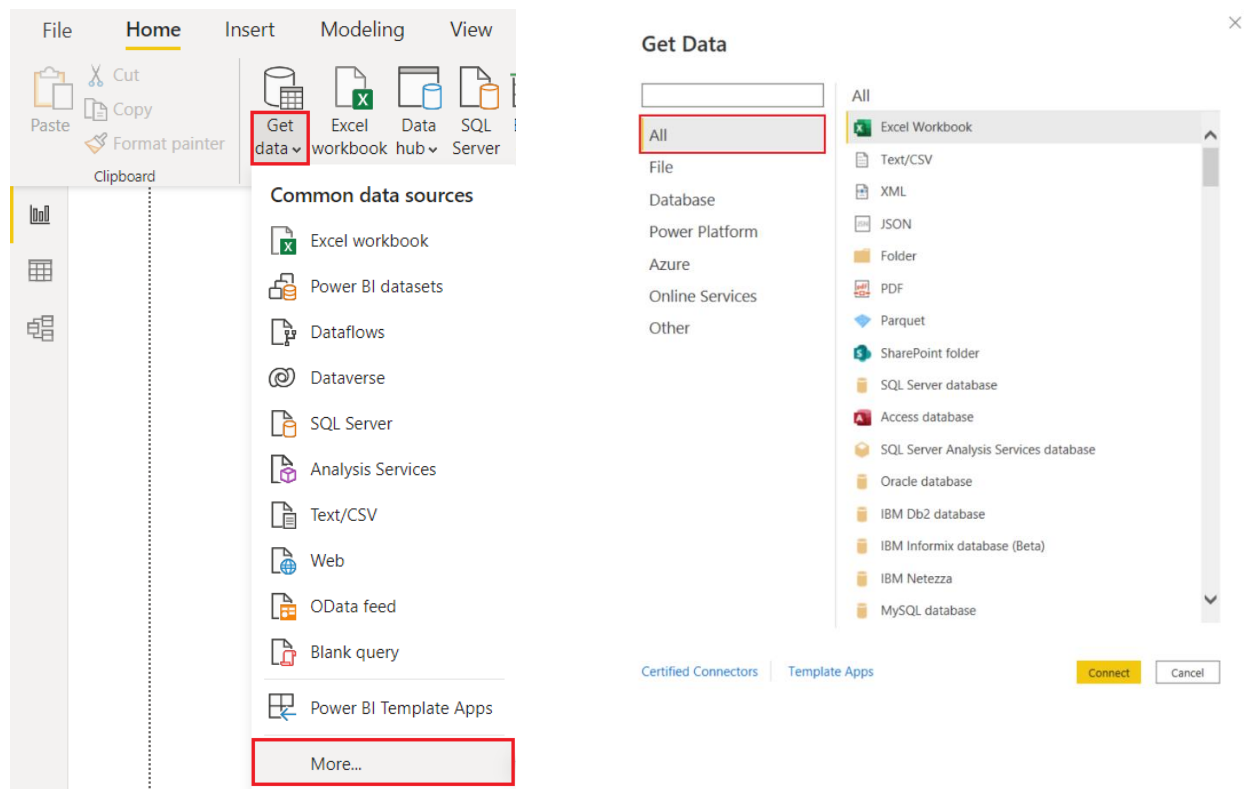


BM1

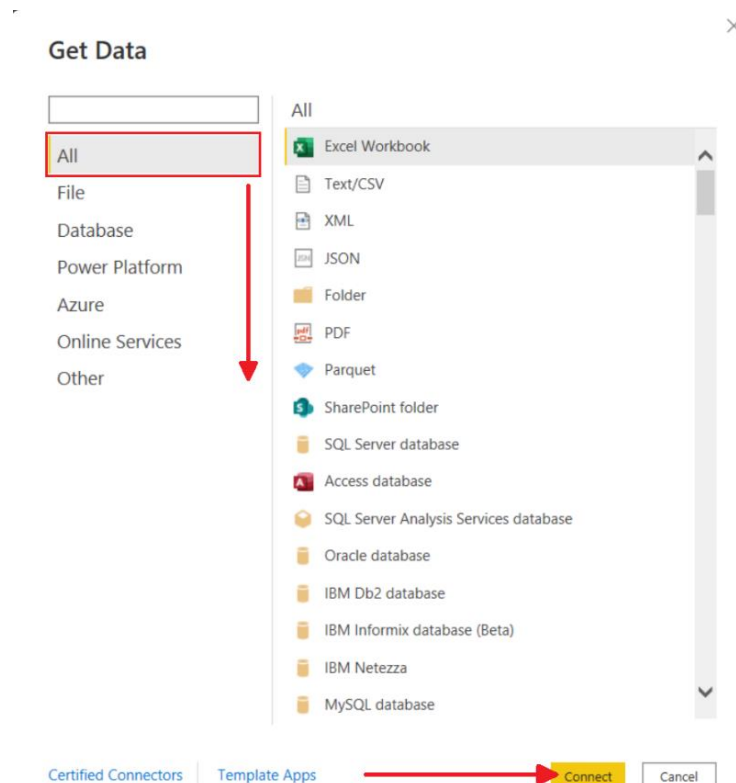
Assignment 3: Power BI**I. Power BI – Supported Data Sources**

Power BI is a business intelligence tool that produces visualizations, such as interactive dashboards and BI reports, of data from various sources. This effective business tool provides a suite of services to users in business to manipulate data and create reports through those data. (Power BI Tutorial, n.d.)

A full list of the various data sources compatible with Power BI can be found by selecting *Get data* > *More...* on the Data cell in Power BI Desktop's Home tab. (The most common data sources will appear upon selecting *Get data*.) All available data sources should appear under the *All* filter.



To navigate through the other data sources, browse through the different filters available on the left side of the *Get Data* window. Once the appropriate data source has been selected, click the “Connect” button on the lower right side of the window.



II. Comparison with Other BI Tools

Other BI tools that came before Power BI are Tableau and SSRS. Power BI is considered to be an emerging tool coming in close to Tableau because of its backend features that could manipulate data and its compatibility with various data sources. On the other hand, Tableau is recognized as one of the best visualization tools as it is used by large enterprises. SSRS is another data visualization tool that uses Pixel perfect reporting and average dash-boarding features. (Power BI Tutorial, n.d.)

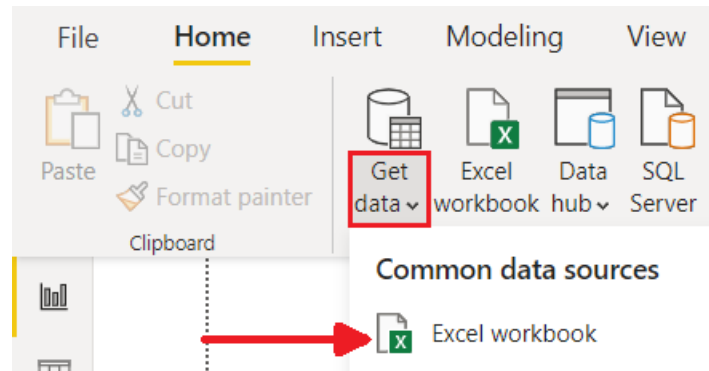
III. Power BI – Data Modeling

One of the features used in Power BI to discover relationships between multiple data sources is Data Modeling. These relationships between data sources may also be implemented using the various visualizations provided by Power BI. (Power BI Tutorial, n.d.)

