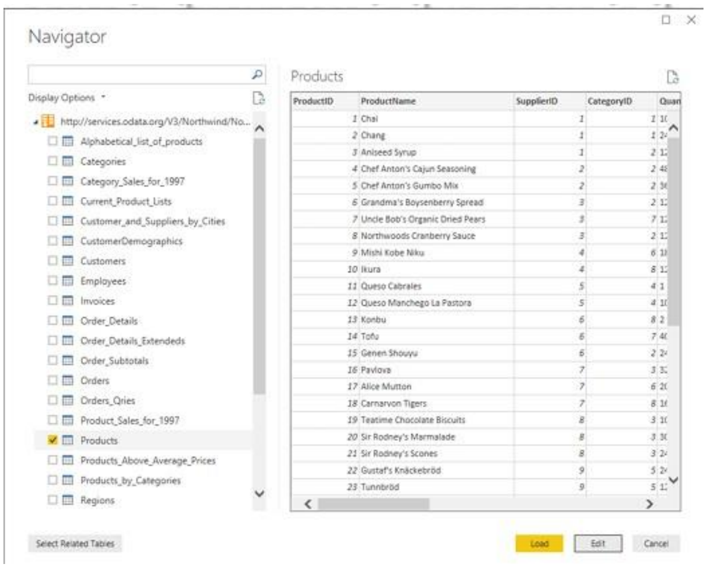
OData feed

● Basic ○ Advanced

URL

http://services.odata.org/V3/Northwind/Northwind.svc/

Step 2: Click on Check Box of Products table and then click on Edit



Navigator

Display Options

http://services.odata.org/V3/Northwind/No...

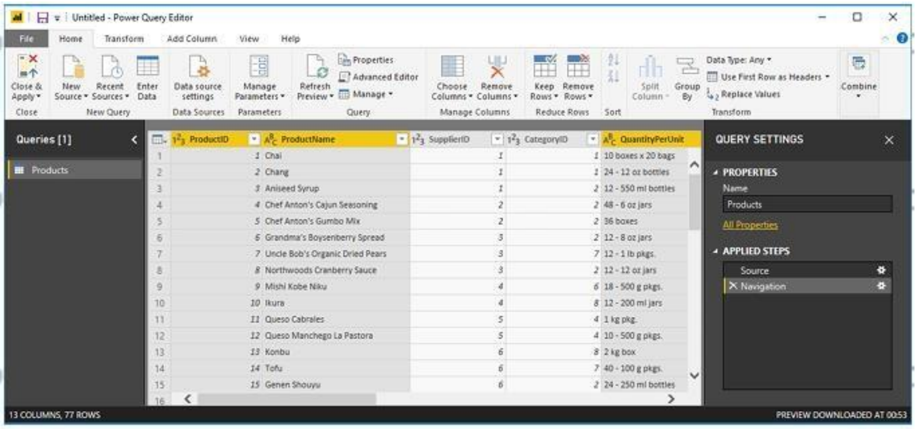
- □ Alphabetical_list_of_products
- □ Categories
- □ Category_Sales_for_1997
- □ Current_Product_Lists
- □ Customer_and_Suppliers_by_Cities
- □ CustomerDemographics
- □ Customers
- □ Employees
- □ Invoices
- □ Order_Details
- □ Order_Details_Extendeds
- □ Order_Subtotals
- □ Orders
- □ Orders_Qries
- □ Product_Sales_for_1997
- ☑ Products
- □ Products_Above_Average_Prices
- □ Products_by_Categories
- □ Regions

Products

ProductID	ProductName	SupplierID	CategoryID	Quan
1	Chai	1	1	10
2	Chang	1	1	24
3	Aniseed Syrup	1	2	12
4	Chef Anton's Cajun Seasoning	2	2	48
5	Chef Anton's Gumbo Mix	2	2	36
6	Grandma's Boysenberry Spread	3	2	12
7	Uncle Bob's Organic Dried Pears	3	7	12
8	Northwoods Cranberry Sauce	3	2	12
9	Mishi Kobe Niku	4	6	18
10	Ikura	4	8	12
11	Queso Cabrales	5	4	1
12	Queso Manchego La Pastora	5	4	10
13	Konbu	6	8	2
14	Tofu	6	7	40
15	Genen Shouyu	6	2	24
16	Pavlova	7	3	32
17	Alice Mutton	7	6	20
18	Carnarvon Tigers	7	8	16
19	Teatime Chocolate Biscuits	8	3	10
20	Sir Rodney's Marmalade	8	3	30
21	Sir Rodney's Scones	8	3	24
22	Gustaf's Knäckebröd	9	5	24
23	Tunnbröd	9	5	12

1) Remove other columns to only display columns of interest

In Query Editor, select the ProductID, ProductName, QuantityPerUnit, and UnitsInStock columns (use Ctrl+Click to select more than one column, or Shift+Click to select columns that are beside each other).



	ProductID	ProductName	SupplierID	CategoryID	QuantityPerUnit
1	1	Chai	1	1	10 boxes x 20 bags
2	2	Chang	1	1	24 - 12 oz bottles
3	3	Aniseed Syrup	1	2	12 - 550 ml bottles
4	4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars
5	5	Chef Anton's Gumbo Mix	2	2	36 boxes
6	6	Grandma's Boysenberry Spread	3	2	12 - 8 oz jars
7	7	Uncle Bob's Organic Dried Pears	3	7	12 - 1 lb pkgs.
8	8	Northwoods Cranberry Sauce	3	2	12 - 12 oz jars
9	9	Mishi Kobe Niku	4	6	18 - 500 g pkgs.
10	10	Ikura	4	8	12 - 200 ml jars
11	11	Queso Cabrales	5	4	1 kg pkg.
12	12	Queso Manchego La Pastora	5	4	10 - 500 g pkgs.
13	13	Konbu	6	8	2 kg box
14	14	Tofu	6	7	40 - 100 g pkgs.
15	15	Genen Shouyu	6	2	24 - 250 ml bottles

Name: Products

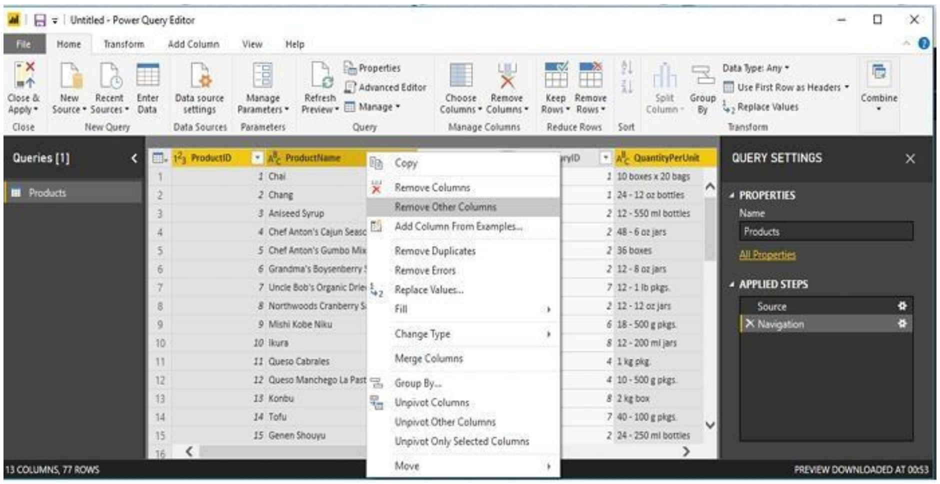
Source

Navigation

13 COLUMNS, 77 ROWS

PREVIEW DOWNLOADED AT 00:53

Select Remove Columns > Remove Other Columns from the ribbon, or right click on a column header and click Remove Other Columns



Name: Products

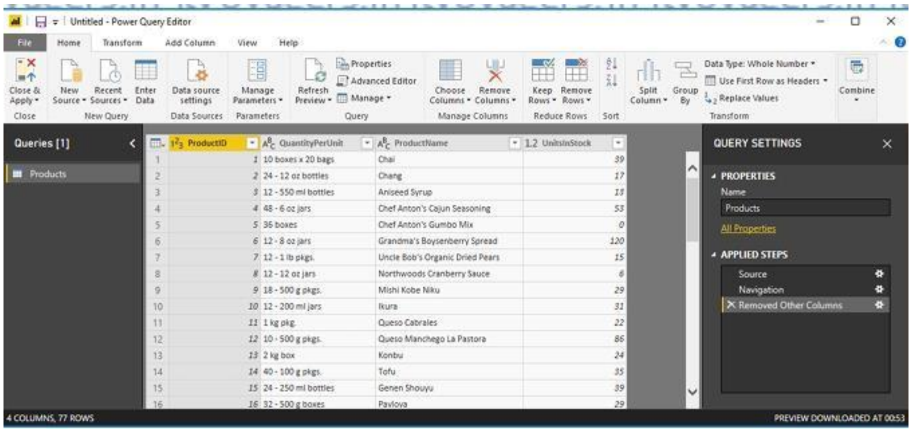
Source

Navigation

13 COLUMNS, 77 ROWS

PREVIEW DOWNLOADED AT 00:53

After selecting Remove Other Columns only selected four columns are displayed other columns are discarded.



