

SamanthaSedar_A02_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, 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.

```
#1.  
seq(1, 30, 3) #sequence- from, to, by#
```

```
## [1] 1 4 7 10 13 16 19 22 25 28
```

```
one_to_thirty_by_3<-seq(1, 30, 3) #naming
```

```
#2.  
mean(one_to_thirty_by_3) #calculate mean
```

```
## [1] 14.5
```

```
median(one_to_thirty_by_3) #calculate median
```

```
## [1] 14.5
```

```
#3. #determine that they are equal
mean(one_to_thirty_by_3)<=median(one_to_thirty_by_3)
```

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

```
mean(one_to_thirty_by_3)>=median(one_to_thirty_by_3)
```

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

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.
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 and #6
names<-c("Jack", "Jill", "John", "Jane") #values/string
scores<-c(75, 100, 85, 50) #numbers
passed<-c(TRUE, TRUE, TRUE, FALSE) #boolean

#7
df_names <- as.data.frame(names)

df_students_name_score_pass <- cbind(names, scores, passed)
```

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

Answer: This data frame consists of four different components, the students' names, scores, and whether or not they passed the test. A matrix would only consist of one 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.

```
#10
x <- scores
passing_grade <- function(x){
  ifelse((x)>=50), print("TRUE"), print("FALSE"))
}

#11
passing_grade(x)
```

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

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

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

Answer: ‘`ifelse`’ worked because passing is applicable for the entire vector, rather than each score being tested on distinct parameters.