**R Programming Assignment: 1**

1. What is the R programming language, and how does it work?

**"R is an interpreted computer programming language which was created by Ross Ihaka and Robert Gentleman at the University of Auckland, New Zealand."** The **R Development Core Team** currently develops R. It is also a software environment used to analyze **statistical information**, **graphical representation**, **reporting**, and **data modeling**. R is the implementation of the **S programming** language, which is combined with **lexical scoping semantics.**

* R programming is used as a leading tool for machine learning, statistics, and data analysis. Objects, functions, and packages can easily be created by R.
* It’s a platform-independent language. This means it can be applied to all operating system.

1. How did the R programming language come to be?

The R language was closely modeled on the S Language for Statistical Computing conceived by John Chambers, Rick Becker, Trevor Hastie, Allan Wilks and others at Bell Labs in the mid 1970s, and made publicly available in the early 1980’s. Robert and Ross established R as an open source project in 1995.

1. Create a tiny application that prints the installed version of R.

sessionInfo()

R version 4.0.2 (2020-06-22)

Platform: x86\_64-w64-mingw32/x64 (64-bit)

Running under: Windows 10 x64 (build 19041)

Matrix products: default

locale:

[1] LC\_COLLATE=English\_India.1252 LC\_CTYPE=English\_India.1252

[3] LC\_MONETARY=English\_India.1252 LC\_NUMERIC=C

[5] LC\_TIME=English\_India.1252

attached base packages:

[1] stats graphics grDevices utils datasets methods

[7] base

loaded via a namespace (and not attached):

[1] compiler\_4.0.2 tools\_4.0.2 tinytex\_0.26 xfun\_0.17

1. Create a simple software that accepts user input (Name, Age, and Qualification) and displays the results.

name = readline(prompt="Input your name: ")

age = readline(prompt="Input your age: ")

Qualification = readline(prompt= “Input your qualification:”)

print(paste("My name is",name, "and I am",age ,"years old."))

print(“My qualification is :”,Qualiication)

print(R.version.string)

1. What are some R programming applications?

**Applications of R Programming**

* Finance. Data Science is most widely used in the financial industry. ...
* Banking. Just like financial institutions, banking industries make use of R for credit risk modeling and other forms of risk analytics. ...
* Healthcare.
* Social Media.
* E-Commerce.
* Manufacturing.

1. In which areas of healthcare does R play a significant role?

* Population Genomics in Bioinformatics
* Statistical Analysis in Clinical Research
* Disease Spread Tracking
* Healthcare Business Optimization
* Breast Cancer Prediction using Machine Learning
* Computational Drug Discovery
* Vaccine Distribution Management

1. What is R studio, and what does it do?

An integrated development environment for R and Python, with a console, syntax-highlighting editor that supports direct code execution, and tools for plotting, history, debugging and workspace management. It works just normally as other compiler in programming you can simply type the command and it will execute your code.

1. What is Mapping and How Does it works?

* **The map functions transform their input by applying a function to each element of a list or atomic vector and returning an object of the same length as the input**. map() always returns a list. See the modify() family for versions that return an object of the same type as the input. ap\_lgl(), map\_int(), map\_dbl() and map\_chr() return an atomic vector of the indicated type (or die trying).
* map\_dfr() and map\_dfc() return a data frame created by row-binding and column-binding respectively. They require dplyr to be installed.
* The returned values of .f must be of length one for each element of .x. If .f uses an extractor function shortcut, .default can be specified to handle values that are absent or empty. See [as\_mapper()](https://purrr.tidyverse.org/reference/as_mapper.html) for more on .default.
* walk() calls .f for its side-effect and returns the input .x

1. What is R graphics, and how does it work?

The graphics package is **an R base package for creating graphs**. The plot function is the most basic function to create plots in R. With this plotting function you can create several types of plots, like line charts, barplots or even boxplots, depending on the input.

Example of its working:

**Bar Plot or Bar Chart**

Bar plot or Bar Chart in R is used to represent the values in data vector as height of the bars. The data vector passed to the function is represented over y-axis of the graph. Bar chart can behave like histogram by using **table()** function instead of data vector.

***Syntax:****barplot(data, xlab, ylab)*

***where:***

* ***data****is the data vector to be represented on y-axis*
* ***xlab****is the label given to x-axis*
* ***ylab****is the label given to y-axis*