	ProductID	QuantityPerUnit	ProductName	UnitsInStock
1	1	10 boxes x 20 bags	Chai	39
2	2	24 - 12 oz bottles	Chang	17
3	3	12 - 550 ml bottles	Aniseed Syrup	13
4	4	48 - 6 oz jars	Chef Anton's Cajun Seasoning	53
5	5	36 boxes	Chef Anton's Gumbo Mix	0
6	6	12 - 8 oz jars	Grandma's Boysenberry Spread	120
7	7	12 - 1 lb pkgs.	Uncle Bob's Organic Dried Pears	15
8	8	12 - 12 oz jars	Northwoods Cranberry Sauce	6
9	9	18 - 500 g pkgs.	Mishi Kobe Niku	29
10	10	12 - 200 ml jars	Ikura	31
11	11	1 kg pkg.	Queso Cabrales	22
12	12	10 - 500 g pkgs.	Queso Manchego La Pastora	86
13	13	2 kg box	Konbu	24
14	14	40 - 100 g pkgs.	Tofu	35
15	15	24 - 250 ml bottles	Genen Shouyu	39
16	16	32 - 500 g boxes	Pavlova	29

Name: Products

Source

Navigation

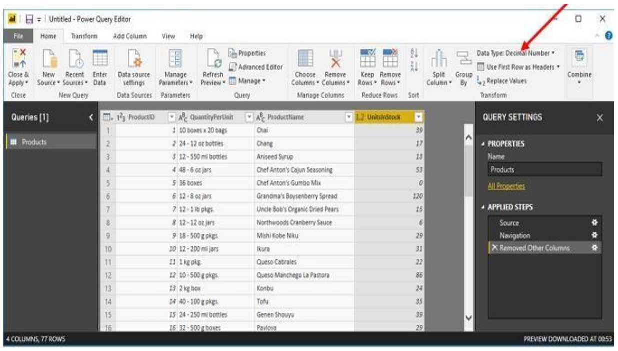
Removed Other Columns

4 COLUMNS, 77 ROWS

PREVIEW DOWNLOADED AT 00:53

Change the data type of the UnitsInStock column

a) Select the UnitsInStock column.



	ProductID	QuantityPerUnit	ProductName	UnitsInStock
1	1	10 boxes x 20 bags	Chai	39
2	2	24 - 12 oz bottles	Chang	17
3	3	12 - 550 ml bottles	Aniseed Syrup	13
4	4	48 - 6 oz jars	Chef Anton's Cajun Seasoning	53
5	5	36 boxes	Chef Anton's Gumbo Mix	0
6	6	12 - 8 oz jars	Grandma's Boysenberry Spread	120
7	7	12 - 1 lb pkgs.	Uncle Bob's Organic Dried Pears	15
8	8	12 - 12 oz jars	Northwoods Cranberry Sauce	6
9	9	18 - 500 g pkgs.	Mishi Kobe Niku	29
10	10	12 - 200 ml jars	Ikura	31
11	11	1 kg pkg.	Queso Cabrales	22
12	12	10 - 500 g pkgs.	Queso Manchego La Pastora	86
13	13	2 kg box	Konbu	24
14	14	40 - 100 g pkgs.	Tofu	35
15	15	24 - 250 ml bottles	Genen Shouyu	39
16	16	32 - 500 g boxes	Pavlova	29

Name: Products

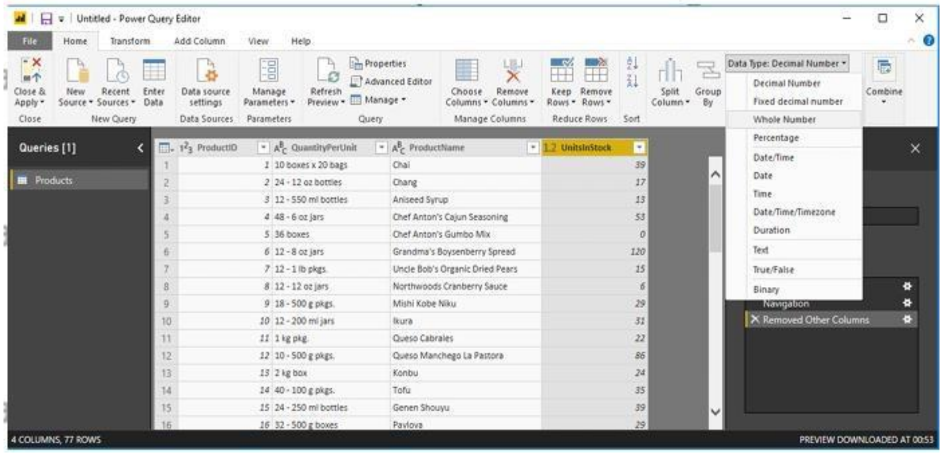
APPLIED STEPS: Source, Navigation, Removed Other Columns

4 COLUMNS, 77 ROWS

PREVIEW DOWNLOADED AT 00:53

b) Select the Data Type drop-down button in the Home ribbon.

c) If not already a Whole Number, select Whole Number for data type from the drop down (the Data Type: button also displays the data type for the current selection).



	ProductID	QuantityPerUnit	ProductName	UnitsInStock
1	1	10 boxes x 20 bags	Chai	39
2	2	24 - 12 oz bottles	Chang	17
3	3	12 - 550 ml bottles	Aniseed Syrup	13
4	4	48 - 6 oz jars	Chef Anton's Cajun Seasoning	53
5	5	36 boxes	Chef Anton's Gumbo Mix	0
6	6	12 - 8 oz jars	Grandma's Boysenberry Spread	120
7	7	12 - 1 lb pkgs.	Uncle Bob's Organic Dried Pears	15
8	8	12 - 12 oz jars	Northwoods Cranberry Sauce	6
9	9	18 - 500 g pkgs.	Mishi Kobe Niku	29
10	10	12 - 200 ml jars	Ikura	31
11	11	1 kg pkg.	Queso Cabrales	22
12	12	10 - 500 g pkgs.	Queso Manchego La Pastora	86
13	13	2 kg box	Konbu	24
14	14	40 - 100 g pkgs.	Tofu	35
15	15	24 - 250 ml bottles	Genen Shouyu	39
16	16	32 - 500 g boxes	Pavlova	29

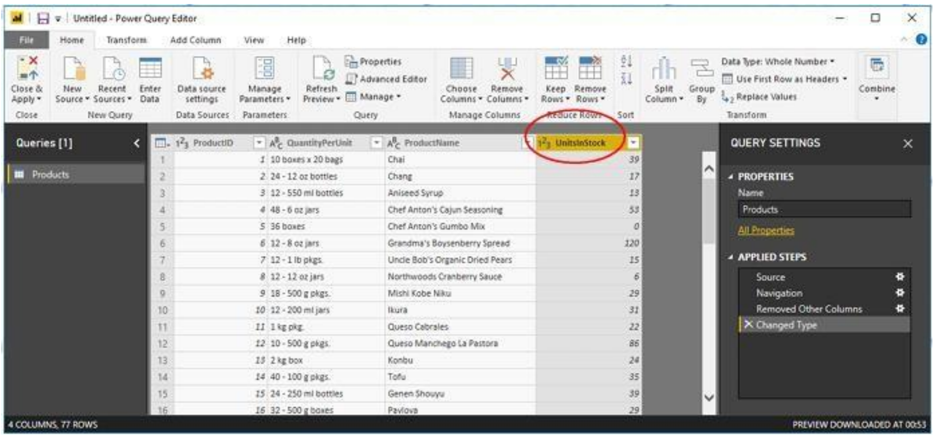
Navigation

Removed Other Columns

4 COLUMNS, 77 ROWS

PREVIEW DOWNLOADED AT 00:53

After clicking on Whole number, you can see the changed Datatype in column headerof UnitsInStock



