Sampling:
Rnorm: sample from normal distribution
Rnorm(n, mean = , sd = ,)

Density: dnorm()
Distribution: pnorm()
Quantile function: qnorm()
qqplot(): quantile plot of two ordered samples
qqnorm(): quantile plot versure normal distribution
qqline(): straight line going through the two quartiles

Normality test: check if sample has normal distribution
Manually: qqnorm(); qqline()
Test: Shapiro-Wilk Normality test shapiro.test()
    Null Hypothesis: sample is normally distributed

One Sample Student's T-test: checks if sample has same average as the population
Population variance may be unknown, assume it is the sample variance
Assumes normal distribution
mean(Sample)
sd(Sample)
Test statistic: t_0 = (mean(Sample) - meanPopulation) / (sd(Sample) / sqrt(n))
Test: t.test(Sample, meanPopulation, conf.level = x, alternative = 'greater' or 'smaller' if needed)
    Null Hypothesis: sample has same mean as population

One Sample Wilcoxon Test: check if sample has same average as the population
Does not assume normal distribution, is a non-parametric test
Assumes independent and identically distributed sample, assumes continuous distribution
Test: wilcox.test(Sample, meanPopulation)
    Null Hypothesis: sample has same mean as population

Two Sample T-Test: compare means of two populations
Assumes normal distribution for both samples
Test: t.test(Sample1, Sample2, paired = TRUE / FALSE)
    Null Hypothesis: Means of the two samples are the same

Assume equal variances:
Test: t.test(Sample1, Sample2, var.equal = TRUE)
    Null Hypothesis: Means of the two samples are the same

Fisher's F Test: Compare variances from difference samples
Assumes normal distribution for both samples
Test: var.test(Sample1, Sample2)
    Null Hypothesis: variance of both samples is equal

Wilcoxon's Test: non-parametric comparison of variances of two samples
Test: wilcox.test(Sample1, Sample2)
Null Hypothesis: variance of both samples is equal

Chi-Squared Test: compare distribution of a characteristic between samples
Requires all frequencies in the table are bigger than 5.
Test: chisq.test(contingencyTable)
Null Hypothesis: distribution of the characteristic is the same (independent)

Fisher's Exact Test: compare distribution of a characteristic in 2x2 tables
Test: fisher.test(contingencyTable)
Null Hypothesis: distribution of the characteristic is the same (independent)

One Sample Proportion Test: check if the true proportion of a characteristic within a sample is same as accepted population proportion
Assume normal distribution, iid
Test: prop.test(nObservationsWithChar, sampleSize, acceptedProportion)
Null Hypothesis: true proportion is the population accepted proportion

One Sample Binomial Proportion Test: check if the true proportion of a characteristic within a sample is same as accepted population proportion
Assume binomial distribution, iid
Test: binom.test(nObservationsWithChar, sampleSize, acceptedProportion)
Null Hypothesis: true proportion is the population accepted proportion

Two Sample Proportion Test: compare proportion of a characteristic between two samples
Assume normal distribution
Test: prop.test(contingencyTable)

Analysis of Variance (ANOVA): check if a treatment has an effect on an outcome
model = aov(outcome~treatments))
summary(aov(outcome~treatments))
Null Hypothesis: None of the means is significantly different from the others

Check ANOVA assumptions:
par(mfrow = c(2,2))
plot(model) (1,1): fitted line is horizontal and points equal abv and below. (1,2): points fall on line