# EXPERIMENT NO: 07

**Aim:** Datavisualization using R

**System software requirements:** Ubuntu, R studio

**Theory:**

- R is a programming language and software environment for statistical analysis, graphics representation and reporting.
- 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.
- Its a platform independent language.
- It is an open source free language
- R is a well developed, simple and effective programming language which includes conditionals, loops, user defined recursive function and input and output facilities.
- R provides a suite of operators for calculations on arrays, lists, vectors and matrices.

* **Advantages of R:**

- Most comprehensive statistical package.
- Open source
- Suitable for GNU/Linux and Windows operating system.
- Cross platform
- Welcomes new packages, bug fixes, and code enhancements.

* **Applications of R:**

- R is used for data science. It gives wide variety of libraries related to statistical concepts.
- R is used by many quantitative analysts as programming tool. Thus, it helps in data importing and cleaning.
- Used as a fundamental tool for finance.
- Tech Giants like Google, Facebook, Twitter, Bing, Accenture, Wipro and many more are using R these days.

* Basics of R.

- RGUI -

RGUI, the standard R user interface, is a simple interface to the R language, with some menus and toolbars, as well as a number of windows; when you start R, the console window is displayed.

- R studio -

R studio is an integrated development environment which allows us to interact with R more readily. Rstudio is similar to the standard RGui, but more user friendly.

→ R studio is available both as open source and commercial software.
→ It is available in both Desktop and server versions.
→ It is available for various platforms such as Windows, Linux, and Mac OS.

The interface looks like,

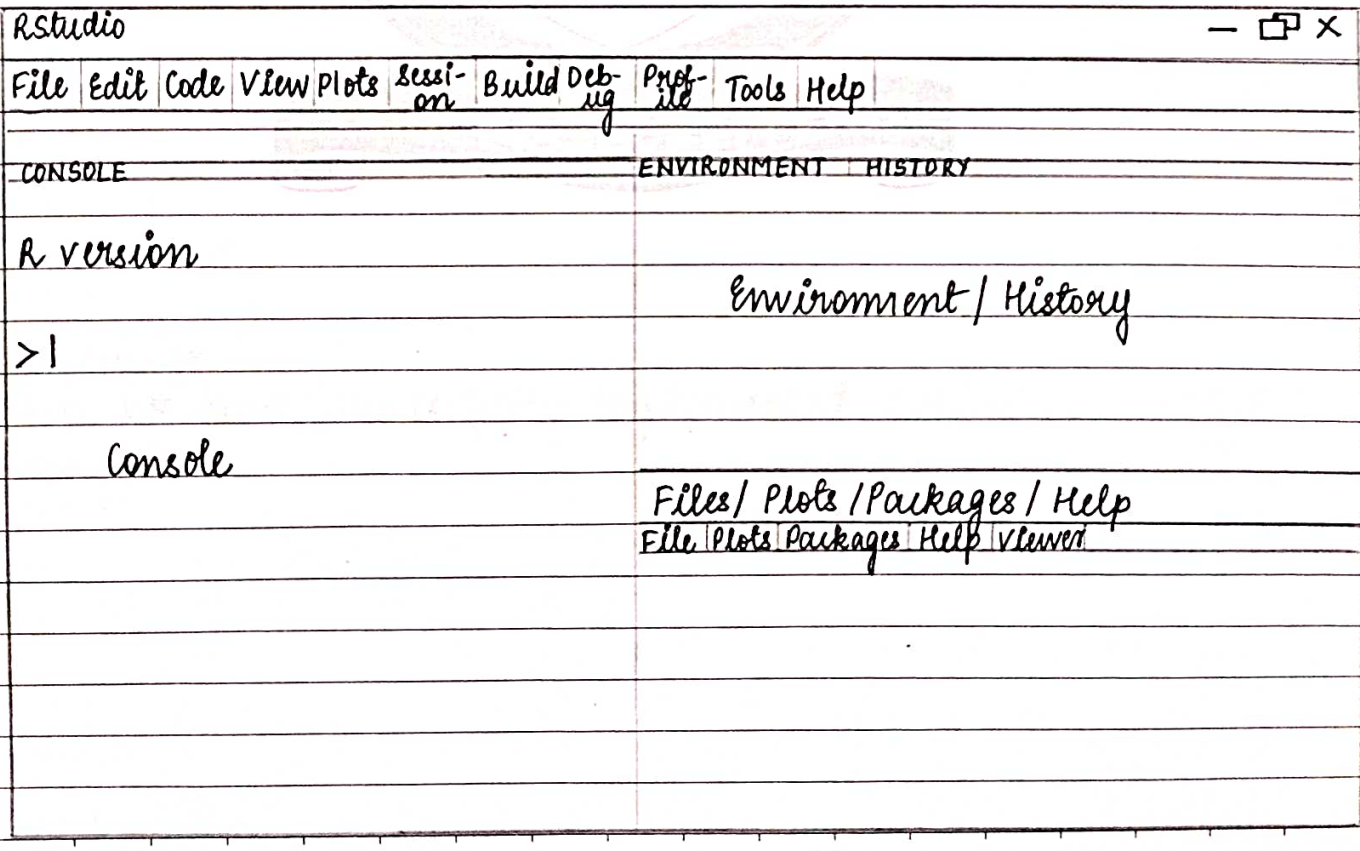


Fig: R studio

- The console panel is the place where you can type the commands, and see results that are generated.
- The top right, you have Environment / History panel. It contains two tabs:
  → Environment Tab :-
  It shows the variables that are generated during the course of programming in a workspace that is temporary.
  → History Tab :-
  In this tab, you will see all the commands that are used till now from the start of usage of R studio.
- At the right bottom, we have a panel which contains multiple tabs, such as files, plots, packages, help and viewer.
  → Files Tab: shows files and directories
  → Plots : shows the plots generated during the course of programming.
  → Packages: Helps to view packages that are already installed in R studio
  → Help: You can get help from R documentation.
  → Viewer: Can be used to see local web content.

* Example,
  > print ("Hello World")

Result
Hello World

Conclusion :
Thus, we have successfully implemented data visualization using R.