	ProductID	QuantityPerUnit	ProductName	UnitsInStock
1	1	10 boxes x 20 bags	Chai	39
2	2	24 - 12 oz bottles	Chang	17
3	3	12 - 550 ml bottles	Aniseed Syrup	13
4	4	48 - 6 oz jars	Chef Anton's Cajun Seasoning	53
5	5	36 boxes	Chef Anton's Gumbo Mix	0
6	6	12 - 8 oz jars	Grandma's Boysenberry Spread	120
7	7	12 - 1 lb pkgs.	Uncle Bob's Organic Dried Pears	15
8	8	12 - 12 oz jars	Northwoods Cranberry Sauce	6
9	9	18 - 500 g pkgs.	Mishi Kobe Niku	29
10	10	12 - 200 ml jars	Ikura	31
11	11	1 kg pkg.	Queso Cabrales	22
12	12	10 - 500 g pkgs.	Queso Manchego La Pastora	86
13	13	2 kg box	Konbu	24
14	14	40 - 100 g pkgs.	Tofu	35
15	15	24 - 250 ml bottles	Genen Shouyu	39
16	16	32 - 500 g boxes	Pavlova	29

Name: Products

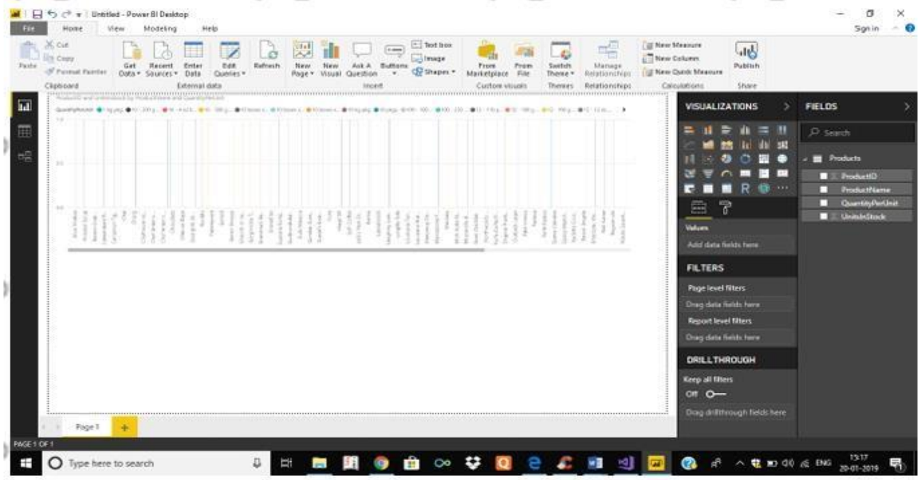
APPLIED STEPS: Source, Navigation, Removed Other Columns, Changed Type

4 COLUMNS, 77 ROWS

PREVIEW DOWNLOADED AT 00:53

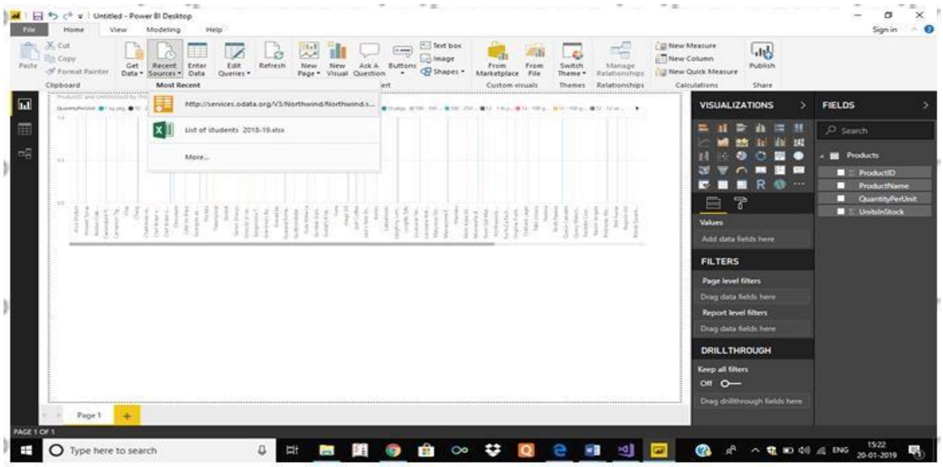
After above step, close query editor and click on Yes to save changes.

Now you can view fields of Products table on right side, check all the fields of table to get representation in charts form.

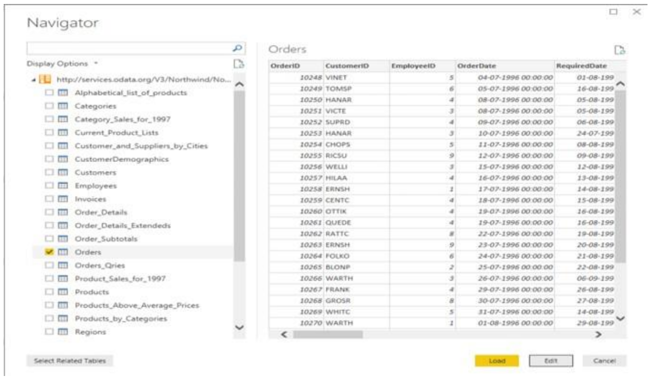


3. Expand the Orders table

   Once You have loaded a data source, you can click on Recent Sources to select desired table (Orders).



After selecting the URL, Navigator window will appear from which you can select Orders table.
Click on Edit.



http://services.odata.org/V3/Northwind/No...

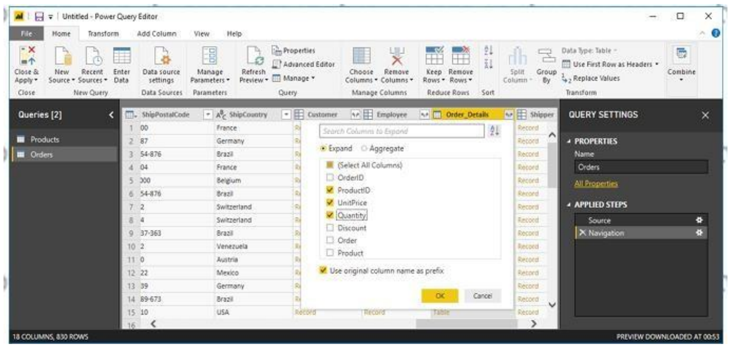
- ☐ Alphabetical_list_of_products
- ☐ Categories
- ☐ Category_Sales_for_1997
- ☐ Current_Product_Lists
- ☐ Customer_and_Suppliers_by_Cities
- ☐ CustomerDemographics
- ☐ Customers
- ☐ Employees
- ☐ Invoices
- ☐ Order_Details
- ☐ Order_Details_Extendeds
- ☐ Order_Subtotals
- ☑ Orders
- ☐ Orders_Qries
- ☐ Product_Sales_for_1997
- ☐ Products
- ☐ Products_Above_Average_Prices
- ☐ Products_by_Categories
- ☐ Regions

Orders

OrderID	CustomerID	EmployeeID	OrderDate	RequiredDate
10248	VINET	5	04-07-1996 00:00:00	01-08-199
10249	TOMSP	6	05-07-1996 00:00:00	16-08-199
10250	HANAR	4	08-07-1996 00:00:00	05-08-199
10251	VICTE	3	08-07-1996 00:00:00	05-08-199
10252	SUPRD	4	09-07-1996 00:00:00	06-08-199
10253	HANAR	3	10-07-1996 00:00:00	24-07-199
10254	CHOPS	5	11-07-1996 00:00:00	08-08-199
10255	RICSU	9	12-07-1996 00:00:00	09-08-199
10256	WELLI	3	15-07-1996 00:00:00	12-08-199
10257	HILAA	4	16-07-1996 00:00:00	13-08-199
10258	ERNSH	1	17-07-1996 00:00:00	14-08-199
10259	CENTC	4	18-07-1996 00:00:00	15-08-199
10260	OTTIK	4	19-07-1996 00:00:00	16-08-199
10261	QUEDE	4	19-07-1996 00:00:00	16-08-199
10262	RATTC	8	22-07-1996 00:00:00	19-08-199
10263	ERNSH	9	23-07-1996 00:00:00	20-08-199
10264	FOLKO	6	24-07-1996 00:00:00	21-08-199
10265	BLONP	2	25-07-1996 00:00:00	22-08-199
10266	WARTH	3	26-07-1996 00:00:00	06-09-199
10267	FRANK	4	29-07-1996 00:00:00	26-08-199
10268	GROSR	8	30-07-1996 00:00:00	27-08-199
10269	WHITC	5	31-07-1996 00:00:00	14-08-199
10270	WARTH	1	01-08-1996 00:00:00	29-08-199

Query Editor Window will appear

1. In the Query View, scroll to the Order_Details column.
2. In the Order_Details column, select the expand icon.
3. In the Expand drop-down:
   a. Select (Select All Columns) to clear all columns.
   b. Select ProductID, UnitPrice, and Quantity.
   c. Click OK.



