14.1.4

Import Data into Tableau

Tableau is downloaded, open, and ready to go. Now you need to get some relevant data that you can use to help predict if your bike-share company idea could work in Des Moines. For this you'll need to turn to your data source: the Citi Bike data.

Now that our Tableau environment is set up, we can import our data. Let's look at the kind of data we can use, how to connect the data to Tableau, and then how to do some basic data transformations.

Import Citi Bike Data

In Tableau, you have a variety of different options when it comes to data sources. You can have flat files such as CSV, PDF, and TXT files, as well as other data sources like databases and data streams. (These will mostly be SQL databases.)

There are two primary ways that Tableau connects to the data you provide: through live data or extract data. Both have their benefits and uses, so let's dive a little deeper into each.

Live data is primarily databases such as MySQL and Microsoft SQL Server. Live data is just what it sounds like: live data. This type of data is updated every time you view the dashboard, since it's possible that the data has changed in your database.

Extract data is primarily when you use files such as CSV, TXT, or PDF. These files remain unchanged unless you pull a new extract of the data. For example, if you update the file, you would have to update it in Tableau as well.

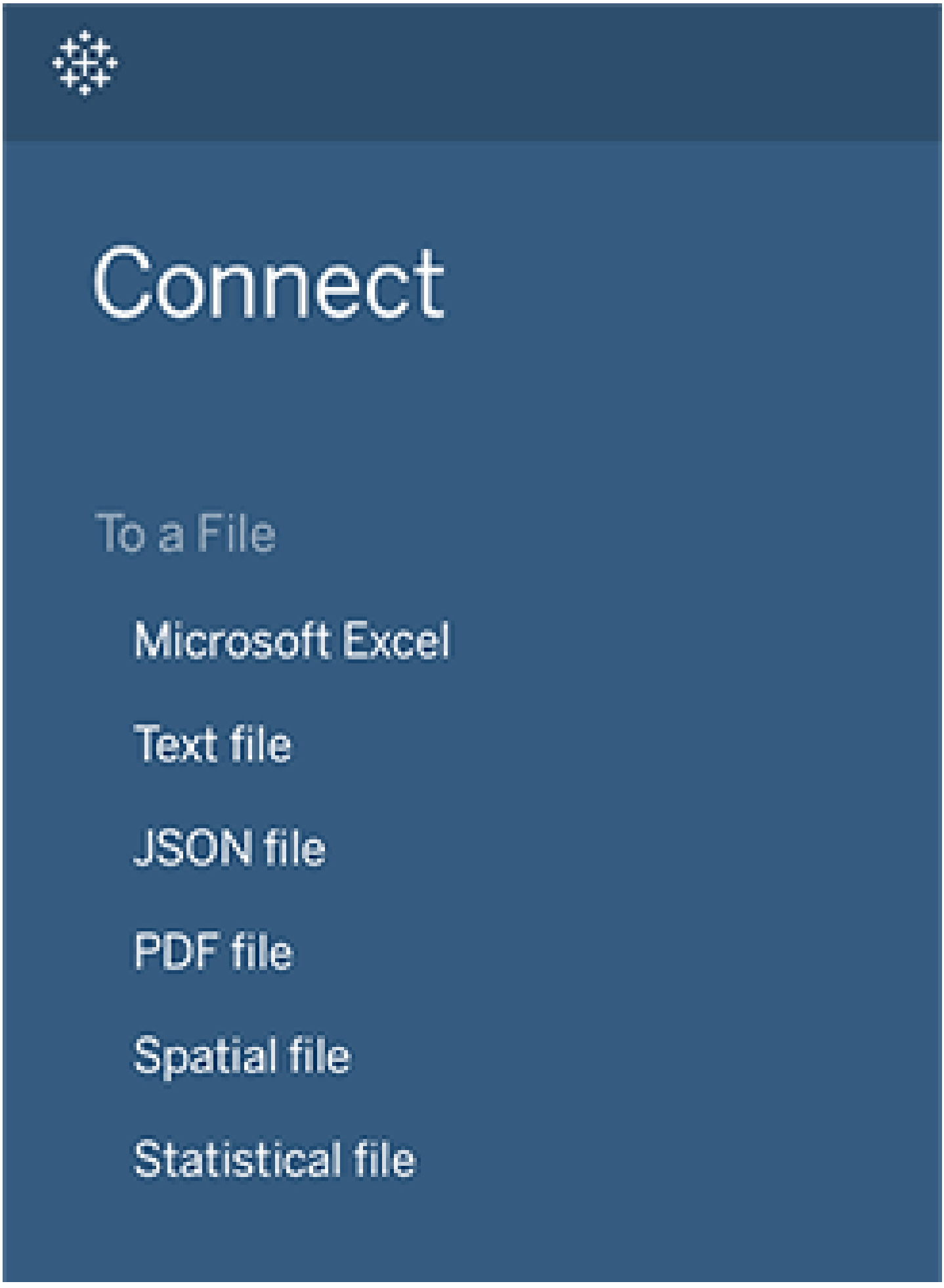
For our analysis, we'll import the CSV file, which contains all the data we'll need this project. Therefore, we'll technically be working with extract data for our project.

