

AP Statistics
Assignment 1-4

Use the site <http://www.shodor.org/interactivate/activities/histogram/index.html> to complete this assignment.

The purpose of a histogram is to effectively depict the shape of a distribution. The choice of bin width has a rather profound effect on the histogram's ability to depict the distribution's shape. Be sure to EXPLAIN your thinking.

- 1) Begin with the dataset regarding "Colleges' SAT Math Scores."
 - a. Starting with the initial histogram (refresh if you already changed things), how would you describe the distribution (center, shape, spread, and outliers)?

<type answer here>

- b. Manipulate the bin width until the distribution appears to be as skewed right as possible. What bin width provided the most skewed picture?

<type answer here>

- c. Manipulate the bin width until the distribution appears to be as symmetric as possible. What bin width provided the most symmetric picture?

<type answer here>

- d. How does manipulating the vertical scale change what the histogram communicates? Provide an example in your answer.

<type answer here>

- 2) Look at the dataset for "Gas Mileage for Year 2000 Cars."
a. Set the bin width to 13 and describe the distribution.

<type answer here>

- b. Set the bin width to 6 and describe the distribution.

<type answer here>

- c. Which bin width is more appropriate and why?

<type answer here>

- 3) Many statisticians suggest about 7 bins for a histogram. Try this method out on the datasets for NBA Payrolls and Horsepower of Cars.
a. What bin width did you choose for each?

<type answer here>

- b. Does the method seem to provide an accurate depiction of the data?

<type answer here>

- 4) Enter in the dataset {1, 3, 4, 5, 6, 7, 9}.
a. For what integer bin width(s) does the data appear symmetric?

<type answer here>

- b. For what integer bin width(s) does the data appear skewed right?

<type answer here>

- c. For what integer bin width(s) does the data appear skewed left?

<type answer here>

- 5) Considering the above problems, what cautions might you take in creating your own histograms?

<type answer here>

- 6) A consumer magazine recently reported the number of calories in a hot dog in each of 16 major brands of hot dogs. Use your TI Calculator to create a histogram of the data. If you need assistance, start by looking at <http://education.ti.com/us/product/tech/83p/guide/83pguideus.html>. If you are having further trouble with the calculator, please stop in during office hours for guidance or e-mail me.

73	136	191	179
182	154	190	105
170	193	144	137
150	128	141	139

- a. After entering the data and getting the plot (through choosing Zoom...ZoomStat), how many bins did the calculator choose?

<type answer here>

- b. What was the bin minimum and maximum for the most frequently occurring class?

<type answer here>

- c. Describe the distribution.

<type answer here>