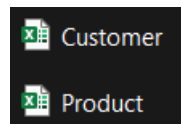
a. Get Data Source

To demonstrate the data modeling feature of this business tool, first import a data source into Power BI by selecting *Get data > Excel workbook*. (The data source that will be used to

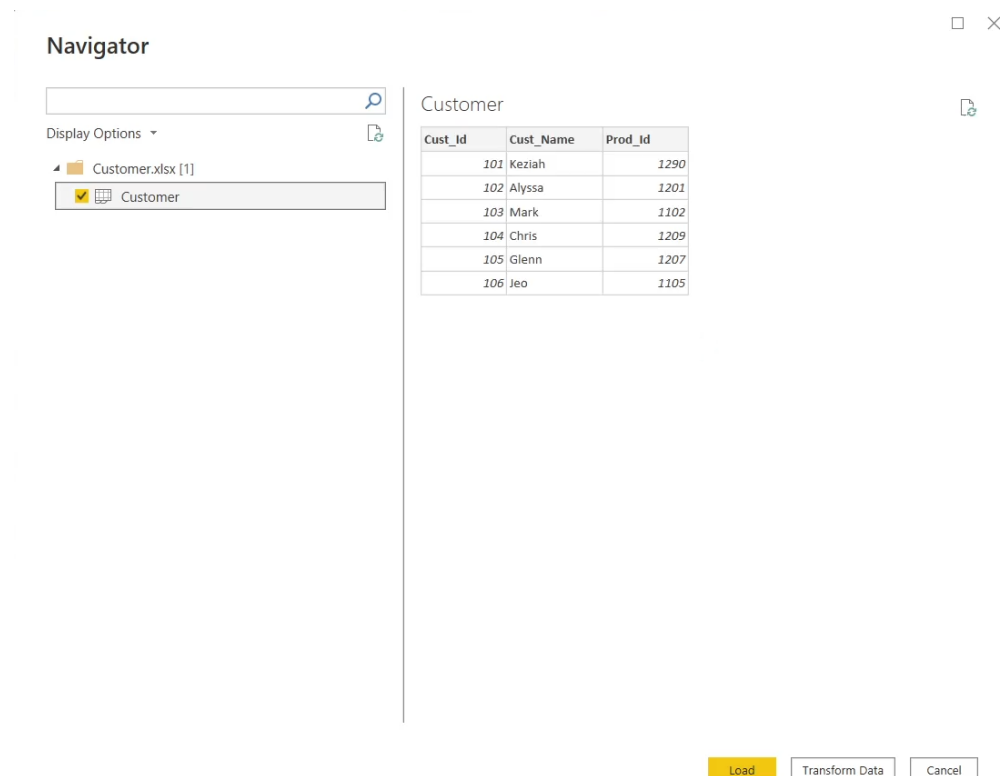
demonstrate the visualization features of Power BI will be the same as the dataset used in the referenced article.)



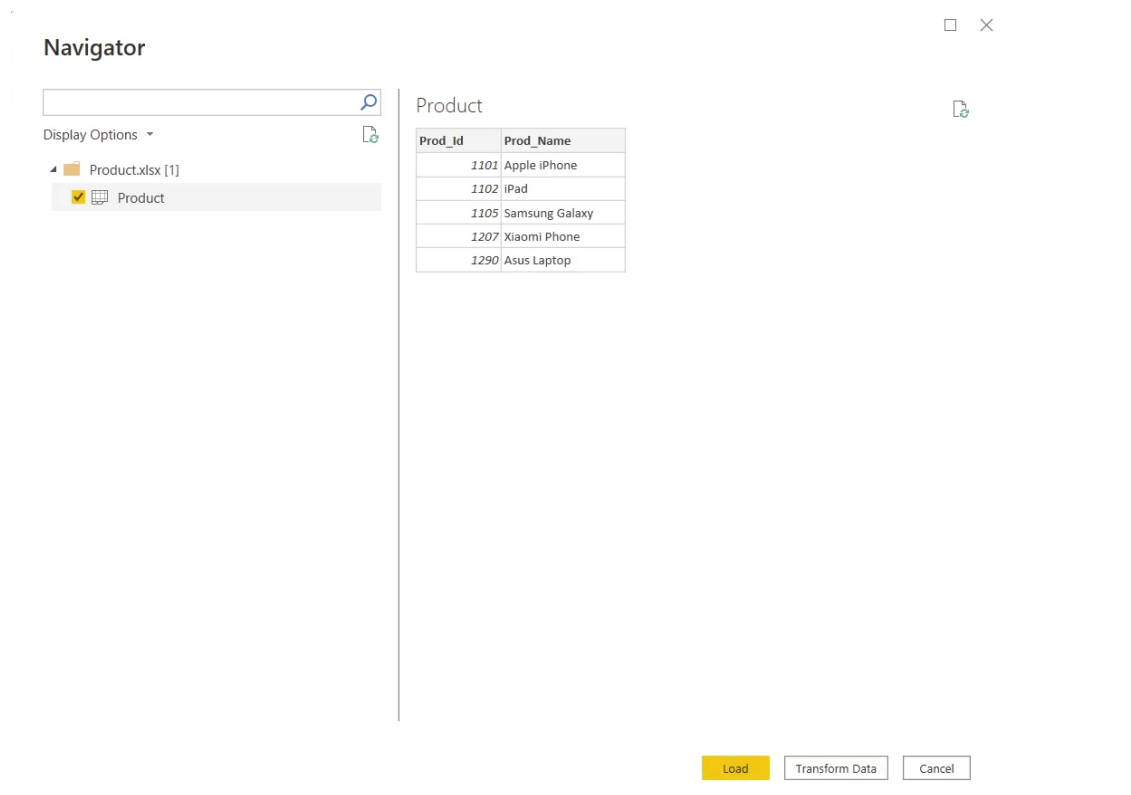
Select the two following .xlsx files: *Customer* and *Product*. These datasets should appear on the Fields pane at the right-hand side of the window.



Then, load each dataset into Power BI by selecting “Load” on the *Navigator* window of each dataset.

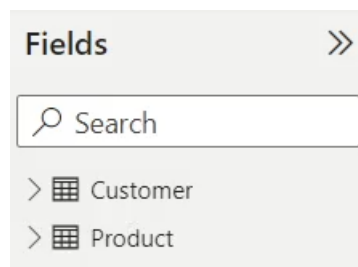


Customer dataset



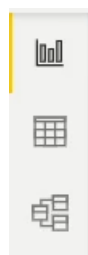
Product dataset

These datasets should appear on the Fields pane at the right-hand side of the window.

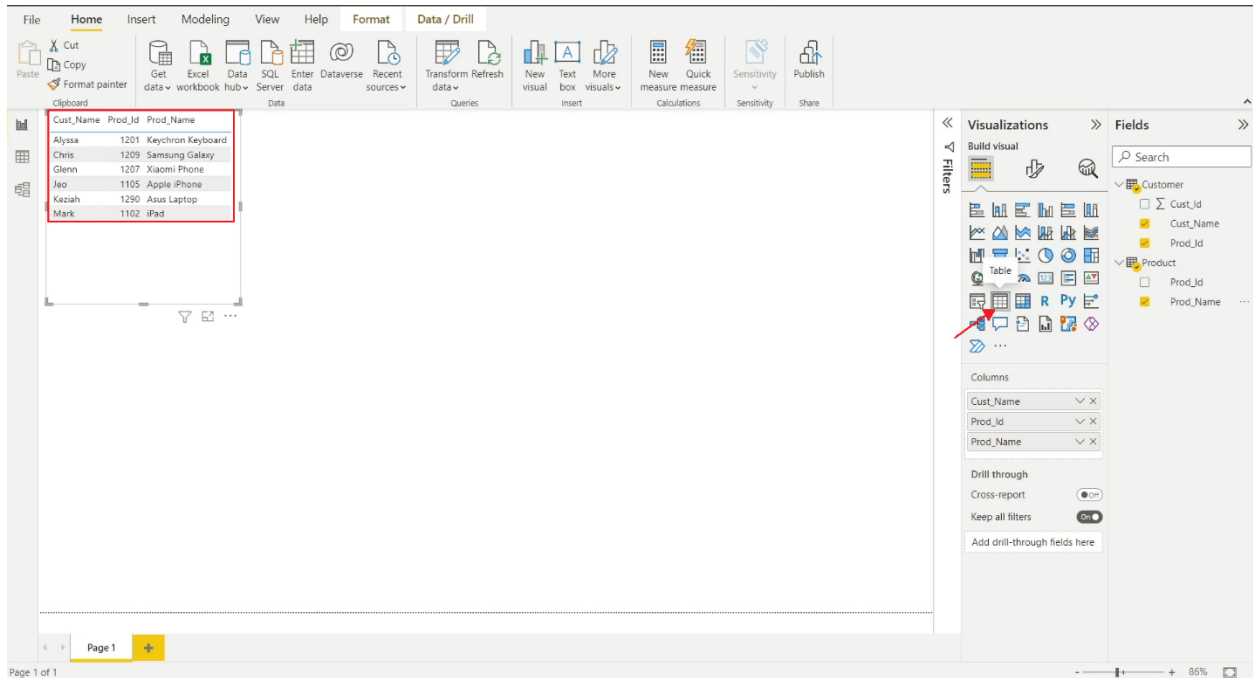


b. Visualize Imported Data

The *Report*, *Data*, and *Model* tabs are situated on the left-hand panel of the window and are represented as the following icons.