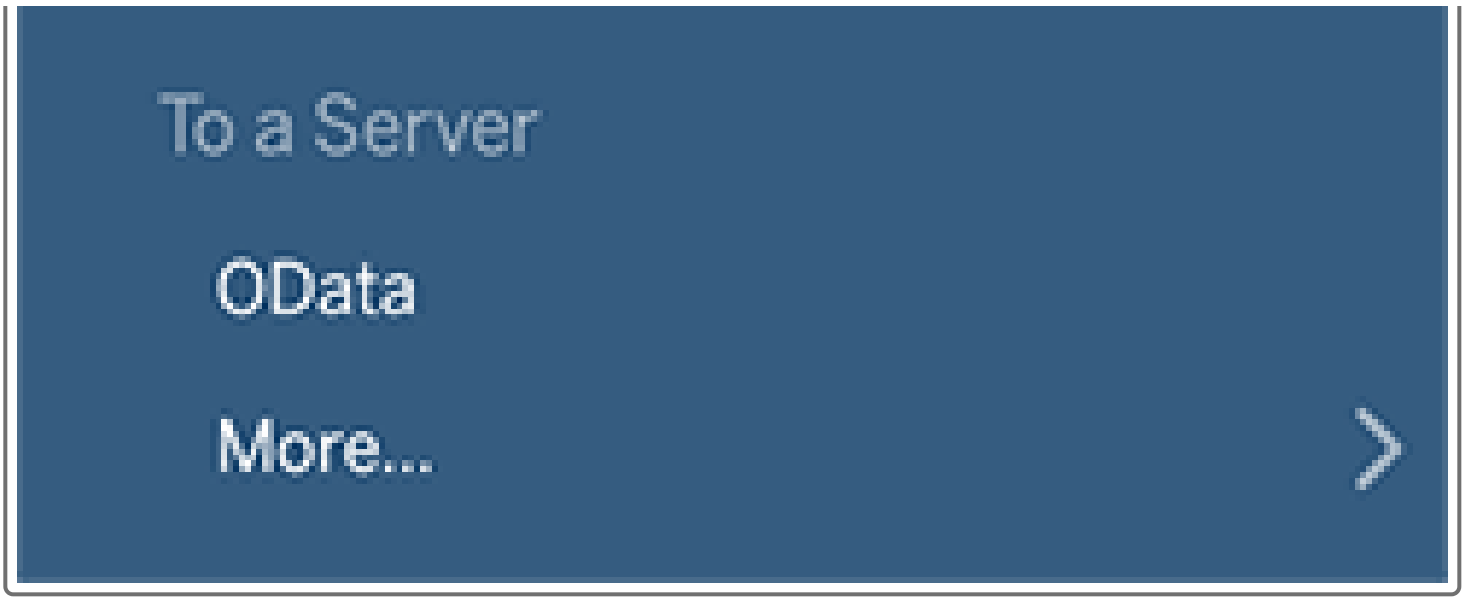
NOTE

If you ever need to create another Tableau dashboard with a different data source, you would follow essentially the same process as the one we are about to do. The only difference is the type of data source you select for

importing.

First, open the Tableau application. You should see a list of data source options. Since our Citi Bike data is a CSV file, you will need to select the "Text file" option and navigate to the location of the Citi Bike data.


Connect
To a File
Microsoft Excel
Text file
JSON file
PDF file
Spatial file
Statistical file

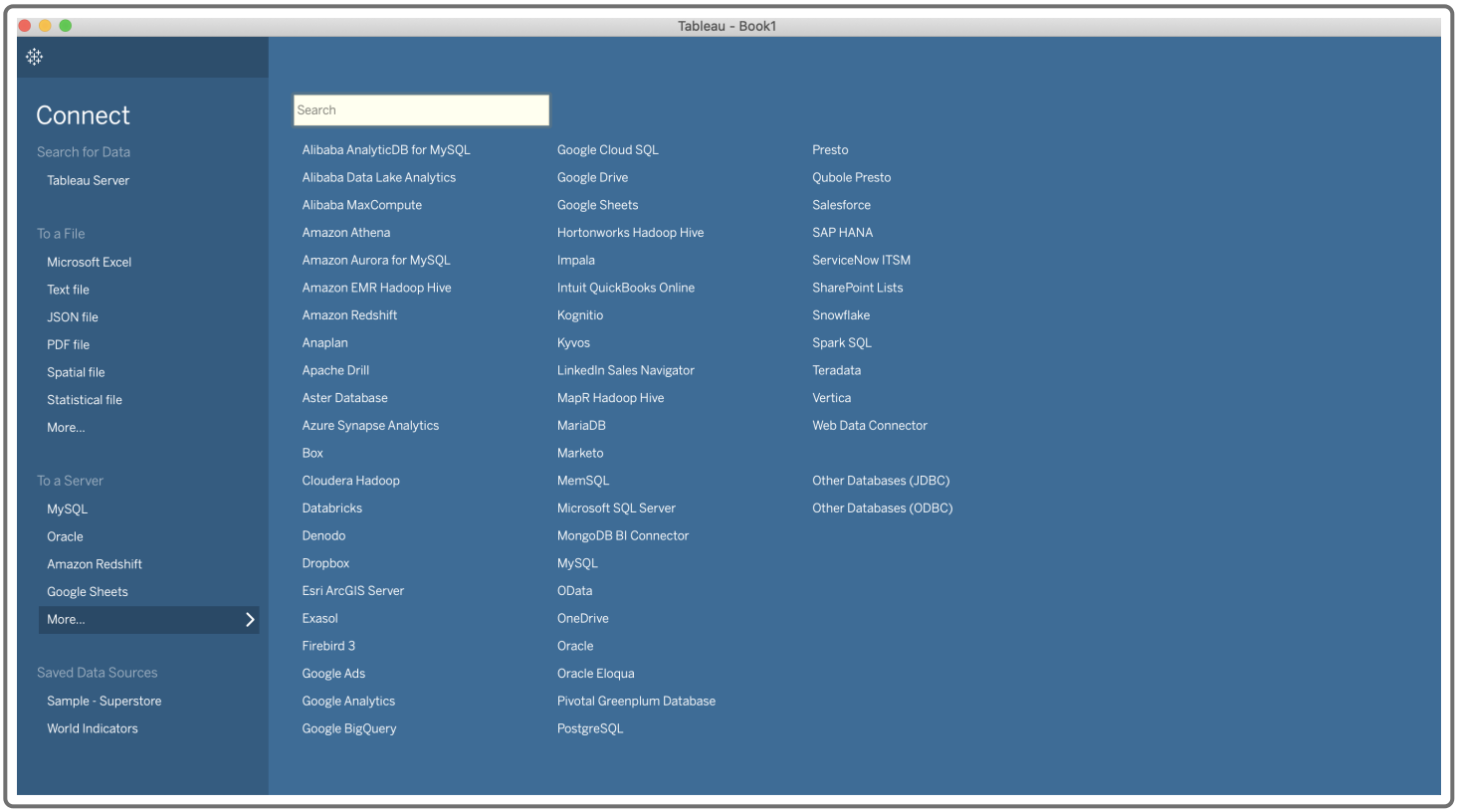


After you have connected to the data source, you will be ready to go.

Available Data Sources

There are numerous types of data sources that you can use. We'll select our data source in a moment. For now, you should be familiar with the data sources you can use for other projects.

- With Tableau Public, you are able to connect to flat files like Excel (`.xlsx`), text (`.txt`, `.csv`, `.tab`, `.tsv`), JSON, PDF, Spatial, and Statistical. You can also connect to a server, such as Google Sheets, OData, and Web Data Connector.
- With Tableau Desktop, you have the same options as Tableau Public, but you can also connect to a multitude of servers, like MySQL, Oracle, Amazon Redshift, Google Sheets, and a lot more.