	ShipPostalCode	ShipCountry	Customer	Employee	Order_Details	Shipper
1	00	France				Record
2	87	Germany				Record
3	54-876	Brazil				Record
4	04	France				Record
5	300	Belgium				Record
6	54-876	Brazil				Record
7	2	Switzerland				Record
8	4	Switzerland				Record
9	37-363	Brazil				Record
10	2	Venezuela				Record
11	0	Austria				Record
12	22	Mexico				Record
13	39	Germany				Record
14	89-673	Brazil				Record
15	10	USA	Record	Record	Table	Record

Search Columns to Expand

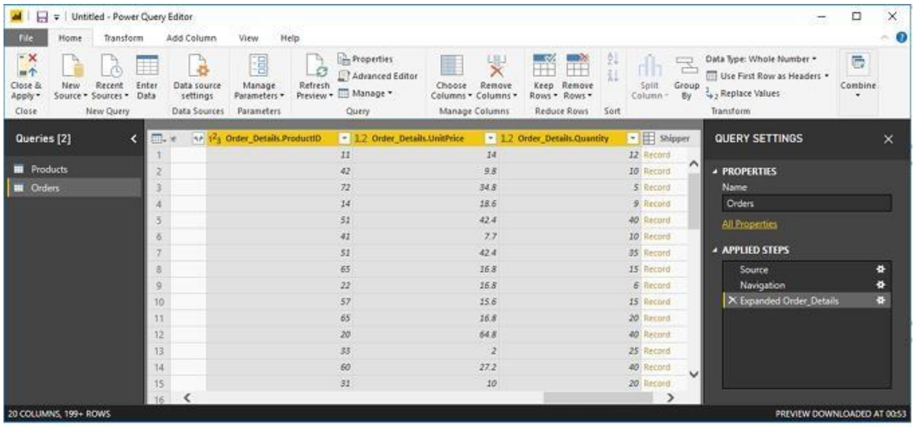
● Expand ○ Aggregate

■ (Select All Columns)
☐ OrderID
☑ ProductID
☑ UnitPrice
☑ Quantity
☐ Discount
☐ Order
☐ Product

☑ Use original column name as prefix

OK Cancel

After clicking on OK following screen appears with combined columns



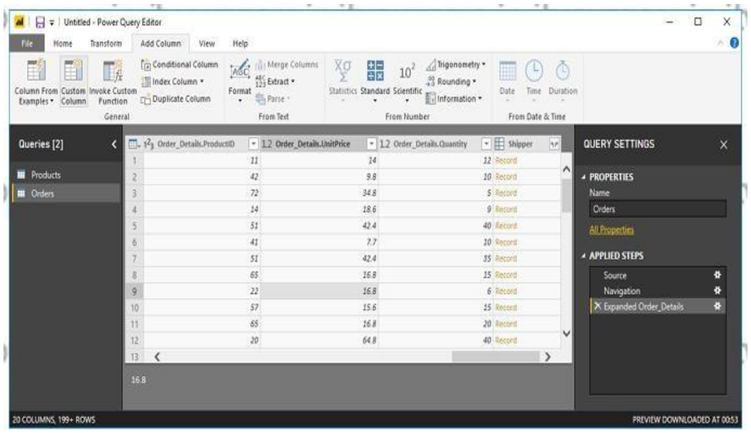
	Order_Details.ProductID	Order_Details.UnitPrice	Order_Details.Quantity	Shipper
1	11	14	12	Record
2	42	9.8	10	Record
3	72	34.8	5	Record
4	14	18.6	9	Record
5	51	42.4	40	Record
6	41	7.7	10	Record
7	51	42.4	35	Record
8	65	16.8	15	Record
9	22	16.8	6	Record
10	57	15.6	15	Record
11	65	16.8	20	Record
12	20	64.8	40	Record
13	33	2	25	Record
14	60	27.2	40	Record
15	31	10	20	Record

4. Calculate the line total for each Order_Details row

Power BI Desktop lets you to create calculations based on the columns you are importing, so you can enrich the data that you connect to. In this step, you create a Custom Column to calculate the line total for each Order_Details row.

Calculate the line total for each Order_Details row:

a) In the Add Column ribbon tab, click Add Custom Column.



Name: Orders

APPLIED STEPS: Source; Navigation; Expanded Order_Details

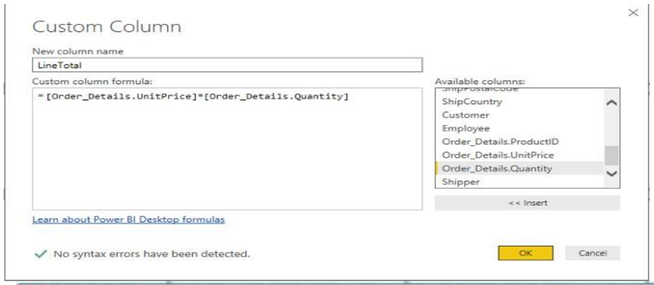
	Order_Details.ProductID	Order_Details.UnitPrice	Order_Details.Quantity	Shipper
1	11	14	12	Record
2	42	9.8	10	Record
3	72	34.8	5	Record
4	14	18.6	9	Record
5	51	42.4	40	Record
6	41	7.7	10	Record
7	51	42.4	35	Record
8	65	16.8	15	Record
9	22	16.8	6	Record
10	57	15.6	15	Record
11	65	16.8	20	Record
12	20	64.8	40	Record

16.8

b) In the Custom Column dialog box, in the Custom Column Formula textbox, enter [Order_Details.UnitPrice] * [Order_Details.Quantity] by selecting from available columns and click on insert for each column.

c) In the New column name textbox, enter LineTotal.

d) Click OK.



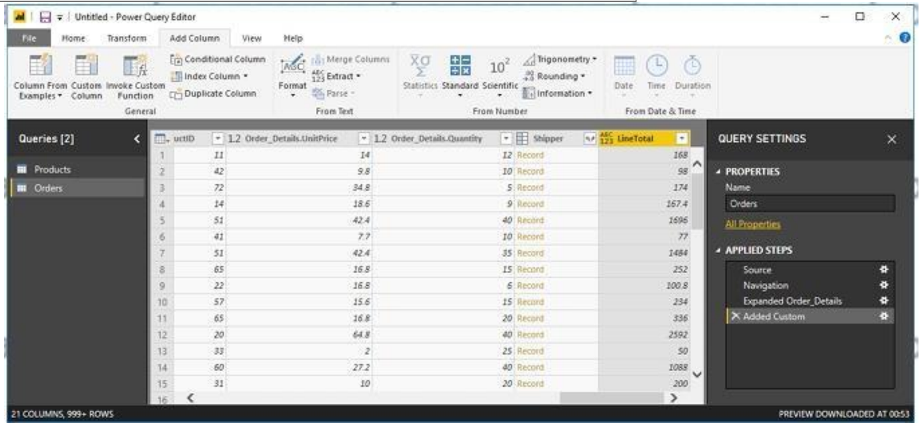
New column name: LineTotal

Custom column formula:

```
= [Order_Details.UnitPrice]*[Order_Details.Quantity]
```

Available columns: ShipCountry, Customer, Employee, Order_Details.ProductID, Order_Details.UnitPrice, Order_Details.Quantity, Shipper

No syntax errors have been detected.



