**Open Intro Questions 1.55 to 1.67**

1.56 a. right skewed, median, IQR

b. symmetric, mean, standard deviation

c. right skewed, median, IQR

d. right skewed, median, IQR

1.57 It should be right skewed as there is a boundary value for number of hours (0). Also the standard deviation is very large in comparison to the mean.

1.58 This can be symmetric as for both left and right sides we have a boundary value of 0 and 100.

1.59 The mean 190 is less than the median 100 so it is right skewed.

1.60 a. mean and median are equal when distribution is symmetric.

b. mean > median the distribution is right skewed.

c. mean < median the distribution is left skewed.

1.61 a. Median would best represent the income for 42 patrons at this coffee ship as by addition two large data points the mean is increased by a significant amount but median remains unchanged. Hence median is more robust than mean.

b. SD also changes significantly after addition of two more guests at coffee shop hence IQR is more robust.

1.62 No since this is the average value of two observations, it will get affected by the outliers.

1.63. a. The numerical distribution is symmetric and unimodal. The log transformation is not needed since there are no extreme values.

b.

1.64. a. Since the data is right skewed there are some extremely high values. A logarithmic representation helps in understanding the pattern of data better.

b. From the heat map we can estimate the counties where Hispanic population is larger based on the intensity of color. From histogram we can determine the maximum, minimum, average Hispanic distributions across the US.

c. Both the visulaizations have their own importance.

1.65. a. From the bar plot we can clearly differentiate between the relative frequency of each condition. But from pie chart we can’t. Trauma, and respiratory seems to be equal but actually they are not.

b. From pie chart we can decided percentage distribution for each condition very well.

c. Will prefer bar plot for categorical data.

1.66 a. 372/910 \* 100 =

b. 278/910 \* 100 =

c. 57/910 \* 100 =

d. 57/372 \* 100 = - Citizenship

Moderates – 120/363 \* 100

Liberals – 101/175 \* 100

e. No.

1.67. No they are not independent as an equal number of conservative people support and not support DREAM act. Same goes with moderate as well.