RWorksheet_Tubat#4a

```
#1.
shoeSize = c(6.5,9.0,8.5,8.5,10.5,7.0,9.5,9.0,13.0,7.5,10.5,8.5,12.0,10.5,13.0,11.5,8.5,5.0,10.0,6.5,7.5
height = c(66.0,68.0,64.5,65.0,70.0,64.0,70.0,71.0,72.0,64.0,74.5,67.0,71.0,71.0,77.0,72.0,59.0,62.0,72
gender = c("F", "F", "F", "F", "M", "F","F","F","M","F","M","F", "M", "M", "M", "M", "F", "F", "M", "F"
length(shoeSize)
```

```
## [1] 28
```

```
df <- data.frame(shoeSize, height, gender)
colnames(df) <- c("Shoe Size", "Height", "Gender")
```

```
#1a.
dim(df)
```

```
## [1] 28  3
```

```
#The data set has 28 rows and 3 columns
```

```
#1b.
#Created a data where the male and the female is separated
males <- df[df$Gender == "M", ]
males
```

```
##    Shoe Size Height Gender
## 5       10.5   70.0      M
## 9       13.0   72.0      M
## 11      10.5   74.5      M
## 13      12.0   71.0      M
## 14      10.5   71.0      M
## 15      13.0   77.0      M
## 16      11.5   72.0      M
## 19      10.0   72.0      M
## 22       8.5   67.0      M
## 23      10.5   73.0      M
## 25      10.5   72.0      M
## 26      11.0   70.0      M
## 27       9.0   69.0      M
## 28      13.0   70.0      M
```

```
females <- df[df$Gender == "F", ]
females
```

```
##    Shoe Size Height Gender
## 1        6.5   66.0      F
## 2        9.0   68.0      F
## 3        8.5   64.5      F
## 4        8.5   65.0      F
## 6        7.0   64.0      F
## 7        9.5   70.0      F
## 8        9.0   71.0      F
```

```
## 10       7.5   64.0      F
## 12       8.5   67.0      F
## 17       8.5   59.0      F
## 18       5.0   62.0      F
## 20       6.5   66.0      F
## 21       7.5   64.0      F
## 24       8.5   69.0      F
```

```
#1c.
mean(df$Height)
```

```
## [1] 68.57143
```

```
mean(df$`Shoe Size`)
```

```
## [1] 9.410714
```

```
#1d.
#Yes, there is a relationship between the shoe size and the height of the height. The taller the height
```

```
months_vector <- c("March","April","January","November","January","September","October","September","No
factor_months_vector <- factor(months_vector)
factor_months_vector
```

```
##  [1] March     April     January   November  January   September October
##  [8] September November  August    January   November  November  February
## [15] May       August    July      December  August    August    September
## [22] November  February  April
## 11 Levels: April August December February January July March May ... September
```

```
summary(months_vector)
```

```
##    Length     Class      Mode
##        24 character character
```

```
summary(factor_months_vector)
```

```
##     April    August  December  February   January      July     March       May
##         2         4         1         2         3         1         1         1
##  November   October September
##         5         1         3
```

```
#The summary of the months_vector consists of the number of elements in the vector, the class, and the
#In the summary of the factor_months_vector it lists all the elements and then it counts the number of
```

```
direction <- c("East", "West", "North")
frequency <- c(1,4,3)
factor_data <- c("East", "West", "North", 1, 4, 3)
factor_data
```

```
## [1] "East"  "West"  "North" "1"     "4"     "3"
```

```
new_order_data <- factor(factor_data, levels = c("East","West", "North"))
print(new_order_data)
```

```
## [1] East  West  North <NA>  <NA>  <NA>
## Levels: East West North
```

```
#5a.