Name: Orders

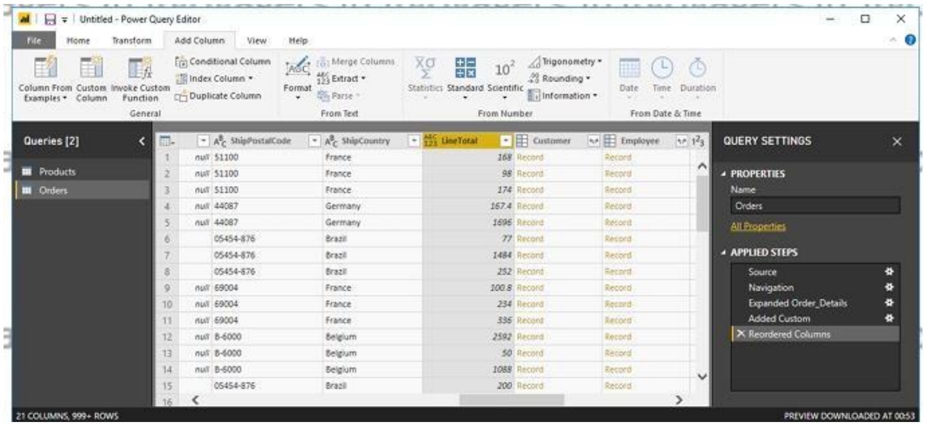
APPLIED STEPS: Source; Navigation; Expanded Order_Details; Added Custom

	uctID	Order_Details.UnitPrice	Order_Details.Quantity	Shipper	LineTotal
1	11	14	12	Record	168
2	42	9.8	10	Record	98
3	72	34.8	5	Record	174
4	14	18.6	9	Record	167.4
5	51	42.4	40	Record	1696
6	41	7.7	10	Record	77
7	51	42.4	35	Record	1484
8	65	16.8	15	Record	252
9	22	16.8	6	Record	100.8
10	57	15.6	15	Record	234
11	65	16.8	20	Record	336
12	20	64.8	40	Record	2592
13	33	2	25	Record	50
14	60	27.2	40	Record	1088
15	31	10	20	Record	200

5. Rename and reorder columns in the query

In this step you finish making the model easy to work with when creating reports, by renaming the final columns and changing their order.

a) In Query Editor, drag the LineTotal column to the left, after ShipCountry.



Queries [2]

- Products
- Orders

		ShipPostalCode	ShipCountry	LineTotal	Customer	Employee
1	null	51100	France	168	Record	Record
2	null	51100	France	98	Record	Record
3	null	51100	France	174	Record	Record
4	null	44087	Germany	167.4	Record	Record
5	null	44087	Germany	1696	Record	Record
6		05454-876	Brazil	77	Record	Record
7		05454-876	Brazil	1484	Record	Record
8		05454-876	Brazil	252	Record	Record
9	null	69004	France	100.8	Record	Record
10	null	69004	France	234	Record	Record
11	null	69004	France	336	Record	Record
12	null	B-6000	Belgium	2592	Record	Record
13	null	B-6000	Belgium	50	Record	Record
14	null	B-6000	Belgium	1088	Record	Record
15		05454-876	Brazil	200	Record	Record

QUERY SETTINGS

PROPERTIES

Name: Orders

All Properties

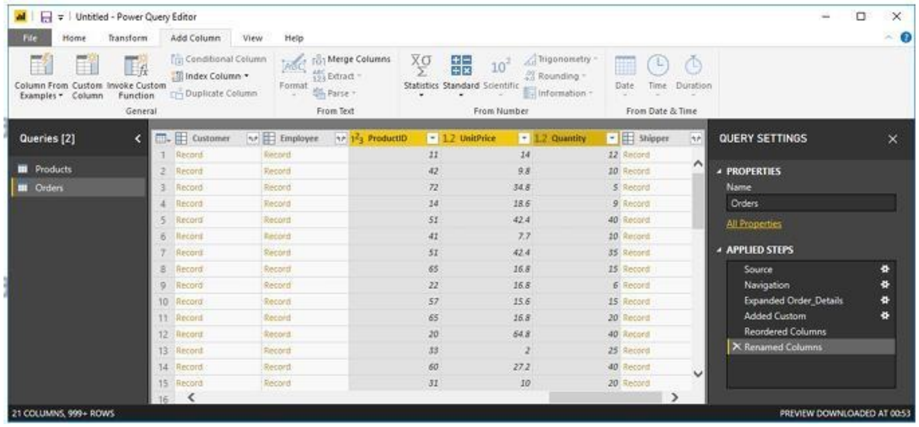
APPLIED STEPS

- Source
- Navigation
- Expanded Order_Details
- Added Custom
- Reordered Columns

21 COLUMNS, 999+ ROWS

PREVIEW DOWNLOADED AT 00:53

b) Remove the Order_Details. prefix from the Order_Details.ProductID, Order_Details.UnitPrice and Order_Details.Quantity columns, by double-clicking on each column header, and then deleting that text from the column name.



Queries [2]

- Products
- Orders

	Customer	Employee	ProductID	UnitPrice	Quantity	Shipper
1	Record	Record	11	14	12	Record
2	Record	Record	42	9.8	10	Record
3	Record	Record	72	34.8	5	Record
4	Record	Record	14	18.6	9	Record
5	Record	Record	51	42.4	40	Record
6	Record	Record	41	7.7	10	Record
7	Record	Record	51	42.4	35	Record
8	Record	Record	65	16.8	15	Record
9	Record	Record	22	16.8	6	Record
10	Record	Record	57	15.6	15	Record
11	Record	Record	65	16.8	20	Record
12	Record	Record	20	64.8	40	Record
13	Record	Record	33	2	25	Record
14	Record	Record	60	27.2	40	Record
15	Record	Record	31	10	20	Record

QUERY SETTINGS

PROPERTIES

Name: Orders

All Properties

APPLIED STEPS

- Source
- Navigation
- Expanded Order_Details
- Added Custom
- Reordered Columns
- Renamed Columns

21 COLUMNS, 999+ ROWS

PREVIEW DOWNLOADED AT 00:53

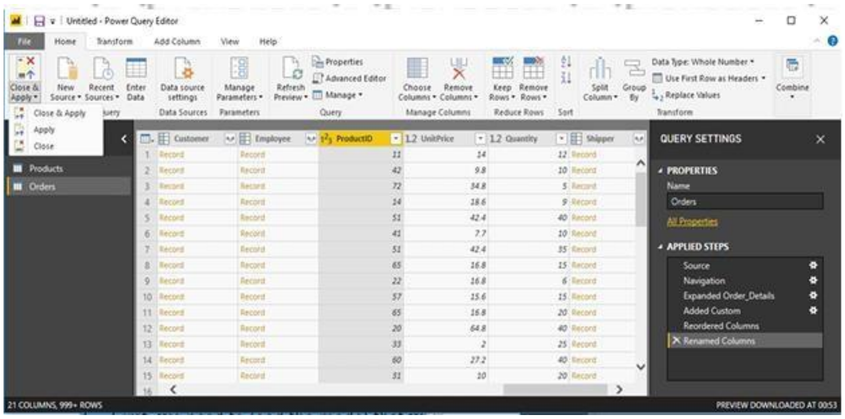
4. Combine the Products and Total Sales queries

Power BI Desktop does not require you to combine queries to report on them. Instead, you can create relationships between datasets. These relationships can be created on any column that is common to your datasets.

We have Orders and Products data that share a common 'ProductID' field, so we need to ensure there's a relationship between them in the model we're using with Power BI Desktop. Simply specify in Power BI Desktop that the columns from each table are related (i.e. columns that have the same values). Power BI Desktop works out the direction and cardinality of the relationship for you. In some cases, it will even detect the relationships automatically.

In this task, you confirm that a relationship is established in Power BI Desktop between the Products and Total Sales queries

Step 1: Confirm the relationship between Products and Total Sales 1. First, we need to load the model that we created in Query Editor into Power BI Desktop. From the Home ribbon of Query Editor, select Close & Apply.



	Customer	Employee	ProductID	UnitPrice	Quantity	Shipper
1	Record	Record	11	14	12	Record
2	Record	Record	42	9.8	10	Record
3	Record	Record	72	34.8	5	Record
4	Record	Record	14	18.6	9	Record
5	Record	Record	51	42.4	40	Record
6	Record	Record	41	7.7	10	Record
7	Record	Record	51	42.4	35	Record
8	Record	Record	65	16.8	15	Record
9	Record	Record	22	16.8	6	Record
10	Record	Record	57	15.6	15	Record
11	Record	Record	65	16.8	20	Record
12	Record	Record	20	64.8	40	Record
13	Record	Record	33	2	25	Record
14	Record	Record	60	27.2	40	Record
15	Record	Record	31	10	20	Record

QUERY SETTINGS

PROPERTIES

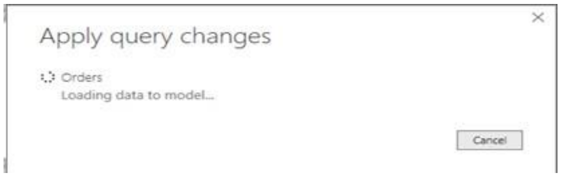
Name: Orders

All Properties

APPLIED STEPS

- Source
- Navigation
- Expanded Order_Details
- Added Custom
- Reordered Columns
- Renamed Columns

Step 2: Power BI Desktop loads the data from the two queries.

