Assignment 2: Coding Basics

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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.
sequence1 <- seq(1,100,4) #using sequence code and assigning it the name sequence1
sequence1
```

```
##  [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.
mean(sequence1) #generating mean using code mean(sequence1)
```

```
## [1] 49
```

```
median(sequence1) #generating median using code median(sequence1)
```

```
## [1] 49
```

```
#3.
mean(sequence1)>median(sequence1) #determining if mean is greater than median
```

```
## [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.

```
students <- c('Cherry','Sam','Joe','Fin') # it is a string vector
scores<-c(80,88,90,20) # it is integar vector
pass<-ifelse(scores>50,'Pass','fail')
students
```

```
## [1] "Cherry" "Sam"    "Joe"    "Fin"
```

```
scores
```

```
## [1] 80 88 90 20
```

```
pass
```

```
## [1] "Pass" "Pass" "Pass" "fail"
```

```
table<-data.frame(students, scores, pass) #generating the table using cod
table
```

```
##   students scores pass
## 1   Cherry     80 Pass
## 2      Sam     88 Pass
## 3      Joe     90 Pass
## 4      Fin     20 fail
```

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

   Answer:Data frame can have different classes of data while a matrix can only have a single class of data.

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.

```
scores_and_print<-function(x)
{
  ifelse(x>50, 'TRUE','FALSE')
}
scores_and_print(scores)
```

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

```
#Tried the 'if' and 'else' statements but this error occured - Error in if (x > 50) { : the condition h

#scores_result<-function(x)

 # if(x>50) {
   # print('TRUE')
 # } else {
  #  print('FALSE')
#  }

#scores_result(scores)
```

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

    Answer:The if/else function didnot work as it only checks one vector at a time whereas ifesle function checks each vector.