The main objective of this thesis is to determine asymptotic distribution of sample correlation coefficient without the assumption of normal distribution and its effects on commonly used statistical tests of independence and confidence intervals for correlation coefficient. The problem is solved by central limit theorem and delta method. We have shown that the commonly used statistical tests for independence in practice are valid, even without the assumption of normal distribution. We have also derived more versions of statistical tests for independence of random variables and more versions of confidence intervals for correlation coefficient without the assumption of normality. In conclusion we have compared individual statistical tests and confidence intervals for specific multivariate distributions using simulations.