Coursera R Programming WEEK 1 Solutions

Question 1
The R language is a dialect of which of the following programming languages?

1 / 1 point

Java

Haskell

C

S

Correct
R is a dialect of the S language which was developed at Bell Labs.

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 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 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 run the program, for any purpose.

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

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

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

☑ 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.

3.
Question 3
In R the following are all atomic data types EXCEPT: (Select all that apply)

1 / 1 point

☑ table

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

☐ integer

☐ numeric

☑ array

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

☐ character

☐ logical

☑ matrix

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

☑

data frame

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

complex

list

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

4.
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

matrix

numeric

integer

list

vector

real

complex

Correct

5.
Question 5
What is the class of the object defined by the expression x <- c(4, "a", TRUE)?

1 / 1 point

logical

numeric

mixed

character

integer

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 3 by 3 matrix

a 2 by 2 matrix

a vector of length 2

a vector of length 3

a 2 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

elements of a vector can be of different classes

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

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[[2]] give me? Select all that apply.

0 / 1 point

a list containing character vector with the letter "a".

a character vector of length 1.

Correct

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

a character vector with the elements "a" and "b".

a character vector containing the letter "a".

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 1, 2, 3, 6.

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

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

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

Correct

10.

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? Select all that apply.

1 / 1 point

x[x < 10] <- 4

x[x > 10] <- 4

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

x[x > 4] <- 10

x[x >= 11] <- 4

Correct
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

x[x == 4] > 10

x[x >= 10] <- 4

x[x > 10] == 4

11.

Question 11

Use the Week 1 Quiz Data Set 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

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

Ozone, Solar.R, Wind

1, 2, 3, 4, 5, 6

Correct

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

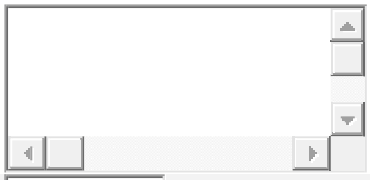
12.

Question 12

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

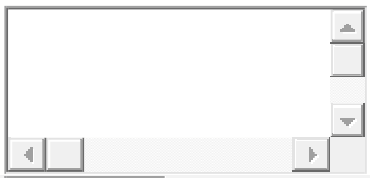
1 / 1 point

```
                                3
                                2
                                1
2    NA     258  9.7   81     7  22
1    18     224 13.8   67     9  17
  Ozone Solar.R Wind Temp Month Day
```



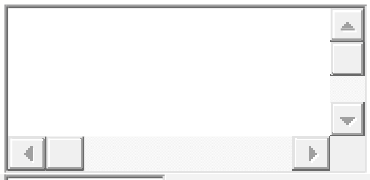

```
1
2
3
```

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



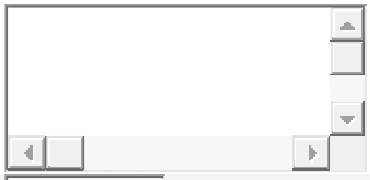
```
1
2
3
```

```
  Ozone Solar.R Wind Temp Month Day
1     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

45

160

129

Correct

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

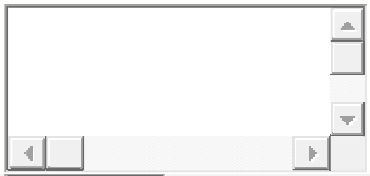
14.

Question 14

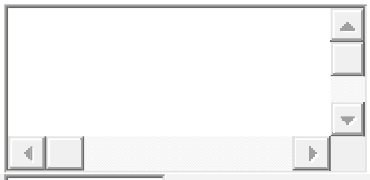
Extract the *last* 2 rows of the data frame and print them to the console. What does the output look like?

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
```

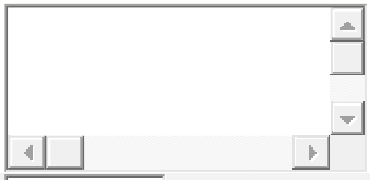


```
                                                                    1
                                                                    2
                                                                    3
    Ozone Solar.R Wind Temp Month Day
152    18     131  8.0   76     9  29
153    20     223 11.5   68     9  30
```



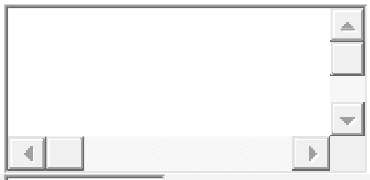
```
1
2
3
```

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



```
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
```



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

63

34

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

43

9

78

37

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

31.5

53.2

42.1

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

205.0

334.0

212.8

185.9

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

79.1

85.6

75.3

90.2

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

18

97

100

115

Correct