INTRODUCTION TO 'R'

INTRODUCTION TO - R

- R is a ***programming language*** and ***environment*** commonly used in **statistical computing, data analytics** and **scientific research**.

- It is one of the most popular languages used by **statisticians, data analysts, researchers** and **marketers** to ***retrieve, clean, analyze, visualize*** and ***present data***.

- Due to its **expressive syntax** and **easy-to-use interface**, it has grown in popularity in recent years.

WHY – R ???

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  R is a programming and statistical language.
- 
  R is used for Data Analysis and Visualization.
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  R is simple and easy to learn, read and write.
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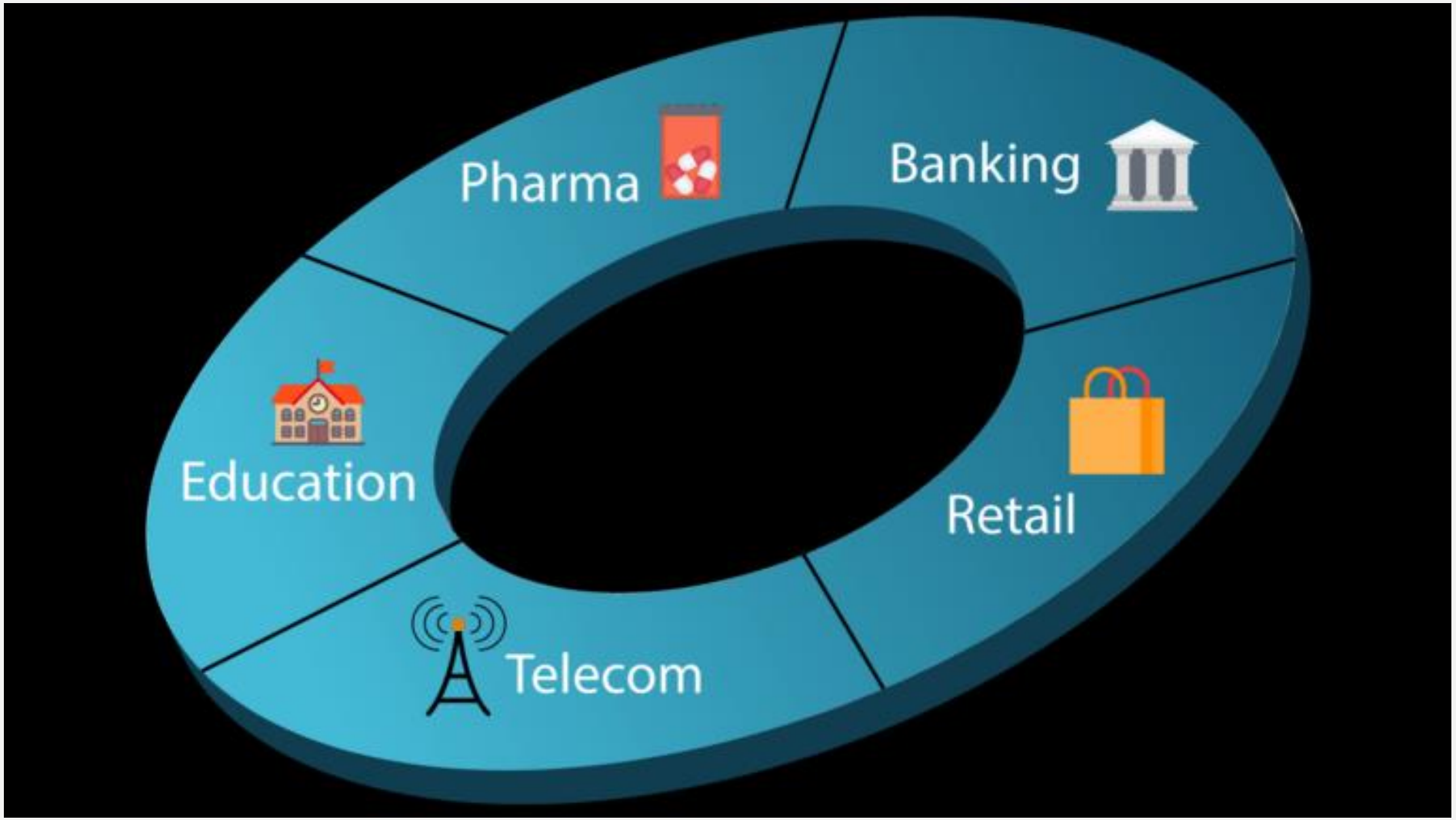
  R is an example of a FLOSS (Free Libre and Open Source Software) where one can freely distribute copies of this software, read it's source code, modify it, etc.

