

Exercise: Define the following vectors, which represent the weight and height of people on a particular team (in inches and pounds):

Declare Variables:

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

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

# Declare variable "a"
a <- 150
```

Step 1: Calculating means

```
# 1) Compute, using R, the average height (called mean in R)
meanH <- mean(height)

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

# 3) Calculate the length of the vector 'height' and 'weight'
lengthH <- length(height)
lengthW <- length(weight)

# 4) Calculate the sum of the heights
sumH <- sum(height)
sumW <- sum(weight)

# 5) Compute the average of both height and weight, by dividing the sum (of the height or the width, as

avgH <- sumH/lengthH
avgW <- sumW/lengthW

if(meanH == avgH) {
  print("Mean and Avearge heights are same")
}
```

```
## [1] "Mean and Avearge heights are same"
```

```
if(meanW == avgW) {
  print("Mean and Avearge weights are same")
}
```

```
## [1] "Mean and Avearge weights are same"
```

Step 2: Using max/min functions

```
# 6) Compute the max height, store the result in 'maxH'  
maxH <- max(height)  
  
# 7) Compute the min weight, store the results in 'minW'  
minW <- min(weight)
```

Step 3: Vector Math

```
# 8) Create a new vector, which is the weight + 5 (every person gained 5 pounds)  
newWeight <- weight+5  
  
# 9) Compute the weight/height for each person, using the new weight just created  
newWoverH <- newWeight/height
```

Step 4: Using Conditional if statements

```
# 10) Write the R code to test if max height is greater than 60 (output "yes" or "no")
```

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

```
## [1] "yes"
```

```
# 11) Write the R code to if min weight is greater than the variable 'a' (output "yes" or "no")  
if(minW > a) "yes" else "no"
```

```
## [1] "no"
```

```
tinytex::install_tinytex()
```