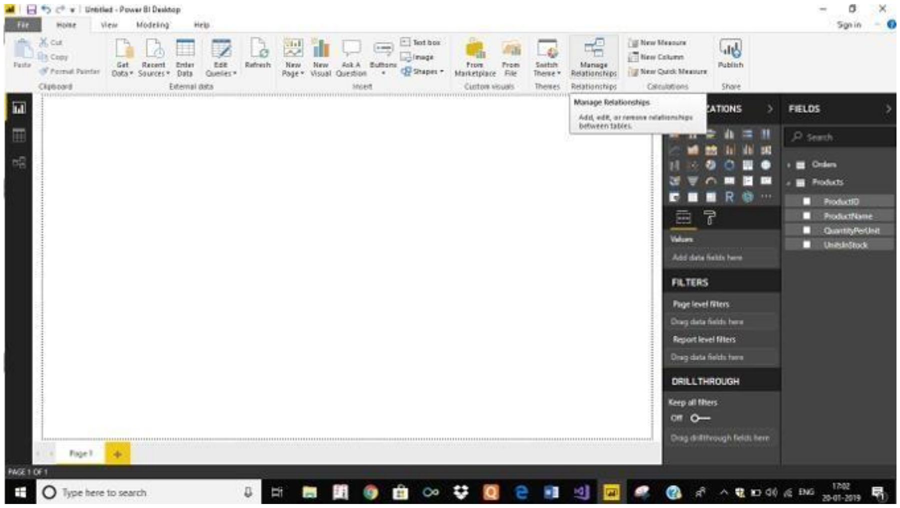


Apply query changes

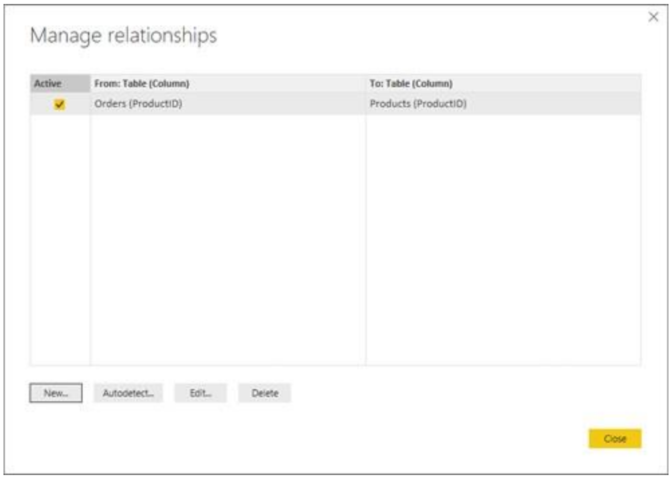
Orders
Loading data to model...

Cancel

Step 3: Once the data is loaded, select the Manage Relationships button Home ribbon



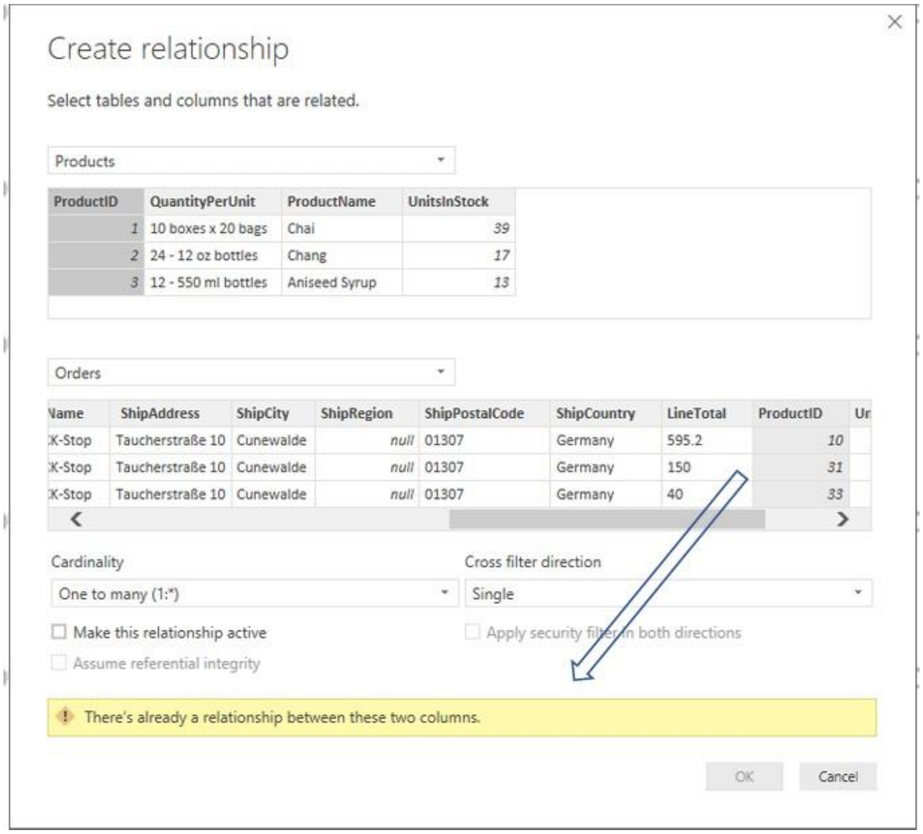
Step 4. Select the New… button



Manage relationships

Active	From: Table (Column)	To: Table (Column)
☑	Orders (ProductID)	Products (ProductID)

Step 5: When we attempt to create the relationship, we see that one already exists! As shown in the Create Relationship dialog (by the shaded columns), the ProductsID fields in each query already have an established relationship.



Create relationship

Select tables and columns that are related.

Products

ProductID	QuantityPerUnit	ProductName	UnitsInStock
1	10 boxes x 20 bags	Chai	39
2	24 - 12 oz bottles	Chang	17
3	12 - 550 ml bottles	Aniseed Syrup	13

Orders

Name	ShipAddress	ShipCity	ShipRegion	ShipPostalCode	ShipCountry	LineTotal	ProductID	Ur
K-Stop	Taucherstraße 10	Cunewalde	null	01307	Germany	595.2	10	
K-Stop	Taucherstraße 10	Cunewalde	null	01307	Germany	150	31	
K-Stop	Taucherstraße 10	Cunewalde	null	01307	Germany	40	33	

Cardinality: One to many (1:*)

Cross filter direction: Single

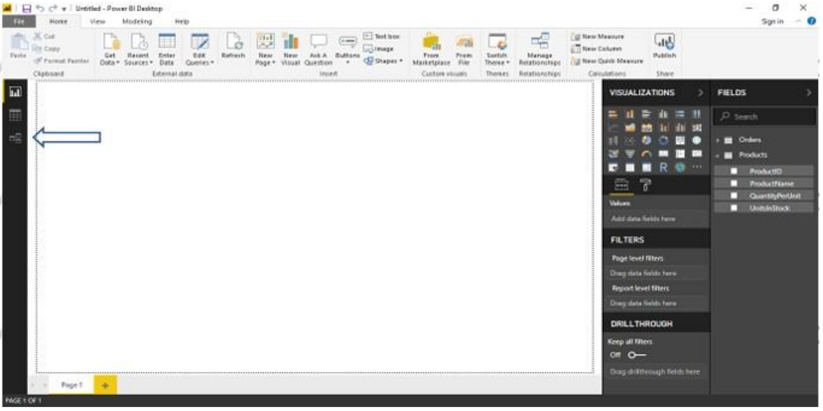
☐ Make this relationship active

☐ Apply security filter in both directions

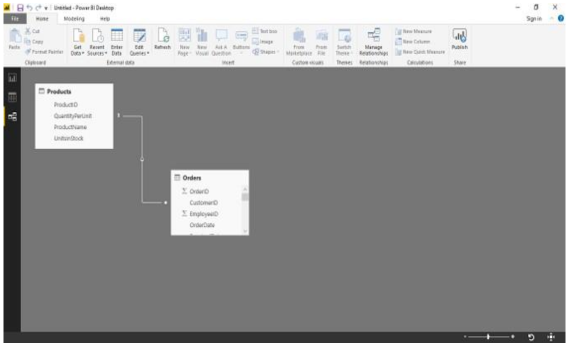
☐ Assume referential integrity

There's already a relationship between these two columns.