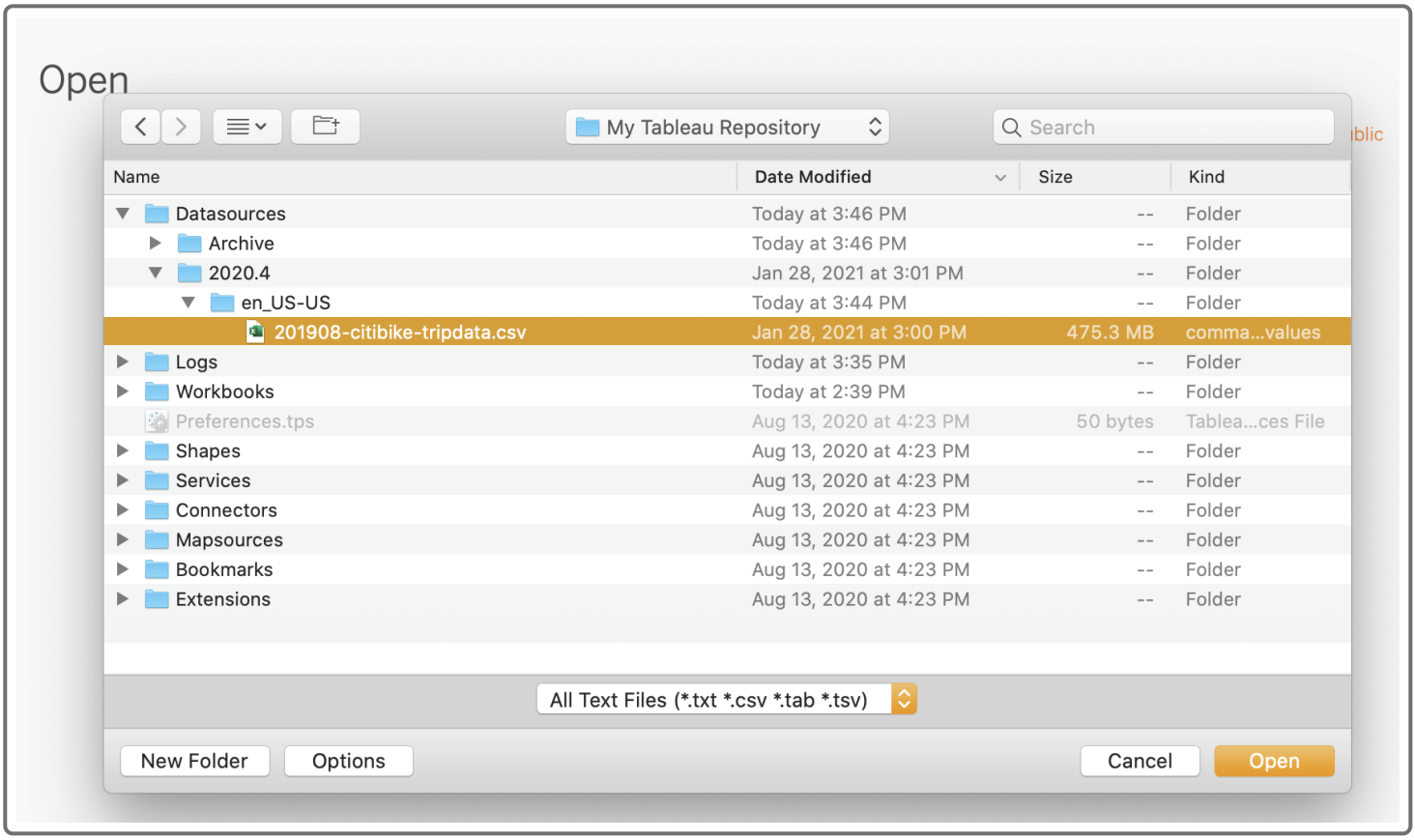
For more information about data sources, refer to the **Tableau website (https://help.tableau.com/current/pro/desktop/en-us/exampleconnections_overview.htm)** .

Connect Data Sources

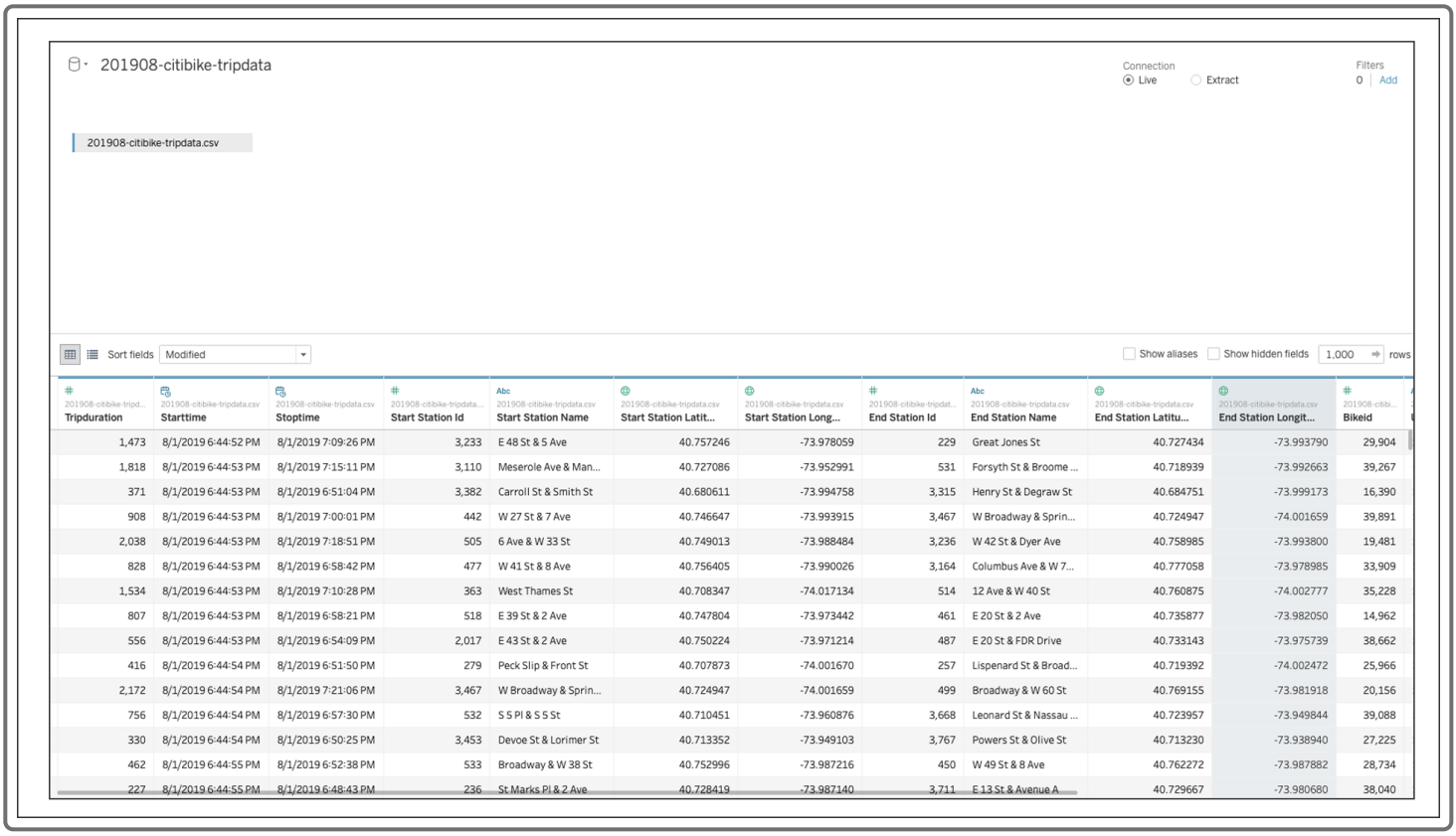
Now we can start connecting our data to Tableau so that we can access it. Let's connect our CSV file. Click "Text file" and then navigate to the location of the Citi Bike data CSV file you downloaded.

