

Formulate the Hypothesis

Null Hypothesis H_0	hypothesis that is being tested (and trying to be disproved)
Alternate Hypothesis H_1	represents the alternative value

Hypothesis Testing for Mean of 1-Sample

one sample t-test (μ_0 (given) is population mean; μ is computed sample mean)	$H_0 : \mu = \mu_0$, $H_1 : \mu \neq \mu_0$	<code>t.test(sample_vector , mu=population_mean, alternative="two.sided")</code>	Compare p-value with α to check if H_0 is rejected or not; Check test-statistic z if H_0 is true;
test for proportion (p (given) is population mean; μ is computed sample mean)	$H_0 : \mu = p$, $H_1 : \mu \neq p$	<code>prop.test(true_proportion, n_proportion, p=population_mean, alternative = "less")</code>	Compare p-value with α to check if H_0 is rejected or not; Check test-statistic z if H_0 is true;

Test for Normality

Quantile Quantile Plot	qqPlot-(vector)	Check curve of qqplot
Shapiro-Wilks test	$H_0 : x = N(\mu, \sigma)$ and $H_1 : x \neq N(\mu, \sigma)$	shapiro.test Check p-value obtained from the test is < 0.05 then we reject H_0 and assume the data is not normally distributed.

Comparing Variances

Fisher's F test	H_0 : the variances are the same; H_1 : they are different	<code>var.test(vectorA, vectorB)</code>	Check p-value; Check ratio if H_0 is true.
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By nmnpandey

Not published yet.
Last updated 2nd December, 2022.
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