R - History

S is a statistical programming language developed primarily by John Chambers and (in earlier versions) Rick Becker and Allan Wilks of Bell Laboratories in 1976.

Bell Laboratories

S Version 1

S Version 2

S Version 3

R

R - History

R was created by Ross Ihaka and Robert Gentleman[16] at the University of Auckland, New Zealand, and is currently developed by the *R Development Core Team*

R is named partly after the first names of the first two R authors and partly as a play on the name of S.

R is a open source programming language and free software environment for statistical computing and graphics that is supported by the R Foundation for Statistical Computing.

The project was conceived in 1992, with an initial version released in 1995 and a stable beta version in 2000

R is a GNU package. The source code for the R software environment is written primarily in C, Fortran, and R.

"The GNU General Public License is a widely used free software license, which guarantees end users the freedom to run, study, share and modify the software."

R - Merits

- R is the most comprehensive statistical analysis package available . It incorporates all of the standard statistical tests, models, and analyses, as well as providing a comprehensive language for managing and manipulating data.
- R is a programming language and environment developed for statistical analysis by practising statisticians and researchers.
- The graphical capabilities of R are outstanding, providing a fully programmable graphics language that surpasses most other statistical and graphical packages.
- R is free and open source software, allowing anyone to use and, importantly, to modify it.
- R has over 4800 packages available from multiple repositories specializing in topics like econometrics, data mining, spatial analysis, and bio-informatics.
- R is cross-platform. R runs on many operating systems and different hardware.

R - Demerits

- **R is slow :** Is an interpreting language and is not very fast. Could be 1/40 of C.

- **Limitation of Memory:** All the objects are in memory. Many R commands give little thought to memory management, and so R can very quickly consume all available memory.

- **R is hard to learn:** One has to memorize the commands /functions, and understand the logics of programming. The fluency in R requires great time and energy.

