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**Eco 602 – DataCamp R Basics**

**9/8/2021**

1. A variable a that contains the text of your first name.
2. A variable b1 that contains the number 45.6
3. A variable b2 that contains the text “45.6”
4. A variable c1 that contains the sequence of integers from 0 to 3

**Q1.** What type of data is contained in the variable a

a = “Bonnie” a is data type characters, or string literals.

**Q2.** What type of data is contained in the variable b1

b1 = 45.6 b1 is data type numeric since 45.6 is a number.

**Q3.** What type of data is contained in the variable b2

b2 = “45.6” b2 is data type characters, or string literal because of the quotations marks.

**Q4.** What happens when you add b1 and b2 and why?

‘Error in b1 + b2 : non-numeric argument to binary operator’

You cannot add b1 and b2 because they are of different data types (characters and numeric)

**Q5.** Are the variables b1 and c1 of the same type?

Yes b1 and c1 are of the same data type, as they are both numeric. c1 is just a numeric vector with three elements versus b1 is just a numeric variable of one element.

**Q6.** Explain what happens when you add b1 and c1. Consider both the number of elements in each variable and the data types.

B1 and c1 are both of data type numeric so they can be added together. There is one element in b1 and three elements in c1. When they are added together, the b1 element (45.6) is added to each element in c1 vector individually in succession, so that the output is 3 numeric elements. I.e. 45.6 + 1, 45.6 + 2, 45.6 + 3.

Text

Description automatically generated

**Q7.** Show the R code you used to create v1.

v1 = c(-2:2)

> v1

[1] -2 -1 0 1 2

**Q8.** Show the R code you used to create v2.

v2 = v1\*3

> v2

[1] -6 -3 0 3 6

**Q9.** Show the R code you used to calculate the sum of elements in v2.

sum(v2)

[1] 0

**Q10.** Show the code you used to create mat\_1

mat\_1 = matrix(vec\_4, nrow = 3, ncol = 4, byrow = TRUE)

> mat\_1

[,1] [,2] [,3] [,4]

[1,] 1 2 3 4

[2,] 5 6 7 8

[3,] 9 10 11 12

**Q11.** Show the code you used to create mat\_2

mat\_2 = matrix(vec\_4,nrow = 3, ncol = 4, byrow = FALSE)

> mat\_2

[,1] [,2] [,3] [,4]

[1,] 1 4 7 10

[2,] 2 5 8 11

[3,] 3 6 9 12

**Q12.** Show the R code you used to create my\_list\_1.

my\_list\_1 = list("two" = 5.2, "one" = "five point two", "three" = 0:5)

> my\_list\_1

$two

[1] 5.2

$one

[1] "five point two"

$three

[1] 0 1 2 3 4 5

**Q13.** Show the R code that would select third element of the list.

my\_list\_1$three

> my\_list\_1$three

[1] 0 1 2 3 4 5

**Q14.** Show the R code that selects the list element with the name “one”. Note: there are at least two ways to do this!

my\_list\_1["one"]

> my\_list\_1["one"]

$one

[1] "five point two"

**Q15.** Show the R code that you used to create my\_bool\_vec.

my\_bool\_vec = my\_vec == 3

> my\_bool\_vec

[1] FALSE FALSE TRUE FALSE FALSE TRUE FALSE FALSE TRUE FALSE FALSE

[12] TRUE FALSE FALSE TRUE

**Q16.** Show the R code that you used to perform the subsetting.

my\_vec[my\_bool\_vec == TRUE]

> my\_vec[my\_bool\_vec == TRUE]

[1] 3 3 3 3 3