When you connect to a data source from Tableau, Tableau automatically navigates to the "Datasources" subfolder in the "My Tableau Repository" folder created when Tableau was downloaded.

Although you can connect to a file anywhere on your computer, its best practice to store your data files in the "Datasources" subfolder.



When you open the CSV file, you should see all of the data start to show up in your window. Here's a glimpse at what it should look like.



Tripduration	Starttime	Stoptime	Start Station Id	Start Station Name	Start Station Latit...	Start Station Long...	End Station Id	End Station Name	End Station Latitu...	End Station Longit...	Bikeid
1,473	8/1/2019 6:44:52 PM	8/1/2019 7:09:26 PM	3,233	E 48 St & 5 Ave	40.757246	-73.978059	229	Great Jones St	40.727434	-73.993790	29,904
1,818	8/1/2019 6:44:53 PM	8/1/2019 7:15:11 PM	3,110	Meserole Ave & Man...	40.727086	-73.952991	531	Forsyth St & Broome ...	40.718939	-73.992663	39,267
371	8/1/2019 6:44:53 PM	8/1/2019 6:51:04 PM	3,382	Carroll St & Smith St	40.680611	-73.994758	3,315	Henry St & Degraw St	40.684751	-73.999173	16,390
908	8/1/2019 6:44:53 PM	8/1/2019 7:00:01 PM	442	W 27 St & 7 Ave	40.746647	-73.993915	3,467	W Broadway & Sprin...	40.724947	-74.001659	39,891
2,038	8/1/2019 6:44:53 PM	8/1/2019 7:18:51 PM	505	6 Ave & W 33 St	40.749013	-73.988484	3,236	W 42 St & Dyer Ave	40.758985	-73.993800	19,481
828	8/1/2019 6:44:53 PM	8/1/2019 6:58:42 PM	477	W 41 St & 8 Ave	40.756405	-73.990026	3,164	Columbus Ave & W 7...	40.777058	-73.978985	33,909
1,534	8/1/2019 6:44:53 PM	8/1/2019 7:10:28 PM	363	West Thames St	40.708347	-74.017134	514	12 Ave & W 40 St	40.760875	-74.002777	35,228
807	8/1/2019 6:44:53 PM	8/1/2019 6:58:21 PM	518	E 39 St & 2 Ave	40.747804	-73.973442	461	E 20 St & 2 Ave	40.735877	-73.982050	14,962
556	8/1/2019 6:44:53 PM	8/1/2019 6:54:09 PM	2,017	E 43 St & 2 Ave	40.750224	-73.971214	487	E 20 St & FDR Drive	40.733143	-73.975739	38,662
416	8/1/2019 6:44:54 PM	8/1/2019 6:51:50 PM	279	Peck Slip & Front St	40.707873	-74.001670	257	Lispenard St & Broad...	40.719392	-74.002472	25,966
2,172	8/1/2019 6:44:54 PM	8/1/2019 7:21:06 PM	3,467	W Broadway & Sprin...	40.724947	-74.001659	499	Broadway & W 60 St	40.769155	-73.981918	20,156
756	8/1/2019 6:44:54 PM	8/1/2019 6:57:30 PM	532	S 5 Pl & S 5 St	40.710451	-73.960876	3,668	Leonard St & Nassau ...	40.723957	-73.949844	39,088
330	8/1/2019 6:44:54 PM	8/1/2019 6:50:25 PM	3,453	Devoe St & Lorimer St	40.713352	-73.949103	3,767	Powers St & Olive St	40.713230	-73.938940	27,225
462	8/1/2019 6:44:55 PM	8/1/2019 6:52:38 PM	533	Broadway & W 38 St	40.752996	-73.987216	450	W 49 St & 8 Ave	40.762272	-73.987882	28,734
227	8/1/2019 6:44:55 PM	8/1/2019 6:48:43 PM	236	St Marks Pl & 2 Ave	40.728419	-73.987140	3,711	E 13 St & Avenue A	40.729667	-73.980680	38,040

