ECO 634 Lab 01

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Analysis of Environmental Data, Professor Michael Nelson

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

The quotation marks just spit back the exact same thing you put in as text because it is a character value, whereas the version without the quotes is interpreted as a numeric variable.

Q2 Is c_1 a variable, or a function?

Variable

Q3 Is c_2 a variable, or a function?

Function

Q4 If c_1 and c_2 have different values, why?

c_2 is a character value (because of the quotation marks), and c_1 has numeric variables

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

3 rows and 1 column

Q6 Write R code to retrieve the element of mat_1 that has a value of 3.

mat_1[3,]

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

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

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

mat_3 <- matrix(my_vec, nrow = 3, ncol = 2)

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

Columns

Q10 (1pt.): Create a matrix, mat_4, with a number of elements that is not a multiple of 3 and paste the code into the editor.

mat_4 = matrix(my_vec, nrow = 2, ncol = 4, byrow = TRUE)

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

It recycled my_vec horizontally, once it got to the 4th column, it gave the first value of my_vec again, and again at the 2nd row, 3rd column.

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. If it did not return an error, what type of subsetting operation was used? C. If it did not return an error, explain how R chose which element to retrieve.

1. It returned the value 5.2 and subset it by position. R chose which element to retrieve by looking for the value/element in the first position of the list and returning it.
2. It returned the value 5.2 and subset it by position. R chose which element to retrieve by looking for the value in the first position of the list and returning it.
3. It returned NULL and subset it by position. R chose which element to retrieve by looking for the value that has the name "1" and since that doesn't exist, it returned NULL.
4. It returned the value "five point two" and subset it by position. R chose which element to retrieve by looking for the value that has the name "one" and returning it.
5. It returned the value "five point two" and subset it by name. R chose which element to retrieve by looking for the value that has the name "one" (although in this line the name wasn't in quotation marks, I just used them here to clarify) and returning it.
6. It returned the value "five point two" and subset it by name. R chose which element to retrieve by looking for the value that has the name "one" and returning it.
7. It returned an error.
8. It returned NULL and subset it by name. R chose which element to retrieve by looking for the value that has the name "1" and since that doesn't exist, it returned NULL.

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

Lines 4, 5, and 6 produced "five point two". 5 and 6 subset it by name ("one"), and since the contents of "one" is "five point two", that is the output we received. Line 4 subset the value by position, by referring to "one" as the name of the component and calling the contents.

Q14 (2 pts): Identify which lines produced NULL output and explain why.

Lines 3 and 8 produced NULL. Line 3 tried to call the value with the name "1", but nothing with that name exists, so it returned a NULL output. The same thing happened with line 8, in that by putting 1 in quotation marks, it attempted to call the value by name, but again, nothing with the name "1" exists.