Basic Code in R

Running Functions

Using R as a calculator

Addition is +
Subtraction is -
Multiplication is *
Division is /

Using R Functions

```r
sum(1,1) # Calculates the sum of 1 and 1
sum(1,1,2) # Calculates the sum of 1 and 1 and 2
sum(1:100) # Calculates the sum of all numbers from 1 to 1000

sum(age) # Calculates the sum of all the values from the vector 'age' (see below)
```

Creating objects

<- (less than sign and dash) or **=** (equal sign) can be used to assign one or more values to a name. This creates an object in R that can be used to call on the stored information when running functions.

IMPORTANT: R will overwrite objects and files of the same name without any warning.

Some examples of objects:

Vectors

```r
age <- c(16,21,18,19)
# This creates a numeric vector with 4 elements called 'age'

name <- c("John","Mary","Paul","Jane")
# This creates a character vector with 4 elements called 'name'

male <- c(TRUE, FALSE, TRUE, FALSE)
# This creates a logical vector with 4 elements called 'male'
```

Data frames

```r
survey <- data.frame(name = name, age = age, male = male)
# This creates a data frame out of the three vectors above.
```

More information on different data types can be found here:

http://www.statmethods.net/input/datatypes.html
https://www.tutorialspoint.com/r/r_data_types.htm

Adding comments

```r
# Add one (or more) hashtags to add comments to your R Script.
```

When working on the R Script, the text in comments will turn green. This means that R will not treat this as code. A new # needs to be added at the beginning of every line. Anything in black is treated as code.

Installing and loading packages

CRAN packages website: https://cran.r-project.org/web/packages/

Installing a package

Installation via menu
1. Go to **Tools** -> **Install Packages**
2. Type *ggplot2* into the empty field in the dialogue box that appears
3. Click on **Install**

OR

Installation via R code
```r
install.packages("ggplot2")
```

Loading a package

```r
library(ggplot2)
```

Note: A package needs to be re-loaded using library() each time a new session is started. For example, if ggplot2 is used and then RStudio is closed and re-opened, library(ggplot2) needs to be run again before functions from the package can be used.

Getting help in R

R function	What does it do
help()	Opens the help notes for a particular function
?	Opens the help notes for a particular function
??	Searches for a specific word in the help section
example()	Gives examples of how to use a function

Examples:
```r
help(sum) # Help with the function sum()
?sum      # Help with the function sum()
??boxplot     # Searching for the word 'boxplot' in all the help files
example(sum)  # Gives examples of how to use the sum() function
```

The help notes will appear under the **Help** tab in the bottom-right pane.