Bathrick – Lab 1 Answers

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

Placing the code in quotes turns it into a character string instead of numerical variable

* **Q2 (1 pt.):** Is c\_1 a variable, or a function? How do you know?

c\_1 is a function, because you have assigned a numeric string of variables

* **Q3 (1 pt.):** Is c\_2 a variable, or a function? How do you know?

c\_2 is a variable, because the entire phrase is in quotes and thus treated as a character

* **Q4 (1 pt.):** If c\_1 and c\_2 have different values, why?

The quotes lump the variables together or separate them

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

3x2 (three rows, two columns)

* **Q6 (2 pts.):** Write R code to retrieve the element of mat\_1 that has a value of 3.

mat\_1[3,1]

* **Q7 (1 pt.):** Paste the code you used to create mat\_2.

mat\_2=matrix(my\_vec, nrow=2)

* **Q8 (1 pt.):** Paste the code you used to create mat\_3.

mat\_3=matrix(my\_vec, nrow=3)

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

columns

* **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, nrow=2, ncol=7)

* **Q11 (1 pt.):** How did R handle the recycling/distributing of values of my\_vec in mat\_4?

It began another column from the beginning of the string, but didn’t have the space to fill in the entire string.

* **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.
  + my\_list\_1[[1]]
    - A: 1
    - B: numbered component of the list
    - C: R found the first item in the list, regardless of what it’s name was
  + my\_list\_1[[as.numeric("1")]]
    - A: 1
    - B: numbered component
    - C: R was told to read the character within the quotes as numeric, so it is the same command as the code prior
  + my\_list\_1[["1"]]
    - A: 3
    - B: character-named component
  + my\_list\_1[["one"]]
    - A: 1
    - B: character-named component
    - R found the variable that was labelled “one”, not the first variable
  + my\_list\_1$one
    - A: 1
    - B: character-named component
    - C: R found the variable that is named “one”, it didn’t require the quotes because of the $
  + my\_list\_1$"one"
    - A: 1
    - B: character-named component
    - C: R found the variable that is named “one”, $ was used instead of brackets
  + my\_list\_1$1
    - A: 2
    - B: there was an attempt to select either the first element or the one labelled “one,” needs to be in brackets
  + my\_list\_1$"1"
    - A: 3
    - B: There is no element named “1”
* **Q13 (2 pts.):** Identify which lines produced the string output "five point two" and explain why.
  + my\_list\_1$one
  + my\_list\_1$"one"
  + my\_list\_1[["one"]]

All these commands specifiy the same element, they are just different ways of selecting it.

* **Q14 (1 pt.):** Identify which lines produced NULL output and explain why.
  + my\_list\_1$"1"
  + my\_list\_1[["1"]]

R looked for an element that was named “1”, which does not exist – it is named “one”