- **Low Package Quality:** The quality of some packages is less than perfect,

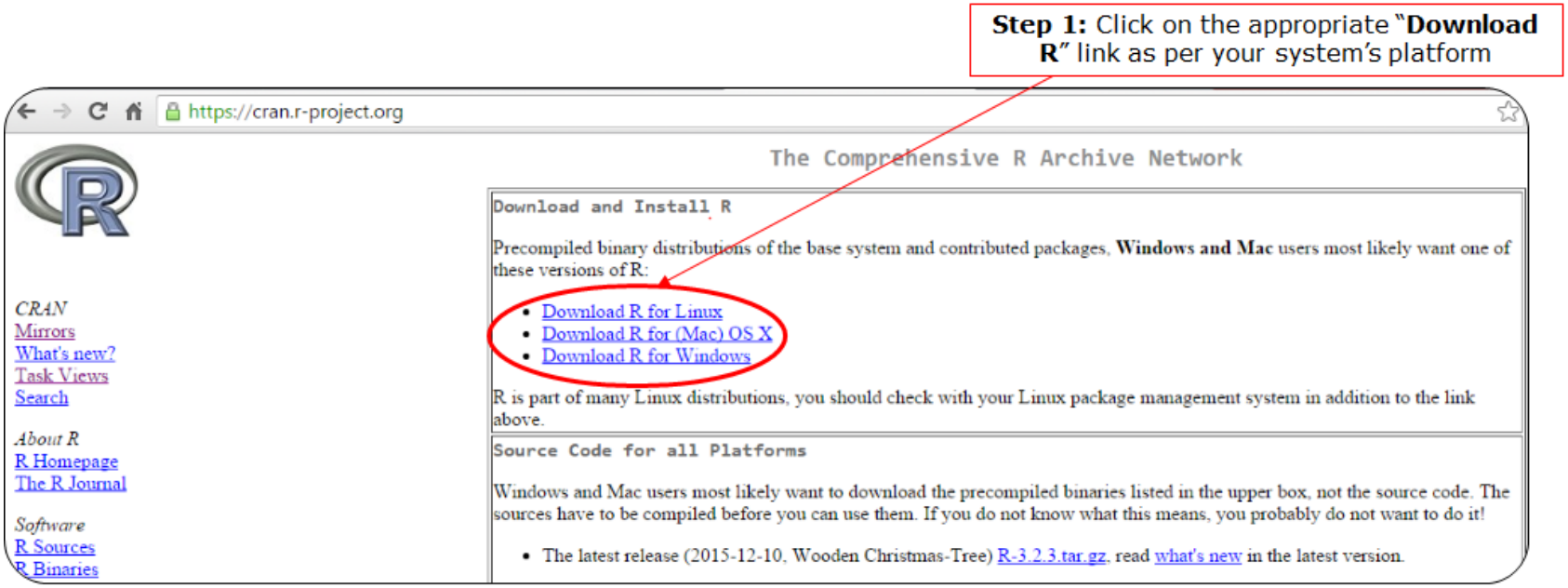
Installation of R/RStudio

"Almost **36%** of all advertised analytics jobs in India demand for R as a core skill" – Advancer and Analytics India Magazine