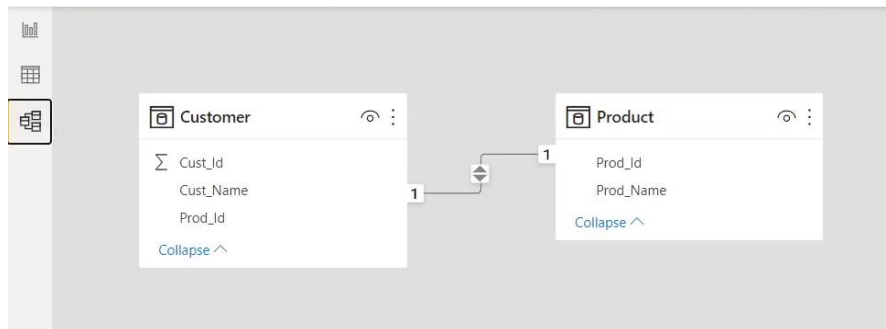
Selecting the *Report* tab should display the *Filters*, *Visualizations*, and *Fields* panes on the right-hand side of the window. The *Visualizations* pane will allow the user to choose among various chart types or visualizations. This guide will retain the current chart type as a Table type, as indicated below.



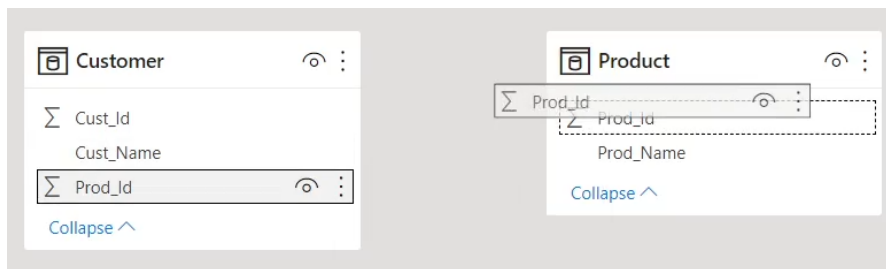
Selecting the *Data* tab should display a standard table of what the data looks like in the original dataset.

	Cust_Id	Cust_Name	Prod_Id
	101	Keziah	1290
	102	Alyssa	1201
	103	Mark	1102
	104	Chris	1209
	105	Glenn	1207
	106	Jeo	1105

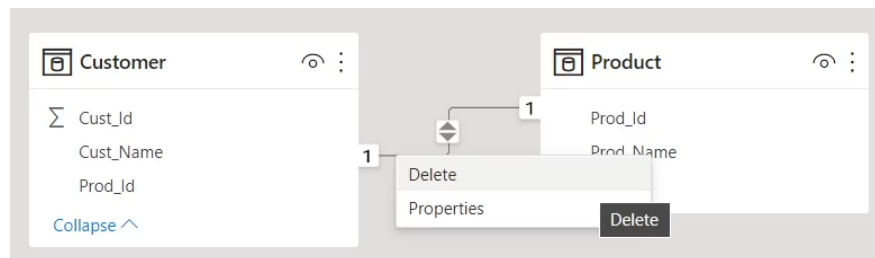
Selecting the *Model* tab should display a diagram representing the relationships between the datasets. One feature of Power BI is its ability to automatically detect these relationships.



However, if these relationships are not automatically detected, these links between the datasets can be created by dragging the column from the source to the same column in the destination dataset.



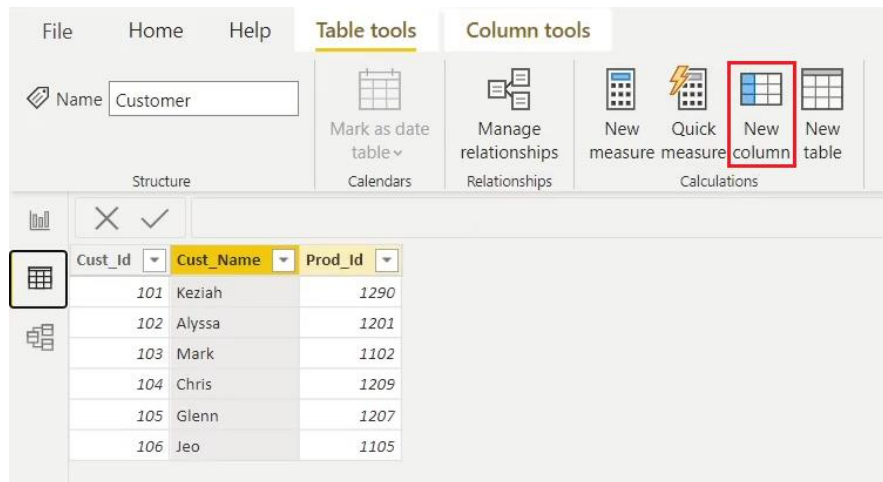
To delete, right-click on the link and select “Delete.”



c. Create Calculated Columns

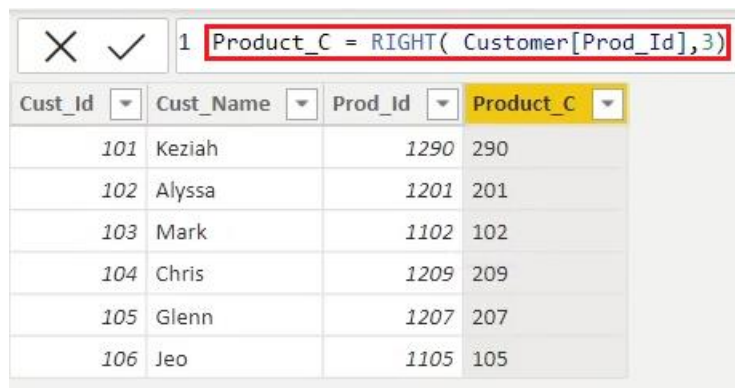
Another basic feature of Power BI is Creating Calculated Columns, where multiple components of existing data are combined to define a new metric, create a new column, or establish relationships between tables. (Power BI Tutorial, n.d.)

To create a new column, select the *Data* tab and select any column. Under *Table tools*, select the *New Column* option in the *Calculations* cell to add a new column to the table.



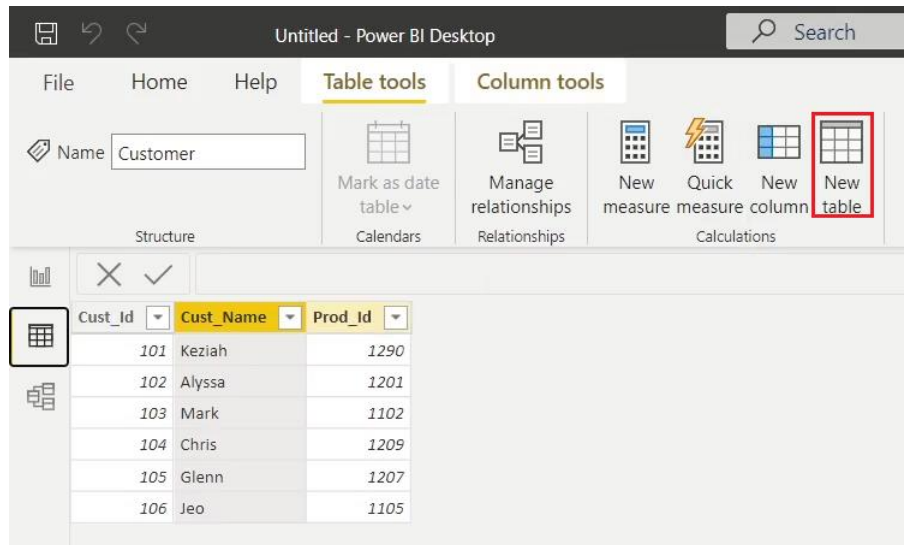
The following formula will be applied to the newly added column:

