# Homework #1 Submission

## R Script (Code)

#

# Course: IST687

# Name: Joyce Woznica

# Homework 1

# Due Date: 1/13/2019

# Date Submitted:

#

# Define vectors for height and weight

height <- c(59,60,61,58,67,72,70)

weight <- c(150,140,180,220,160,140,130)

# define a variable "a"

a <- 150

# Step 1: Calculating means

#

# 1) Compute, using R, the average height (called mean in R)

# 2) Compute, using R, the average weight (called mean in R)

meanHeight <- mean(height)

meanHeight

meanWeight <- mean(weight)

meanWeight

#

# 3) Calculate the length of the vector 'height' and 'weight'

lenHeight <- length(height)

lenHeight

lenWeight <- length(weight)

lenWeight

#

# 4) Calculate the sum of the heights

sumHeight <- sum(height)

sumHeight

sumWeight <- sum(weight)

sumWeight

#

# 5) Compute the average of both height and weight by dividing

# the sum by the length of the vector.

avgHeight <- sumHeight/lenHeight

avgHeight

avgWeight <- sumWeight/lenWeight

avgWeight

# How does this compare to the 'mean' function

# ANSWER: They are the same

# Step 2: Using max/min functions

#

# 6) Compute the max height, store the result in 'maxH'

# 7) Compute the min weight, store the result in 'minW'

maxH <- max(height)

minW <- min(weight)

# Step 3: Vector Math

#

# 8) Create a new vector, which is the weight+5 (every person

# gained 5 pounds)

# 9) Compute the weight/height for each person, using the new weight

# just created

newWeight <- weight+5

newWeight

nwhVector <- newWeight/height

nwhVector

# Step 4: Using Conditional if statements

#

# 10) Write the R code to test if max height is greater than 60

# (output "yes" or "no")

# 11) Write the R code to test if min weight is greater than

# the variable 'a' - which is 150 (output "yes" or "no")

if (maxH > 60) "yes" else "no"

if (minW > a) "yes" else "no"

## Console Log (Executed Code)

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| --- |
| > #  > # Course: IST687  > # Name: Joyce Woznica  > # Homework 1  > # Due Date: 1/13/2019  > # Date Submitted:  > #  > # Define vectors for height and weight  > height <- c(59,60,61,58,67,72,70)  > weight <- c(150,140,180,220,160,140,130)  >  > # define a variable "a"  > a <- 150  >  > # Step 1: Calculating means  > #  > # 1) Compute, using R, the average height (called mean in R)  > # 2) Compute, using R, the average weight (called mean in R)  > meanHeight <- mean(height)  > meanHeight  [1] 63.85714  > meanWeight <- mean(weight)  > meanWeight  [1] 160  >  > #  > # 3) Calculate the length of the vector 'height' and 'weight'  > lenHeight <- length(height)  > lenHeight  [1] 7  > lenWeight <- length(weight)  > lenWeight  [1] 7  >  > #  > # 4) Calculate the sum of the heights  > sumHeight <- sum(height)  > sumHeight  [1] 447  > sumWeight <- sum(weight)  > sumWeight  [1] 1120  >  > #  > # 5) Compute the average of both height and weight by dividing  > # the sum by the length of the vector.  > avgHeight <- sumHeight/lenHeight  > avgHeight  [1] 63.85714  > avgWeight <- sumWeight/lenWeight  > avgWeight  [1] 160  >  > # How does this compare to the 'mean' function  > # ANSWER: They are the same  >  > # Step 2: Using max/min functions  > #  > # 6) Compute the max height, store the result in 'maxH'  > # 7) Compute the min weight, store the result in 'minW'  > maxH <- max(height)  > minW <- min(weight)  >  > # Step 3: Vector Math  > #  > # 8) Create a new vector, which is the weight+5 (every person  > # gained 5 pounds)  > # 9) Compute the weight/height for each person, using the new weight  > # just created  > newWeight <- weight+5  > newWeight  [1] 155 145 185 225 165 145 135  > nwhVector <- newWeight/height  > nwhVector  [1] 2.627119 2.416667 3.032787 3.879310 2.462687 2.013889 1.928571  >  > # Step 4: Using Conditional if statements  > #  > # 10) Write the R code to test if max height is greater than 60  > # (output "yes" or "no")  > # 11) Write the R code to test if min weight is greater than  > # the variable 'a' - which is 150 (output "yes" or "no")  > if (maxH > 60) "yes" else "no"  [1] "yes"  > if (minW > a) "yes" else "no"  [1] "no" |
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