RWorksheet_VIcinte#4a

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#1. The table below shows the data about shoe size and height. Create a data frame.

```
Hhdata <- read.csv("/cloud/project/RWorksheet4a/Household Data.csv")
Hhdata
```

```
##    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
## 5       10.5   70.0      M
## 6        7.0   64.0      F
## 7        9.5   70.0      F
## 8        9.0   71.0      F
## 9       13.0   72.0      M
## 10       7.5   64.0      F
## 11      10.5   74.5      M
## 12       8.5   67.0      F
## 13      12.0   71.0      M
## 14      10.5   71.0      M
## 15      13.0   77.0      M
## 16      11.5   72.0      M
## 17       8.5   59.0      F
## 18       5.0   62.0      F
## 19      10.0   72.0      M
## 20       6.5   66.0      F
## 21       7.5   64.0      F
## 22       8.5   67.0      M
## 23      10.5   73.0      M
## 24       8.5   69.0      F
## 25      10.5   72.0      M
## 26      11.0   70.0      M
## 27       9.0   69.0      M
## 28      13.0   70.0      M
```

#a. Describe the data. #The data consist of Shoe size, Height and Gender.

#b. Create a subset by males and females with their corresponding shoe size and height. What its result? Show the R scripts.

```
MF <- subset(Hhdata, Gender == "M" & Shoe.size & Height)
MF
```

```
##    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
```

```
FM <- subset(Hhdata, Gender == "F" & Shoe.size & Height)
FM
```

```
##    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
```

#c. Find the mean of shoe size and height of the respondents. Write the R scripts and its result.

```
meanSs <- mean(Hhdata$Shoe.size)
meanH <- mean(Hhdata$Height)
meanSs
```

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

```
meanH
```

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

#d. Is there a relationship between shoe size and height? Why?

yes they have relationship. If the male have the same height there are times that they are not equal in shoe size same with female but when it comes to both gender have the same height it's noticable that male always have a larger shoe size than female.

#2.

```
months <- c("March","April","January","November","January",
"September","October","September","November","August",
```

```
"January","November","November","February","May","August","July","December","August","August","Septembe
months
```

```
##  [1] "March"     "April"     "January"   "November"  "January"   "September"
##  [7] "October"   "September" "November"  "August"    "January"   "November"
## [13] "November"  "February"  "May"       "August"    "July"      "December"
## [19] "August"    "August"    "September" "November"  "February"  "April"
```

```
factor_months_vector <- factor(months)
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
```

#3.

```
SummaryM <- summary(months)
SummaryM
```

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

```
SummaryF <- summary(factor_months_vector)
SummaryF
```

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

#4.

```
direction <- c("East", "West", "North")
Frequency <- c(1,4,3)
factor_data <- data.frame(direction,Frequency)
factor_data
```

```
##   direction Frequency
## 1      East         1
## 2      West         4
## 3     North         3
```

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

```
## direction Frequency
##      <NA>      <NA>
## Levels: East West North
```

#5. #a. Import the excel file into the Environment Pane using read.table() function. Write the code.

```
readTable <- read.table("import_march.csv", header=TRUE, sep=",")
readTable
```

```
##   Students Strategy1 Strategy2 Strategy3
## 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
```

#b. View the dataset. Write the R scripts and its result.

```
print(readTable)
```

```
##   Students Strategy1 Strategy2 Strategy3
## 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
```

```
#6.
#a.
num <- as.numeric(readline(prompt="Select a number between 1 to 50:"))
```

```
## Select a number between 1 to 50:
```

```
if (!is.na(num)>=1 && num<=50){
  cat(num)
  }else {
  print("The number selected is beyond the range of 1 to 50.")
}
```

```
## [1] "The number selected is beyond the range of 1 to 50."
```

```
if(!is.na(num)==20){
  print("TRUE")
}else {
  cat(num)
}
```

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

#7.

```
Theprice <- as.numeric(readline(prompt="Enter Price: "))
```

```
## Enter Price:
```

```
minimum <- function(Theprice) {
  bills <- 0

  if (!is.na(Theprice) >= 1000) {
    bills <- bills + Theprice %/% 1000
    Theprice <- Theprice %% 1000
  }
  if (!is.na(Theprice) >= 500) {
    bills <- bills + Theprice %/% 500
    Theprice <- Theprice %% 500
  }
  if (!is.na(Theprice) >= 200) {
    bills <- bills + Theprice %/% 200
    Theprice <- Theprice %% 200
```

```
  }
  if (!is.na(Theprice) >= 100) {
    bills <- bills + Theprice %/% 100
    Theprice <- Theprice %% 100
  }
  if (!is.na(Theprice) >= 50) {
    bills <- bills + Theprice %/% 50
    Theprice <- Theprice %% 50
  }
  return(bills)
}
minimum(Theprice)
```

