

General variable assignment

Assignment statements:

```
var_name = new_value OR
var_name <- new_value
```

Variables names: The variable name must start with a letter and can contain numbers and letters as well as the special characters underscore and period.

Note: Contrary to other languages R does not have a command for declaring a variable, but instead a variable is created once a value is assigned to it.

Arithmetic operators

+ Addition - adds together two values.

- Subtraction - subtracts one value from another.

* Multiplication - multiplies two values together.

/ Division - divides one value from the other.

** Exponential - to the power of the next value
OR ^

Arithmetic operators: Used to perform common mathematical operations.

Precedence: Precedence and associativity are as normal as in maths.

Access variables of a dataframe

Calling individual variables from a dataframe:

```
dataframe $var_name
```

Some misc commands

cat() Prints all of its comma separated arguments (concatenating them).

read.csv() Reads a csv file (in the same location)

head() To get a broad overview of the variables that are contained in the dataframe as well as the different variable levels (first 6 rows(?))

summary() Gives the summary statistics of a variable - min, 1st quartile, median, mean, 3rd quartile, maximum

as.factor() Convert to categorical variable

barplot() Creates a barplot for the given table

table() [TBC]

Internal help option: Writing ? in front of the command opens R documentation of the command.

Vector creation and assignment

Creating a list of numbers manually:

```
vector_name <- c(no1, no2, no3, etc.)
```

Creating a list of numbers in a sequence:

```
vector_name <- seq(start, stop, step)
```

(starts from start and ends at exactly stop at increments of step)

Vector: A vector is a 1D set of the same type of object. Most often, a vector will simply be a sequence of numbers.

Note: Similarly to variables, a vector is created once a value is assigned to it.

Comments

Single line comments:

```
# Comment1
code # Comment2
```

Comments: Comments are ignored by the computer, they exist simply to make the code easier for people to understand.

Indexing vectors

Getting 1 index:

```
vec_name[ind ex_no]
```

Getting multiple index in a row:

```
vec_name[start_index:end_index]
```

Note: The indexing is 1-based so it starts at 1 instead of 0 like most other programming languages do.

Basic math functions

log(x) Natural log of x

exp(x) Exponential of x

max(x) Largest element in the set x

min(x) Smallest element in the set x

sum(x) Sum all values in x

mean(x) Mean of x

median(x) Median of x

round(x,n) Round x to n decimal places

length(x) Number of values in x

