Feedback — Week 2 Quiz

Help

You submitted this quiz on **Tue 14 Jan 2014 5:34 PM GMT**. You got a score of **8.00** out of **10.00**. You can attempt again, if you'd like.

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?

Your Answer		Score	Explanation
● The number 27 is returned	✔	1.00	Because 'n' is not evaluated, it is not needed even though it is a formal argument.
○ A warning is given with no value returned.			
○ An error is returned because 'n' is not specified in the call to 'cube'			
○ The users is prompted to specify the value of 'n'.			
Total		1.00 / 1.00	

Question 2

Suppose I define the following function in R

```
pow <- function(x = 4, n = 3) {
        x^n
}
```

What is the result of running

```
pow()
```

in R after defining this function?

Your Answer		Score	Explanation
The number 64 is returned.	✔	1.00	R will use the default values of 'x' and 'n' if they are not specified by the user in the call to 'pow'.
An error is given the function does not finish execution.			
The number 81 is returned.			
A warning is given and the function returns 64.			
Total		1.00 / 1.00	

Question 3

The following code will produce a warning in R.

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

Why?

Your Answer		Score	Explanation
The syntax of this R expression is incorrect.	✖	0.00	
There are no elements in 'x' that are greater than 5			
'x' is a vector of length 10 and 'if' can only test a single logical statement.			

The expression uses curly braces.	
You cannot set 'x' to be 0 because 'x' is a vector and 0 is a scalar.	
Total	0.00 / 1.00

Question 4

Take a look at the 'iris' dataset that comes with R. The data can be loaded with the code:

```
library(datasets)
data(iris)
```

A description of the dataset can be found by running

```
?iris
```

There will be an object called 'iris' in your workspace. In this dataset, what is the mean of 'Sepal.Length' for the species *virginica*? (Please only enter the numeric result and nothing else.)

You entered:

6.588

Your Answer		Score	Explanation
6.588	✔	1.00	To get the answer here, you can use 'tapply' to calculate the mean of 'Sepal.Length' within each species.
Total		1.00 / 1.00	

Question 5

Continuing with the 'iris' dataset from Question 4, what R code returns a vector of the means of the variables 'Sepal.Length', 'Sepal.Width', 'Petal.Length', and 'Petal.Width'?

Your Answer	Score	Explanation

rowMeans(iris[, 1:4])		
apply(iris, 2, mean)		
colMeans(iris)		
apply(iris[, 1:4], 2, mean)	✔	1.00
apply(iris, 1, mean)		
apply(iris[, 1:4], 1, mean)		
Total		1.00 / 1.00

Question 6

Load the 'mtcars' dataset in R with the following code

```
library(datasets)
data(mtcars)
```

There will be an object names 'mtcars' in your workspace. You can find some information about the dataset by running

```
?mtcars
```

How can one calculate the average miles per gallon (mpg) by number of cylinders in the car (cyl)?

Your Answer		Score	Explanation
sapply(mtcars, cyl, mean)			
tapply(mtcars$cyl, mtcars$mpg, mean)			
tapply(mtcars$mpg, mtcars$cyl, mean)	✔	1.00	
apply(mtcars, 2, mean)			
Total		1.00 / 1.00	

Question 7

Continuing with the 'mtcars' dataset from Question 6, what is the absolute difference between the average horsepower of 4-cylinder cars and the average horsepower of 8-cylinder cars?

You entered:

126.5779

Your Answer		Score	Explanation
126.5779	✔	1.00	
Total		1.00 / 1.00	

Question 8

What is the difference between the 'sapply' function and the 'lapply' function?

Your Answer		Score	Explanation
(•) 'lapply' always returns a list while 'sapply' attempts to simplify the result.	✔	1.00	
( ) 'lapply' always returns an atomic vector and 'sapply' always returns a list.			
( ) There is no difference; 'sapply' and 'lapply' are two names for the same function			
( ) 'sapply' always returns a 2-dimensional matrix while 'lapply' returns a list.			
Total		1.00 / 1.00	

Question 9

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 by 'f'?

Your Answer		Score	Explanation
10	✔	1.00	
7			
16			
4			
Total		1.00 / 1.00	

Question 10

If you run

```
debug(ls)
```

what happens when you next call the 'ls' function?

Your Answer		Score	Explanation
The 'ls' function will return an error.			
The 'ls' function will execute as usual.			
Execution of 'ls' will suspend at the beginning of the function and you will be in the browser.			
You will be prompted to specify at which line of the function you would like to suspend execution and enter the browser.	✖	0.00	
Execution of the 'ls' function will suspend at the 4th line of the function and you will be in the browser.			
Total		0.00 / 1.00	