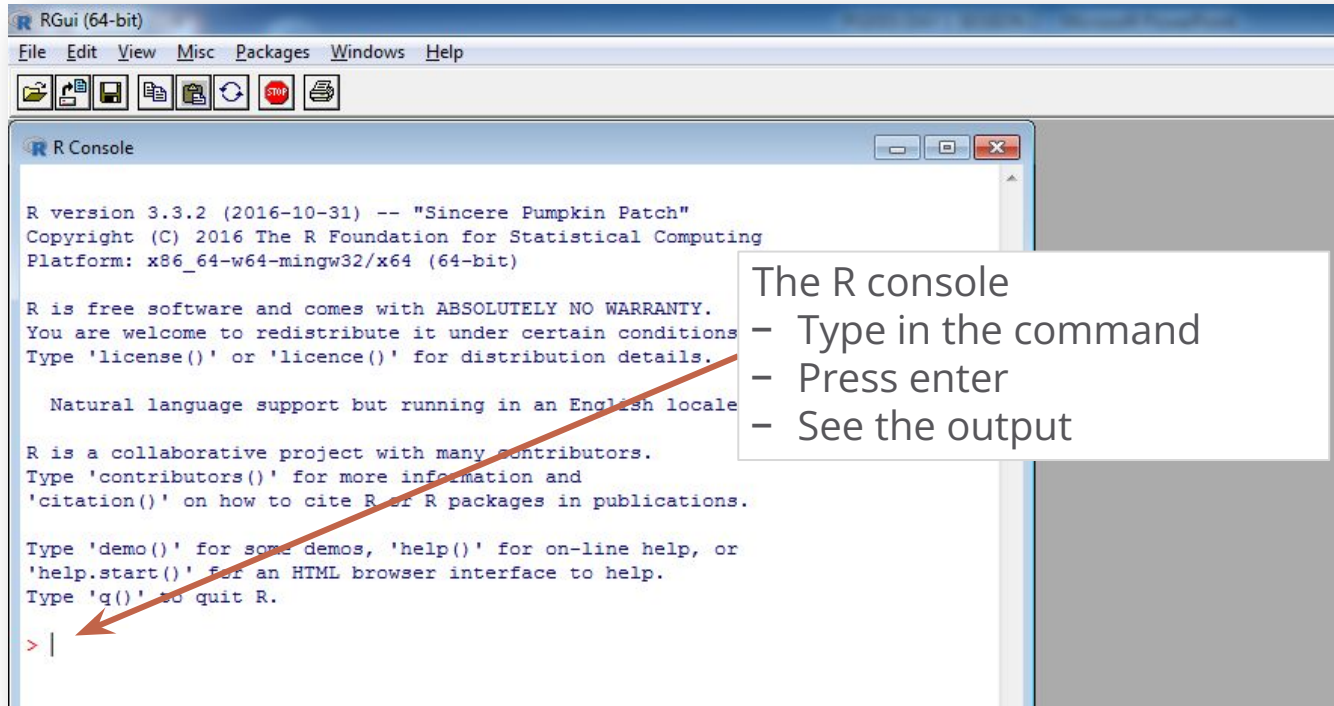# Writing your first Program in R

Contents

- The R-UI
- Create and Save Your Script
- Write a Program
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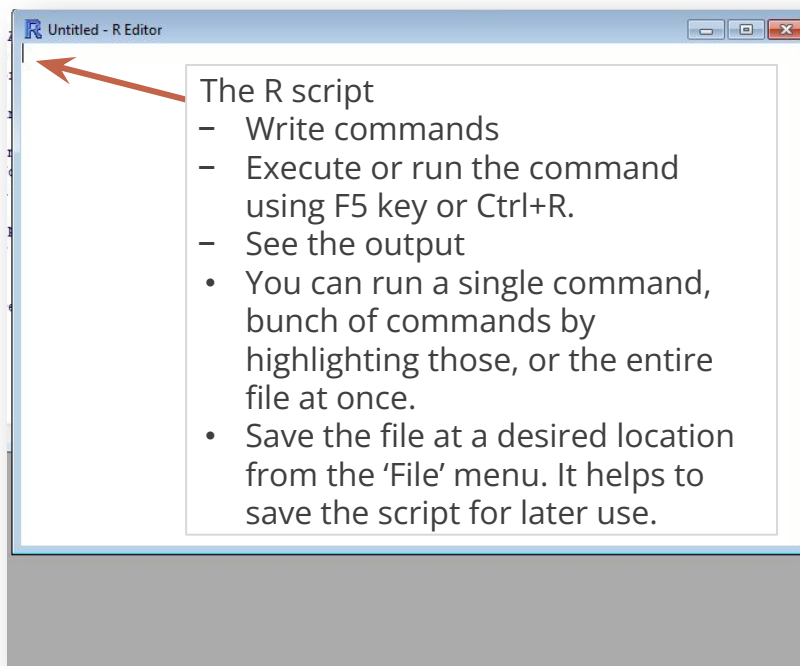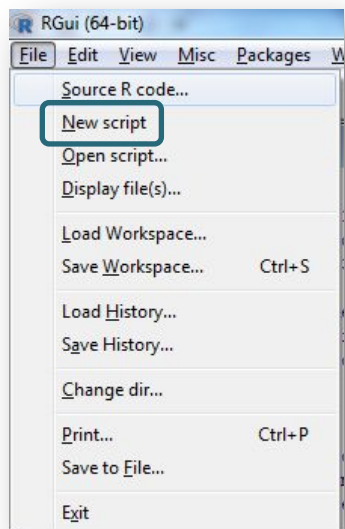
The R-UI

