Data Science - R Programming - Quiz 2 - Coursera

Quiz 2

This is Quiz 2 from Coursera's R Programming class within the Data Science Specialization. This publication is intended as a learning resource, all answers are documented and explained. Datasets are available in R packages.

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1. Suppose I define the following function in R

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


cube(3)
```

```
## [1] 27
```

- **27**

Explanation:

Function cubes the input.

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2. The following code will produce a warning in R.

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

```
## Warning in if (x > 5) {: the condition has length > 1 and only the first
## element will be used
```

Why?

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

Explanation:

R will automatically use the first element of the vector.

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3. Consider the following function

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

and then run

```
z <- 10
f(3)
## [1] 10
```

- **10**

Explanation:

Run it.

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4. Consider the following expression:

```
x <- 5
y <- if(x < 3) {
        NA
} else {
```

```
        10
}
y
## [1] 10
```

- **10**

Explanation:

Run it.

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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
}
```

- **f**

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6. What is an environment in R?

- **a collection of symbol/value pairs**

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

- **lexical scoping**

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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 defined**

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

- **All objects must be stored in memory**

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10. In R, what is the parent frame?

- **It is the environment in which a function was called**