Product_C = RIGHT(Sheet1[Prod_Id],3)



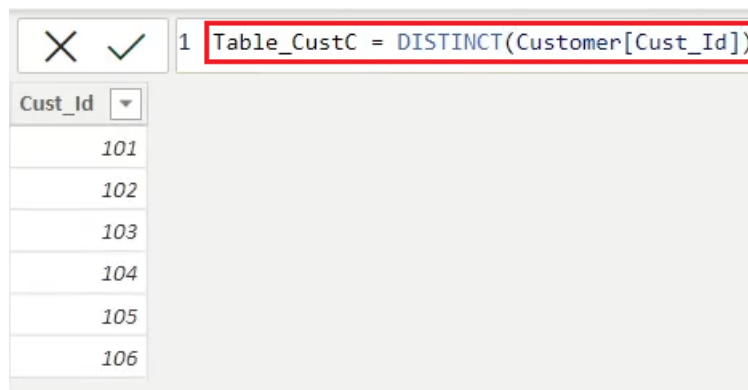
d. Create Calculated Table

Creating a Calculated Table is similar to creating a calculated column in that the same cell will be referenced to select the *New Table* option.

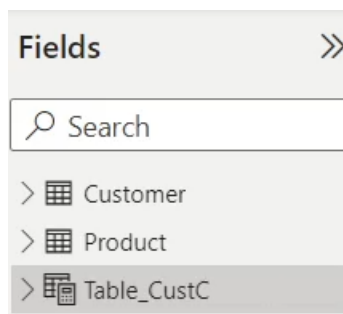


Another way to create a calculated table is through a DAX expression, such as the following:

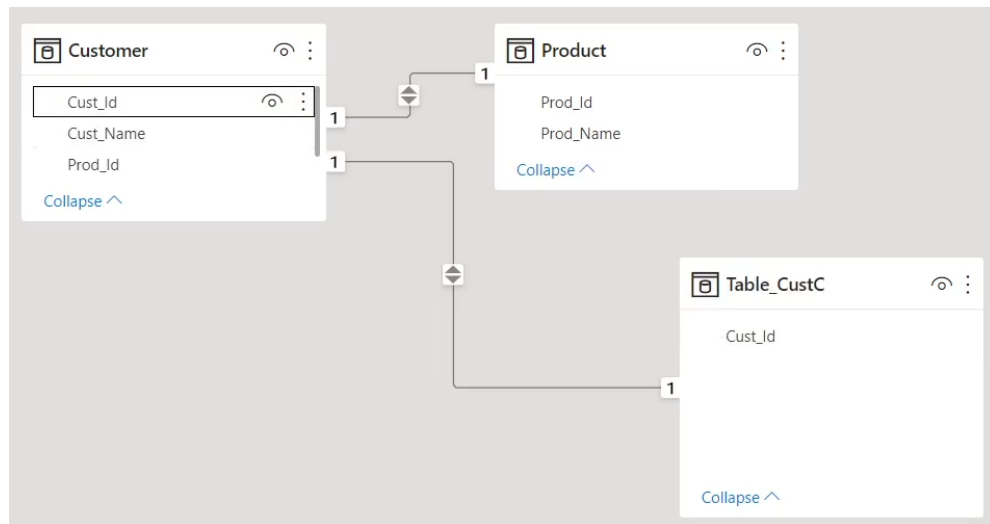
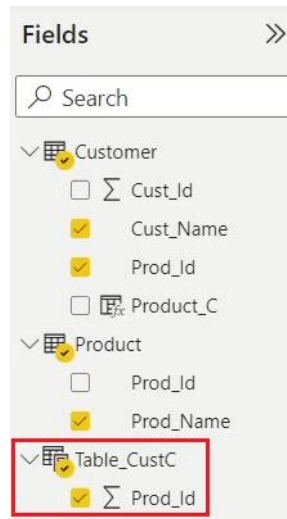
```
Table_CustC = DISTINCT(Customer[Cust_Id])
```



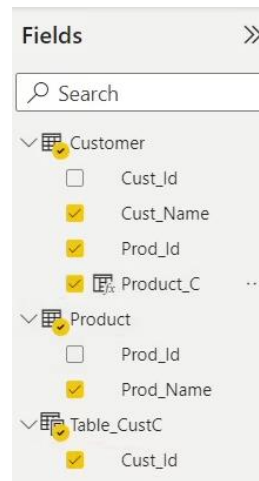
Applying the DAX expression above should create a new table under the *Fields* pane in the *Report* tab.



If these new components were to be included in the visualization, select the appropriate checkbox in the *Fields* pane, and create a relationship by following the previously mentioned process on how to do so.

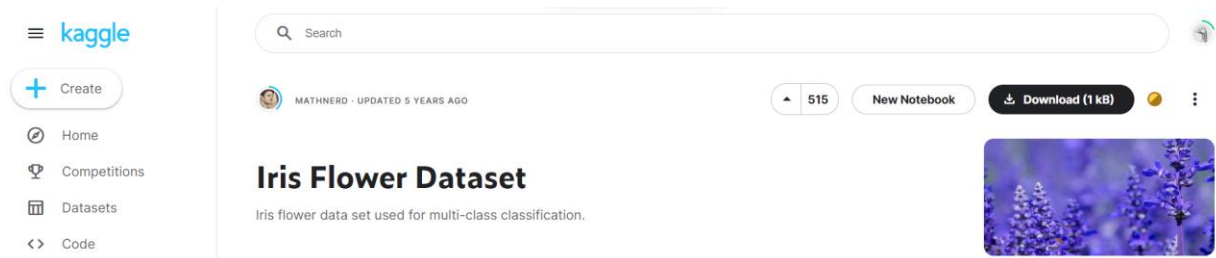


The *Fields* pane with the additional elements should appear, as indicated in the screenshot below.



e. Download Dataset

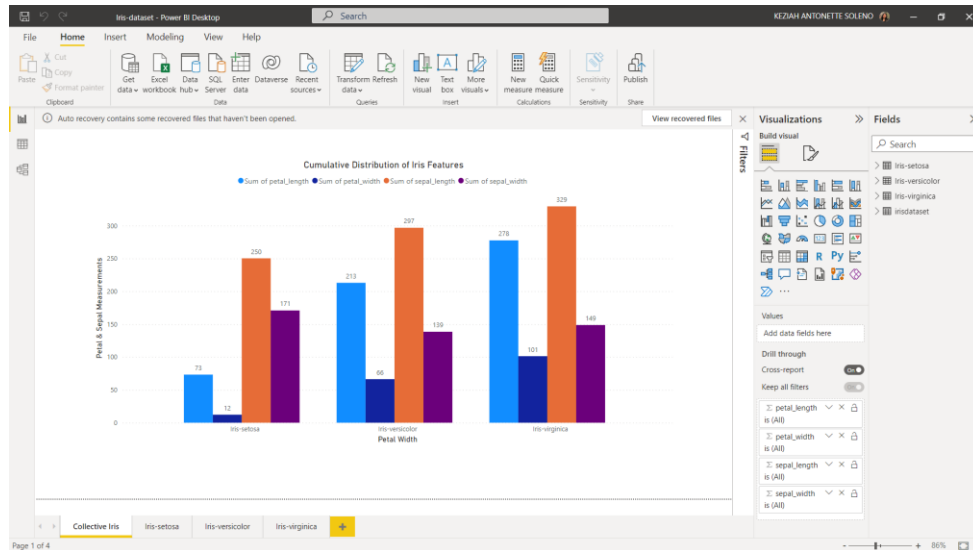
A dataset is required to create drill-down/drill-up and drill-through reports on Power BI. Since no dataset was provided, the Iris dataset will be used instead. This dataset can be accessed through an open-source dataset platform (Kaggle) and can be downloaded through this link: <https://www.kaggle.com/datasets/arshid/iris-flower-dataset?resource=download>