WHO USES - R?



WHO USES - R?

Company	Application/Contribution
Twitter	Monitor user experience
Ford	Analyse social media to support design decisions for their cars
New York Times	Infographics, data journalism
Microsoft	Released Microsoft R Open, an enhanced R distribution and Microsoft R server after acquiring Revolution Analytics in 2015
Human Rights Data Analysis Group	Measure the impact of war
Google	Created the R style guide for the R user community inside Google

IS R PROGRAMMING AN EASY LANGUAGE TO LEARN?

- The syntax that **R uses is a bit different** from other common programming languages.
- We will not find ourselves writing a lot of if conditions or loops while writing code in the R language.
- There are other programming constructs like **vectors, lists, frames, data tables, matrices** etc. that allow you to perform transformations on data in bulk.

IS R PROGRAMMING AN EASY LANGUAGE TO LEARN?

- Many researchers are learning R as their first language to solve their data analysis needs.
- That's the power of the R programming, it is simple enough to learn as you go.
- All you need is data and a clear intent to draw a conclusion based on analysis on that data.

ALTERNATIVES TO R - PROGRAMMING

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Python – Popular general purpose language

- **SAS** (Statistical Analysis System)

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SPSS – Software package for statistical analysis

ALTERNATIVES TO R - PROGRAMMING

- **Python** – Popular general purpose language
- Very powerful high-level, object-oriented programming language with an easy-to-use and simple syntax.
- Extremely popular among data scientists and researchers.
- Most of the packages in R have equivalent libraries in Python as well.

ALTERNATIVES TO R - PROGRAMMING

R vs Python

- If you are trying to analyze a dataset and present the findings in a research paper, then **R** is probably a better choice.

- But if you are writing a data analysis program that runs in a distributed system and interacts with lots of other components, it would be preferable to work with **Python**.