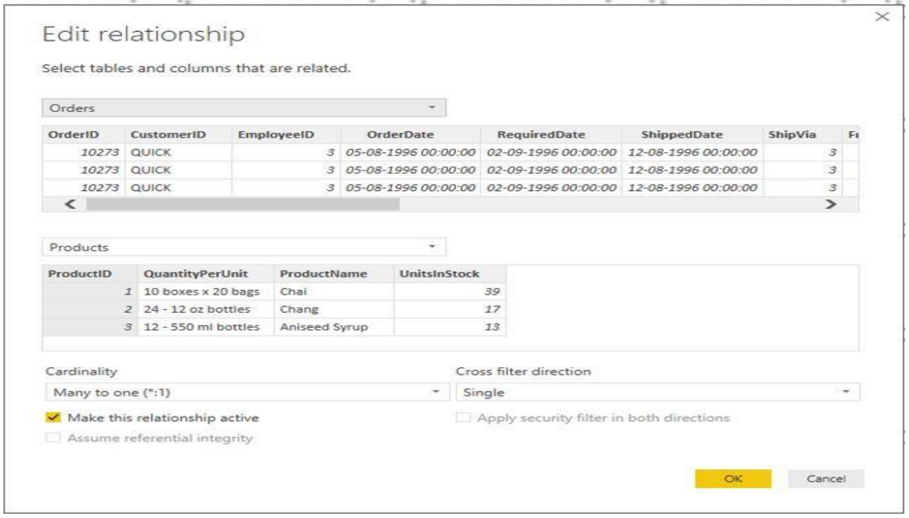
Step 6: Select Cancel, and then select Relationship view in Power BI Desktop.



Step 7: We see the following, which visualizes the relationship between the queries.



Step 8: When you double-click the arrow on the line that connects the to queries, an Edit Relationship dialog appears.



Edit relationship

Select tables and columns that are related.

Orders

OrderID	CustomerID	EmployeeID	OrderDate	RequiredDate	ShippedDate	ShipVia	Fr
10273	QUICK	3	05-08-1996 00:00:00	02-09-1996 00:00:00	12-08-1996 00:00:00	3	
10273	QUICK	3	05-08-1996 00:00:00	02-09-1996 00:00:00	12-08-1996 00:00:00	3	
10273	QUICK	3	05-08-1996 00:00:00	02-09-1996 00:00:00	12-08-1996 00:00:00	3	

Products

ProductID	QuantityPerUnit	ProductName	UnitsInStock
1	10 boxes x 20 bags	Chai	39
2	24 - 12 oz bottles	Chang	17
3	12 - 550 ml bottles	Aniseed Syrup	13

Cardinality: Many to one (*:1)

Cross filter direction: Single

☑ Make this relationship active

□ Apply security filter in both directions

□ Assume referential integrity

OK Cancel

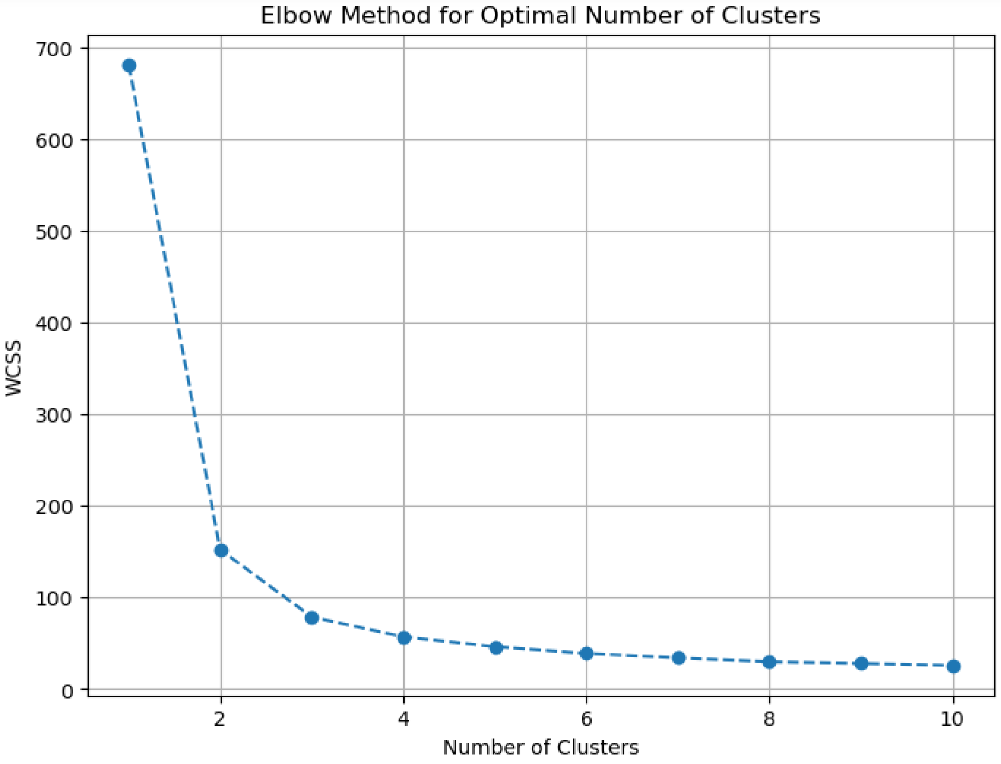
Step 9: No need to make any changes, so we'll just select Cancel to close the Edit Relationship dialog.

In [1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.cluster import KMeans
from sklearn.datasets import load_iris
import warnings
warnings.filterwarnings('ignore')
```

In [2]:
```
iris = load_iris()
data = pd.DataFrame(iris.data, columns=iris.feature_names)
wcss = []
```

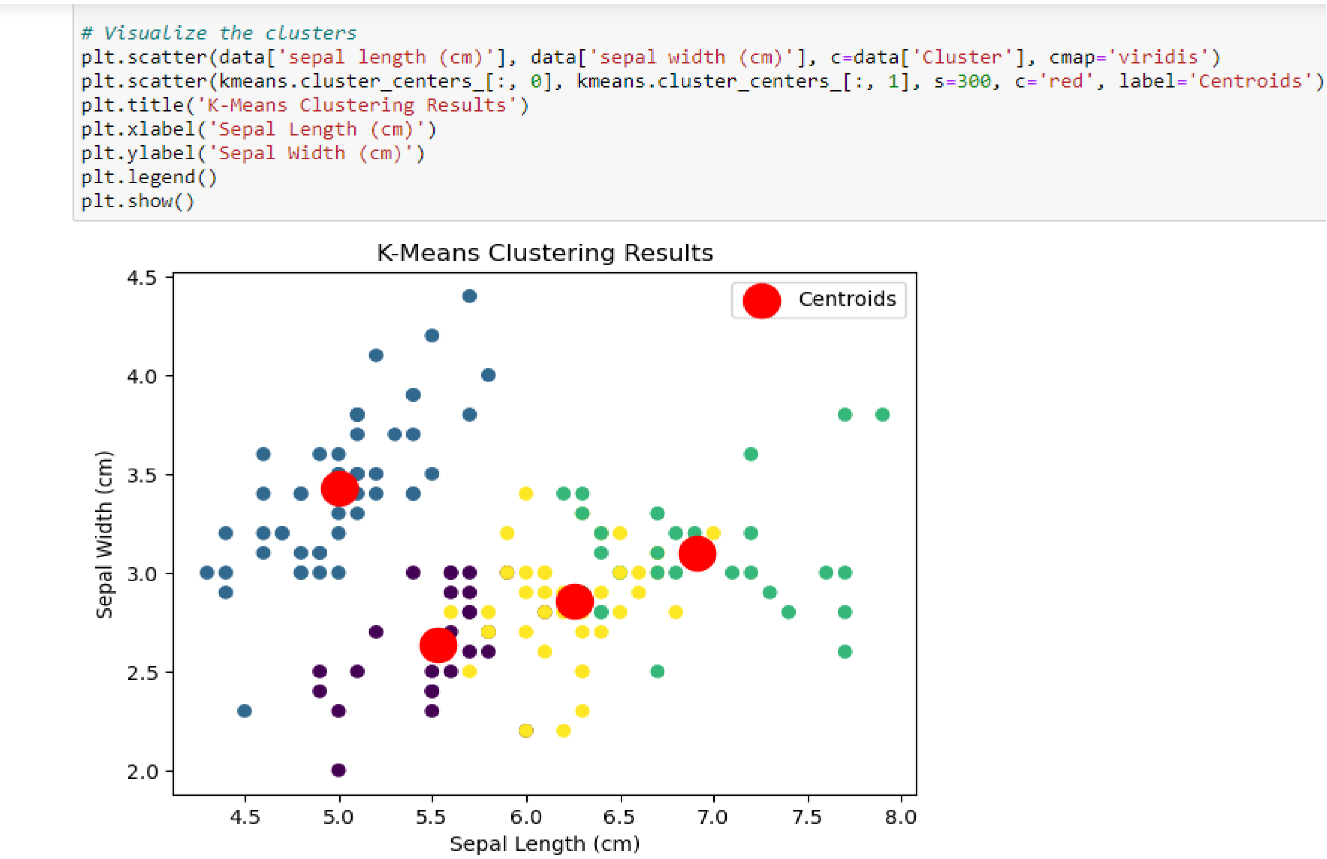
In [3]:
```
for i in range(1, 11):
    kmeans = KMeans(n_clusters=i, init='k-means++', max_iter=300, n_init=10, random_state=0)
    kmeans.fit(data)
    wcss.append(kmeans.inertia_)  # Inertia is the WCSS value
```

In [4]:
```
plt.figure(figsize=(8, 6))
plt.plot(range(1, 11), wcss, marker='o', linestyle='--')
plt.title('Elbow Method for Optimal Number of Clusters')
plt.xlabel('Number of Clusters')
plt.ylabel('WCSS')
plt.grid()
plt.show()
```



In [5]:
```
optimal_num_clusters = 4
kmeans = KMeans(n_clusters=optimal_num_clusters, init='k-means++', max_iter=300, n_init=10, random_state=0)
cluster_labels = kmeans.fit_predict(data)

