Feedback — Week 1 Quiz

Help

You submitted this quiz on **Sat 12 Apr 2014 3:41 PM PDT**. You got a score of **18.00** out of **20.00**. You can attempt again, if you'd like.

Introduction

This first quiz will check your ability to execute basic operations on objects in R and to understand some basic concepts. For questions 11–20 you will need to load a dataset into R and do some basic manipulations in order to answer the questions on the quiz.

You may want to print a copy of the quiz questions to look at as you work on the assignment. It is recommended that you save your answers as you go in the event that a technical problem should occur with your network connection or computer. Ultimately, you must submit the quiz online to get credit!

Data

The zip file containing the data for questions 11–20 in this Quiz can be downloaded here:

- Week 1 Quiz Data

For this assignment you will need to unzip this file in your working directory.

Question 1

R was developed by statisticians working at

Your Answer		Score	Explanation
◉ Bell Labs	✖	0.00	Bell Labs developed the original S language.
○ The University of Auckland			
○ StatSci			

Johns Hopkins University			
Total		0.00 / 1.00	

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?

Your Answer		Score	Explanation
The freedom to study how the program works, and adapt it to your needs.			
The freedom to prevent users from using the software for undesirable purposes.	✔	1.00	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 run the program, for any purpose.			
The freedom to redistribute copies so you can help your neighbor.			
Total		1.00 / 1.00	

Question 3

In R the following are all atomic data types EXCEPT

Your Answer	Score	Explanation
character		
logical		

logical			
matrix	✔	1.00	'matrix' is not an atomic data type in R.
complex			
Total		1.00 / 1.00	

Question 4

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

Your Answer		Score	Explanation
character			
integer	✔	1.00	The 'L' suffix creates an integer vector as opposed to a numeric vector.
numeric			
matrix			
Total		1.00 / 1.00	

Question 5

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

Your Answer		Score	Explanation
character	✔	1.00	The character class is the "lowest common denominator" here and so all elements will be coerced into that class.
logical			

integer			
numeric			
Total	1.00 / 1.00		

Question Explanation

R does automatic coercion of vectors so that all elements of the vector are the same data class.

Question 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)?

Your Answer		Score	Explanation
a 3 by 2 matrix			
a vector of length 2			
a vector of length 3			
a matrix with three columns and two rows	✔	1.00	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.
Total		1.00 / 1.00	

Question 7

A key property of vectors in R is that

Your Answer	Score	Explanation

○ elements of a vector can be of different classes		
◉ elements of a vector all must be of the same class	✔	1.00
○ elements of a vector can only be character or numeric		
○ a vector cannot have have attributes like dimensions		
Total		1.00 / 1.00

Question 8

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

Your Answer		Score	Explanation
○ a list containing the number 2.			
○ a numeric vector containing the element 2.			
○ a list containing a numeric vector of length 1.			
◉ a character vector containing the element "2".	✖	0.00	
Total		0.00 / 1.00	

Question 9

Suppose I have a vector x <- 1:4 and y <- 2:3. What is produced by the expression x + y?

Your Answer		Score	Explanation
○ an error.			
○ an numeric vector with the values 3, 5, 5, 7.			
◉ an integer vector with the values 3, 5, 5, 7.	✔	1.00	
○ an integer vector with the values 3, 5, 3, 4.			

Total	1.00 / 1.00

Question 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?

Your Answer		Score	Explanation
x[x == 4] > 10			
x[x == 10] <- 4			
x[x >= 11] <- 4	✔	1.00	You can create a logical vector with the expression x >= 11 and then use the [operator to subset the original vector x.
x[x >= 10] <- 4			
Total		1.00 / 1.00	

Question 11

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

Your Answer		Score	Explanation
1, 2, 3, 4, 5, 6			
Ozone, Solar.R, Wind, Temp, Month, Day	✔	1.00	You can get the column names of a data frame with the `names()' function.
Ozone, Solar.R, Wind			
Month, Day, Temp, Wind			

Total	1.00 / 1.00

Question 12

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

Your Answer	Score	Explanation
Ozone Solar.R Wind Temp Month Day 1 9 24 10.9 71 9 14 2 18 131 8.0 76 9 29		
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 7 NA 6.9 74 5 11 2 35 274 10.3 82 7 17		
Ozone Solar.R Wind Temp Month Day 1 41 190 7.4 67 5 1 2 36 118 8.0 72 5 2	✔ 1.00	You can extract the first two rows using the [operator and an integer sequence to index the rows.

Total	1.00 / 1.00	

Question 13

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

Your Answer		Score	Explanation
45			
129			
160			
153	✔	1.00	You can use the `nrows()' function to compute the number of rows in a data frame.
Total		1.00 / 1.00	

Question 14

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

Your Answer		Score	Explanation
Ozone Solar.R Wind Temp Month Day 152 11 44 9.7 62 5 20 153 108 223 8.0 85 7 25			
	✔	1.00	The `tail()' function is an easy way to extract the last

Ozone Solar.R Wind Temp Month Day 152 18 131 8.0 76 9 29 153 20 223 11.5 68 9 30			few elements of an R object.
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 34 307 12.0 66 5 17 153 13 27 10.3 76 9 18			
Total		1.00 / 1.00	

Question 15

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

Your Answer		Score	Explanation
63			
21	✔	1.00	The single bracket [operator can be used to extract individual rows of a data frame.
18			
34			
Total		1.00 /	

1.00

Question 16

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

Your Answer		Score	Explanation
78			
9			
37	✔	1.00	
43			
Total		1.00 / 1.00	

Question Explanation

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

Question 17

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

Your Answer		Score	Explanation
31.5			
18.0			
53.2			
42.1	✔	1.00	
Total		1.00 / 1.00	

Question Explanation

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

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?

Your Answer		Score	Explanation
205.0			
334.0			
212.8	✔	1.00	
185.9			
Total		1.00 / 1.00	

Question Explanation

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.

Question 19

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

Your Answer		Score	Explanation
75.3			
85.6			
79.1	✔	1.00	
90.2			
Total		1.00 / 1.00	

Question 20

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

Your Answer		Score	Explanation
115	✔	1.00	
97			
100			
18			
Total		1.00 / 1.00	