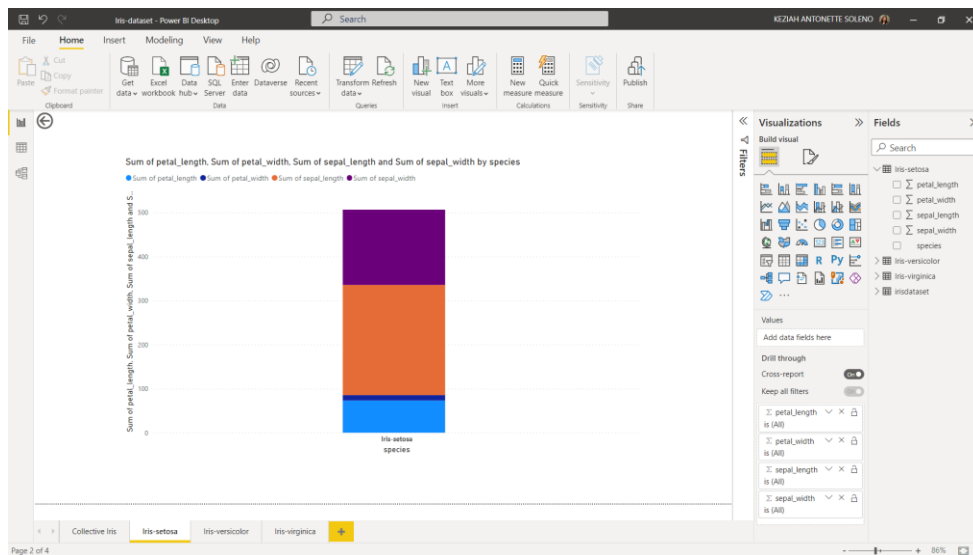
Once the dataset has finished downloading, open the dataset and create three additional datasets in .xlsx format, each containing the values of each flower. (Refer to the screenshot below.) Partitioning the data in this manner will aid in a smoother implementation of the drill-up/drill-down and drill-through reports in Power BI later.

f. Implement Reports

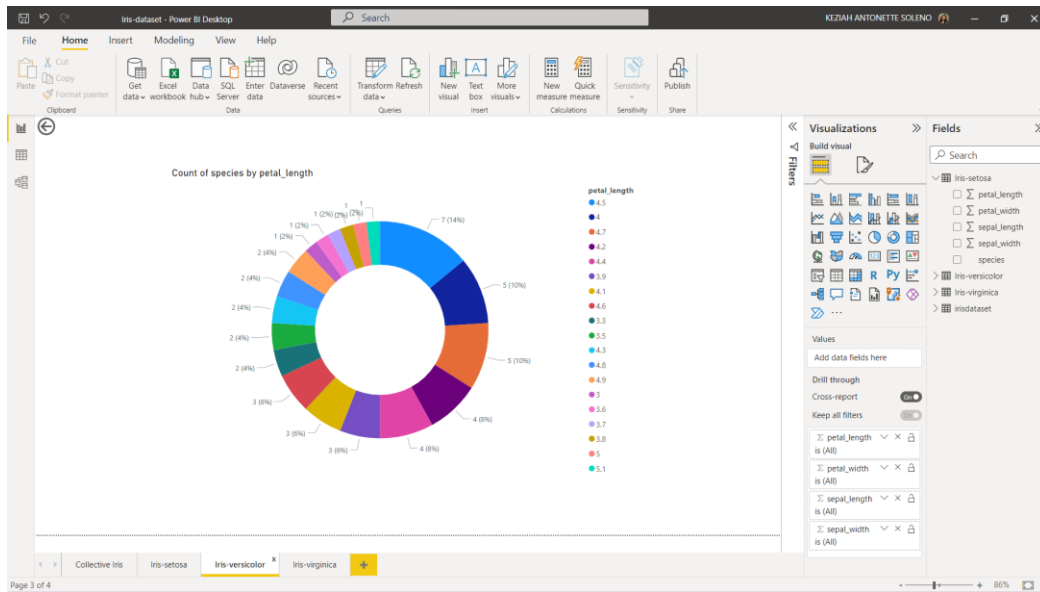
To import the retrieved data set into Power BI and to create a visualization for the data, follow the steps under *a. Get Data Source* until selecting a visualization (under *b. Visualize Imported Data*). Once the data has been imported and implemented into the selected visualization, the first page should look like the screenshot below.



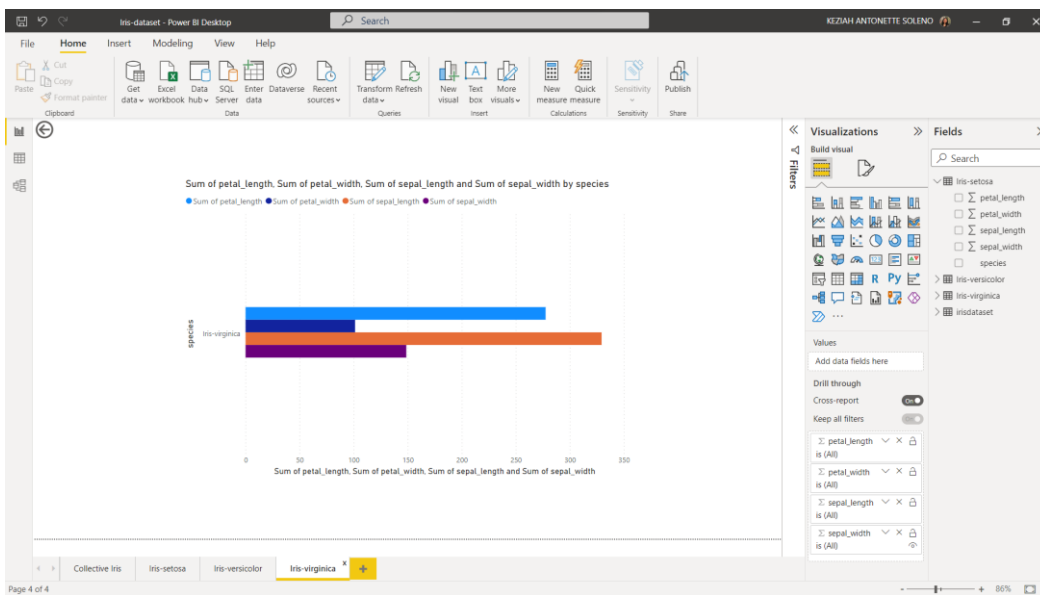
Trying other visualizations was recommended; thus, the following pages contained other visualizations for each Iris flower as the stacked column type, donut type, and horizontal bar chart type.



Iris-setosa (stacked column chart)

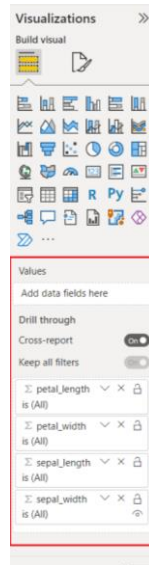


Iris-versicolor (donut type)