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

#8.

```
#a.
Grades <- data.frame(
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)
)
Grades
```

```
##    Name Grade1 Grade2 Grade3 Grade4
## 1 Annie     85     65     85    100
## 2  Thea     65     75     90     90
## 3 Steve     75     55     80     85
## 4 Hanna     95     75    100     90
```

```
#b.
Annie <- (Grades$Grade1[1] + Grades$Grade2[1] + Grades$Grade3[1] + Grades$Grade4[1]) / 4
if (Annie > 90) {
  cat("Annie's average grade this semester is", Annie)
}
  Thea <- (Grades$Grade1[2] + Grades$Grade2[2] + Grades$Grade3[2] + Grades$Grade4[2]) / 4
if (Thea > 90) {
  cat("Annie's average grade this semester is", Thea)
}
  Steven <- (Grades$Grade1[3] + Grades$Grade2[3] + Grades$Grade3[3] + Grades$Grade4[3]) / 4
if (Steven > 90) {
  cat("Annie's average grade this semester is", Steven)
}
  Hanna <- (Grades$Grade1[3] + Grades$Grade2[3] + Grades$Grade3[3] + Grades$Grade4[3]) / 4
if (Hanna > 90) {
  cat("Annie's average grade this semester is", Hanna)
}else{
  print("No students exceeds 90")
}
```

```
## [1] "No students exceeds 90"
```

```r
#c.
Grade1ave <- sum(Grades$Grade1) / 4
if (Grade1ave < 80) {
  cat("The Grade1 test was difficult with an average score of", Grade1ave)
}
Grade2ave <- sum(Grades$Grade2) / 4
if (Grade2ave < 80) {
  cat("The Grade1 test was difficult with an average score of", Grade2ave)
}
```

```
## The Grade1 test was difficult with an average score of 67.5
```

```r
Grade3ave <- sum(Grades$Grade3) / 4
if (Grade3ave < 80) {
  cat("The Grade1 test was difficult with an average score of", Grade3ave)
}
Grade4ave <- sum(Grades$Grade4) / 4
if (Grade4ave < 80) {
  cat("The Grade1 test was difficult with an average score of", Grade4ave)
}
```

```r
#d.
Annie_highest <- Grades$Grade1[1]
if (Grades$Grade2[1] > Annie_highest) Annie_highest <- Grades$Grade2[1]
if (Grades$Grade3[1] > Annie_highest) Annie_highest <- Grades$Grade3[1]
if (Grades$Grade4[1] > Annie_highest) Annie_highest <- Grades$Grade4[1]
if (Annie_highest > 90) {
   cat("Annie's highest grade this semester is", Annie_highest,"\n")
}
```

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

```r
Thea_highest <- Grades$Grade1[2]
if (Grades$Grade2[2] > Thea_highest) Thea_highest <- Grades$Grade2[2]
if (Grades$Grade3[2] > Thea_highest) Thea_highest <- Grades$Grade3[2]
if (Grades$Grade4[2] > Thea_highest) Thea_highest <- Grades$Grade4[2]
if (Thea_highest > 90) {
   cat("Thea's highest grade this semester is", Thea_highest)
}
Steve_highest <- Grades$Grade1[3]
if (Grades$Grade2[3] > Steve_highest) Steve_highest <- Grades$Grade2[3]
if (Grades$Grade3[3] > Steve_highest) Steve_highest <- Grades$Grade3[3]
if (Grades$Grade4[3] > Steve_highest) Steve_highest <- Grades$Grade4[3]
if (Steve_highest > 90) {
   cat("Steve's highest grade this semester is", Steve_highest)
}
Hanna_highest <- Grades$Grade1[4]
if (Grades$Grade2[4] > Hanna_highest) Hanna_highest <- Grades$Grade2[4]
if (Grades$Grade3[4] > Hanna_highest) Hanna_highest <- Grades$Grade3[4]
if (Grades$Grade4[4] > Hanna_highest) Hanna_highest <- Grades$Grade4[4]
if (Hanna_highest > 90) {
   cat("Hanna's highest grade this semester is", Hanna_highest)
}
```

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