

# Google Sheets Visualization Directions

Scenario: You're submitting use statistics from your reading room and reference interactions for your institution's annual report. You need to download some data, understand it, and manipulate it into data visualizations. You'll be using Google Sheets for this activity.

## Setting Up

1. Sign in to your Google Account.
2. Go to the shared Google Drive folder at <https://tinyurl.com/ssaviz17>
3. Open "2017\_SSA\_Visualizing-Public-Service-Metrics\_data\_raw."
4. Go to "File," "Make a copy" to add the folder to your personal Drive so you can edit it
5. Open "2017\_SSA\_Visualizing-Public-Service-Metrics\_data\_raw" from your copy in Drive

## Understanding your data

This data set was created using (fictionalized) reading room visits

1. Using the Google sheet, try and answer the following questions:
  - Who created this dataset?
  - Who is responsible for maintaining it?
  - What point in time or time-range does it apply to?
  - How was the data collected?
  - How was the data processed after being collected?

## Cleaning and viewing

Sometimes your data is messy. In this case your dataset has been pre-cleaned, but in general, you should do the following:

1. Delete any data that isn't clearly attached to a data point.
2. Freeze your top row so you can see what column you're working with even when you're down at the bottom of your data set by going to View--Freeze--1 Row.

## Sort and filter

Sometimes you want to put your data in a specific order or just view some of it at a time.

1. To sort, highlight the column you want to sort by. Go to Data—Sort Sheet. Using "Sort Sheet" makes sure all of your rows stay together; if you use "Sort Range," only that column will sort and your data will no longer be valid.
2. To filter data so you're only looking at some of it at a time, highlight the column you want to filter by and go to Data—Filter and choose which categories you want to look at.
  - a. Your data is still there--to remove the filter, click the "filter" icon in your toolbar to "turn off filter."

## Pivot Tables

Pivot tables let you combine data and move your categories around without having to run a bunch of formulas manually. Specifically, they let you count, sum, and calculate based on the categories in your dataset. We're going to use Pivot tables to start analyzing our reading room stats and make our visualizations.

1. Highlight the entire spreadsheet. Click "Data" and then "Pivot table..."
  - a. Your pivot table will open in a new sheet; the tab at the bottom of your sheet will probably read "Pivot Table 1." The table will be blank.
2. First, let's look at our stats by "Type of interaction" (Column C on our original sheet)
3. Next to "Row," click "Add field"
  - a. Select "Type of Interaction"
4. Next to "Value," click "Add field"
  - a. Select "Type of Interaction"
5. Next to the "Summarize by" drop-down menu, select "COUNTA"
6. You should now have a table listing how many interactions occurred for each type of interaction

## Graphs and Charts

It's finally time to visualize our data! Pivot tables are meant for continual manipulation and extraction of data and not as standalone tables, so we will need to copy our data over to a new sheet for our next steps.

1. Copy your table and paste it onto a new sheet by right-clicking your mouse, selecting "Paste special" and "Paste values only." This will paste your table data without recreating your Pivot table. You can also paste as values only by selecting Ctrl/Shift/V on your keyboard (PC) or Command/Shift/V (Mac).
2. Right-click the sheet's tab and rename it "Tables."
3. For this chart, we want to show what percentage each of our interactions made up of our entire interactions for the year. We'll make a pie chart to show parts of a whole.
4. Select your data (do NOT include the "Grand Total" line at the bottom of your table) and click the "Insert" menu and then "Chart."
5. Google Sheets automatically recommends some appropriate chart types to you (or click the "Chart types" tab for more options). Select the pie chart and click "insert."

## Customization

Now you can customize your graph.

1. First, copy it over to a new sheet. Click the dropdown arrow and select "Move to own sheet."
2. On the new sheet, right click the sheet tab and rename it "Interactions Pie Chart."
3. Click the "Advanced Edit" button at the top to customize your pie chart's display text, color, legend, and more.
4. Follow best practices by using the [Data Visualization Checklist](https://tinyurl.com/datavizcheck) (<https://tinyurl.com/datavizcheck>) in customizing your chart.

## Saving and Exporting

Finally, you'll want to reuse your graphs outside of your Google sheet.

1. Publish to the web

- a. To create a link to your chart: Click “Publish chart” from your “Interactions Pie Chart” sheet. In the first drop-down menu, select “Interactions Pie Chart.” In the second drop-down select whether you want to publish the sheet with your pie chart on it (which would be interactive) or a PDF.
  - b. To embed your chart on a website: Click “Publish chart” from your “Interactions Pie Chart” sheet. Click the “Embed” tab. Click “Publish.” Copy the embed code and paste it into your website.
2. Save as a png
  - a. Click “Save image.”
  - b. Save to your computer
  - c. Use the image to insert your graph into text documents, presentation slides, and more
3. Copy (for Google products only)
  - a. Click “Copy Chart”
  - b. Paste chart into Google Docs, Sheets, Slides, etc.
  - c. You will be given the option to “Link” or “Don’t Link” to your original chart. Linking will automatically update your chart if you change it; however, if you then delete the original chart, it will also be deleted from its linked version.

## Graph Cheat Sheet

Title	Rows	Columns	Values	Filter	Graph type
Use by collection type	Collection Type		Collection Type, COUNTA		pie
Contact method	Contact Method		Contact Method, COUNTA		pie
Users	Library User		Library User, COUNTA		pie
Interaction by month*	Month		Month, COUNTA		Column chart
Interaction by timeframe*	Time Frame		Time Frame, COUNTA		Column chart
Interaction by day of week*	Day of the Week		Day of the Week, COUNTA		Column chart
Interaction by time spent*	Time Spent		Time Spent, COUNTA		Column chart
Reading Room visits by day of week and time frame	Day of the Week	Time Frame	Time Frame, COUNTA		Stacked column chart
User interaction types for Special Collections only	Library User	Type of Interaction	Type of Interaction, COUNTA	Contact Method, Special Collections	Scatter plot

\*Google Sheets will change the order of your data and make your charts difficult to read. When you paste your table into the “Tables” sheet, take a few minutes to order the data in a way that makes sense (say, chronologically) before creating your chart