library(readxl)
```

```r
df2 <- read.table(file ="/cloud/project/worksheet#4/import_march.csv", sep= ",",header=TRUE,as.is=TRUE)
df2
```

```
##   Students Strategy.1 Strategy.2 Strategy.3
## 1     Male          8         10          8
## 2                   4          8          6
## 3                   0          6          4
## 4   Female         14          4         15
## 5                  10          2         12
## 6                   6          0          9
```

```r
#5b.
df2
```

```
##   Students Strategy.1 Strategy.2 Strategy.3
## 1     Male          8         10          8
## 2                   4          8          6
## 3                   0          6          4
## 4   Female         14          4         15
## 5                  10          2         12
## 6                   6          0          9
```

```r
numberInput <- readline(prompt="Enter a number from 1 to 50: ")
```

```
## Enter a number from 1 to 50:
```

```r
initBool = FALSE;
if(numberInput == 20){
  cat("TRUE")
}else if(numberInput >= 1 && numberInput <= 50){
  cat("Your number is", numberInput)
}else{
  cat("The number selected is beyond the range of 1 to 50")
}
```

```
## The number selected is beyond the range of 1 to 50
```

```r
price <- as.integer(readline(prompt = "Enter a number here: "))
```

```
## Enter a number here:
```

```r
bills1000 <- price %/% 1000
price %% 1000
```

```
## [1] NA
```

```r
bills500 <- price %/% 500
price <- price %% 500
bills200 = price %/% 200
price <- price %% 200
bills100 = price %/% 100
price <- price %% 100
bills50 <- price %/% 50


minimumBills <- bills1000 + bills500 + bills200 + bills100 + bills50
cat("1000 bill: ",bills1000)
```

```
## 1000 bill:  NA
```

```r
cat("500 bill: ",bills500)
```

```
## 500 bill:  NA
```

```r
cat("200 bill: ",bills200)
```

```
## 200 bill:  NA
```

```r
cat("100 bill: ",bills100)
```

```
## 100 bill:  NA
```

```r
cat("50 bill: ",bills50)
```

```
## 50 bill:  NA
```

```r
cat("minimum bills: ", minimumBills)
```

```
## minimum bills:  NA
```

```r
name <- c("Annie", "Thea", "Steve", "Hanna")
grade1 <- c(85, 65, 75,95)
grade2 <- c(65,75,55,75)
grade3 <- c(85,90,80,100)
grade4 <- c(100,90,85,90)

dfNum8 <- data.frame(name, grade1, grade2, grade3, grade4)
colnames(dfNum8) <- c("Name", "Grade1", "Grade2", "Grade3", "Grade4")

dfNum8$AverageScore <- (dfNum8$Grade1 + dfNum8$Grade2 + dfNum8$Grade3 + dfNum8$Grade4) / 4

highAverage <- dfNum8[dfNum8$AverageScore > 90, ]


for (i in 1:nrow(highAverage)) {
  cat(paste(highAverage$Name[i], "'s average grade this semester is ", highAverage$AverageScore[i], ".\n
#No output because no-one has an average greater than 90.
}
```

```
## NA 's average grade this semester is  NA .
##  's average grade this semester is   .
```

```r
averageTest <- c("Average Test", sum(dfNum8$Grade1)/4,sum(dfNum8$Grade2)/4, sum(dfNum8$Grade3)/4, sum(d
lowScore <- which(averageTest < 80)

for(i in lowScore){
  cat("",i-1,"is difficult\n")
}
```

```
##  2 is difficult
```

```r
for (i in 1:nrow(dfNum8)) {
  student <- dfNum8$Name[i]
  grades <- dfNum8[i, 2:5]
  highest_grade <- grades[i]
  for (j in 2:4) {
    if (grades[j] > highest_grade) {
      highest_grade <- grades[j]
    }
```

```
  }

  if (highest_grade > 90) {
    cat(paste(student, "'s highest grade this semester is ", highest_grade, ".\n"))
  }
}
```

```
## Annie 's highest grade this semester is  100 .
## Hanna 's highest grade this semester is  100 .
```