Alonso\_Week 1 Homework Assignment

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IST687 Introduction to Data Science: Week 1 Homework.

Introduction to R

### Part 1: The Code

#Define the following vectors representing weight and height of people (in inches and pounds):  
height <- c(59, 60, 61, 58, 67, 72, 70)  
weight <- c(150, 140, 180, 220, 160, 140, 130)  
  
#Define a variable:  
a <- 150  
  
#Now, to explore the data.  
  
#Step 1: Calculating means.  
#1. Compute the average height.  
mean(height)  
  
#2. Compute the average weight.  
mean(weight)  
  
#3. Calculate the length of the vectors 'height' and 'weight'.  
length(height)  
length(weight)  
  
#4. Calculate the sum of the heights.  
sum(height)  
  
#5. Compute the average of both height and weight by dividing the sum by the length of the vector.  
sum(height)/length(height)  
sum(weight)/length(weight)  
  
#There is no difference in the use of 'mean()' or 'sum()/length()'. They are interchangeable, though the former is quicker to use.  
  
#Step 2: Using max/min functions.  
#6. Compute the max height, store the result in 'maxH'.  
maxH <- max(height)  
print(maxH)  
  
#7. Compute the min(weight), store the results in 'minW'.  
minW <- min(weight)  
print(minW)  
  
#Step 3: Vector Math  
#8. Create a new vector, which is 'weight + 5' (every person gained 5 pounds.)  
newW <- weight + 5  
print(newW)  
  
#9. Compute the 'weight/height' for each person, using the new weight just created.  
newW/height  
  
#Step 4: Using Conditional if statements.  
#10. Write R Code to test if max height is greater than 60.  
if(maxH > 60){"yes"} else {"no"}  
  
#11. Write R Code to test if min weight is greater than the variable 'a'.  
if(minW < a){"yes"} else {"no"}

### Part 2: Running the Code

#Define the following vectors representing weight and height of people (in inches and pounds):  
height <- c(59, 60, 61, 58, 67, 72, 70)  
weight <- c(150, 140, 180, 220, 160, 140, 130)  
  
#Define a variable:  
a <- 150  
  
#Now, to explore the data.  
  
#Step 1: Calculating means.  
#1. Compute the average height.  
mean(height)

## [1] 63.85714

#2. Compute the average weight.  
mean(weight)

## [1] 160

#3. Calculate the length of the vectors 'height' and 'weight'.  
length(height)

## [1] 7

length(weight)

## [1] 7

#4. Calculate the sum of the heights.  
sum(height)

## [1] 447

#5. Compute the average of both height and weight by dividing the sum by the length of the vector.  
sum(height)/length(height)

## [1] 63.85714

sum(weight)/length(weight)

## [1] 160

#There is no difference in the use of 'mean()' or 'sum()/length()'. They are interchangeable, though the former is quicker to use.  
  
#Step 2: Using max/min functions.  
#6. Compute the max height, store the result in 'maxH'.  
maxH <- max(height)  
print(maxH)

## [1] 72

#7. Compute the min(weight), store the results in 'minW'.  
minW <- min(weight)  
print(minW)

## [1] 130

#Step 3: Vector Math  
#8. Create a new vector, which is 'weight + 5' (every person gained 5 pounds.)  
newW <- weight + 5  
print(newW)

## [1] 155 145 185 225 165 145 135

#9. Compute the 'weight/height' for each person, using the new weight just created.  
newW/height

## [1] 2.627119 2.416667 3.032787 3.879310 2.462687 2.013889 1.928571

#Step 4: Using Conditional if statements.  
#10. Write R Code to test if max height is greater than 60.  
if(maxH > 60){"yes"} else {"no"}

## [1] "yes"

#11. Write R Code to test if min weight is greater than the variable 'a'.  
if(minW < a){"yes"} else {"no"}

## [1] "yes"