Lab 1

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2024-08-28

# Simple Addition  
7+11

## [1] 18

7-11

## [1] -4

7 - 11

## [1] -4

# Example of Multiplication and Division  
7\*11

## [1] 77

7/11

## [1] 0.6363636

7 / 11

## [1] 0.6363636

# More examples  
9 / (1+3)

## [1] 2.25

9 / 1 + 3

## [1] 12

5\*2 + 3

## [1] 13

8 %% 3

## [1] 2

8 %/% 3

## [1] 2

12^2 # integer square

## [1] 144

# Multiple codes on one line:  
  
7/3 ; 7\*3

## [1] 2.333333

## [1] 21

# Assignment Operations: Equal Sign and Arrow in R  
a1 = 7  
b1 = 11  
  
a2 <- 7  
11 -> b2  
  
mean(x <- c(1,8,4,9,13))

## [1] 7

x

## [1] 1 8 4 9 13

# x = is used in a function, however if we did this we could not  
# have the 9th line calling x as nothing would be assigned to it  
  
mean(y <- c(1,8,4,9,13))

## [1] 7

y

## [1] 1 8 4 9 13

# In the first case x is an argument for a function (caused an error in my case); while the second case assigns a vector to x then finds the mean value of it  
  
# Examples defining R objects  
x <- 4  
y = 5  
x+y

## [1] 9

z<-x+2\*y  
  
# compute the value of an object  
x <- 6  
x

## [1] 6

z < -9

## [1] FALSE

a = x^2  
  
log(10)

## [1] 2.302585

log(10,10)

## [1] 1

# Parentheses, Brackets & Curly Brackets  
  
# Parentheses, (), are used to call functions. Brackets, [] are used to obtain values in a data structure, Curly Brackets, {} are used to denote a block of code within in a conditional statement  
  
# Here, we give examples about the use of () and []. THe use of curly brackets will be introduced later.  
  
w <- c(17, 57, 69, 50, 100, 68, 29, 16, 65, 5, 15, 25) # c() combines objects into a set  
median(w) # finds the median of the set

## [1] 39.5

w[3] # finds the value of the third element in w

## [1] 69

w[1:2] # finds the values of the first and second elements

## [1] 17 57

w[2:4] # finds the values between the second and fourth element

## [1] 57 69 50

w[c(2,5,8)] # only find the values of the second, fifth and eigth elements in w

## [1] 57 100 16

w[-5] # the fifth element is removed

## [1] 17 57 69 50 68 29 16 65 5 15 25

w[w < 50] # obtain values satisfying the condition

## [1] 17 29 16 5 15 25