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▼ **Module 1: The Basics of R and Introduction to the Course**


Welcome to the Course

Introduction to R

Introductory Lecture

Finger Exercises due Oct 03, 2016 at 05:00 IST 

Module 1: Homework

Homework due Sep 26, 2016 at 05:00 IST 

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This set of questions are all based on R. If you have not yet, please take a look at the R materials in Module 1.

Question 12

(1/1 point)

Suppose that you want R to display the following statement "Hello world!". The code for this would be the following: ____("Hello world!").

In the text box, write the missing part of the code (i.e. what should come before ("Hello world!"))?



You have used 1 of 2 submissions

Question 13

(1/1 point)

If you run the following code in R, what does the object my_sqrt contain?

```
z <- c(pi, 205, 149, -2)
y <- c(z, 555, z)
y <- 2 * y + 760
my_sqrt <- sqrt(y - 1)
```

☐ a. A single number (i.e a vector of length 1).

☐ b. A vector of length 0 (i.e. an empty vector).

☐ c. A vector of length 1.

☐ d. A vector of length 3.

☒ e. A vector of length 9. ✓

You have used 1 of 2 submissions

Question 14

(1/1 point)


Are the two following codes in R equivalent?

Code 1

```
z <- c(1:4)
z * 200 + 3
```

Code 2

```
z <- c(1:4)
z * c(200, 200, 200, 200) +
c(3, 3, 3, 3)
```

☒ Yes 

☐ No

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Question 15

(1/1 point)

What kind of matrix would my_matrix be if the following is run in R?

```
my_matrix <- matrix(1:6, nrow = 3, ncol = 2, byrow = TRUE)
```

☐

	[, 1]	[, 2]	[, 3]
[1,]	1	2	3
[2,]	4	5	6

☐

	[, 1]	[, 2]	[, 3]
[1,]	1	3	5
[2,]	2	4	6

☐

	[, 1]	[, 2]
[1,]	1	4
[2,]	2	5
[3,]	3	6

☒

	[, 1]	[, 2]
[1,]	1	2
[2,]	3	4
[3,]	5	6

 ✓

You have used 1 of 2 submissions

Question 16

(1/1 point)

Now assume that each row in the matrix represents a different person. We had create the following vector:

```
names_of_students <- c("lisa", "juan", "diana")
```

Complete the following code that allows you to assign these names to the rows of the matrix *my_matrix*

```
_____ <- names_of_students
```

rownames(my_matrix)



You have used 1 of 2 submissions

Question 17

(1/1 point)

Assume that you tell R to divide zero by zero, what would you get?

☐ a. NA which corresponds to not being a number.

☐ b. NaN which corresponds to a missing value.

☐ c. NA which corresponds to a missing values.

☒ d. NaN which corresponds to not being a number.



- ☐ e. Both, NA and NaN since for R they are the same object.

You have used 1 of 2 submissions

Question 18

(1/1 point)

If you have a missing value and you try to add it a number, what result would you get?

- ☒ a. NA 

- ☐ b. The number you are trying to add

- ☐ c. An error, since R is not able to perform operations with missing values

You have used 1 of 1 submissions

Question 19

We have asked the age of a group of 12 students. While 10 of them provided us with this information, 2 of them did not. We have constructed the vector `age` that captures this information. (Select all that apply)

```
age <- c(12, 28, 35, 27, NA, 25, 32, 45, 31, 23, NA, 34)
```

If we were interested in getting the vector without the missing values, which of the following lines of code would be useful to achieve this purpose?

☐ a. `age[c(5, 11)]`

☒ b. `age[-c(5, 11)]`

☒ c. `age[c(-5, -11)]`

☐ d. `age[1:10]`

☒ e. `age[c(1, 2, 3, 4, 6, 7, 8, 9, 10, 12)]`

☐ f. `age[is.na(age)]`

☒ g. `age[!is.na(age)]`



You have used 2 of 2 submissions

Question 20

Which of the following statements are true? (Select all that apply)

- ☐ a. Matrices in R only allow for objects that are numeric, meaning if you try to create matrices with strings, you will receive an error.
- ☒ b. If a vector contains numeric and string characters, and R transforms it into a matrix then the numeric objects would be treated as strings. ✓
- ☐ c. Matrices in R allow for collections of objects of different types, while lists do not.
- ☒ d. Matrices in R allow for different types of objects (e.g. numeric, string, etc.), but all columns of a matrix must be of the same type. ✓
- ☒ e. Contrary to matrices, lists allow for a collection of objects of different types (e.g. numeric, string, matrix, etc.) in one list. ✓
- ☐ f. If a vector contains both numeric and string characters, and R transforms it into a matrix then it will keep the original type of the objects.

☐ g. Matrices and lists are the same in R.



EXPLANATION

All columns in a matrix must have the same type of object (numeric, string, etc.), therefore answer choices c and f must be incorrect. Although all the columns in a matrix must be of the same type, you can have different types matrices. For example, you could have a matrix of all string objects, or a matrix of all numerical values. Therefore, choice a is incorrect as well.

In a list, unlike in a matrix, you can have different types of objects under one list. For instance, a list could contain both numeric and string objects. Therefore, choice g is also incorrect. Choices b, d, and e are all true and correct.

You have used 2 of 2 submissions

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