RAVI RANJAN

**Week 1 Quiz**

Question 1

R was developed by statisticians working at **1 / 1 point**

Johns Hopkins University

The University of Auckland

Harvard University

Microsoft

**Correct**

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

2.Question 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.

**1 / 1 point**

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

The freedom to restrict access to the source code for the software.

**Correct**

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

The freedom to prevent users from using the software for undesirable purposes.

**Correct**

This is not part of the free software definition. Freedom 0 requires that the users of free software be free to use the software for any purpose.

The freedom to sell the software for any price.

**Correct**

This is not part of the free software definition. The free software definition does not mention anything about selling software (although it does not disallow it).

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

The freedom to run the program, for any purpose.

The freedom to redistribute copies so you can help your neighbour.

Question 3

In R the following are all atomic data types EXCEPT: (Select all that apply) **1 / 1 point**

numeric

list

**Correct**

'list' is not an atomic data type in R.

character

complex

data frame

**Correct**

'data frame' is not an atomic data type in R.

integer

table

**Correct**

'table' is not an atomic data type in R.

array

**Correct**

'array' is not an atomic data type in R.

matrix

**Correct**

'matrix' is not an atomic data type in R.

logical

Question 4

If I execute the expression x <- 4 in R, what is the class of the object `x' as determined by the class () function? **1 / 1 point**

integer

complex

real

vector

numeric

list

matrix

**Correct**

Question 5

What is the class of the object defined by the expression x <- c (4, "a", TRUE)? **1 / 1 point**

integer

character

mixed

numeric

logical

**Correct**

The character class is the "lowest common denominator" here and so all elements will be coerced into that class.

6.Question 6

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

**1 / 1 point**



a matrix with 2 columns and 3 rows



a 2 by 2 matrix



a 2 by 3 matrix



a vector of length 2



a vector of length 3



a 3 by 3 matrix

**Correct**

The 'cbind' function treats vectors as if they were columns of a matrix. It then takes those vectors and binds them together column-wise to create a matrix.

7.Question 7

A key property of vectors in R is that

**1 / 1 point**



a vector cannot have have attributes like dimensions



elements of a vector all must be of the same class



the length of a vector must be less than 32,768



elements of a vector can be of different classes



elements of a vector can only be character or numeric

**Correct**

8.Question 8

Suppose I have a list defined as x <- list(2, "a", "b", TRUE). What does x[[1]] give me? Select all that apply.

**0 / 1 point**



a list containing the number 2.



a list containing a numeric vector of length 1.



a character vector containing the element "2".



a numeric vector containing the element 2.

**Correct**



a numeric vector of length 1.

You didn’t select all the correct answers

9.Question 9

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

**1 / 1 point**



an integer vector with elements 3, 2, 3, 4.



an integer vector with elements 3, 2, 3, 6.



a numeric vector with elements 3, 2, 3, 6.



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



a numeric vector with elements 3, 2, 3, 4.



a numeric vector with elements 1, 2, 3, 6.

**Correct**

10.Question 10

Suppose I have a vector x <- c(3, 5, 1, 10, 12, 6) and I want to set all elements of this vector that are less than 6 to be equal to zero. What R code achieves this? Select all that apply.

**1 / 1 point**



x[x < 6] <- 0

**Correct**

You can create a logical vector with the expression x < 6 and then use the [ operator to subset the original vector x.



x[x > 6] <- 0



x[x < 6] == 0



x[x > 0] <- 6



x[x <= 5] <- 0

**Correct**

You can create a logical vector with the expression x <= 5 and then use the [ operator to subset the original vector x.



x[x == 0] <- 6



x[x %in% 1:5] <- 0

**Correct**

You can create a logical vector with the expression x %in% 1:5 and then use the [ operator to subset the original vector x.



x[x == 6] <- 0



x[x == 0] < 6



x[x != 6] <- 0



x[x >= 6] <- 0

11.Question 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?

**1 / 1 point**



Month, Day, Temp, Wind



1, 2, 3, 4, 5, 6



Ozone, Solar.R, Wind



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

**Correct**

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

12.Question 12

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

**1 / 1 point**





1

2

3

Ozone Solar.R Wind Temp Month Day

1 41 190 7.4 67 5 1

2 36 118 8.0 72 5 2





1

2

3

Ozone Solar.R Wind Temp Month Day

1 18 224 13.8 67 9 17

2 NA 258 9.7 81 7 22





1

2

3

Ozone Solar.R Wind Temp Month Day

1 9 24 10.9 71 9 14

2 18 131 8.0 76 9 29





1

2

3

Ozone Solar.R Wind Temp Month Day

1 7 NA 6.9 74 5 11

2 35 274 10.3 82 7 17

**Correct**

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

13.Question 13

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

**1 / 1 point**



153



160



45



129

**Correct**

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

14.Question 14

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

**1 / 1 point**





1

2

3

Ozone Solar.R Wind Temp Month Day

152 31 244 10.9 78 8 19

153 29 127 9.7 82 6 7





1

2

3

Ozone Solar.R Wind Temp Month Day

152 11 44 9.7 62 5 20

153 108 223 8.0 85 7 25





1

2

3

Ozone Solar.R Wind Temp Month Day

152 18 131 8.0 76 9 29

153 20 223 11.5 68 9 30





1

2

3

Ozone Solar.R Wind Temp Month Day

152 34 307 12.0 66 5 17

153 13 27 10.3 76 9 18

**Correct**

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

15.Question 15

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

**1 / 1 point**



18



21



34



63

**Correct**

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

16.Question 16

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

**1 / 1 point**



78



37



43



9

**Correct**

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

17.Question 17

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

**1 / 1 point**



53.2



42.1



31.5



18.0

**Correct**

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

18.Question 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?

**1 / 1 point**



185.9



205.0



334.0



212.8

**Correct**

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.Question 19

What is the mean of "Temp" when "Month" is equal to 6? **1 / 1 point**

90.2



79.1



75.3



85.6

**Correct**

20.Question 20

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

**1 / 1 point**



115



97



18



100

**Correct**