Step to Install R

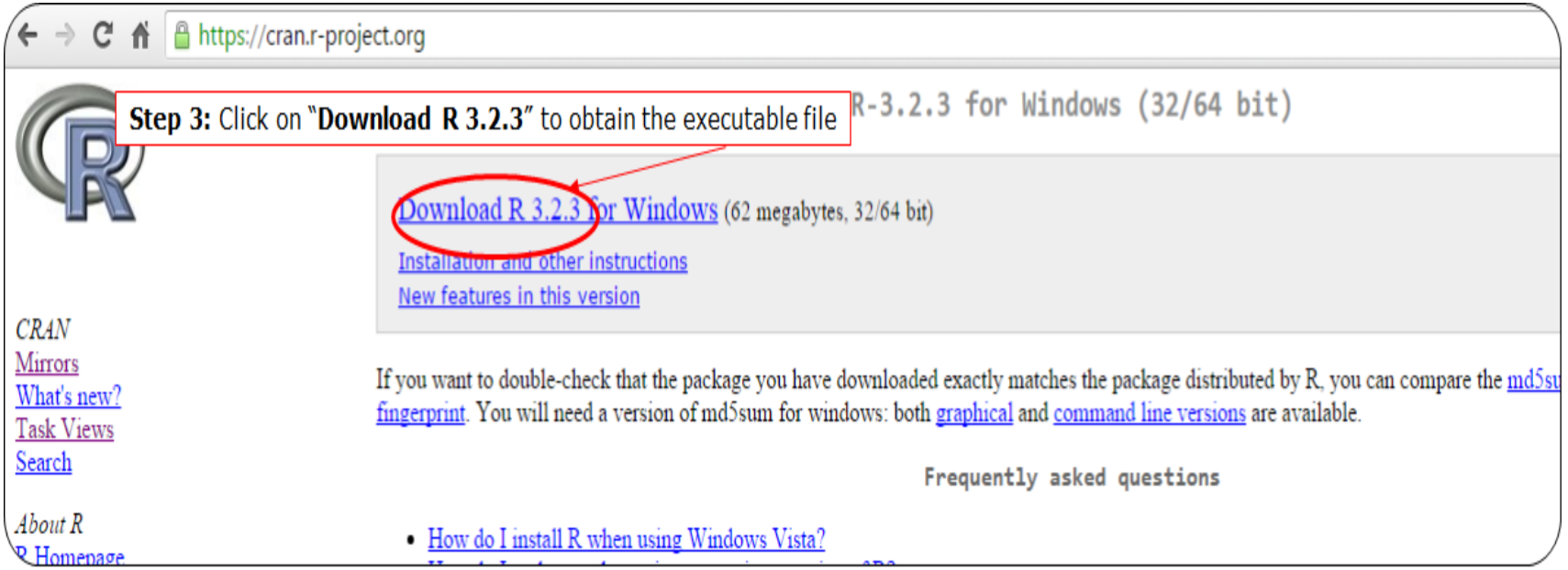
Step1. Go to the following website

- ✓https://cran.r-project.org/
- ✓Options will be provided, to select the Platform. R can be installed for Linux, Mac(OS X) & Windows
- ✓In this Demo, Windows Platform has been selected