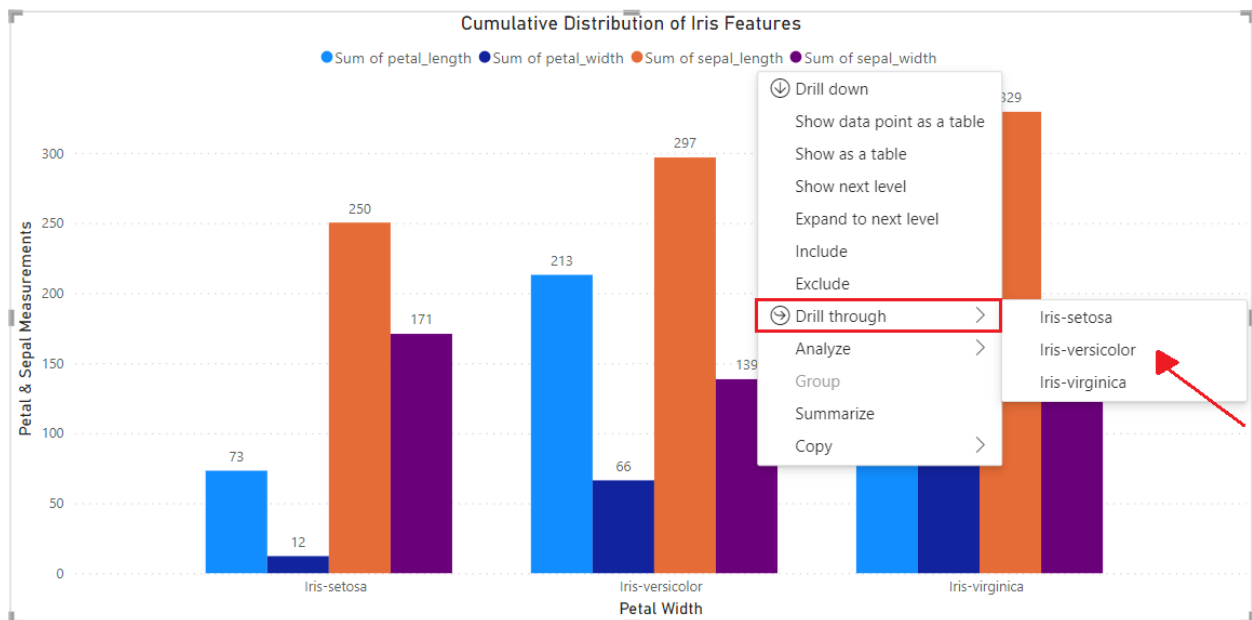


Iris-virginica (horizontal bar type)

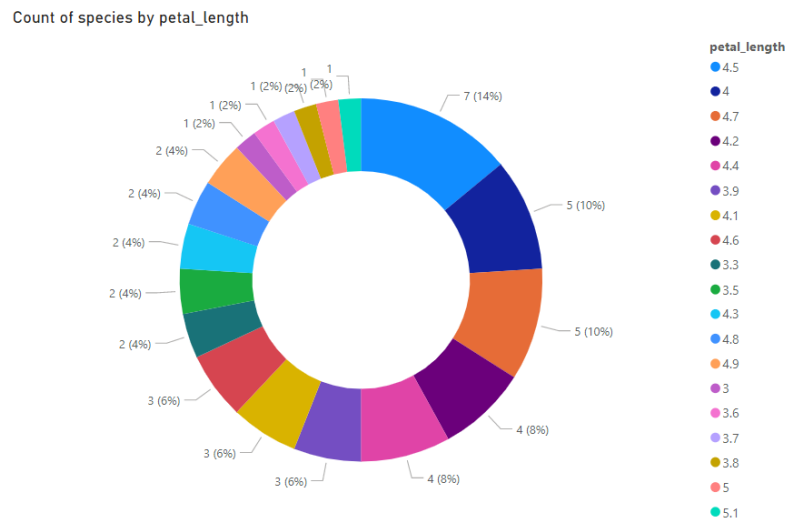
To implement the drill-through feature from the source to the destination (target) page, first ensure that the drill-through feature is enabled by turning “Cross-report” on under the *Drill through* panel on the *Visualizations* pane. Then, drag the reference values (petal_length, sepal_width, etc.) to the *Drill-through features* section under the “Keep all filters” button so that the source data chart will know which data it will drill through.



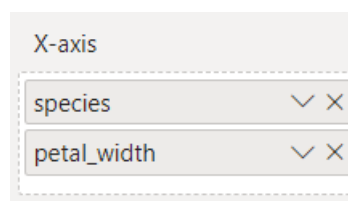
To drill through from the *Cumulative Distribution of Iris Features* chart, simply right-click on any data visual from the chart then select the *Drill through* option.



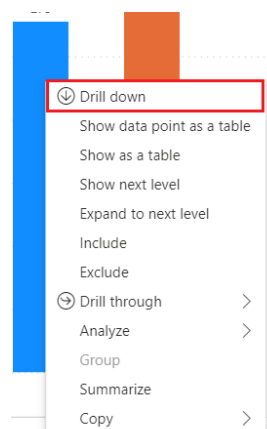
After, select the chart through which you would like to drill through. Since Iris-versicolor was selected, click on that option. The source page should drill through to the indicated target page. (The same process must be followed and will apply for the other visualizations.)



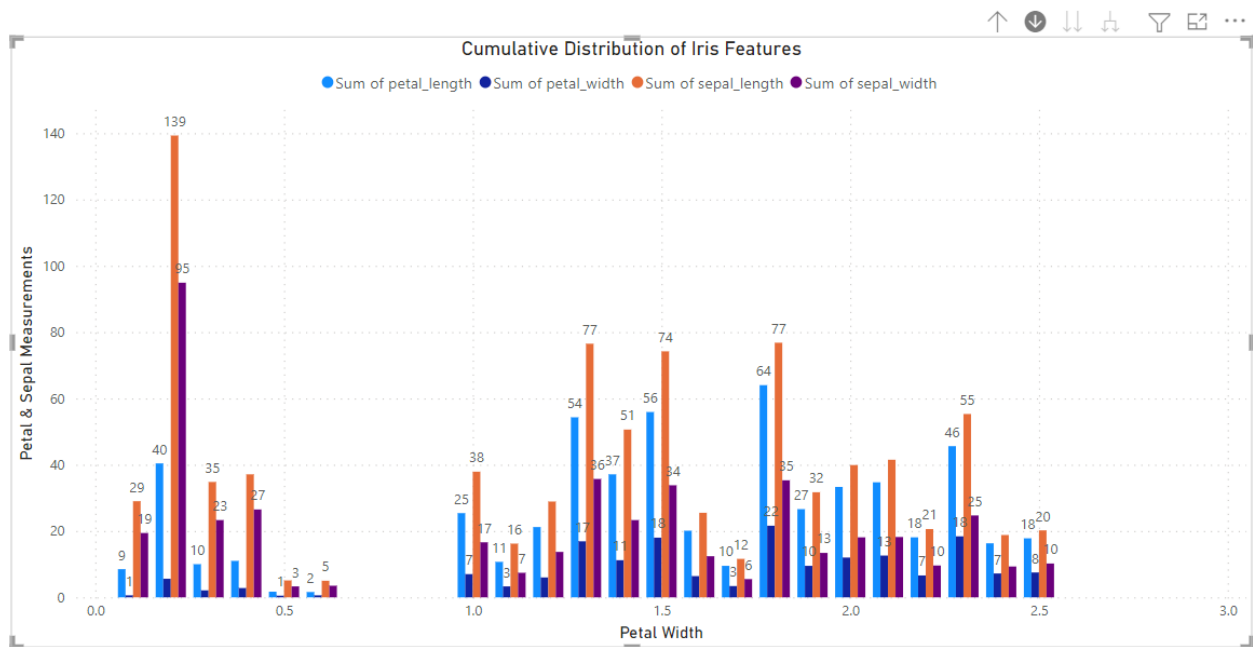
To drill-up or -down, a hierarchy must be indicated. To do this, drag a value into the Legend values in the order of required priority. In this case, *species* and *petal_width* was used to demonstrate this drill-up and -down feature.



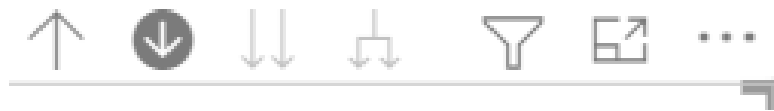
To drill-up or -down, right click on any data value on the chart and select the “Drill down” option.



A more intricate chart visualization should appear, like the screenshot below.

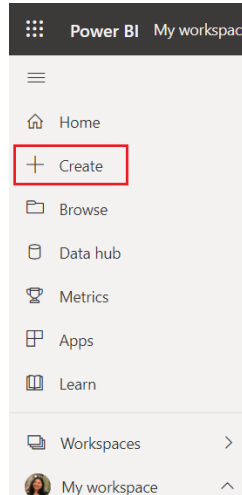


To drill-up, perform the same process as drilling down or click on the arrow point upwards in the upper right corner of the chart.

