Week_10_t-test_practical_application_variants

Cici

2020.1.1

LO:

1. Reveal the steps of hypothesis testing
2. Understand the basics on t-test
3. Explain One-sample t-test
4. Distinguish Two-sample paired and unpaired t-test

Notes:

1. Important concepts:

- significance level (alfa): the probability of rejecting the null hypothesis, given that the null hypothesis is true.
- p-value: the probability of obtaining a result at least as extreme, given that the null hypothesis is true.
- critical value: the value that a test statistic must exceed in order to reject the null hypothesis.
- critical region: part of a statistical distribution in which the probability of a given hypothesis is less than the chosen significance level where the null hypothesis would be rejected.
- test value: the value you get from t-test.

2. z-test: large sample hypothesis test

- condition: n >= 30 or normally distributed and known sigmal.

3. t-test: small sample hypothesis test

- condition: n < 30 or population standard deviation is unknown.
- PPT 13/34
- one sample one tailed t-test
- one sample two tailed t-test
- two sample paired t-test
- two sample unpaired t-test

Codes:

t.test(x, y = NULL, alternative = c("two.sided", "less", "greater"), mu = 0, paired = FALSE, var.equal = FALSE, conf.level = 0.95, ...)

all <- iris[which(iris$Species %in% c("setosa","versicolor")),]

var.test(x, y, ratio = 1, alternative = c("two.sided", "less", "greater"), conf.level = 0.95, ...) # F test to compare variances of two samples.