INSTALLATION OF R

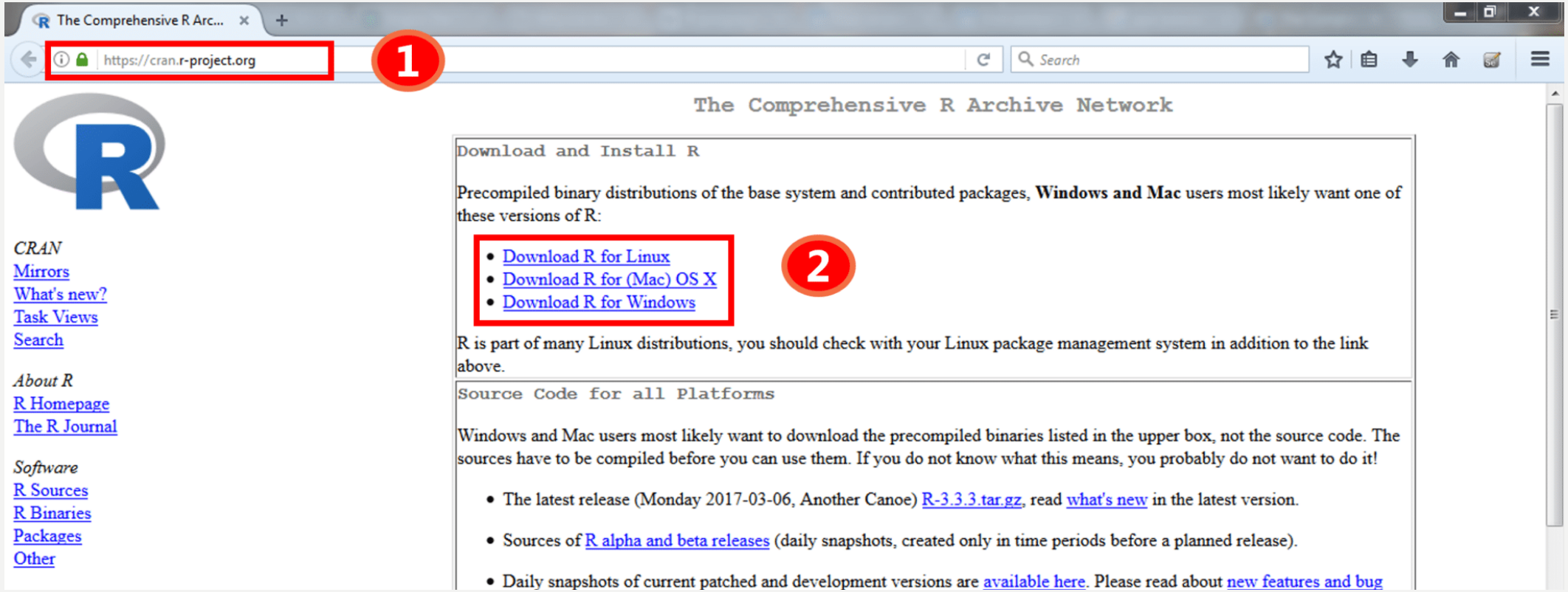
Most Popular Software

R-Console

R-Studio

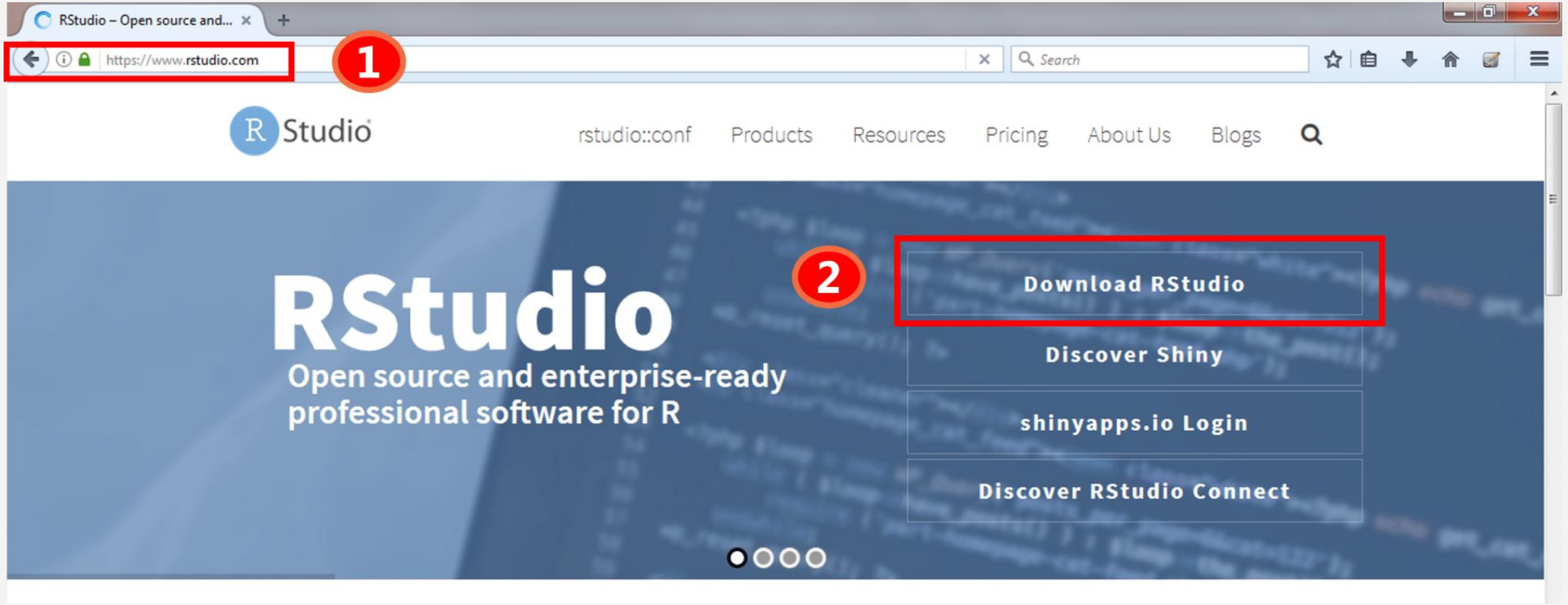
INSTALLATION OF R

- **Step 1** : Go to the link- **https://cran.r-project.org/**
- **Step 2** : Download and install R (latest version) on your system.

