

Feedback — Week 1 Quiz

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You submitted this quiz on **Sun 11 Jan 2015 3:01 PM EST**. You got a score of **19.00** 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

The R language is a dialect of which of the following programming languages?

Your Answer	Score	Explanation
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☐ Fortran☐ Lisp

☒ S ✓ 1.00 R is a dialect of the S language which was developed at Bell Labs.

☐ C

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

☐ The freedom to redistribute copies so you can help your neighbor.

☐ The freedom to run the program, for any purpose.

Total 1.00 /
1.00

Question 3

In R the following are all atomic data types EXCEPT

Your Answer	Score	Explanation
<input checked="" type="radio"/> data frame	✓ 1.00	'data frame' is not an atomic data type in R.
<input type="radio"/> logical		
<input type="radio"/> complex		
<input type="radio"/> integer		
Total	1.00 / 1.00	

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?

Your Answer	Score	Explanation
<input type="radio"/> integer		
<input type="radio"/> complex		
<input type="radio"/> list		
<input checked="" type="radio"/> numeric	✓ 1.00	
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
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☐

numeric

☐

integer

☒

1.00

character

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

☐

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 `rbind(x, y)`?

Your Answer	Score	Explanation
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☐

a 3 by 3 matrix

☐

a vector of
length 2

☐

a 2 by 2 matrix

- ☒ a matrix with two rows and three columns ✔ 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
<input type="radio"/> elements of a vector can only be character or numeric		
<input type="radio"/> a vector cannot have have attributes like dimensions		
<input checked="" type="radio"/> elements of a vector all must be of the same class ✔ 1.00		
<input type="radio"/> elements of a vector can be of different classes		
Total	1.00 / 1.00	

Question 8

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

Your Answer	Score	Explanation
<input checked="" type="radio"/> a list containing character vector with the letter "a". ✖ 0.00		
<input type="radio"/> a character vector of length 1.		
<input type="radio"/> a character vector with the elements "a" and "b".		

- ☐ a list containing a character vector with the elements "a" and "b".

Total	0.00 / 1.00
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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
<input type="radio"/> a numeric vector with elements 3, 2, 3, 4.		
<input checked="" type="radio"/> a numeric vector with elements 3, 4, 5, 6.	✓ 1.00	
<input type="radio"/> an integer vector with elements 3, 2, 3, 6.		
<input type="radio"/> an integer vector with elements 3, 2, 3, 4.		

Total	1.00 / 1.00
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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?

Your Answer	Score	Explanation
<input checked="" type="radio"/> <code>x[x <= 5] <- 0</code>	✓ 1.00	You can create a logical vector with the expression <code>x <= 5</code> and then use the <code>[]</code> operator to subset the original vector <code>x</code> .
<input type="radio"/> <code>x[x ==</code>		

6] <- 0

☐ x[x <
6] == 0

☐ x[x !=
6] <- 0

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  18  224 13.8  67
  9 17
2  NA  258  9.7  81
  7 22
```



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  41  190 7.4  67
5  1
2  36  118 8.0  72
5  2
```



```
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  9  24 10.9  71
9 14
2  18  131 8.0  76
9 29
```

Total	1.00 /
	1.00

Question 13

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

Your Answer

Score

Explanation

☐ 129

☒ 153



1.00

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

☐ 160

☐ 45

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
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 Temp
mp Month Day
152 18 131 8.0 76
9 29
```

153 20 223 11.5 68
9 30

☐

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


☐

Ozone Solar.R Wind Temperature
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
<input checked="" type="radio"/> 21	 1.00	The single bracket [operator can be used to extract individual rows of a data frame.
<input type="radio"/> 18		
<input type="radio"/> 63		
<input type="radio"/> 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
<input type="radio"/> 9		
<input type="radio"/> 43		
<input checked="" type="radio"/> 37	✓ 1.00	
<input type="radio"/> 78		
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
<input type="radio"/> 31.5		
<input checked="" type="radio"/> 42.1	✓ 1.00	
<input type="radio"/> 53.2		

☐ 18.0

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

☐ 185.9

☐ 334.0

☒ 212.8



1.00

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

☐ 75.3

☐ 85.6

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
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☐ 18

☐ 100

☐ 97

☒ 115  1.00

Total 1.00 / 1.00