INTRODUCTION

- R is a programming language and also a software environment for statistical computing and data analysis.
- R was developed by Ross Ihaka and Robert Gentleman at university of Auckland, New Zealand. in August 1993.
- R is an interpreted language that supports both procedural programming and object oriented programming.
- R programming language is an implementation of the S programming language. it also combines with lexical scoping semantics inspired by scheme.
- Moreover, the project conceives in 1992 with an initial version released in 1995 and a stable beta version in 2000.

Statistical Features of R:

- Basic statistics: The most common basic statistics terms are the mean, mode and median. that are all known as "Measures of central tendency". So using the R language we can measure central tendency very easy
- static graphics: R is rich with facilities for creating and developing interesting static graphics. R contains functionality for many plot types including graphics, maps, mosaic plots, biplots, and the list goes on.
- Probability distributions: it play vital role in statistics and by using R we can easily handle various types of probability distributions such as

Binomial distribution., Normal distribution, chi-squared distribution. and many more.

- Data Analysis: it provides a large, coherent and integrated collection of tools for data analysis.

Programming Feasor of R:

- R Packages: One of the major feature of R is it has wide availability of libraries. R has CRAN (Comprehensive R Archive Network) which is a repository holding more than 10,000 packages.
- Distributed computing - Distributed computing is a model in which components of a software system are shared among multiple computers to improve efficiency and performance. Two new packages ddR and multidplyr used for distributed programming in R. were released in November-2015.

* Programming can be written in R in any of widely used IDE like R studio, Rattle, Tinn-R ~~etc~~, Rkward, R commander etc
* After writing the program save the file with extension .r.

The difference between the R programming and Python programming.

Features	R	Python
introduction	R is a language and environment for statistical programming which includes statistical computing and graphics.	python is general purpose programming language for data analysis and scientific computing.
objective	It is used for statistical analysis and representation	it is used to develop GUI applications and web applications as well as with embeded system.
workability	it has many easy to use package for performing tasks.	it can easily perform matrix computation as well as optimisation
IDE	various popular R IDE are Rstudio, RKward, R Commander etc.	various popular python IDEs are spyder, Eclipse + Pydev, Atom etc
library and packages	ggplot(), caret etc.	Pandas Numpy, Scipy etc.
Data collection	it is used for data analysts to import data from Excel, CSV, and text files	it is used in all kinds of data formats including SQL tables.
Data exploration	It optimized for statistical analysis of large datasets	You can explore data with Pandas.
Data modeling	By using Tidyverse	By using NumPy, SciPy, Scikit-learn.
Data visualisation	ggplot() and ggplot2()	By using matplotlib, Pandas, Seaborn