Assignment 2: Coding Basics

Vincient Whatley

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, Part 1

1. Generate a sequence of numbers from one to 30, increasing by threes. 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.

```r
#1. Creating a sequence to from 0 to 30 increasing by increments of 3
seq(0,30, by = 3 )
```

```
## [1]  0  3  6  9 12 15 18 21 24 27 30
```

```r
#2. Taking created sequence and finding mean and median
mean(seq(0,30, by = 3 ))
```

```
## [1] 15
```

```r
(median(seq(0,30, by = 3 )))
```

```
## [1] 15
```

```r
#3. Find out out if the mean is greater than the median
(mean(seq(0,30, by = 3 ))) > (median(seq(0,30, by = 3 )))
```

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

Basics, Part 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.

Test scores out of a total 100 points

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
a <- c( "Vinny", "Chris", "Prince", "Jamila") # names of all students
b <- c(69, 38, 93, 72) # test score of each student
c <- c(TRUE, FALSE, TRUE, TRUE) #whether they passed each test with passing being 50 points

data.frame("Name_of_student"= c(a),
           "test_scores"= c(b),
           "pass_or_fail"= c(c))
```

```
##   Name_of_student test_scores pass_or_fail
## 1           Vinny          69         TRUE
## 2           Chris          38        FALSE
## 3          Prince          93         TRUE
## 4          Jamila          72         TRUE
```

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

   Answer: With a data frame you are able to diffrent classes of data vs just the one

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.

```
f <- 28

print(if ( f > 50) {
  p_or_f <- "pass"
} else {
    p_or_f <- "fail"

})
```

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

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

   Answer: If and Else is what worked, mostly likely due to the syntax of the code.