# Week 1 Quiz

Help Center

Now that you've applied late days, your **due date** for this quiz is **Mon 14 Dec 2015 4:30 PM PST**.

## 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.

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## Question 1

R was developed by statisticians working at

- ○ StatSci
- ◉ The University of Auckland
- ○ Harvard University
- ○ Insightful

## 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?

- The freedom to run the program, for any purpose.
- The freedom to sell the software for any price.
- The freedom to study how the program works, and adapt it to your needs.
- The freedom to improve the program, and release your improvements to the public, so that the whole community benefits.

## Question 3

In R the following are all atomic data types EXCEPT

- numeric
- matrix
- logical
- character

## 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?

- complex
- character
- matrix
- integer

## Question 5

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

- integer
- list
- matrix
- numeric

## 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)?

- a 2 by 3 matrix
- a 2 by 2 matrix
- a 3 by 3 matrix
- a 3 by 2 numeric matrix

## Question 7

A key property of vectors in R is that

- the length of a vector must be less than 32,768
- elements of a vector can be of different classes
- elements of a vector can only be character or numeric
- elements of a vector all must be of the same class

## Question 8

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

- a list containing a numeric vector of length 1.
- a list containing the number 2.

- a numeric vector containing the element 2.
- a character vector containing the element "2".

## Question 9

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

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

## 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?

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

## Question 11

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

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

# Question 12

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

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

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

# Question 13

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

- 129
- 160
- 153
- 45

# Question 14

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

like?

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

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

```
    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    18     131  8.0   76     9  29
153    20     223 11.5   68     9  30
```

## Question 15

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

- 63
- 34
- 18
- 21

## Question 16

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

- 43
- 37

- 78
- 9

## Question 17

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

- 53.2
- 18.0
- 31.5
- 42.1

## 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?

- 185.9
- 205.0
- 334.0
- 212.8

## Question 19

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

- 75.3
- 90.2
- 85.6
- 79.1

## Question 20

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

- 115
- 97
- 100
- 18

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