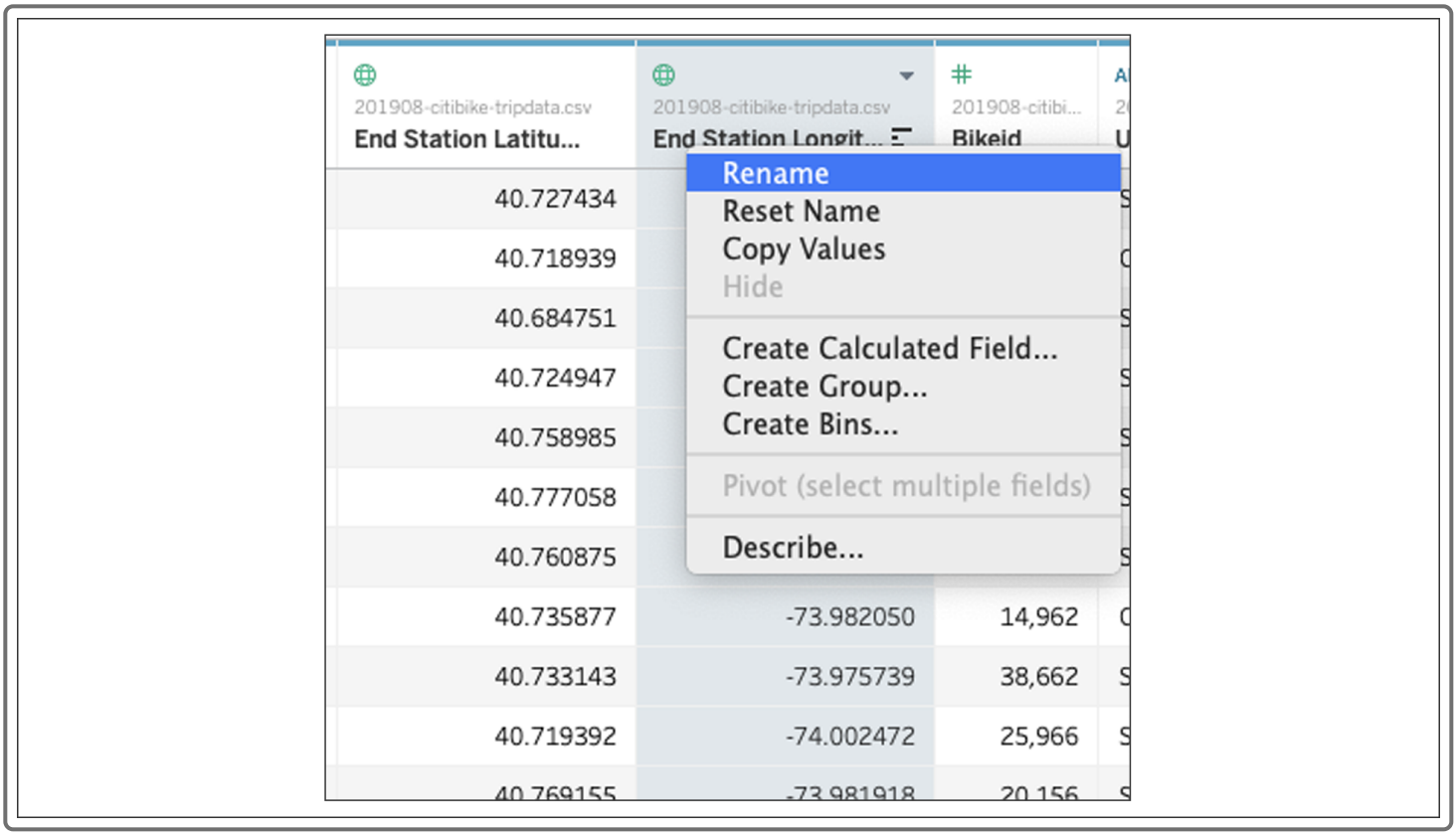
Nice work—the data is imported! Let's move on to the next step: modifying our data.

Modify the Data

Now we need to make a few modifications so that our data is represented accurately when we view it: rename the columns, change the data types of columns, and join data sources.

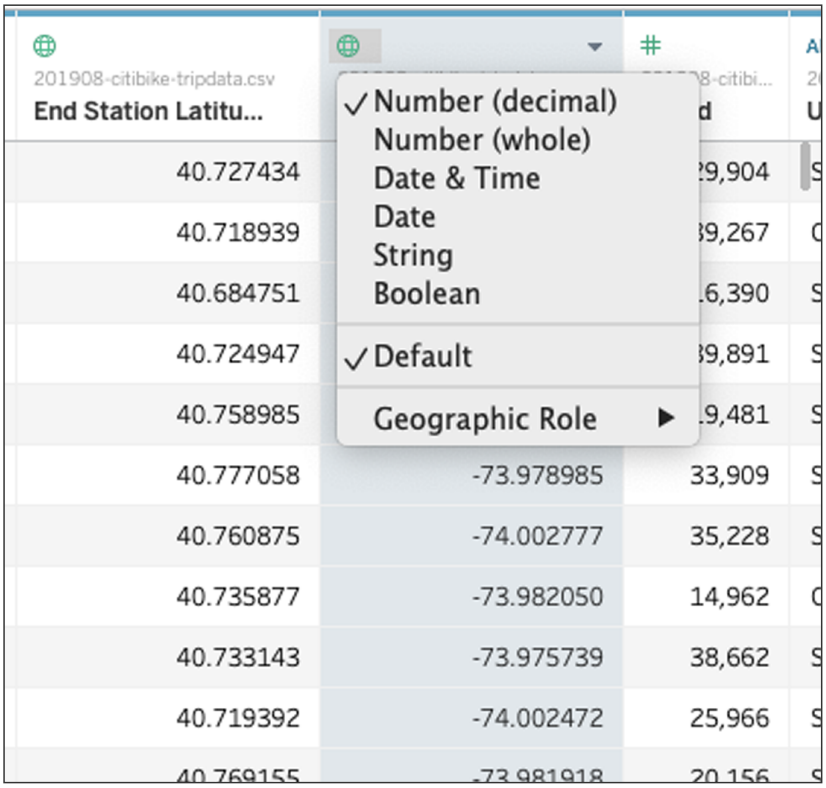
Rename Columns

When data is imported into Tableau, column names can sometimes look incorrect or be difficult to read. In this case, you'll need to change the column names by right-clicking the column name and selecting "Rename."



Change Data Types of Columns

Tableau tries to infer what kind of data you are importing. For example, if you have integer values in one column, Tableau might think they are string values. You will have to change that in order for Tableau to work properly. You can change the column data type by clicking on the top left icon in the column, and then selecting the correct data type.



