Applied Statistics HW 3

1. Sixty-nine students were asked to estimate the length of a particular room in feet. The following table contains their estimates (15 values per row):

24	25	27	30	30	30	30	30	30	32	32	33	34	34	34
35	35	36	36	36	37	37	40	40	40	40	40	40	40	40
40	41	41	42	42	42	42	43	43	44	44	44	45	45	45
45	45	45	46	46	47	48	48	50	50	50	51	54	54	54
55	55	60	60	63	70	75	80	94						

   a. Read about stemplots[1], and draw a stemplot of this data and describe the resulting distribution. Overall pattern, outliers etc. I suggest you try a stemplot where each group corresponds to 5 values, e.g. 20-24, 25-29, 30-34 etc.

   b. Compute the 5-number summary and the interquartile range

[1] https://en.wikipedia.org/wiki/Stem-and-leaf_display

c. Apply the test for suspected outliers and determine which values would be classified as outliers by the test. Would you consider those values to be outliers in this case?

d. Draw the modified boxplot for this data. Remember, that the modified boxplot extends the 'whiskers' up to the last values not marked as outliers by the test, and then puts dots/circles for the suspected outliers.

e. What prediction would you make about the length of the room, based on these observations, and how accurate would you consider that prediction?

2. The following table lists the temperatures on the ground at the first 25 launches of the space shuttle (15 values per row).

29	53	57	58	63	66	67	67	67	68	69	70	70	70	70
72	73	75	75	76	76	78	79	80	81					

a. Compute the five number summary of the distribution of these values. Is the distribution skewed?

b. Use the suspected outliers test to compute the suspected outliers, if any, and make a decision as to whether you would consider them outliers.

c. Draw the modified boxplot for this distribution.

3. Ask 6 friends of yours for their GPA. Then list those GPAs, and follow the appropriate steps to compute the mean and standard deviation of those GPAs. Show your work.