Feedback — Week 1 Quiz

Help

Thank you. Your submission for this quiz was received.

You submitted this quiz on **Sat 10 Jan 2015 9:22 PM PST**. You got a score of **20.00** out of **20.00**.

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
○ Harvard University			
● The University of Auckland	✔	1.00	The R language was developed by Ross Ihaka and Robert Gentleman who were statisticians at the University of Auckland in New Zealand.

○ The University of New South Wales	
○ Johns Hopkins University	
Total	1.00 / 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 redistribute copies so you can help your neighbor.			
◉ The freedom to sell the software for any price.	✔	1.00	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 run the program, for any purpose.			
○ The freedom to improve the program, and release your improvements to the public, so that the whole community benefits.			
Total		1.00 / 1.00	

Question 3

In R the following are all atomic data types EXCEPT

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

Question 5

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

Your	Score	Explanation

Answer			
integer			
numeric	✔	1.00	The numeric class is the "lowest common denominator" here and so all elements will be coerced into that class.
list			
logical			
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 cbind(x, y)?

Your Answer		Score	Explanation
a 2 by 3 matrix			
a vector of length 2			
a vector of length 3			
a 3 by 2 numeric matrix	✔	1.00	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.
Total		1.00 / 1.00	

Question 7

A key property of vectors in R is that

Your Answer		Score	Explanation
the length of a vector must be less than 32,768			
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 character vector containing the element "2".			
a list containing a numeric vector of length 1.			
a numeric vector containing the element 2.	✔	1.00	
a list containing the letter "a".			
Total		1.00 / 1.00	

Question 9

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

Your Answer	Score	Explanation

a numeric vector with elements 3, 2, 3, 4.		
an integer vector with elements 3, 2, 3, 4.		
a numeric vector with elements 1, 2, 3, 6.		
a numeric vector with elements 3, 4, 5, 6.	✔	1.00
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 > 10] == 4			
x[x >= 10] <- 4			
x[x == 4] > 10			
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.
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

Ozone, Solar.R, Wind			
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.
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 18 224 13.8 67 9 17 2 NA 258 9.7 81 7 22			
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.
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 T
emp Month Day
1     7      NA  6.9   74
  5  11
2    35     274 10.3   82
     7  17
```

Total	1.00 / 1.00

Question 13

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

Your Answer		Score	Explanation
129			
160			
45			
153	✔	1.00	You can use the `nrow()' 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 Te
mp Month Day
152   31    244 10.9   78
  8  19
153   29    127  9.7   82
  6   7
```

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

```
  Ozone Solar.R Wind Te
mp 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 few elements of an R object.

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

Total 1.00 / 1.00

Question 15

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

Your Answer	Score	Explanation
18		

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

Question 16

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

Your Answer		Score	Explanation
43			
9			
78			
37	✔	1.00	
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
18.0		
31.5		

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			
212.8	✔	1.00	
334.0			
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
79.1	✔	1.00	
90.2			

85.6		
75.3		
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
18			
115	✔	1.00	
97			
100			
Total		1.00 / 1.00	