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ECO - 634

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<center>Lab 1:R Fundamentals 1</center>

Q1 (2 pts.): Explain why the outputs of the two lines are different.

The two lines are different because c(1, 2, 3) is a numeric vector and an expression to be evaluated. Whereas, "c(1, 2, 3)" is a literal string of text.

Q2 (1 pt.): Is c_1 a variable, or a function? How do you know?

c_1 is a function. I know this because it is an expression R is evaluating. When you run the code we get [1] 1 2 3.

Q3 (1 pt.): Is c_2 a variable, or a function? How do you know?

c_2 is a variable. I know this because the output is literal text.

Q4 (1 pt.): If c_1 and c_2 have different values, why?

They are different because one is an expression and the other is text.

Q5 (1 pt.): What are the dimensions of the matrix (i.e. how many rows and columns)?

There are 3 rows and 2 columns.

Q6 (2 pts.): Write R code to retrieve the element of mat_1 that has a value of 3.

mat_1[3]

mat[3,1]

Q7 (1 pt.): Paste the code you used to create mat_2.

mat_2 <- matrix(my_vec, now = 2, ncol = 3)

Q8 (1 pt.): Paste the code you used to create mat_3.

mat_3 <- matrix)my_vec, now = 3, ncol = 2)

Q9 (1 pt.): Did R use rows or columns to recycle/distribute the values in my_vec?

R used the columns to recycle/ distribute the values in my_vec.

Q10 (1 pt.): Using my_vec, create a matrix, mat_4. mat_4 must have a total number of elements that is not a multiple of 3.

mat_4 <- matrix(my_vec, now = 5

Q11 (1 pt.): How did R handle the recycling/distributing of values of my_vec in mat_4?

It recycled the values 1-4 to fill in row 2 columns 2-5.

Q12 (8 pts.): For each of the 8 lines, answer the following: A. Did the line return a 1: value, 2: error, or 3: NULL? B. What type of subsetting operation was used (or attempted)? C. If it **did not** return an error describe, in ordinary English, a plausible explanation of how R could have performed the subsetting.

A. my_list_1[[1]] - value

my_list_1[[as.numeric("1")]] - value

my_list_1[["1"]] - NULL

my_list_1[["one"]] - "five point two"

my_list_1$one - "five point two"

my_list_1$"one" - "five point two"

my_list_1$1 - error

my_list_1$"1" - NULL.

B. The subsetting that was used or attempted were [],$, "", and as. numeric ()

C. A plausible explanation of how R could have performed the subsetting by extracting part of the data object, that is listed after the [], as.number, and $.

Q13 (2 pts.): Identify which lines produced the string output "five point two" and explain why.

The lines that produced "five point two" were my_list_1[["one"]] - "five point two",

my_list_1$one - "five point two", and my_list_1$"one" - "five point two". This is because the subset extracted "one" which was assigned to "five point two".

Q14 (1 pt.): Identify which lines produced NULL output and explain why.

The lines that produced NULL were my_list_1[["1"]] - NULL and my_list_1$"1" - NULL. This happened because nothing was labeled as 1 (numeric) instead there was a list labeled one using text.