Step to Install R

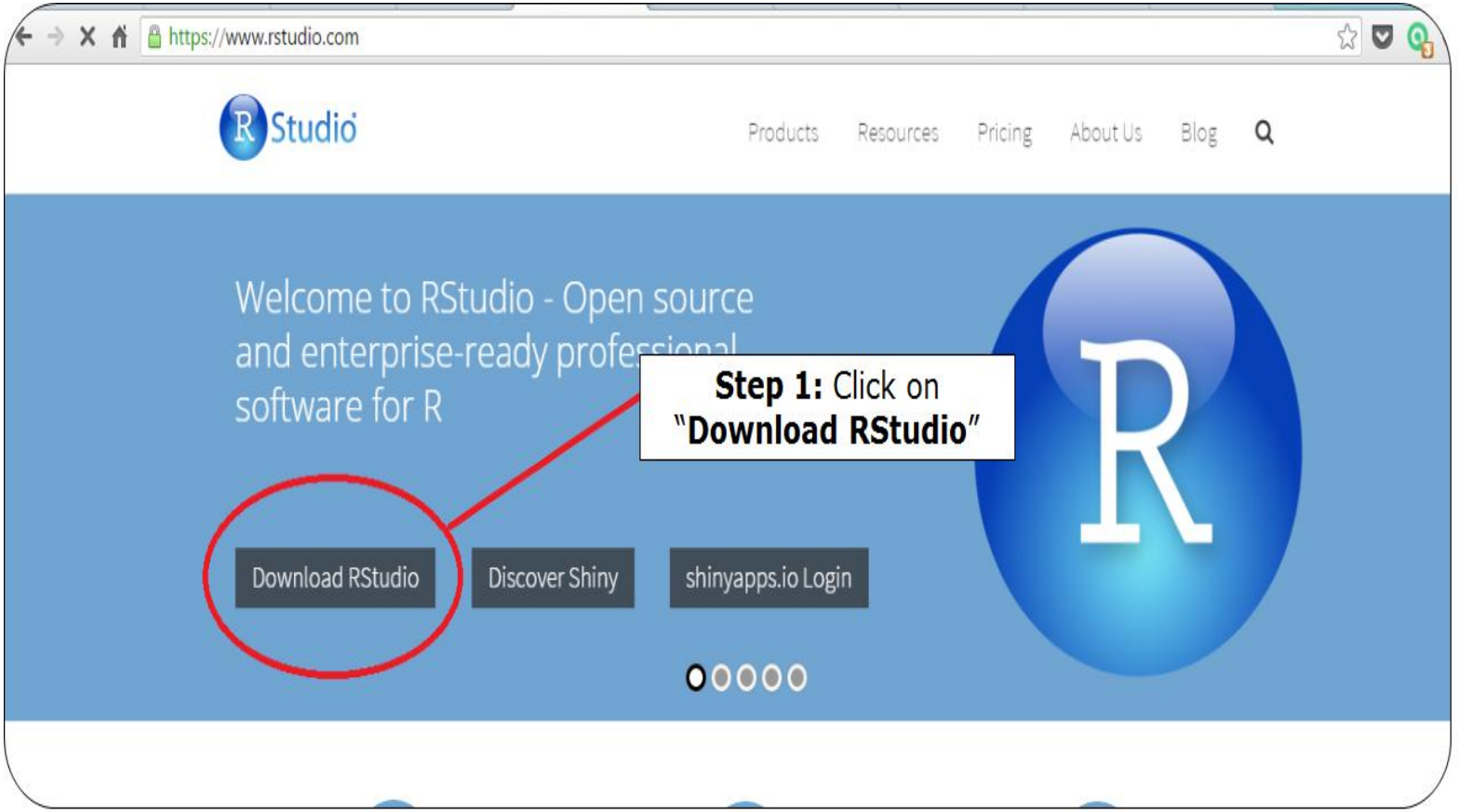
Step 2. Click on "Download R" to obtain the executable file



