Week 1 Quiz

Quiz, 20 questions

1 point

1.

R was developed by statisticians working at

- The University of Auckland
- Harvard University
- StatSci
- Bell Labs

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1 point

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.

- [ ] The freedom to prevent users from using the software for undesirable purposes.
- [ ] 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 run the program, for any purpose.
- [ ] The freedom to sell the software for any price.
- [ ] The freedom to restrict access to the source code for the software.
- [ ] The freedom to study how the program works, and adapt it to your needs.

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1 point

3.

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

- [ ] matrix
- [ ] numeric
- [ ] table
- [ ] array
- [ ] complex
- [ ] list
- [ ] integer
- [ ] character
- [ ] logical
- [ ] data frame

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1 point

4.

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

- ( ) integer
- ( ) complex
- ( ) character
- ( ) logical
- ( ) matrix
- ( ) numeric

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1 point

5.

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

- ( )

- matrix
- numeric
- integer
- list
- character
- logical

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1 point

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)?

- a 2 by 2 matrix
- a 2 by 3 matrix
- a matrix with 2 columns and 3 rows
- a vector of length 3
- a 3 by 3 matrix
- a vector of length 2

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1 point

7.
A key property of vectors in R is that

- elements of a vector can only be character or numeric
- elements of a vector can be of different classes
- elements of a vector all must be of the same class
- the length of a vector must be less than 32,768
- a vector cannot have have attributes like dimensions

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1 point

8.
Suppose I have a list defined as x <- list(2, "a", "b", TRUE). What does x[[2]] give me? Select all that apply.

- [ ] a list containing character vector with the letter "a".
- [ ] a character vector of length 1.
- [ ] a list containing a character vector with the elements "a" and "b".
- [ ] a character vector containing the letter "a".
- [ ] a character vector with the elements "a" and "b".

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1 point

9.
Suppose I have a vector x <- 1:4 and y <- 2:3. What is produced by the expression x + y?

- ○ a numeric vector with the values 3, 5, 3, 4.
- ○ an numeric vector with the values 3, 5, 5, 7.
- ○ an integer vector with the values 3, 5, 5, 7.
- ○ a numeric vector with the values 1, 2, 5, 7.
- ○ an integer vector with the values 3, 5, 3, 4.
- ○ a warning
- ○ an error.

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1 point

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.

- [ ] x[x > 10] <- 4
- [ ] x[x >= 10] <- 4

- [ ] x[x == 10] <- 4
- [ ] x[x == 4] > 10
- [ ] x[x < 10] <- 4
- [ ] x[x >= 11] <- 4
- [ ] x[x > 10] == 4
- [ ] x[x > 4] <- 10

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1 point

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?

- ○ Ozone, Solar.R, Wind
- ○ Ozone, Solar.R, Wind, Temp, Month, Day
- ○ Month, Day, Temp, Wind
- ○ 1, 2, 3, 4, 5, 6

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1 point

12.
Extract the first 2 rows of the data frame and print them to the console. What does the output look like?

- ○
```
  1    Ozone Solar.R Wind Temp Month Day
2 1     7      NA  6.9   74     5  11
3 2    35     274 10.3   82     7  17
```
- ○
```
  1    Ozone Solar.R Wind Temp Month Day
2 1     9      24 10.9   71     9  14
3 2    18     131  8.0   76     9  29
```
- ○
```
  1    Ozone Solar.R Wind Temp Month Day
2 1    18     224 13.8   67     9  17
3 2    NA     258  9.7   81     7  22
```
- ○
```
  1    Ozone Solar.R Wind Temp Month Day
2 1    41     190  7.4   67     5   1
3 2    36     118  8.0   72     5   2
```

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1 point

13.
How many observations (i.e. rows) are in this data frame?

- 45
- 129
- 153
- 160

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1 point

14.
Extract the *last* 2 rows of the data frame and print them to the console. What does the output look like?

-
```
  1      Ozone Solar.R Wind Temp Month Day
  2  152    11      44  9.7   62     5  20
  3  153   108     223  8.0   85     7  25
```

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

-
```
  1      Ozone Solar.R Wind Temp Month Day
  2  152    34     307 12.0   66     5  17
  3  153    13      27 10.3   76     9  18
```

-
```
  1      Ozone Solar.R Wind Temp Month Day
  2  152    31     244 10.9   78     8  19
  3  153    29     127  9.7   82     6   7
```

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1 point

15.
What is the value of Ozone in the 47th row?

- 34
- 63
- 18
- 21

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1 point

16.
How many missing values are in the Ozone column of this data frame?

- 78
- 9
- 37
- 43

1 point

17.
What is the mean of the Ozone column in this dataset? Exclude missing values (coded as NA) from this calculation.

- 31.5
- 18.0
- 53.2
- 42.1

1 point

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?

- 212.8
- 334.0
- 185.9
- 205.0

1 point