

## Abstract

In many widely used statistical procedures such as t-tests, simple and multi-linear regression analysis, discriminant analysis, and analysis of variance (ANOVA) normal distribution is a crucial underlying assumption.

In this thesis, the 6 most commonly used normality tests are studied as well as a couple of graphical methods. These include Shapiro-Wilk, Shapiro-Francia, Anderson-Darling, Kolmogorov-Shapiro, Lilliefors, and Jarque-Bera. The derivation and interpretation of the test statistics are studied through various scholarly articles, a textbook, and internet sources. The power analysis of the tests is carried out using the R programming language. The simulation study is carried on in two stages- first, the tests are implemented for various-sized samples with normal distribution. Then the power of tests is calculated by implementing the tests for different symmetrical distributions that might be passed for normal distribution such as Gamma(2,1) and Beta(2,2). The Type 1 error is calculated for each test for samples with different sizes simulated from these distributions.