
L14: Hypothesis Testing Lab

Prompt: Your friend claims that the average time it takes to walk from COAD to Patriot is 212 seconds with a standard deviation of 34 seconds. You do not believe your friend since they have lied in the past.

1. Answer the following questions relating to Confidence Intervals:

- (a) You decide to sample 25 people and notice the sample mean is 200 seconds. Create a 95% Confidence Interval to estimate the population mean.

- (b) You increased the sample size to 100 people and notice the sample mean is 200 seconds. Create a 95% Confidence Interval to estimate the population mean.

- (c) How do you notice the confidence interval changing above?

2. Answer the following questions relating to Hypothesis Testing using the information from part (1a) when we had a sample size of 25

- (a) Set up a Hypothesis Test to determine if the population mean is different than 212 seconds.

- (b) Using the Confidence Interval you made in (1a), what do you think your conclusion will end up being?

- (c) What is the test statistic?

- (d) If the Rejection Region “critical values” are $z = -1.96$ and $z = 1.96$, what do you think the conclusion will be?

- (e) If the p -value associated with the test statistic is 0.0776 what do you think the conclusion will be?

- (f) Explain what this conclusion means in “real world” terms.

3. Answer the following questions relating to Hypothesis Testing using the information from part (1b) when we had a sample size of 100

- (a) Set up a Hypothesis Test to determine if the population mean is different than 212 seconds.

- (b) Using the Confidence Interval you made in (1b), what do you think your conclusion will end up being?

- (c) What is the test statistic?

- (d) If the Rejection Region “critical values” are $z = -1.96$ and $z = 1.96$, what do you think the conclusion will be?

- (e) If the p -value associated with the test statistic is 0.0004 what do you think the conclusion will be?

- (f) Explain what this conclusion means in “real world” terms.