Create and Save Your Script

In your R console,

- Open a new script. File > New script

The R script
  - Write commands
  - Execute or run the command using F5 key or Ctrl+R.
  - See the output
- You can run a single command, bunch of commands by highlighting those, or the entire file at once.
- Save the file at a desired location from the 'File' menu. It helps to save the script for later use.

Write a Program

Let's begin with writing our First program !

Create two objects 'x' and 'y' and perform mathematical operations on them.

```
# Create an object x and assign a value 10
```

```
x<-10
```

- The operators '<-' and '=' are used for assigning values to an object.

```
# Type x and press Enter key to see the value of the object
```

```
x
```

```
[1] 10
```

* Note : Comments can be added to keep a record of what you did and why, by preceding all comments with the # symbol.

Write a Program

```
# Create another object y and assign a value 7
```

```
y<-7
y
```

```
[1] 7
```

```
# Add the values of the objects x and y
```

```
x + y
```

```
[1] 17
```

```
# Multiply x by y
```

```
x * y
```

```
[1] 70
```

* R is case sensitive i.e. it treats 'a' and 'A' as completely different objects.

Write a Program

To check which objects are already used

```
ls()
```

```
[1] "x" "y"
```

- Use up and down arrow keys to scroll through your command history.

R Workspace

> Objects that you create
> during an R session are held in memory, the
> collection of objects that you currently have is
> called the workspace

- This workspace is not saved on disk unless you tell R to do so.

- This means that your objects are lost when you close R and not save the objects, or worse when R or your system crashes on you during a session.

- If you have saved a workspace image and you start R the next time, it will restore the workspace.

- So all your previously saved objects are available again.

- You can also explicitly load a saved workspace i.e., that could be the workspace image of someone else. File > Load Workspace

R Workspace

Some basic commands for using the command history

```
#To display all previous commands
history()
```

```
#To display last 25 commands
history(max.show=25)
```

```
#To save your command history to a file. Default is ".Rhistory"
savehistory(file="myfile")
#myfile is saved in My Documents
```

```
#To recall your command history. Default is ".Rhistory"
loadhistory(file="myfile")
```

Help in R

- R has a comprehensive built-in help system consisting of a documentation for packages and functions. Any of the following commands can be used to access help in R:

- If you know the topic but not the exact function:

```
help.search("regression")

OR

??"regression"
```

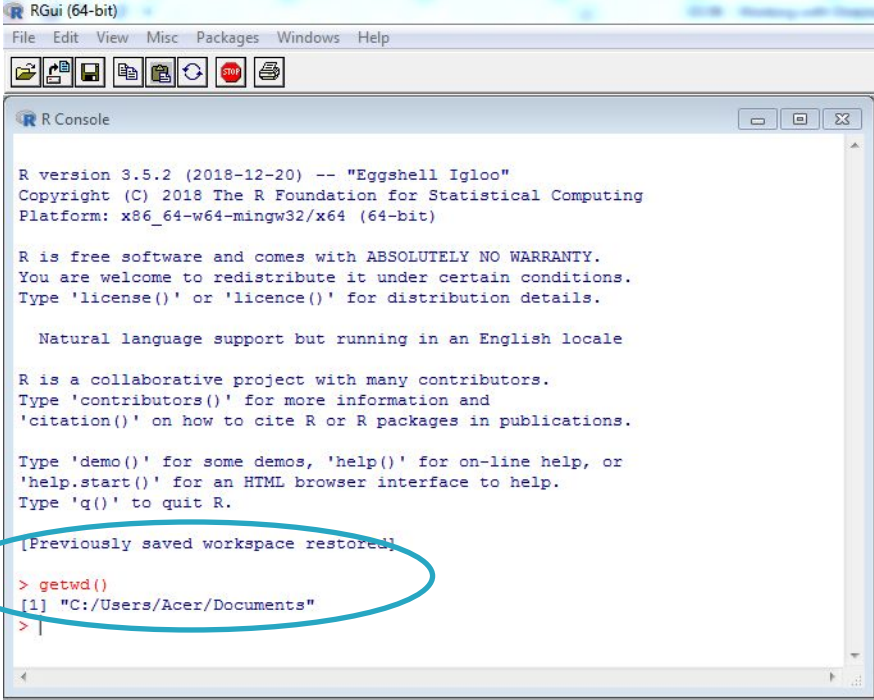- If you know the exact function:

```
help(functionname)
help(mean)

OR

?functionname
?mean
```

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The Working Directory

- One of the initial things that you want to do when you launch R for the first time is to set its working directory.