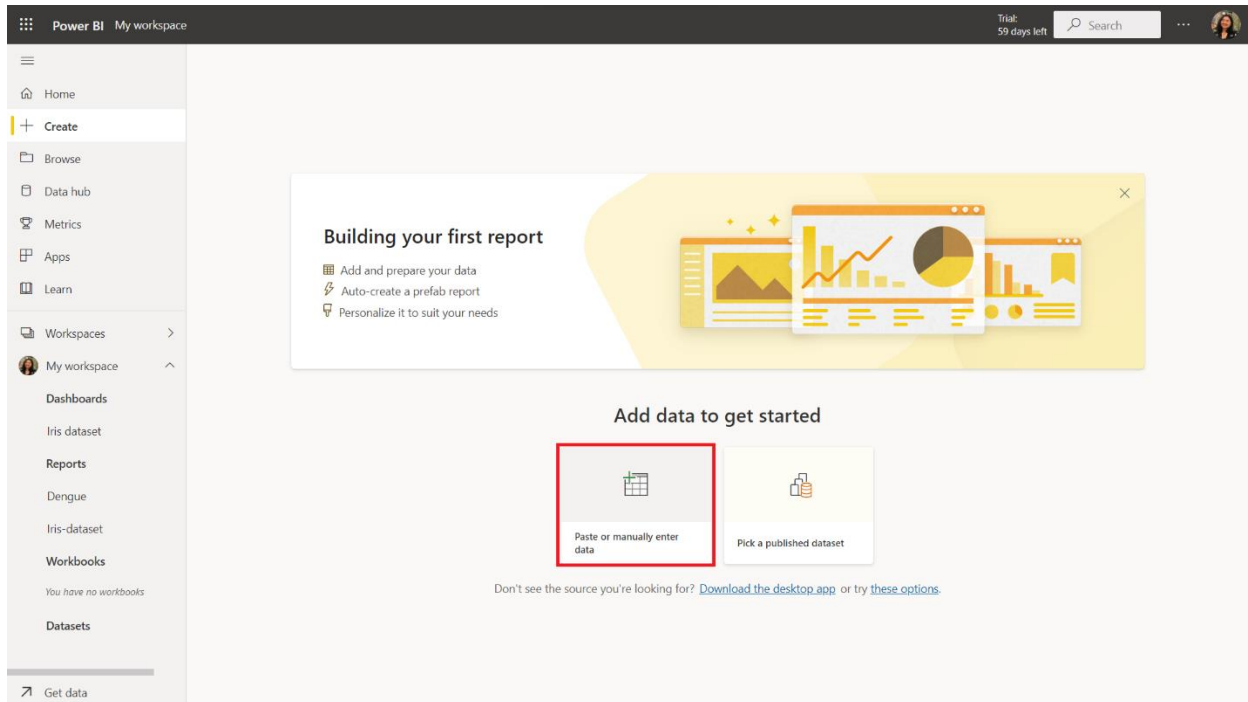


IV. Power BI – Dashboard Options

To access the dashboard options of Power BI, go to the following link: <https://app.powerbi.com>. Then, to explore a dataset, create one by selecting the “Create” option on the panel on the left side of the window.



An option to manually create a dataset and to publish an existing one will appear. For the sake of demonstrating Power BI’s feature to explore datasets, select the option to manually create a dataset.



Then, paste the contents of the Iris dataset into the Power Query window.

Power Query

Enter data

Copy and paste data into the table, or enter data manually. Be sure the data type matches the values in each column. [Learn more](#)

☒ Use first row as headers

We have detected delimiters in the data that you pasted. Undo delimiter detection

ABC 123	Column1	ABC 123	Column2	ABC 123	Column3	ABC 123	Column4	ABC 123	Column5	+
1	sepal_length		sepal_width		petal_length		petal_width		species	
2	5.1		3.5		1.4		0.2		Iris-setosa	
3	4.9		3		1.4		0.2		Iris-setosa	
4	4.7		3.2		1.3		0.2		Iris-setosa	
5	4.6		3.1		1.5		0.2		Iris-setosa	
6	5		3.6		1.4		0.2		Iris-setosa	
7	5.4		3.9		1.7		0.4		Iris-setosa	
8	4.6		3.4		1.4		0.3		Iris-setosa	
9	5		3.4		1.5		0.2		Iris-setosa	
10	4.4		2.9		1.4		0.2		Iris-setosa	
11	4.9		3.1		1.5		0.1		Iris-setosa	
12	5.4		3.7		1.5		0.2		Iris-setosa	
13	4.8		3.4		1.6		0.2		Iris-setosa	
14	4.8		3		1.4		0.1		Iris-setosa	

Name

Table

Auto-create report Cancel

Then, click “auto-create report.” The screenshot below should appear.

Power BI My workspace

Iris-dataset | Data updated 10/9/22

File Export Save Share Chat in Teams Get insights Subscribe Edit Show data table

Quick summary

Table

Count of Column3 by Column5

Count of Column2 by Column5

Count of Column4 by Column5

Count of Column1 by Column5

Count of Column3 analysis

Overall Count of Column3 is currently at 44, and Count of Column3 for Column2 3 is significantly higher than other segments at 19.

Count of Column2 analysis

Overall Count of Column2 is currently at 24. Count of Column2 for Column4 0.2 and other segments are significantly higher than others.

Count of Column4 analysis

Overall Count of Column4 is currently at 23. Count of Column4 for Column3 5.1 and other segments are significantly higher than others.

This feature is in preview. [Learn more about Power BI insights](#)

