Assignment 2: Coding Basics

Soumya_Mathew

OVERVIEW

This exercise accompanies the lessons in Environmental Data Analytics on coding basics.

Directions

1. Rename this file `<FirstLast>_A02_CodingBasics.Rmd` (replacing `<FirstLast>` with your first and last name).
2. Change "Student Name" on line 3 (above) with your name.
3. Work through the steps, **creating code and output** that fulfill each instruction.
4. Be sure to **answer the questions** in this assignment document.
5. When you have completed the assignment, **Knit** the text and code into a single PDF file.
6. After Knitting, submit the completed exercise (PDF file) to Sakai.

Basics Day 1

1. Generate a sequence of numbers from one to 100, increasing by fours. Assign this sequence a name.
2. Compute the mean and median of this sequence.
3. Ask R to determine whether the mean is greater than the median.
4. Insert comments in your code to describe what you are doing.

```
#1.
answerone <- seq(1, 100, by = 4) #generating sequence of numbers
answerone
```

```
##  [1]  1  5  9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89 93 97
```

```
#2.
x <- mean(answerone) #calculating mean
y <- median(answerone) #calculating median

#3.
x>y #comparing mean and median
```

```
## [1] FALSE
```

```
x==y
```

```
## [1] TRUE
```

```
x<y
```

```
## [1] FALSE
```

Basics Day 2

5. Create a series of vectors, each with four components, consisting of (a) names of students, (b) test scores out of a total 100 points, and (c) whether or not they have passed the test (TRUE or FALSE) with a passing grade of 50.
6. Label each vector with a comment on what type of vector it is.
7. Combine each of the vectors into a data frame. Assign the data frame an informative name.
8. Label the columns of your data frame with informative titles.

```
#5
vector1 <- c("Rachael", "Samira", "Rahul", "David") #student names
vector2 <- c(48,75,64,80) #marks scored in exam
vector3 <- c(FALSE,TRUE,TRUE,TRUE) #exam result

#7
#creating data frame
examdata <- data.frame(vector1, vector2, vector3)
examdata
```

```
##   vector1 vector2 vector3
## 1 Rachael      48   FALSE
## 2  Samira      75    TRUE
## 3   Rahul      64    TRUE
## 4   David      80    TRUE
```

```
#8
#adding column names to data frame
colnames(examdata) <- c("Name","Score","Result")
examdata
```

```
##      Name Score Result
## 1 Rachael    48  FALSE
## 2  Samira    75   TRUE
## 3   Rahul    64   TRUE
## 4   David    80   TRUE
```

9. QUESTION: How is this data frame different from a matrix?

   Answer: This data frame contains data of multiple data type whereas Matrix store only one data type. In this data frame more column and rows can be added unlike matrix with fixed columns and rows.

10. Create a function with an if/else statement. Your function should take a **vector** of test scores and print (not return) whether a given test score is a passing grade of 50 or above (TRUE or FALSE). You will need to choose either the `if` and `else` statements or the `ifelse` statement.

11. Apply your function to the vector with test scores that you created in number 5.

```
#10
is.it.true <- function(P) {
ifelse(P >= 50, "TRUE","FALSE")
}

#11
is.it.true(vector2)
```

```
## [1] "FALSE" "TRUE"  "TRUE"  "TRUE"
```

12. QUESTION: Which option of `if` and `else` vs. `ifelse` worked? Why?

    Answer: if and else fuction did not work for the above question.This happened because else if statement does not work with a vector whereas ifelse() function works to check the condition for every element of a vector.