Playing With R

Lets do some basic maths

```
>1+1

>2 * 10


>3/7

>2+(4*2)/7 - 9^2
```

each line prints out in the terminal.

Let’s create a list

```
>c(1,2,3,4,5)
```

The c command just creates a string of everything you put in the bracket, commas are used to separate terms

Let’s save the variable as an object

```
>l1 <- c(1,2,3,4,5)

>l1

>l2 = c(1,2,3,4,5)
```

```
>l2
```

We can use <- and = interchangably when creating an object

we can also make the same thing by using a series notation

```
>l3<- c(1:5)
```

These are called vectors, how about we combine these vectors into a matrix?

```
>m1 <- l1 + l2 + l3

>m1
```

That didn't work! we can't just combine vectors like that.

```
>m2 <- rbind(l1,l2,l3)

>m2
```

there we go, the rbind function combines vectors by row into a matrix

```
>m3 <- cbind(l1,l2,l3)

>m3
```

cbind does it into columns

Now we should try to read in some of our own data.

First thing's first we need to set the working directory, similar to our cd/ls commands in python.

this is the command for setting the working directory

```
>setwd("Insert your directory here")
```

or if you are using rstudio click on the session drop down at the top and you can choose one our data is in csv form, this is generally the best data format to use.

to read in data we use this command.

```
>Data1 <- read.csv("Data1.csv")
```

now we have some data we can inspect it using some commands

```
>View(Data1)
```

with rstudio this allows us to look at some data

```
>str(Data1)
```

this gives you the structure of the data in a breakdown.

```
>head(Data1)
```

this gives you just the top few rows of data

```
>summary(Data1)
```

This gives you a lot more details and is much more important later.

We can call out individual marts of a dataframe using the $

```
>Data1$a
```

we can also call them out using coordinates in a matrix denoted in [x,y]

```
>Data1[1,]
```

this calls out the entire first row

```
>Data1[,1]
```

this calls out the entire first column

```
>Data1[1,1]
```

this calls out a specific point in the matrix.

and we can perform functions on entire columns or just points

```
>sum(Data1$c)


>mean(Data1$d)
```