- A working directory is a default location on your hard disk where R looks without further instruction for any files you ask it to retrieve or write. It is important to select a location that is easy to find and remember, so you can access your files when you need them.

- In order to check what your R current working directory is, type command `getwd(). getwd()` returns an absolute file path representing the current working directory of the R process.

- If the directory it returns is not the directory you would like to use, then simply use the following function to set your working directory: `setwd('PATH')` replace **PATH** with the directory path that you would like to use

- Use `getwd()` again to verify that the change took place.

The Working Directory

The Working Directory

- If the directory it returns is not the directory you would like to use, then simply use the following function to set your working directory: `setwd('PATH')` replace **PATH** with the directory path that you would like to use

- Use `getwd()` again to verify that the change took place.


```
R RGui (64-bit)
File  Edit  View  Misc  Packages  Windows  Help

R R Console
Copyright (C) 2018 The R Foundation for Statistical
Platform: x86_64-w64-mingw32/x64 (64-bit)

R is free software and comes with ABSOLUTELY NO WARR
You are welcome to redistribute it under certain con
Type 'license()' or 'licence()' for distribution det

  Natural language support but running in an English

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publi

Type 'demo()' for some demos, 'help()' for on-line h
'help.start()' for an HTML browser interface to help
Type 'q()' to quit R.

[Previously saved workspace restored]

> getwd()
[1] "C:/Users/Acer/Documents"
> setwd("D:/Vishakha/")
> getwd()
[1] "D:/Vishakha"
```
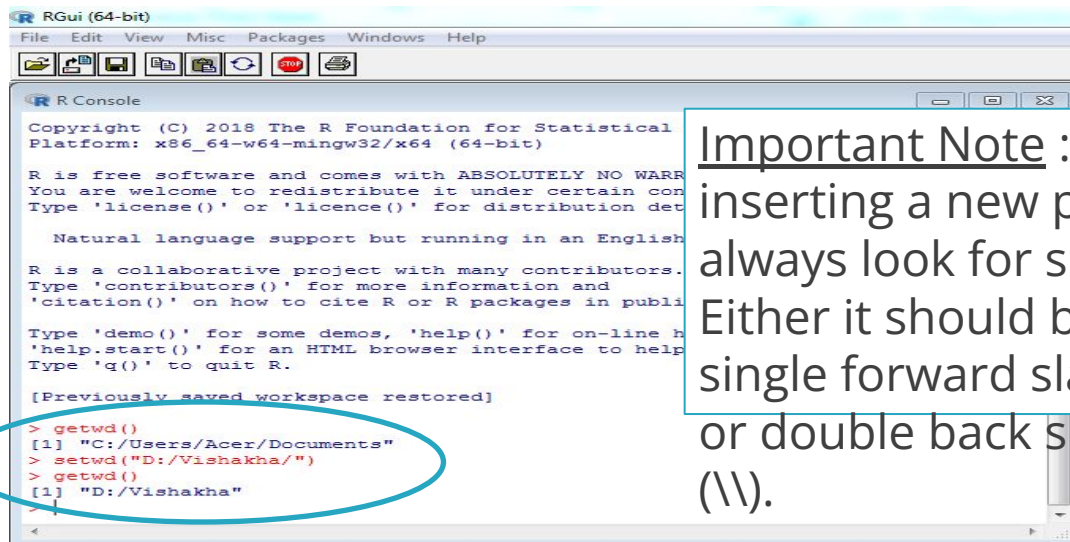
Important Note : While inserting a new path, always look for slashes. Either it should be a single forward slash (/) or double back slash (\\).

The Working Directory

- Steps to set working directory through R tools:

  - Go to the File menu

  - Select Change Working Directory

  - Select the appropriate folder/directory

- In case of Windows, R's default working directory is:

  "C:/Users/User Name/Documents"

* You have the option to set the working directory at any time. Do this when you want to access files in a new location, such as when you are working on multiple projects at the same time or at the start of a new project.

Quick Recap

In this session, we learnt how to work create and save scripts, create objects, see their output and perform calculations on them, manage R's workspace and get help in R:

Write a program	• To assign values to an object: Use operators '<-' and '='. • Press Enter & see the value of the object • Add comments for reference using # symbol
R Workspace	• Save workspace to save all objects created during the session so that next time you start R from the same working directory, the saved objects will be available for use • Basic history commands: `history()`, `savehistory()`, `loadhistory()`

Help in R	• If you know the topic but not the exact function:
	    `help.search("regression")` or `??"regression"`
	• If you know the exact function:
	    `help(functionname)` or `?functionname`

Working with Directories & scripts	• `getwd()` and `setwd()`: To check and set working directory respectively • File > New script: To open a new script. Save the script from the 'File' menu. It helps to save the script for later use.