# 1 Data Collection

First we will work together to generate a data set for our class. We will collect values for three numerical variables.

(a) **Height**: your height measured in inches

(b) **Number of moves**: the number of times you have moved residences

(c) **Power test score**: your score on the the 30 second power test[1]. [2]

Enter your data on this shared spreadsheet[3]. You do not need to include your name.

Copy and paste the data set from the shared spreadsheet to the spreadsheet below. This copy will be for your individual use for the remainder of the activity.



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[1] chs.uky.edu/about/news/alum-ny-times-take-30-second-power-test

[2] There are modifications available for this test.

[3] colostate-my.sharepoint.com/:x:/g/personal/jshrine_colostate_edu/EZAyJvIdrrVDkWq6b7qyztABC72OXclx7KEF4yUi9A9lnQ?e=tHenoi

# 2 Describing Data Part 1

Use the data set to first answer these questions individually, and then discuss your responses as a group.

- Is our class tall?

- Has our class moved a lot?

- How does our class perform on the 30 second power test?

# 3 Describing Data Part 2

Practice using these commands in your spreadsheet to compute the mean and median for each of the three variables in the data set. In your group, discuss how you might use these values to answer the questions from Worksheet 2.

# 4 Analyzing the Mean

Discuss the following questions in your groups regarding the data sets A, B, and C.

(a) Which data set is best described by a mean value of 5.5. Why?

(b) For the remaining two data sets, why is the mean value not as good at describing the set of values? Does the median value do better?

# 5 Quartiles and Outliers

Answer the following questions in your group regarding data sets A, B, and C.

- Compute the lower quartile (LQ), upper quartile (UQ), and interquartile range (IQR) of Data Set A.

  ✤ Solution (click to open)

- Compute the lower quartile (LQ), upper quartile (UQ), and interquartile range (IQR) of Data Set B.

  ✤ Solution (click to open)

- Compute the lower quartile (LQ), upper quartile (UQ), and interquartile range (IQR) of Data Set C.

  ✤ Solution (click to open)

- Identify the outliers in each data set.

  ✤ Solution (click to open)

- How could these computations be used to support your previous responses regarding how well each data set is represented by the mean?

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# 6 Box Plots

Examples of box plots for data sets A and B are given below. In your group, discuss how the box plots communicate each of the descriptive statistics that we've computed above, and how the visual representation is helpful in interpreting these statistics.
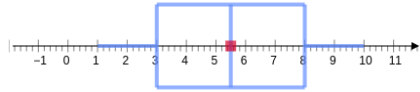
**Figure**: The box plot for Data Set A. There is a red square at 5.5, there is a vertical line at 5.5 in the middle of the rectangular box, and the width of the box is 5 (from 3 to 8). There is a line extending from each side of the box: down to 1 and and up to 10.
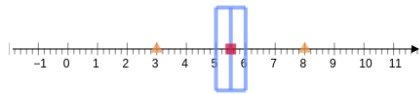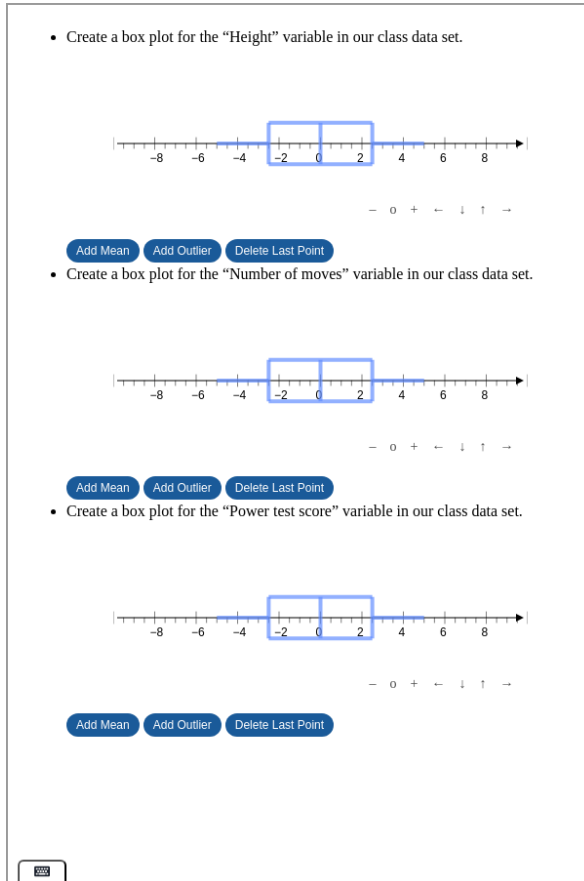
**Figure**: The box plot for Data Set B. There is a red square at 5.5, there is a vertical line at 5.5 in the middle of the box, and the width of the box is 1 (from 5 to 6). There are two orange triangles, one at 3 and one at 8.

# 7 Creating Box Plots

Work in your group to create box plots for each variable we collected data for in our class data set. Use the interactive as needed if it is helpful in recalling the various components that comprise a box plot.



- Create a box plot for the "Height" variable in our class data set.

- Create a box plot for the "Number of moves" variable in our class data set.

- Create a box plot for the "Power test score" variable in our class data set.

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