

# Week 1 - Introduction to learning environment R

## Studio Cloud and Introduce Tasks

**Period:** 25 minutes

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**Main Objective:** Getting familiar with the R environment and practising essential coding lines in R.

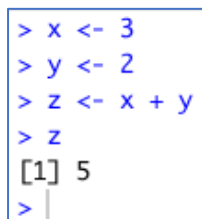
**Note:** All the work will be carried out using the R environment. No slides will be displayed

### Road Map:

1. Introduction to the R environment, all the required tabs, buttons, and functions in this stage
2. Introducing and practising the following:
  - a. What is the meaning of variable? and how to assign a value to the variable?

Example:

```
X <- 3
Y <- 2
Z <- x + y
Z
```



```
> x <- 3
> y <- 2
> z <- x + y
> z
[1] 5
> |
```

### b. Download and read dataset

```
data <- read.csv("Hogwarts_enrolment_data.csv")
head(data)
View(data)
summary(data)
str(data)
```

### c. Assign subset of the dataset into variable

```
subData <- data[, 1:3]
head(subData)
```

```
> subData <- data[, 1:3]
> head(subData)
```

	Hogwarts.House	First.Name	Last.Name
1	Hufflepuff	Kylie	Nowak
2	Hufflepuff	Charlotte	Dillon
3	Gryffindor	Benjamin	Christensen
4	Slytherin	Shelli	Lock
5	Gryffindor	Jung	Blank
6	Hufflepuff	Jeanie	Mora

d. The Environment tab shows

Environment		History	Connections
R		Global Environment	
Data			
data	1600 obs. of 17 variables		
subData	1600 obs. of 3 variables		
Values			
x	3		
y	2		
z	5		

e. R packages:

i. What is the R package?

Packages are collections of R functions, data, and compiled code in a well-defined format. The directory where packages are stored is called the library. R comes with a standard set of packages. Others are available for download and installation. Once installed, they have to be loaded into the session to be used.

ii. How to install and load R packages

```
install.packages("vtable")
```

```
library("vtable")
```

```
> install.packages("vtable")
trying URL 'https://cran.rstudio.com/bin/macosx/contrib/4.0/vtable_1.3.3.tgz'
Content type 'application/x-gzip' length 278479 bytes (271 KB)
=====
downloaded 271 KB

The downloaded binary packages are in
  /var/folders/_S/lxdqzw9x2wv83j3gwdjv81dc0000gn/T//Rtmpkgaz5G/downloaded_packages
> library(vtable)
```

iii. Show summary table of the dataset

```
install.packages("vtable")
```

```
library("vtable")
```

```
St(data)
```

```
install.packages("vtable")
library(vtable)
st(data)
```

## Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
Hogwarts.House	1600						
... Gryffindor	327	20.4%					
... Hufflepuff	529	33.1%					
... Ravenclaw	443	27.7%					
... Slytherin	301	18.8%					
Best.Hand	1600						
... Left	790	49.4%					
... Right	810	50.6%					
Arithmancy	1566	49634.57	16679.806	-24370	38511.5	60811.25	104956
Herbology	1567	1.141	5.22	-10.296	-4.308	5.419	11.613
Defense.Against.the.Dark.Arts	1569	-0.388	5.213	-10.162	-5.259	4.905	9.667
Divination	1561	3.154	4.155	-8.727	3.099	5.667	10.032
Muggle.Studies	1565	-224.59	486.345	-1086.497	-577.58	254.995	1092.389
Ancient.Runes	1565	495.748	106.285	283.87	397.511	597.492	745.396