Step 3. Install the executable file

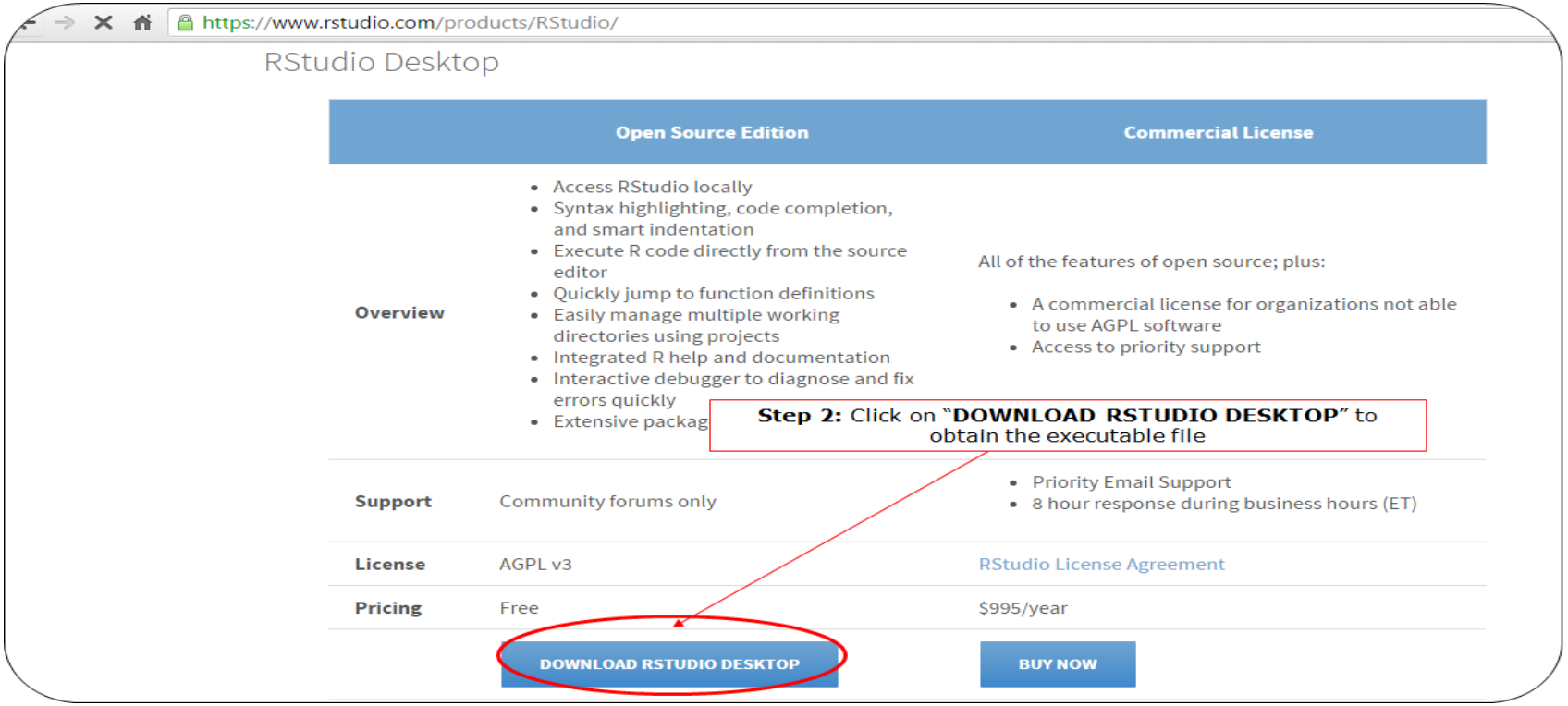
Step to Install RStudio

Step 1. Go to https://www.rstudio.com/



Step to Install RStudio

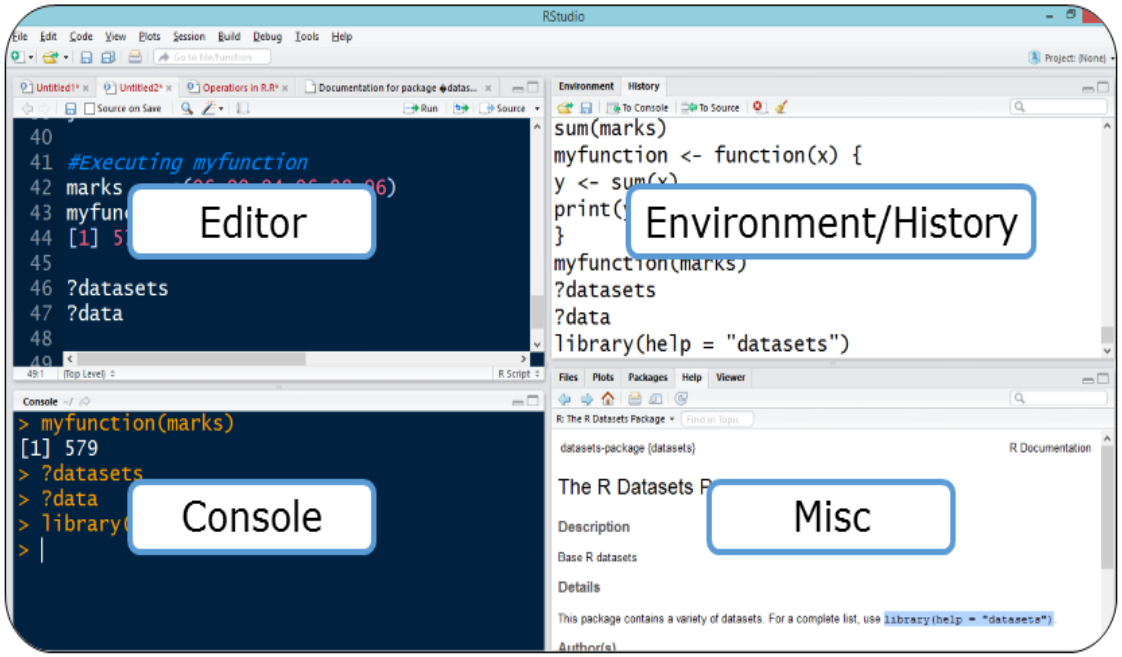
Step 2. Click on "Download RStudio"



