Week 1 Quiz

20/20 questions correct

Quiz passed!

Continue Course (/learn/r-programming/lecture/QLz9h/introduction-to-swirl)

Back to Week 1 (/learn/r-programming/home/week/1)

1.

R was developed by statisticians working at

- Microsoft
- Harvard University
- The University of Auckland

Well done!
The R language was developed by Ross Ihaka and Robert Gentleman who were statisticians at the University of Auckland in New Zealand.

- Johns Hopkins University

2.

The definition of free software consists of four freedoms (freedoms 0 through 3). Which of the following is NOT one of the freedoms that are part of the definition? Select all that apply.

- [ ] The freedom to run the program, for any purpose.

Well done!
This is freedom 0.

- [ ] The freedom to redistribute copies so you can help your neighbor.

Well done!
This is freedom 2.

- [ ] The freedom to study how the program works, and adapt it to your needs.

Well done!
This is freedom 1.

- [ ] The freedom to improve the program, and release your improvements to the public, so that the whole community benefits.

Well done!
This is freedom 3.

- [ ] The freedom to restrict access to the source code for the software.

Well done!
This is not part of the free software definition. Freedoms 1 and 3 require access to the source code.

- [ ] The freedom to sell the software for any price.

3.

In R the following are all atomic data types EXCEPT: (Select all that apply)

- [ ] data frame

Well done!
'data frame' is not an atomic data type in R.

- [ ] matrix

Well done!
'matrix' is not an atomic data type in R.

- [ ] complex

Well done!

- [ ] character

Well done!

- [ ] numeric

Well done!

- [ ] logical

Well done!

- [ ] table

Well done!
'table' is not an atomic data type in R.

4.

If I execute the expression x <- 4L in R, what is the class of the object `x' as determined by the `class()' function?

- character
- logical
- matrix
- complex
- integer

Well done!
The 'L' suffix creates an integer vector as opposed to a numeric vector.

- numeric

5.

What is the class of the object defined by x <- c(4, TRUE)?

- logical
- character
- list
- integer
- numeric

Well done!
The numeric class is the "lowest common denominator" here and so all elements will be coerced into that class.

- matrix

6.

If I have two vectors x <- c(1,3, 5) and y <- c(3, 2, 10), what is produced by the expression rbind(x, y)?

- a 3 by 3 matrix
- a 2 by 2 matrix
- a vector of length 2
- a 3 by 2 matrix
- a vector of length 3
- a matrix with two rows and three columns

Well done!
The 'rbind' function treats vectors as if they were rows of a matrix. It then takes those vectors and binds them together row-wise to create a matrix.

7.

A key property of vectors in R is that

- elements of a vector can be of different classes
- elements of a vector all must be of the same class

Well done!

- the length of a vector must be less than 32,768
- a vector cannot have have attributes like dimensions
- elements of a vector can only be character or numeric

8.

Suppose I have a list defined as x <- list(2, "a", "b", TRUE). What does x[[2]] give me? Select all that apply.

- [ ] a character vector of length 1.

Well done!

- [ ] a character vector containing the letter "a".

Well done!

- [ ] a list containing the number 2 and the letter "a".

Well done!

- [ ] a list containing character vector with the letter "a".

Well done!

- [ ] a character vector with the elements "a" and "b".

Well done!

9.

Suppose I have a vector x <- 1:4 and a vector y <- 2. What is produced by the expression x + y?

- a numeric vector with elements 3, 2, 3, 6.
- a numeric vector with elements 3, 4, 5, 6.

Well done!

- an integer vector with elements 3, 2, 3, 6.
- a numeric vector with elements 1, 2, 3, 6.
- an integer vector with elements 3, 2, 3, 4.
- a numeric vector with elements 3, 2, 3, 4.

10.

Suppose I have a vector x <- c(17, 14, 4, 5, 13, 12, 10) and I want to set all elements of this vector that are greater than 10 to be equal to 4. What R code achieves this? Select all that apply.