Retake

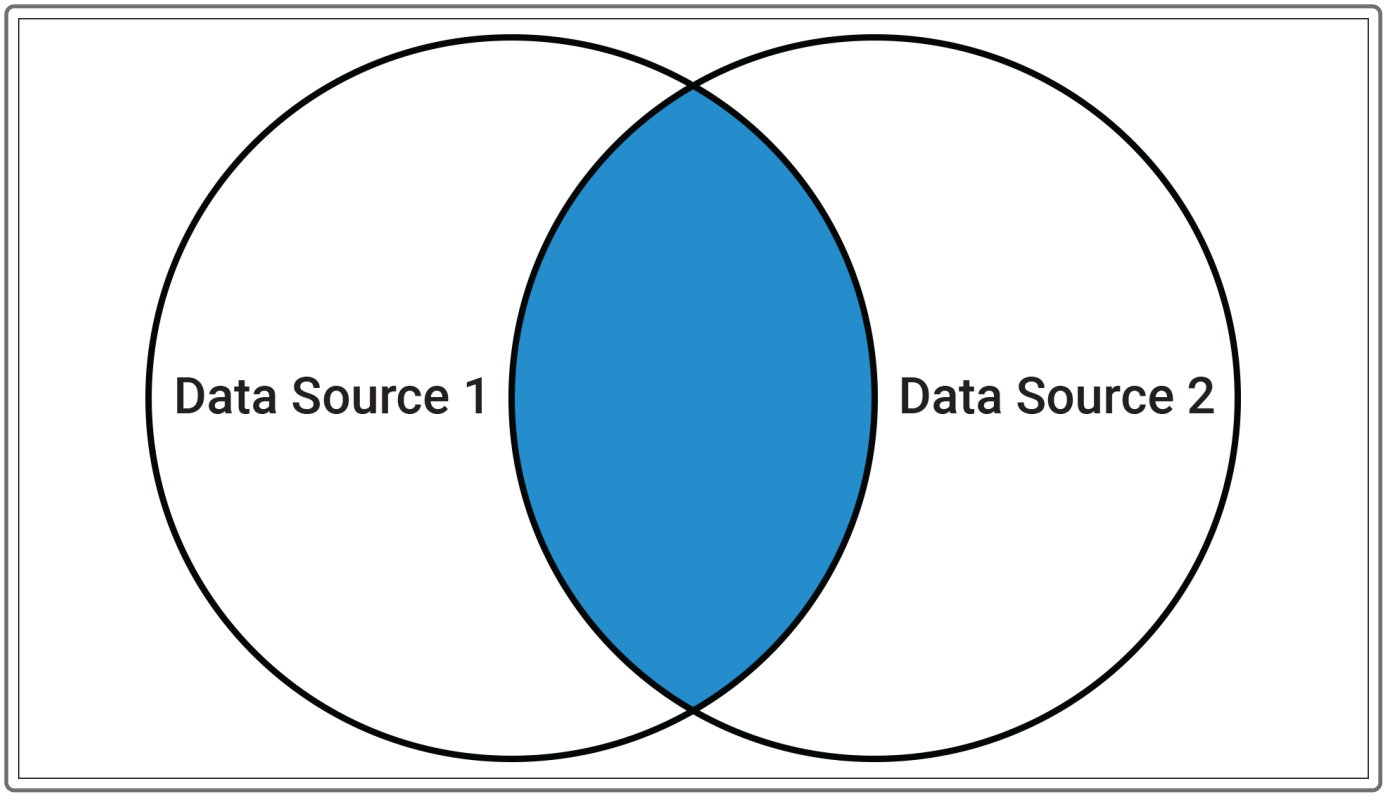
Join Data Sources

One of the best parts about Tableau is that you can join multiple different data sources within Tableau itself. Previously, you learned about joins in SQL. You can use some of the same joins here as well. While we won't need to join any data for our project, you should be familiar with how joins work in Tableau.

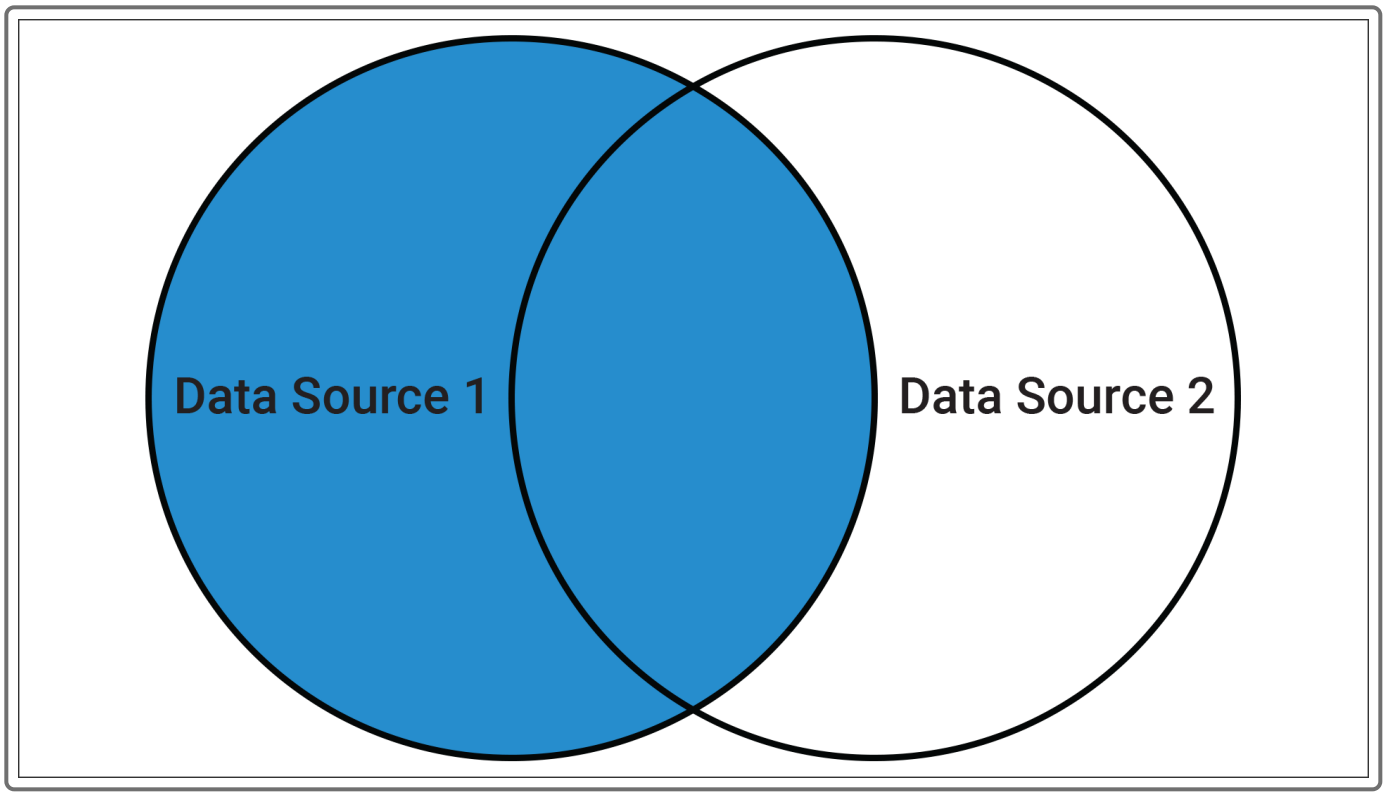
You can perform four joins in Tableau: **inner join, left join, right join,** and **outer join**.