Your data

Table

Count of rows

Column1

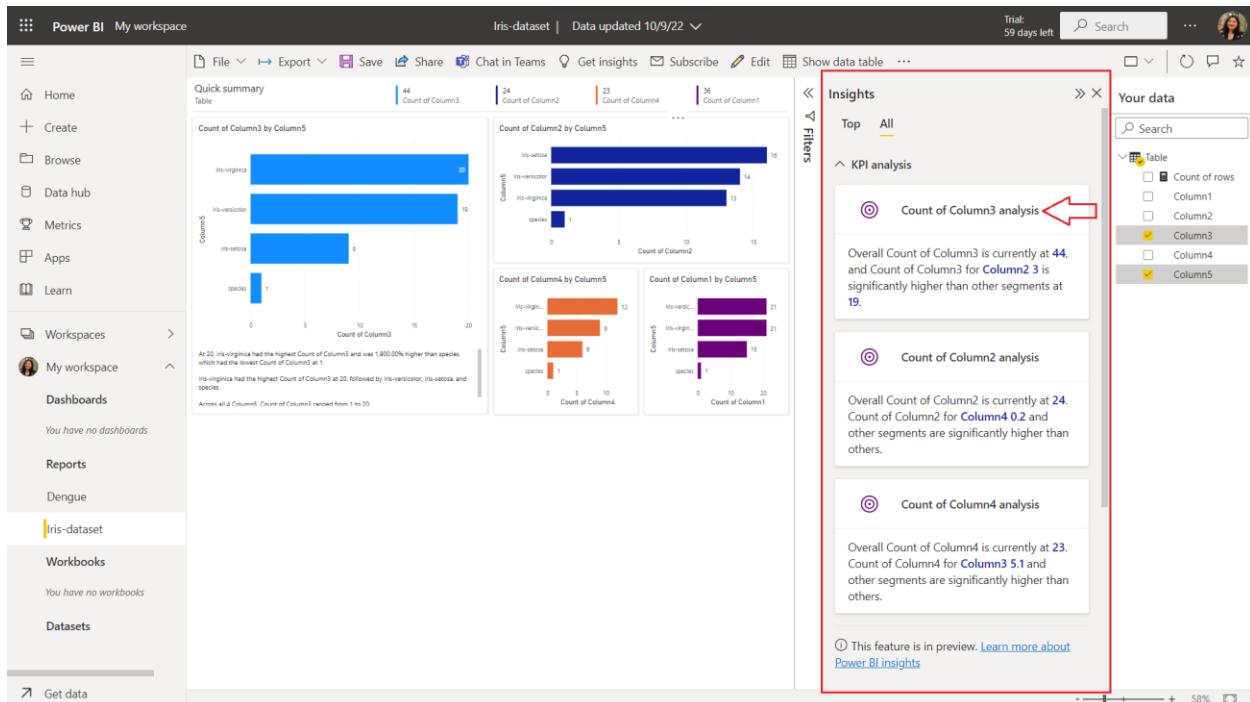
Column2

Column3

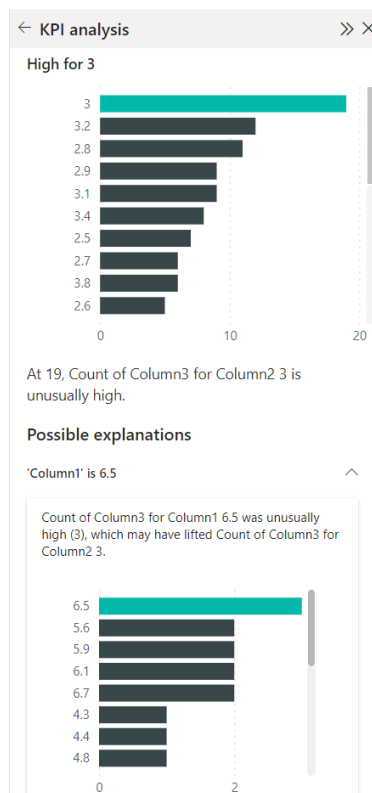
Column4

Column5

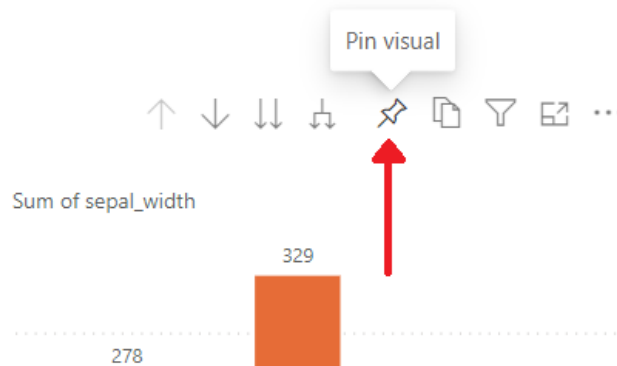
You can view dataset insights by navigating to the panel called *Insights* on the right-hand side of the window. Select “Count of Column3 analysis” to view a more detailed representation of the corresponding data.



The screenshot below should appear.



To create a dashboard, pin the published BI reports from Power BI desktop by selecting on the “Pin visual” option on the menu below.



Selecting this pin option will lead to the following dialog box appearing. This window will prompt you to create a new dashboard, if no dashboard exists yet, to pin the published visual. In this example, the new dashboard was entitled, *Iris dataset*. Select “Pin” to proceed.

Pin to dashboard ✕

Select an existing dashboard or create a new one.

Where would you like to pin to?

☐ Existing dashboard

☒ New dashboard

Dashboard name

Iris dataset

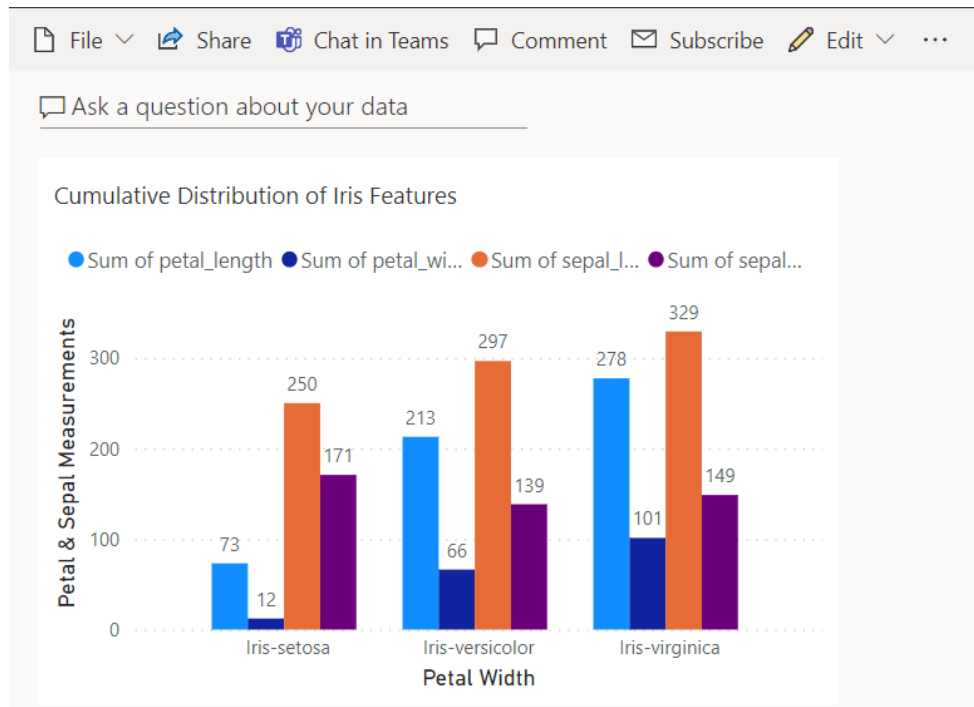
Pin Cancel

A confirmation should appear to indicate that the visualization has been pinned to the newly created dashboard. Select “Go to dashboard” then select the previous visualization to proceed to the next step.

Pinned to dashboard ✕

The visualization has been pinned to your dashboard. You can now create a mobile layout to optimize your dashboard for mobile devices as well.

Create mobile layout Go to dashboard



To share this visualization to others, select the “Share” option on the upper left-hand side, and select any of the conditions that apply to your requirements. Do not forget to include the name or email address of the recipient.

Share dashboard Iris dataset ... X

Enter a name or email address

☒ Allow recipients to share this dashboard

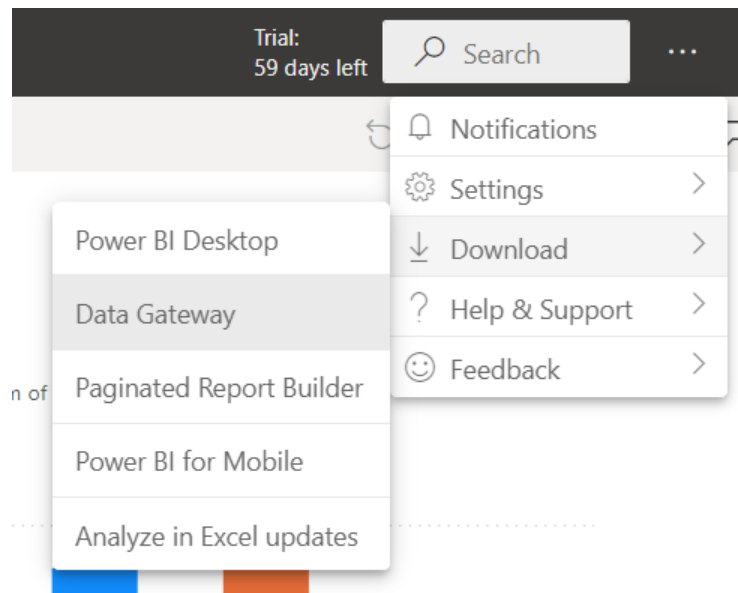
☒ Allow recipients to build content with the data associated with this dashboard

☒ Send an email notification

Add a message (optional)

Grant access Cancel

On-premises data sources can also be connected to Power BI by using the tool's Data Gateway. This can be set up by selecting "Download" after clicking "..." on the upper right-hand corner of the screen. Select "Data Gateway" to enable the feature.



Using Data Gateway with the on-premises gateways will keep the data fresh by connecting to the on-premises data sources without moving the data. Gateways will provide the flexibility required to meet individual and enterprise needs. (Power BI Tutorial, n.d.)

References

Power BI Tutorial. (n.d.). Retrieved October 8, 2022, from https://www.tutorialspoint.com/power_bi/index.htm