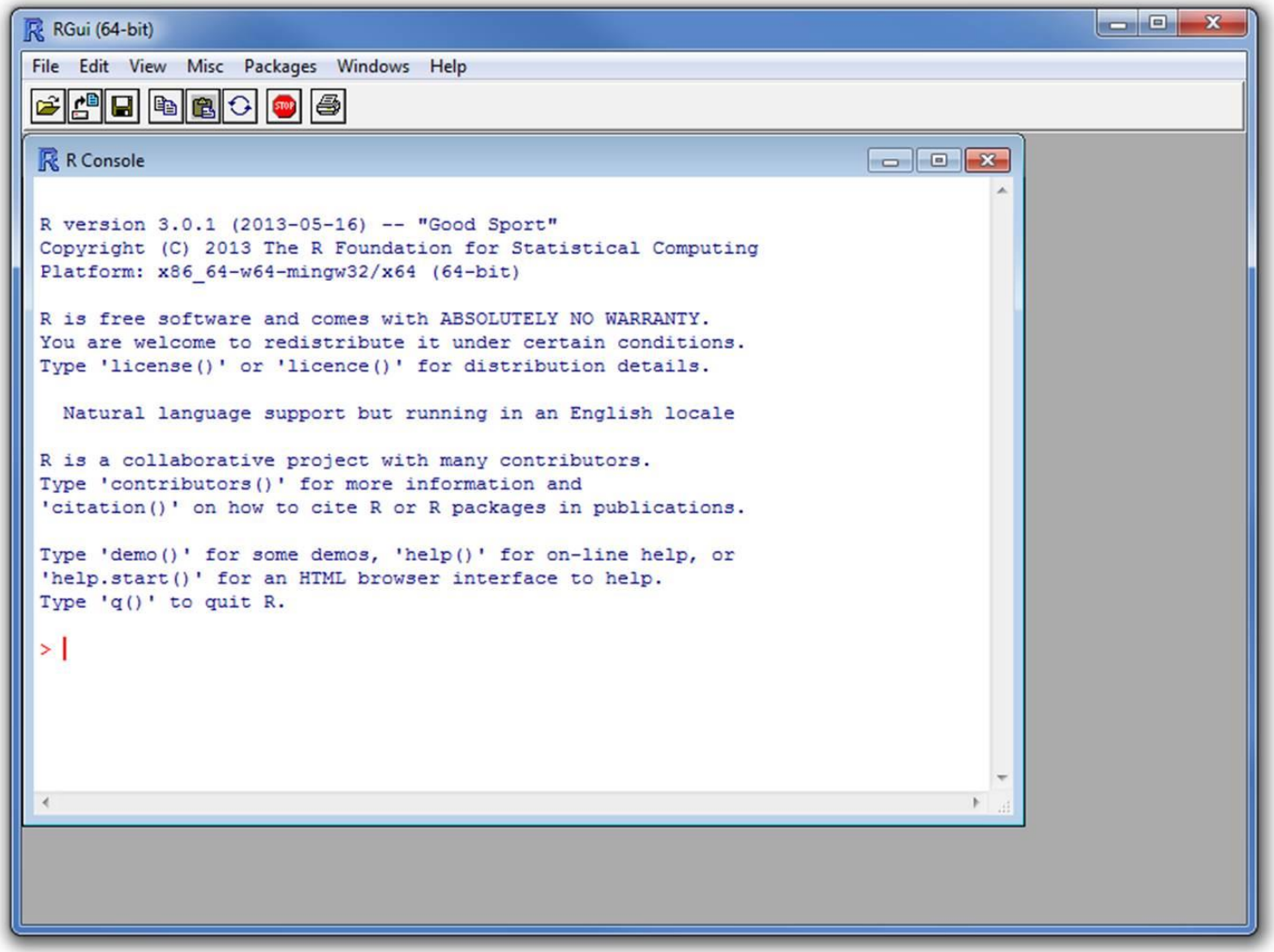


INSTALLATION OF R

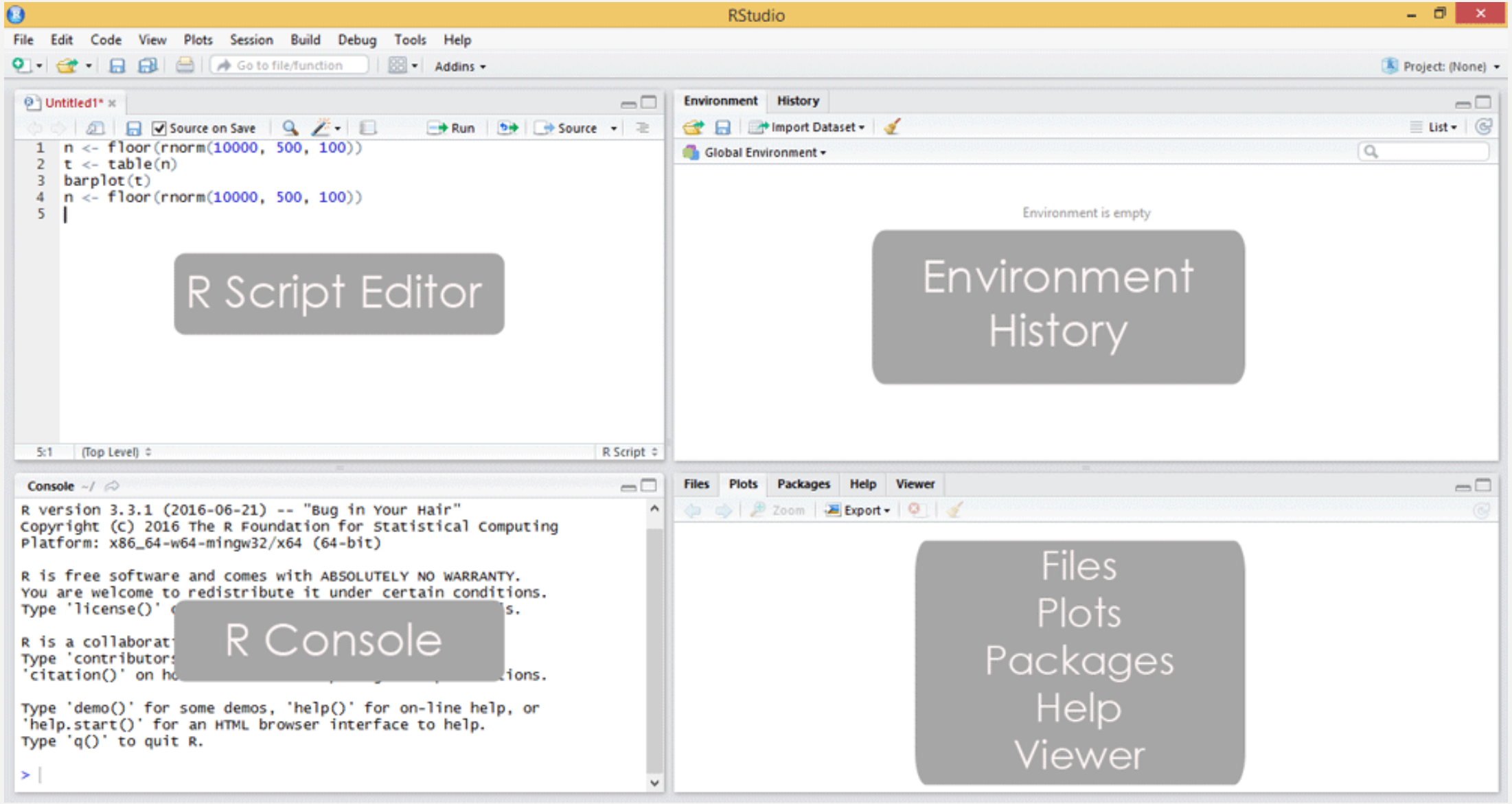
- **Step 1:** Go to the link- **https://www.rstudio.com/**
- **Step 2:** Download and install RStudio on your system.



SAMPLE SCREENS – R CONSOLE



SAMPLE SCREENS – R STUDIO



GETTING HELP IN - R

- ***help.start()*** # general help
- ***help(function_name)*** # help about a function
- ***? function_name*** # same thing
- ***apropos(" function_name ")*** # list all functions containing given string
- ***example(function_name)*** # show an example of a function

GETTING HELP IN - R

```
# search for a function in help manuals and archived mailing lists
RSiteSearch(" function_name ")


# get vignettes on using installed packages
vignette()              # show available vignettes
vignette("function_name")       # show specific vignette
```

GETTING HELP IN - R

demo is a user-friendly interface to running some demonstration R scripts

```
demo()                  # Show all available demos

demo(package = "httr")    # Show all demos in a package

demo("oauth1-twitter", package = "httr")    #Run a specific demo
```