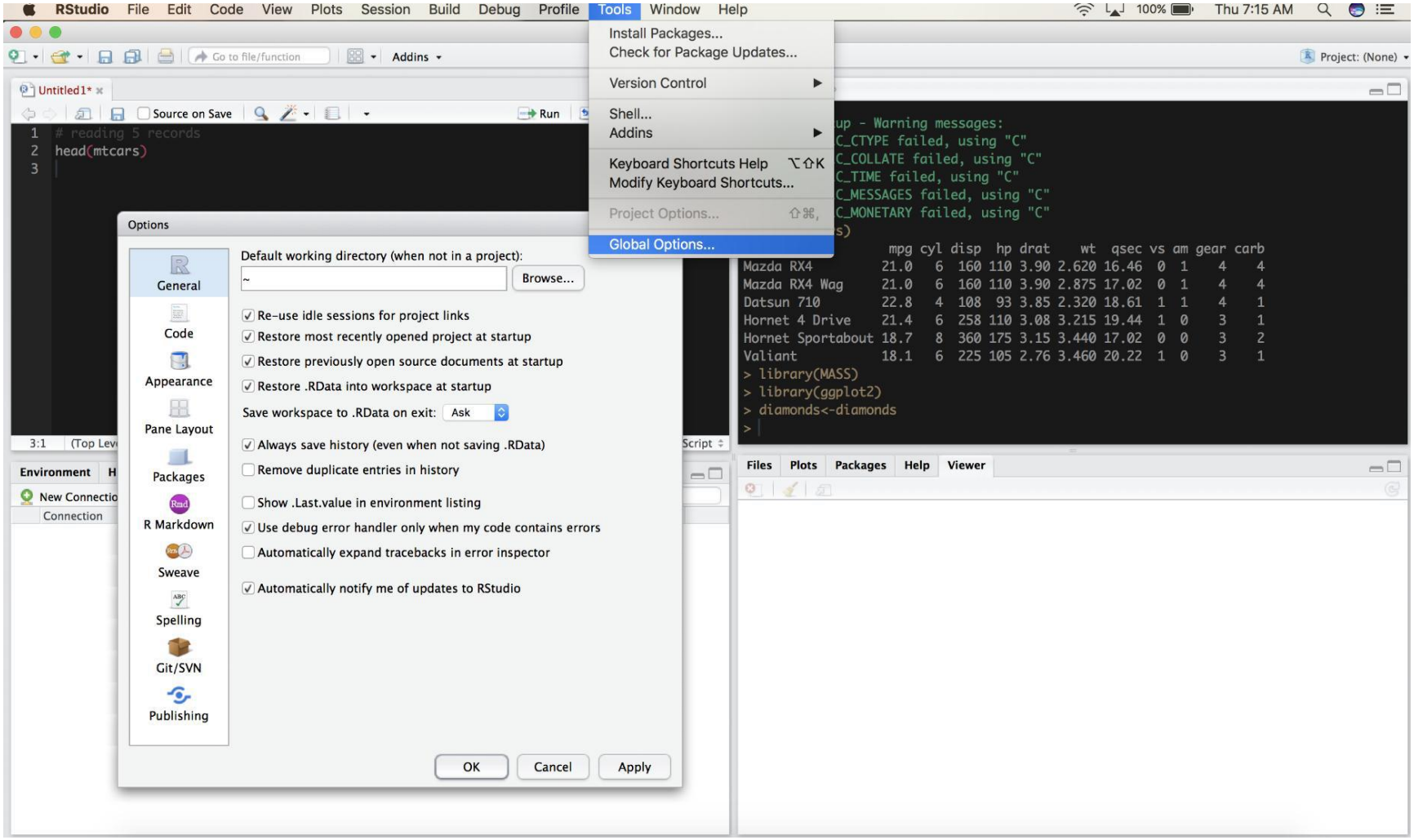
Step 3. Install RStudio

RStudio Interface

- RStudio interface has four main parts
  - The top left panel is the **Editor**
  - The lower left panel is the **Console**
  - The top right panel constitutes of **Environment** tab, which refers to the console environment and lists in detail, every single symbol that has been defined in the console and **History** tab, which lists every console command that was ever executed
  - The bottom right panel is **Misc** and contains five separate tabs, **Files**, **Plots**, **Packages**, **Help** and **Viewer**



RSTUDIO - SETTINGS



Tips to Remember

- R is case-sensitive
- Comment your code so you remember what it does; comments are preceded with #
- R scripts are simply text files with a .R extension
- Use Ctrl + R to submit code
- Use the Tab key to let R/R Studio finish typing commands for you
- Use Shift + down arrow to highlight lines or blocks of code
- In R Studio: Ctrl + 1 and Ctrl + 2 switches between script and console
- Use up and down arrows to cycle through previous commands in console
- Don't be afraid of errors; you won't break R
- If you get stuck, Google is your friend

