Week 2 Quiz

The **due date** for this quiz is **Sun 20 Dec 2015 4:30 PM PST**.

☐ **In accordance with the Coursera Honor Code, I (Vincent Chiu) certify that the answers here are my own work.**

Question 1

Suppose I define the following function in R

```
cube <- function(x, n) {
        x^3
}
```

What is the result of running

```
cube(3)
```

in R after defining this function?

- 🔘 The number 27 is returned
- ⚪ The users is prompted to specify the value of 'n'.
- ⚪ A warning is given with no value returned.
- ⚪ An error is returned because 'n' is not specified in the call to 'cube'

Question 2

The following code will produce a warning in R.

```
x <- 1:10
if(x > 5) {
        x <- 0
}
```

Why?

● 'x' is a vector of length 10 and 'if' can only test a single logical statement.

○ The expression uses curly braces.

○ There are no elements in 'x' that are greater than 5

○ You cannot set 'x' to be 0 because 'x' is a vector and 0 is a scalar.

○ The syntax of this R expression is incorrect.

Question 3

Consider the following function

```
f <- function(x) {
        g <- function(y) {
                y + z
        }
        z <- 4
        x + g(x)
}
```

If I then run in R

```
z <- 10
f(3)
```

What value is returned?

● 10

○ 4

○ 16

○ 7

Question 4

Consider the following expression:

```
x <- 5
```

```
y <- if(x < 3) {
        NA
} else {
        10
}
```

What is the value of 'y' after evaluating this expression?

○ 5

○ NA

○ 3

⦿ 10

Question 5

Consider the following R function

```
h <- function(x, y = NULL, d = 3L) {
        z <- cbind(x, d)
        if(!is.null(y))
                z <- z + y
        else
                z <- z + f
        g <- x + y / z
        if(d == 3L)
                return(g)
        g <- g + 10
        g
}
```

Which symbol in the above function is a free variable?

⦿ f

○ z

○ d

○ L

○ g

Question 6

What is an environment in R?

○ a special type of function

○ a list whose elements are all functions

○ an R package that only contains data

◉ a collection of symbol/value pairs

Question 7

The R language uses what type of scoping rule for resolving free variables?

○ dynamic scoping

◉ lexical scoping

○ global scoping

○ compilation scoping

Question 8

How are free variables in R functions resolved?

○ The values of free variables are searched for in the environment in which the function was called

◉ The values of free variables are searched for in the environment in which the function was defined

○ The values of free variables are searched for in the working directory

○ The values of free variables are searched for in the global environment

Question 9

What is one of the consequences of the scoping rules used in R?

○ R objects cannot be larger than 100 MB

○ Functions cannot be nested

● All objects must be stored in memory

○ All objects can be stored on the disk

Question 10

In R, what is the parent frame?

○ It is always the global environment

○ It is the package search list

○ It is the environment in which a function was defined

● It is the environment in which a function was called

☐ **In accordance with the Coursera Honor Code, I (Vincent Chiu) certify that the answers here are my own work.**

Submit Answers   **Save Answers**

You cannot submit your work until you agree to the Honor Code. Thanks!