

Lab 5 Submission

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Instructions

Complete the lab tutorial before completing this file. Use the R Markdown version of this file to complete and submit your homework. Items in **bold** require an answer. Make sure you change the author in the header to your own name.

1. All three test functions (`t.test()`, `binom.test()` and `prop.test()`) have an argument called **alternative**. **What does this argument do?** Use the help to find out.

The alternative argument allows us to specify what type (or side) of test we would like to run – either two-sided, less, or greater.

2. In the `t.test()` section of the lab, you tested the hypotheses:

$$H_0 : \mu = 3, \quad H_A : \mu \neq 3$$

Edit the code below to test the hypotheses:

$$H_0 : \mu = 5, \quad H_A : \mu > 5$$

```
t.test(x, alternative = c("greater"), mu = 5, conf.level = 0.95)
```

3. In the `prop.test()` section of the lab, you tested the hypotheses:

$$H_0 : p = 0.25, \quad H_A : p \neq 0.25$$

based on observing 20 successes in 100 trials.

Edit the code below to test the same hypotheses, but based on 200 successes in 1000 trials:

```
prop.test(x = 200, n = 1000, p = 0.25,  
  conf.level = 0.95, correct = FALSE)
```

4. In the `prop.test()` section of the lab, you tested the hypotheses:

$$H_0 : p = 0.25, \quad H_A : p \neq 0.25$$

based on observing 20 successes in 100 trials.

Edit the code below to test the same hypotheses, with the same data, but using an exact Binomial test instead. Would you reach the same conclusion?

Since, the proportion is within the confidence interval for both, we would reach the same conclusion. The binom test provided us with a slightly wider confidence interval.

```
binom.test(x = 20, n = 100, p = 0.25,  
  conf.level = 0.95)
```