REWIND

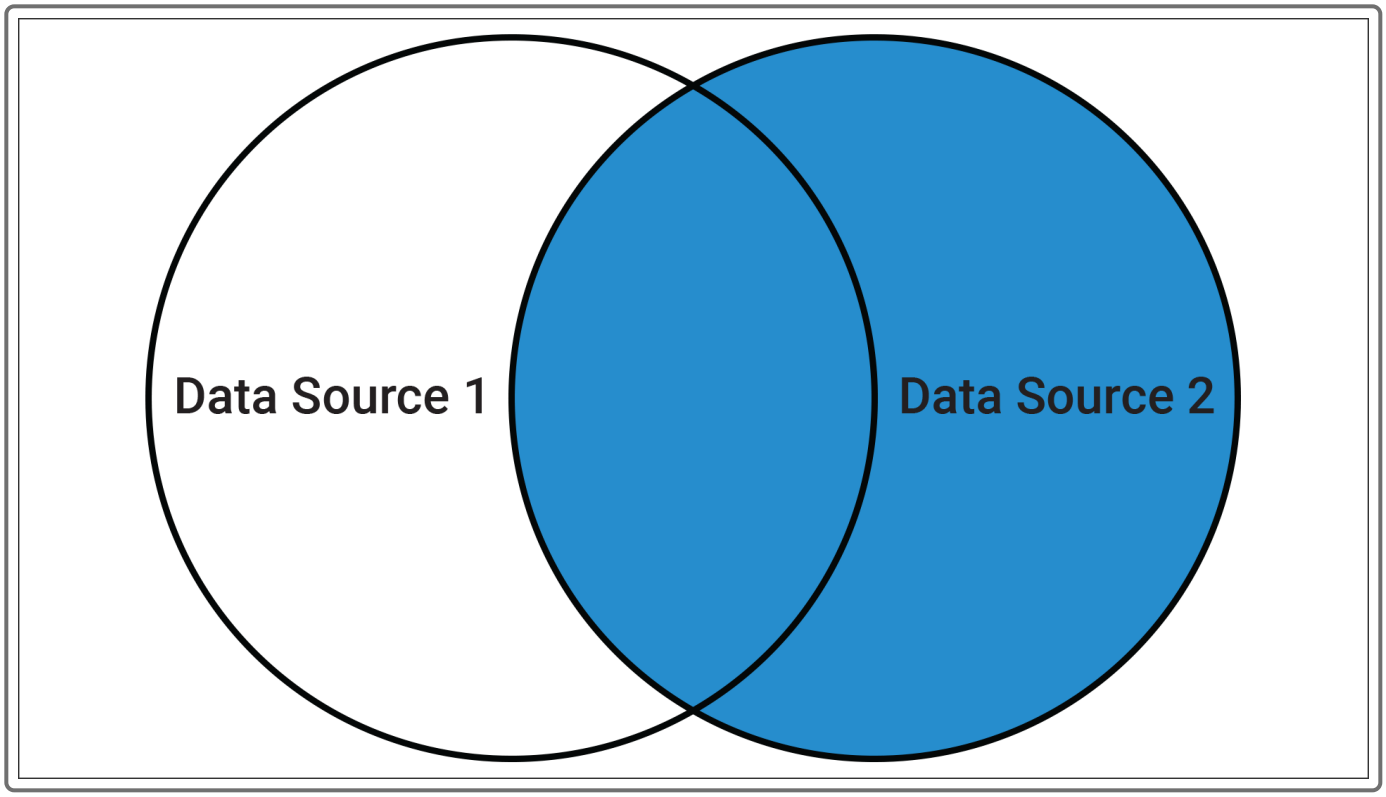
An **inner join** is the combination of Data Source 1 and Data Source 2. The result of the join is the data that exists in both data sources.



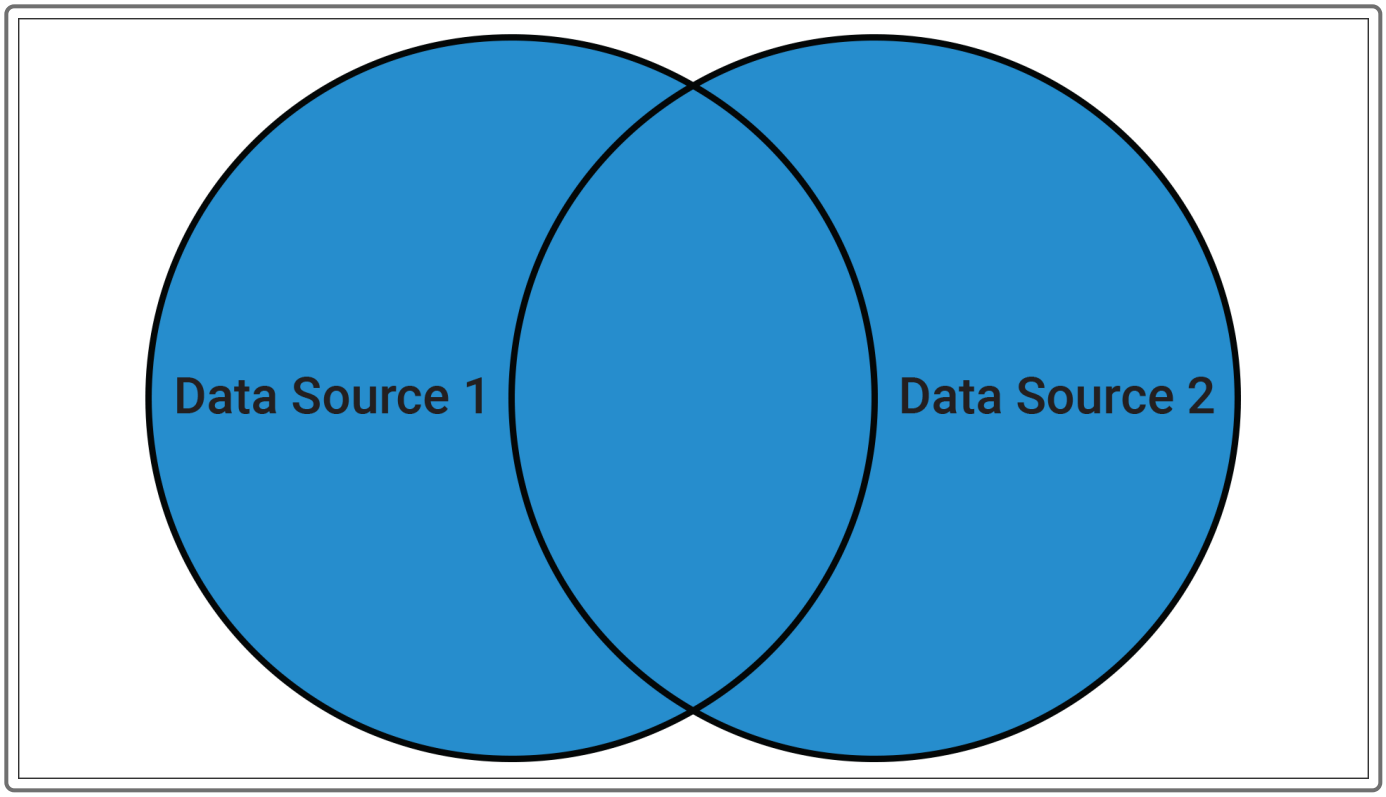
A **left join** is the combination of Data Source 1 and Data Source 2, but where data from Data Source 1 is kept. It also includes the data that's in both data sources.