Quiz Time

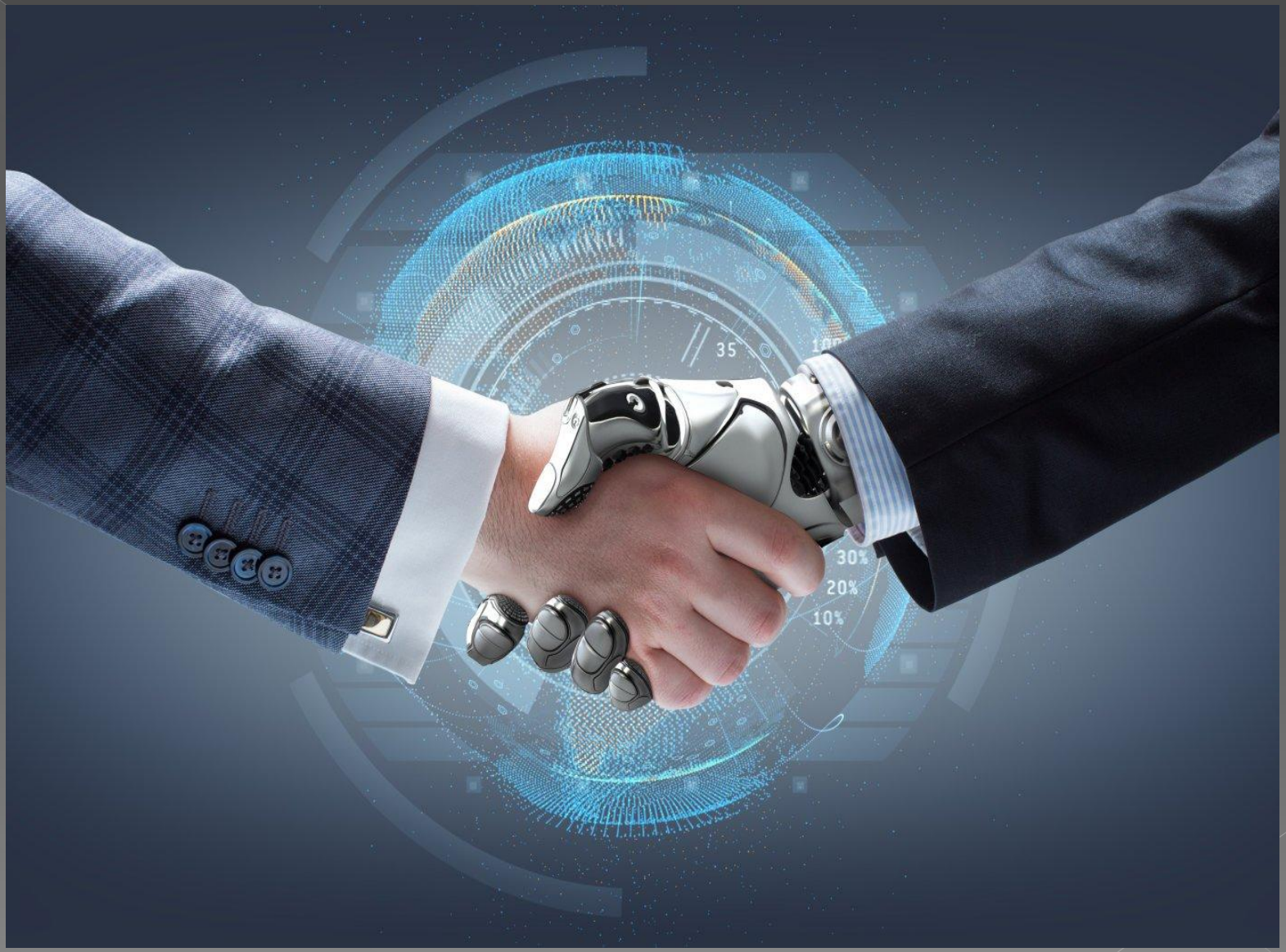
Question 1. They primary R system is available from the _____

a) CRAN
b) CRWO
c) GNU
d) All of the mentioned

Quiz Time

Question 2. Files containing R scripts ends with extension :

a) .S
b) .R
c) .Rp
d) All of the mentioned


35
30%
20%
10%