

# Assignment 2: Coding Basics

Aman Hingu

## OVERVIEW

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

## Directions

1. Change “Student Name” on line 3 (above) with your name.
2. Work through the steps, **creating code and output** that fulfill each instruction.
3. Be sure to **answer the questions** in this assignment document.
4. When you have completed the assignment, **Knit** the text and code into a single PDF file.
5. After Knitting, submit the completed exercise (PDF file) to the dropbox in Sakai. Add your first and last name into the file name (e.g., “FirstLast\_A02\_CodingBasics.Rmd”) prior to submission.

## Basics Day 1

1. Generate a sequence of numbers from one to 100, increasing by fours. Assign this sequence a name.  
`hundredseq <- seq(1,100,4)`
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
hundredseq <- seq(1,100,4)

#2.
mean(hundredseq)

## [1] 49

median(hundredseq)

## [1] 49

#3.
mean(hundredseq)>median(hundredseq)

## [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.

```
#Question 5
Names <- c('Adiba', 'Jose', 'Anaya', 'Lin')
Scores <- c(89, 48, 93, 90)
PassorFail <-c('PASS', 'FAIL', 'PASS', 'PASS')
#Question 6
class(Names) #Names vector is a character vector

## [1] "character"

class(Scores) #Scores is a numeric vector

## [1] "numeric"

class(PassorFail) #PassorFail is a character vector

## [1] "character"

#Question 7 and Question 8
course_grades <-data.frame(Names, Scores, PassorFail)
```

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

Answer: This data frame differs from a matrix in that each column represents different types of information about each observation. In matrices, each column represents the same type of information.

10. Create a function with an if/else statement. Your function should determine whether a 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. Hint: Use `print`, not `return`. The name of your function should be informative.

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

```
final_grade <-function(x) {
  if (x >50)
    print('PASSING')
  else
    print('FAILED')
}
final_grade(40)
```

```
## [1] "FAILED"
```

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

Answer: The if/else option worked because there were only 2 possible outcomes in the output.