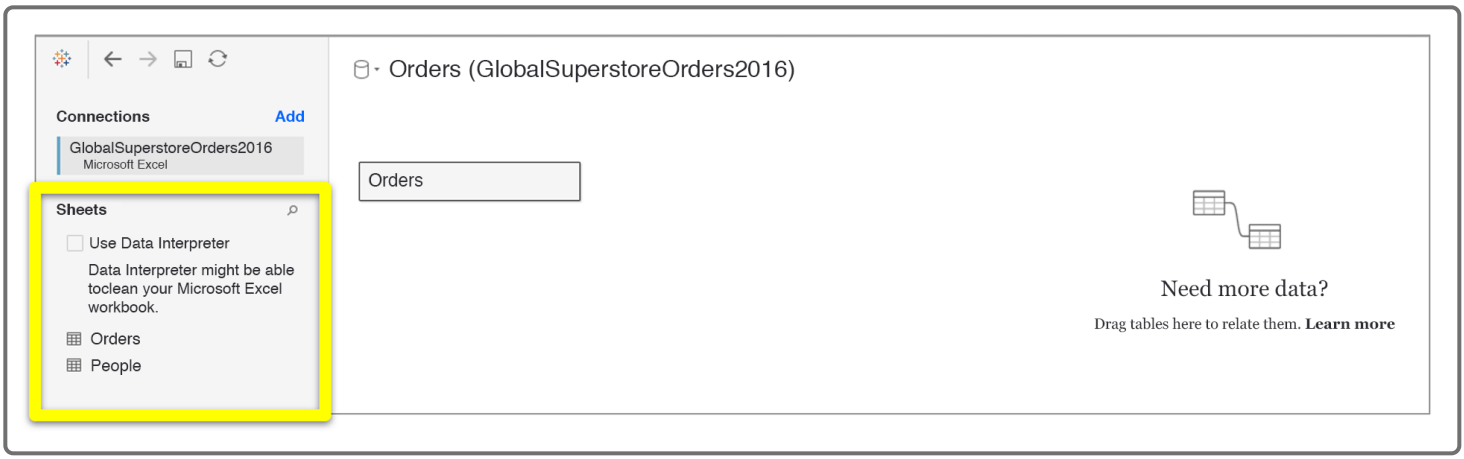
A **right join** is the combination of both data sources, but where the data from Data Source 2 is retained. It also includes data that is in both data sources.



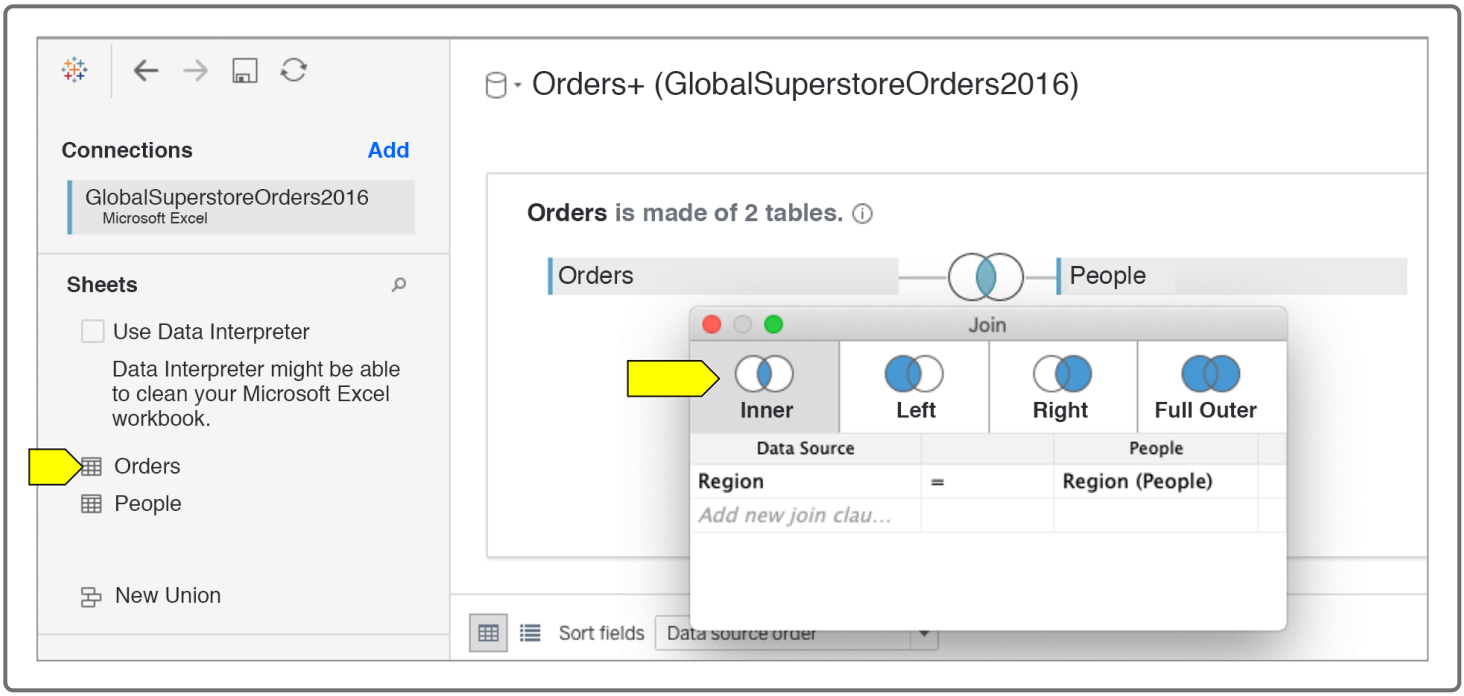
A **full outer join** is the combination of all the data in both data sources.



To join data in Tableau, you'll need to start by importing your data. When you import your data, you'll need to click on one of the sheets on the left, then it will create a box in the center.



If you double-click on the button that says Orders in this example. After that, you can double-click on the venn diagram to complete different joins.



Now that we've covered joins, let's start to look at the different software aspects of Tableau.