Quiz 1

01/28/2019

Instructions:
Write your name at the top right. You are to work on this quiz alone without any help from any other resource *except for a single* 8.5×11 *inch page of handwritten notes.*

Problems:

1. What will be the output of the statement

   print(pi == 'pi')

   entered in the R console? What "TYPE" is the output? Explain why you get this output.

   The output will be "FALSE". This is type "LOGICAL". This is because R recognizes pi as the stored variable equal to the decimal approximation of π, whereas 'pi' is recognized as the two characters 'p' and 'i'. Because the two values that are being compared are not even the same type, they cannot be equal.

2. Suppose we assign the value to "x" as follows:

$$x \leftarrow 5.0$$
$$y \leftarrow 2.0$$
$$x \leftarrow x * y \wedge 2 - x$$

   After this we enter "print(x)" into the console, what is the output? What is the "TYPE" of "x"?

   Entering "$print(x)$" will output the value associated to the variable x. The value is originally 5.0, but by the precedence of operations, we compute

$$5.0 * 2^2 - 5.0 \tag{1}$$

   and re-assign 15.0 to the variable x. The type of x is "DOUBLE".

3. We are analyzing cat data once again... The dataframe "*cats*" looks like the following:

	coat	*weight*	*likes_string*
1	*calico*	2.1	1
2	*black*	5.0	0
3	*tabby*	3.2	1

What is the output when we enter

print(*cats*$*likes_string*)

into the console?

The output will be the vector with entries, 1 0 1, associated to the column *likes_string* in the dataframe.

Does entering the following line,

print(*cats*$*weight* + *cats*$*coat*)

produce a meaningful output? Why?

The output will only give an error message and null values. This is because the type "CHAR" and the type "DOUBLE" cannot be combined in a meaningful way with the "plus" operation.