Unit 7 - Summary Measures Worksheet: Interpretations:

Exercise 6.1:

The sample size for Diet B is 50, which means that for both Diet A and Diet B the samples have the exact same size. The mean is 3.71, which means that the average weight loss achieved in Diet B is 3.71 kg. While this still stands for a successful diet, as weight is lost, it is a worse result than for Diet A, where the average weight loss achieved was 5.341 kg. Furthermore, the standard deviation was 2.769 kg, which is slightly more than for Diet A which had a standard deviation of 2.536. This means that for Diet B the variation of results around the average that is denoted by the mean is slightly greater than for Diet A. Thus, overall it can be seen that Diet A was, on average, more effective than Diet B on first sight. Whether this difference is statistically significant would need to be shown with a hypothesis test.

Exercise 6.2:

For Diet B, the median is 3.745, while for Diet A the median is 5.642. Again, we see that the average measure of the weight loss in kilograms is higher in Diet A than in Diet B. The interquartile range of 3.451 for the Diet B compared to 3.285 for Diet A indicates that Diet B has slightly greater variability in the middle 50% of its data compared to Diet A. Again, these results show that Diet A was more effective than Diet B as it on average led to a greater weight loss with a smaller variability across the sample. However, this hypothesis must still be tested as explained before.

Exercise 6.3:

Of the 70 respondents in Area 1, 15.7% preferred Brand A, 24.3% preferred Brand B, and the remaining 60.0% preferred some other brand of breakfast cereal. Of the 90 respondents in Area 2, 21.1% preferred Brand A, 33.3% preferred Brand B, and the remaining 45.6% preferred some other brand of breakfast cereal. We see that in Area 1 as compared to Area 2 a greater proportion of individuals prefer another brand of breakfast cereals that is neither Brand A nor Brand B, while in Area 2, the proportions of individuals wo prefer Brand A or Brand B is higher than in Area 1. Whether these differences in the preferences of both areas is statistically significant must, again, be verified via hypothesis testing.