

How to Make Histograms and Pie Charts in Excel

1 Histograms

1.1 Setup

First, you need to make sure that Excel is set up properly: Start Excel. Click on “Tools” on the menu bar at the top. Look to see if “Data Analysis...” appears in the Tools menu. If it is there, then you don’t need to do anything. If it is not, then do the following:

Click on “Tools” and then select “Add-Ins...” After the Add-Ins box appears, select the box labeled “Analysis ToolPack” then click “OK”.

At this point, you should be able to access “Data Analysis” from the “Tools” menu.

1.2 An Example

Pretend that you have done a scientific study whereby you have collected the following data for the lengths of the toenails in millimeters of a sample of millionaires (Use the companion spreadsheet):

	A
1	14
2	23
3	25
4	13
5	44
6	53
7	17
8	34
9	22
10	40

At this point, you’d like to construct a frequency distribution. Let’s say that we want to set up the classes of size 10, and the lower bound of the first class is 10. Then we will have the classes 10 – 19, 20 – 29, . . . , 50 – 59.

Excel calls classes “bins”. In order to set up a frequency distribution, Excel needs to know the upper bounds of our classes. So we’ll enter a second column of data for these upper bounds. We’ll also make a third column for the classes 10 – 19, 20 – 29, . . . , 50 – 59, but these classes will only serve as text labels later.

	A	B	C	D	E
1	14		19		10 – 19
2	23		29		20 – 29
3	25		39		30 – 39
4	13		49		40 – 49
5	44		59		50 – 59
6	53				
7	17				
8	34				
9	22				
10	40				

Now we're ready to create a frequency distribution. To do this, follow the following steps:

1. Select "Data Analysis..." from the "Tools menu".
2. Select "Histogram" from the list in the Data Analysis box.
3. Click the little icon on the right of the "Input Range" field, then use the mouse to select the data in column A. Then click the little icon on the right of the field again to return to the Histogram window.
4. Click the "Bin Range" field, then click the little icon to the right of the Bin Range field. Now use the mouse to select the data in column C. Click the little icon to the right of the field again to return to the Histogram window.
5. Click the "Chart Output" box at the bottom of the "Histogram" window.
6. Click "OK"

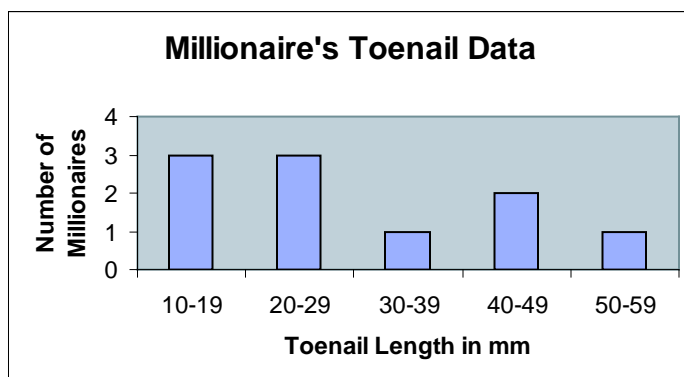
And Presto! You should now have a frequency distribution and histogram. Note that the frequency distribution and the histogram opened up on a new sheet (the sheet with the highest number).

Also notice that there is a category titled "More". To get rid of this, first select the histogram clicking it once. You'll then see that the two columns in the frequency distribution to the left are highlighted. Drag the bottom edge of the highlighted cells up one cell so the More row is not included. You'll then see the More category disappear from the histogram.

Next, we'd like to change the histogram so that the categories will be labeled 10 - 19, 20 - 29, ... , 50 - 59 instead of just 19, 29, ..., 59. To do this, follow these steps:

1. Click on the histogram once to select it.
2. Select "Source Data" from the "Chart" menu.
3. In the Source Data window, select the "Series" tab at the top.
4. At the bottom, click on the little icon to the right of the "Category (X) axis labels" field.
5. Click the "Sheet 1" tab at the bottom of the spread sheet window to get back to the sheet where you originally input your data. Select the data in column E (your class boundaries).
6. Click the little icon to the right of the "Source Data - Category (X) axis labels:" field.
7. Click OK.

At this point, you have a pretty nice histogram. See if you can figure out how to change the axes labels from "bins" and "frequency" to "toenail length in mm" and "number of millionaires" respectively (Try Chart → Chart Options). You can also resize the chart by dragging a corner of it. Your final product should look something like this:



1.3 Pie Charts

To create a pie chart for the frequency distribution you just created, go to the sheet containing the frequency distribution and the histogram. Select any empty cell on this sheet, then do the following:

1. From the “Insert” menu, select “Chart”
2. In the Chart Wizard window, select “Pie” in the “Chart Type” list. Then click “Next” at the bottom.
3. Click the icon to the right of the ”Data range” field.
4. Use your mouse to select the numbers in the Frequency column of your frequency distribution. Select only the numbers (and don’t select the number in the “More” row). Then click the little icon to the right of the data range field box.
5. Click the “Series” tab at the top of the Chart Wizard window.
6. Use your class boundary data (on sheet 1) as the input of the ”category labels” field at the bottom.
7. Click Next.
8. Click on the “Title” tab and give the pie chart an appropriate title. Then click on the “Data Labels” tab and select the “percentage” box.
9. Click Next and Finish.

Now you should have a nice pie chart. Here’s my final output:

