Math 155 Test of Hypothesis Group Work

Example 1. A claim has been made the mean height of students at SU is 69 inches. We are interested in determining whether we can accept that claim as true. Assume we have taken a random sample of 64 students from the population of students at SU and found a sample mean of 68 with a standard deviation of 3. Conduct a two tailed test of the claim at the 0.05 significance level.

Test Setup

Define *Ho*:

Define *Ha*:

What kind of test (left, right, two-tailed)?

Select α:

Conduct Test *(Illustrate with a sketch)*

Determine $\bar{x}$:

Determine *s*:

Calculate Test Statistic *z*:

Determine Rejection Region:

Determine the *p*-value:

Is z in the rejection region? Is the p=value less than α?

Conclusion

Is *Ho* rejected?

Which type of error is possible?

State a conclusion in written form in the context of the experiment.

Example 2. A claim has been made the mean height of students at SU is 69 inches. We are interested in determining whether we can accept that claim as true. Assume we have taken a random sample of 10 students from the population of students at SU and found a sample mean of 68 with a standard deviation of 3. Conduct a two tailed test of the claim at the 0.05 significance level.

Test Setup

Define *Ho*:

Define *Ha*:

What kind of test (left, right, two-tailed)?

Select α:

Conduct Test *(Illustrate with a sketch)*

Determine $\bar{x}$:

Determine *s*:

Calculate Test Statistic *t*:

Determine Rejection Region:

Determine the *p*-value:

Is *t* in the rejection region? Is the p=value less than α?

Conclusion

Is *Ho* rejected?

Which type of error is possible?

State a conclusion in written form in the context of the experiment.

Example 3. Starbucks claims their coffee contains on average at most 300 mg of caffeine. We wish to test this claim and on seven consecutive days, we buy and test a cup of their coffee for caffeine level. The test results are: 564 310 398 300 307 259 303. (The underlying population is assumed to be normal.)

Parametric T-Test

Test Setup

Ho:

Ha:

What kind of test (left, right, or two tailed)?

Select α:

Conduct Test

Determine $\bar{x}$:

Determine *s*:

Calculate *t*:

Determine the *p*-value:

Compare the *p*-value with α:

Test Conclusion

Is *Ho* rejected?

Which type error is possible?

State a conclusion in written form in the context of the experiment.

Does our assumption of normality look valid?