City Semester
Problem Set #2
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1. 🔵 A company with 278 employees was concerned that there was a problem with their employees showing up late to work so management recorded how many minutes each person was late. If they showed up early or on time no information was collected for that employee. Open the Fathom file called 'Late to Work' to see the data.

   (a) Create a dotplot (you do not need to copy the dot plot to your paper).

   (b) Six people were late the same number of minutes. How many minutes late were these six people?

   (c) Lets say that the next day the lateness data is the same with one exception, the person who was the latest (180 minutes late) arrived at work on time. What would the graph look under these circumstances? Click on that dot and delete it to see.

   (d) What does part c tell you about the appropriateness of a dotplot for certain datasets?

2. 🔵 Two schools reported the Math SAT scores of their seniors. Open the Fathom file called SAT Scores to see the data.

   (a) How many seniors were in each school?

   (b) Create a dotplot with the Score variable on the horizontal axis. Then drag the name of the School variable to the vertical axis to split the graph by school (you do not need to copy the dot plot to your paper). What was the range of SAT scores for each school?

   (c) Describe the shape of the distribution for each school.

   (d) Based just on what you see, which schools seniors did better on the SAT? Support your answer.

   (e) You explained why one school did better on the SATs in part c. Now suppose you were the headmaster of the other school. Write a few sentences trying to convince someone that your SAT scores are better than the school you chose in c.

3. (a) a. Come up with a variable we could measure about New York City that you would expect to have a fairly symmetric distribution. (it could be about any topic people, transportation, advertisements, anything).

   (b) Come up with a variable we could measure about New York City that you would expect to have a distribution that would be skewed to the left.

   (c) Come up with a variable we could measure about New York City that you would expect to have a distribution that would be skewed to the right.

4. Make up a data set of five data values in which the mode is negative and the mean is positive.

5. Make up a data set of ten data values in which the mean is negative and the median is positive.

6. The salaries for the 2013 Mets and the total payrolls for all MLB teams is in the file MLB Salaries

   Note: when Fathom deals with really large or really small numbers, at some point it starts to report them in whats called engineering notation, which is basically the same as scientific notation. If you see 1.05e+08, that means $1.05x10^8$, or 105,000,000. 2.3e-06 would mean $2.3x10^{-6}$, or 0.0000023

   (a) Create a dotplot of salaries for the Mets. What is the shape of the distribution

   (b) Before calculating them, which do you think will be larger, the mean salary or the median salary and why?

   (c) What is the mean salary of the Mets?

   (d) What is the median salary of the Mets?

   (e) If you read a newspaper story about the Mets the mean as a measure of center, what type of spin would the writer be trying to use?

   (f) If you read a newspaper story about the Mets that used the median as a measure of center, what type of spin would the writer be trying to use?

   (g) Create a separate dotplot of all teams payrolls. What is the shape of the distribution?

   (h) Based on looking at the distribution of all teams, do you expect the mean and median to be closer together or further apart then they were for the Mets? Then use calculations to find out if you were correct or not.