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Analysis of Environmental Data

Lab 1 Report

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Worked with Juliana Berube, Julia Vineyard, Andrew Gordon

1.  Explain why the outputs of the two lines are different.

The outputs of the two lines are different because the way the lines are written. The first line is a vector data type. In the second line, the parentheses indicate string data. This means that the output will be a character data.

2. Is c\_1 a variable, or a function? How do you know?

It is a variable because it stores the values in a vector.

3. Is c\_2 a variable, or a function? How do you know?

It is a variable because stores characters.

4. If c\_1 and c\_2 have different values, why?

C\_1 is equal to the output of the function, while c\_2 is equal to the text.

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

3 row, 1 column

6. Write R code to retrieve the element of mat\_1 that has a value of 3.

mat\_1[3,1]

7. Paste the code you used to create mat\_2.

mat\_2 = matrix(my\_vec, nrow = 2, ncol = 3, byrow = TRUE)

8. Paste the code you used to create mat\_3.

mat\_3 = matrix(my\_vec, nrow = 3, ncol = 2, byrow = TRUE)

9. Did R use rows or columns to recycle the values in my\_vec?

mat\_2: in the columns

mat\_3: in the rows

10. Create a matrix, mat\_4, with a number of elements that is not a multiple of 3 and paste the code into your report.

mat\_4 = matrix(my\_vec, nrow = 5, ncol = 2, byrow = TRUE)

11. How did R handle the recycling of values of my\_vec in mat\_4?

It recycled numbers in the columns, but not in the rows.

12. For each of the 8 lines, answer the following:

A. Did the line return a 1: value, 2: error, or 3: NULL?

1. Value

2. Value

3. NULL

4. Value

5. Value

6. Value

7. Error

8. NULL

B. If it did not return an error, what type of sub setting operation was used?

1. Position

2. Position

3. Name

4. Name

5. Name

6. Name

8. Name

C. If it did not return an error, explain how R chose which element to retrieve.

\* 5.2 holds the first position in the list. It is named two

\* “five point two” holds the second position in the list. It is named one

1.

* Double brackets pick the numbered position
* The position within the bracket was 1
* The first position holds the numeric value of 5.2

2.

* Double brackets pick the numbered position
* as.numeric transfers character data into numeric
* Therefore, R converted the characters one into 1
* R chose the position of 1
* The first position holds the number of 5.2

3.

* Double brackets with parentheses pick the named value
* There was no value in the list named 1 so it came out as a null

4.

* Double brackets with parentheses pick the named value
* R selected the value named one
* The value named one is the character "five point two"

5.

* Dollar signs pick the named value
* R selected the value named one
* The value named one is the character "five point two"

6.

* Dollar signs pick the named value, even if the parentheses are present
* R selected the value named one
* The value named one is the character "five point two"

8.

* Dollar signs pick the named value, even if the parentheses are present
* There was no value in the list named 1 so it came out as a null

13. Identify which lines produced output "five point two" and explain why.

4. Double brackets with parentheses pick the named value. The name within the

parentheses is one. R selected the value named one. The value named one is the

character "five point two".

5. Dollar signs pick the named value. The name after the dollar sign is one. R selected

the value named one. The value named one is the character "five point two".

6. Dollar signs pick the named value, even if the parentheses are present.

The name after the dollar sign and in the parentheses is one. R selected the value

named one. The value named one is the character "five point two".

14. Identify which lines produced NULL output and explain why.

3. Double brackets with parentheses pick the named value. There was no value in the

list named 1 so R was unable to select a value. It is important to remember that that 1

does not equal “one”. This is why the outcome was NULL.

8. Dollar signs pick the named value, even if the parentheses are present. There was no

value in the list named 1 so R was unable to select a value. It is important to remember

that that 1 does not equal “one”. This is why the outcome was NULL.