- [ ] x[x < 10] <- 4

Well done!
This takes the elements of x that are less than 10 and sets them to 4.

- [ ] x[x == 10] <- 4

Well done!
This takes the elements of x that are equal to 10 and sets them to 4.

- [ ] x[x > 4] <- 10

Well done!
This takes the elements of x that are greater than 4 and sets them to 10.

- [ ] x[x > 10] <- 4

Well done!
You can create a logical vector with the expression x > 10 and then use the [operator to subset the original vector x.

- [ ] x[x > 10] == 4

Well done!
This takes the elements of x that are greater than 10 and tests whether they are equal to 4 or not.

- [ ] x[x == 4] > 10

Well done!

11.

Use the Week 1 Quiz Data Set (https://d396qusza40orc.cloudfront.net/rprog/data/quiz1_data.zip) to answer questions 11-20.

In the dataset provided for this Quiz, what are the column names of the dataset?

- Ozone, Solar.R, Wind, Temp, Month, Day

Well done!
You can get the column names of a data frame with the `names()' function.

- Ozone, Solar.R, Wind
- Month, Day, Temp, Wind
- 1, 2, 3, 4, 5, 6

12.

Extract the first 2 rows of the data frame and print them to the console. What does the output look like?

```
  Ozone Solar.R Wind Temp Month Day
1    41     190  7.4   67     5   1
2    36     118  8.0   72     5   2
```

Well done!
You can extract the first two rows using the [operator and an integer sequence to index the rows.

```
  Ozone Solar.R Wind Temp Month Day
1     7      NA  6.9   74     5  11
2    35     274 10.3   82     7  17
```

```
  Ozone Solar.R Wind Temp Month Day
1    18     224 13.8   67     9  17
2    NA     258  9.7   81     7  22
```

```
  Ozone Solar.R Wind Temp Month Day
1     9      24 10.9   71     9  14
2    18     131  8.0   76     9  29
```

13.

How many observations (i.e. rows) are in this data frame?

- 153

Well done!
You can use the `nrows()' function to compute the number of rows in a data frame.

- 129
- 45
- 160

14.

Extract the *last* 2 rows of the data frame and print them to the console. What does the output look like?

```
    Ozone Solar.R Wind Temp Month Day
152    18     131  8.0   76     9  29
153    20     223 11.5   68     9  30
```

Well done!
The `tail()' function is an easy way to extract the last few elements of an R object.

```
    Ozone Solar.R Wind Temp Month Day
152    34     307 12.0   66     5  17
153    13      27 10.3   76     9  18
```

```
    Ozone Solar.R Wind Temp Month Day
152    31     244 10.9   78     8  19
153    29     127  9.7   82     6   7
```

```
    Ozone Solar.R Wind Temp Month Day
152    11      44  9.7   62     5  20
153   108     223  8.0   85     7  25
```

15.

What is the value of Ozone in the 47th row?

- 34
- 18
- 63
- 21

Well done!
The single bracket [operator can be used to extract individual rows of a data frame.

16.

How many missing values are in the Ozone column of this data frame?

- 9
- 78
- 37

Well done!
The `is.na' function can be used to test for missing values.

- 43

17.

What is the mean of the Ozone column in this dataset? Exclude missing values (coded as NA) from this calculation.

- 31.5
- 53.2
- 18.0
- 42.1

Well done!
The `mean' function can be used to calculate the mean.

18.

Extract the subset of rows of the data frame where Ozone values are above 31 and Temp values are above 90. What is the mean of Solar.R in this subset?

- 185.9
- 205.0
- 334.0
- 212.8

Well done!
You need to construct a logical vector in R to match the question's requirements. Then use that logical vector to subset the data frame.

19.

What is the mean of "Temp" when "Month" is equal to 6?

- 90.2
- 85.6
- 75.3
- 79.1

Well done!

20.

What was the maximum ozone value in the month of May (i.e. Month is equal to 5)?

- 97
- 100
- 18
- 115

Well done!