# Add the cluster labels to the dataset
data['Cluster'] = cluster_labels
```



```
# Visualize the clusters
plt.scatter(data['sepal length (cm)'], data['sepal width (cm)'], c=data['Cluster'], cmap='viridis')
plt.scatter(kmeans.cluster_centers_[:, 0], kmeans.cluster_centers_[:, 1], s=300, c='red', label='Centroids')
plt.title('K-Means Clustering Results')
plt.xlabel('Sepal Length (cm)')
plt.ylabel('Sepal Width (cm)')
plt.legend()
plt.show()
```

In [1]:
```
import numpy as np
import pandas as pd

data=pd.read_csv("gender_classification_v7.csv")
data.head()
```

Out[1]:

	long_hair	forehead_width_cm	forehead_height_cm	nose_wide	nose_long	lips_thin	distance_nose_to_lip_long	gender
0	1	11.8	6.1	1	0	1	1	Male
1	0	14.0	5.4	0	0	1	0	Female
2	0	11.8	6.3	1	1	1	1	Male
3	0	14.4	6.1	0	1	1	1	Male
4	1	13.5	5.9	0	0	0	0	Female

In [2]:
```
data=pd.DataFrame(data)
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 5001 entries, 0 to 5000
Data columns (total 8 columns):
 #   Column                     Non-Null Count  Dtype  
---  ------                     --------------  -----  
 0   long_hair                  5001 non-null   int64  
 1   forehead_width_cm          5001 non-null   float64
 2   forehead_height_cm         5001 non-null   float64
 3   nose_wide                  5001 non-null   int64  
 4   nose_long                  5001 non-null   int64  
 5   lips_thin                  5001 non-null   int64  
 6   distance_nose_to_lip_long  5001 non-null   int64  
 7   gender                     5001 non-null   object 
dtypes: float64(2), int64(5), object(1)
memory usage: 312.7+ KB
```

In [3]:
```
data["gender"].value_counts()
data
```

Out[3]:

	long_hair	forehead_width_cm	forehead_height_cm	nose_wide	nose_long	lips_thin	distance_nose_to_lip_long	gender
0	1	11.8	6.1	1	0	1	1	Male
1	0	14.0	5.4	0	0	1	0	Female
2	0	11.8	6.3	1	1	1	1	Male
3	0	14.4	6.1	0	1	1	1	Male
4	1	13.5	5.9	0	0	0	0	Female
...	...	...	...	...	...	...	...	...
4996	1	13.6	5.1	0	0	0	0	Female
4997	1	11.9	5.4	0	0	0	0	Female
4998	1	12.9	5.7	0	0	0	0	Female
4999	1	13.2	6.2	0	0	0	0	Female
5000	1	15.4	5.4	1	1	1	1	Male

5001 rows × 8 columns

In [4]:
```
f=data[data.gender=="Female"]
m=data[data.gender=="Male"]
data.gender=[1 if each=="Male" else 0 for each in data.gender]
data["gender"].value_counts()
```

Out[4]:
```
0    2501
1    2500
Name: gender, dtype: int64
```

In [14]:
```
x=data.drop(["gender"],axis=1)
y=data.gender.values
x
y
```

Out[14]:
```
array([1, 0, 1, ..., 0, 0, 1], dtype=int64)
```

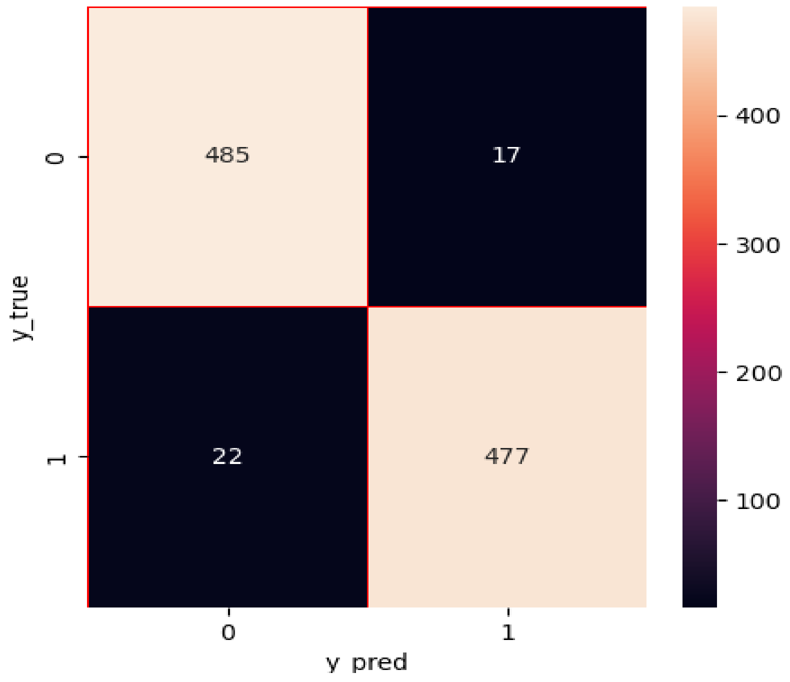
```
In [11]: x=(x-np.min(x))/(np.max(x)-np.min(x))
         from sklearn.model_selection import train_test_split
         x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.2,random_state=42)
         from sklearn.linear_model import LogisticRegression
         lr = LogisticRegression()
         lr.fit(x_train,y_train)
         print("test accuracy: {} ".format(lr.fit(x_train, y_train).score(x_test, y_test)))
         print("train accuracy: {} ".format(lr.fit(x_train, y_train).score(x_train, y_train)))

         test accuracy: 0.961038961038961
         train accuracy: 0.97025
```

```
In [12]: y_pred=lr.predict(x_test)
         y_true=y_test
         from sklearn.metrics import confusion_matrix
         cm=confusion_matrix(y_true,y_pred)
         cm

Out[12]: array([[485,  17],
                [ 22, 477]], dtype=int64)
```

```
In [13]: import seaborn as sns
         import matplotlib.pyplot as plt
         f,ax = plt.subplots(figsize=(5,5))
         sns.heatmap(cm,annot = True,linewidths=0.5,linecolor="red",fmt = ".0f",ax=ax)
         plt.xlabel("y_pred")
         plt.ylabel("y_true")
         plt.show()
```


y_true
y_pred