RWorksheet_GERALDOY4#a

Catherine Geraldoy

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

total <- data.frame(Shoe_size,Height)
total
```

```
##    Shoe_size Height
## 1        6.5   66.0
## 2        9.0   68.0
## 3        8.5   64.5
## 4        8.5   65.0
## 5       10.5   70.0
## 6        7.0   64.0
## 7        9.5   70.0
## 8        9.0   71.0
## 9       13.0   72.0
## 10       7.5   64.0
## 11      10.5   74.5
## 12       8.5   67.0
## 13      12.0   71.0
## 14      10.5   71.0
## 15      13.0   77.0
## 16      11.5   72.0
## 17       8.5   59.0
## 18       5.0   62.0
## 19      10.0   72.0
## 20       6.5   66.0
## 21       7.5   64.0
## 22       8.5   67.0
## 23      10.5   73.0
## 24       8.5   69.0
## 25      10.5   72.0
## 26      11.0   70.0
## 27       9.0   69.0
## 28      13.0   70.0
```

```
#a. Describe the data. The data shows the corresponding shoe size per height.

Gender<-c("F","F","F","F","M","F","F","F","M","F","M","F","M","M","M","M","F","F","M","F","F","M","M","
#b. Create a subset by males and females with their corresponding shoe size and height.
```

```r
total2 <- cbind(total,Gender)
total2
```

```
##    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
```

```r
#What its result? Show the R scripts.
#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

#c. Find the mean of shoe size and height of the respondents.
size<-mean(Shoe_size)
size
```

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

```
height<-mean(Height)
height
```

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

```
#Write the R scripts and its result.
#> msize<-mean(Shoe_size)
#> msize
#[1] 9.410714
#> mheight<-mean(Height)
#> mheight
#[1] 68.57143

#d. Is there a relationship between shoe size and height? Why?
#Although it doesn't directly assess or offer proof of such a relationship, the data presented in the c

# Create a character vector of months
months <- c("March", "April", "January", "November", "January", "September", "October", "September", "N
months
```

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

```
factor_months<-factor(months)
factor_months
```

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

```
#3
factor_months_vector <-factor(months)
factor_months_vector
```

```
##  [1] March     April     January   November  January   September October
##  [8] September November  August    January   Nevember  November  February
## [15] May       August    July      December  August    August    September
```

```
## [22] November  February  April
## 12 Levels: April August December February January July March May ... September
```

```
summary(factor_months_vector)
```

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

```
#Are they both equally useful in this case? yes
#4
direction<- c("East","West","North")
direction
```

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

```
frequency<- c(1,4,3)
frequency
```

```
## [1] 1 4 3
```

```
#5
#a
file<- read.csv("import_march.csv")
file
```

```
##   students strategy.1 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
```

```
file2<-read.table("//cloud/project//import_march.csv", header=TRUE,sep=",")
file2
```

```
##   students strategy.1 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
num <- readline(prompt = "Input randomly select numbers from 1 to 50: ")
```

```
## Input randomly select numbers from 1 to 50:
```

```
if(num==20){
  print("TRUE")
}else if(num<=50 && num>=1){
  cat("The input number is", num)
}else{
  print("The number is beyond the range")
}
```

```
## [1] "The number is beyond the range"
```

```r
#7
#a
calculate_minimum_bills <- function(){
  price <-as.integer(readline(prompt = "Price of snack(a random number divisible by 50):"))
  if (is.na(price)|| price %% 50 !=0 ){
    cat("Invalid input. Please enter a valid price divisible by 50.\n")
    return ()
  }
  num_bills <- 0
  bill_denomination <-c(1000,500,200,100,50)

  for (bill in bill_denomination){
    num_bills <-num_bills+(price %% bill)
    price<- price %% bill
  }
  cat("Minimum number of bills needed: ",num_bills, "\n")
}
calculate_minimum_bills()
```

```
## Price of snack(a random number divisible by 50):
## Invalid input. Please enter a valid price divisible by 50.
```

```
## NULL
```

```r
#8
#a
name<- c( "Annie" , "Thea" , "Steve" , "Hanna" )
grade1 <-c(85,86,75,95)
grade2 <-c(65,75,55,75)
grade3 <-c(85,90,80,100)
grade4 <-c(95,75,100,100)
card <-data.frame(name,grade1,grade2,grade3,grade4)
card
```

```
##    name grade1 grade2 grade3 grade4
## 1 Annie     85     65     85     95
## 2  Thea     86     75     90     75
## 3 Steve     75     55     80    100
## 4 Hanna     95     75    100    100
```

```r
#b
for (i in 1:length(name)){
  average <-(grade1[i]+grade2[i]+grade3[i]+grade4[i]) / 4
  cat(paste(name [i],"average of this semester is",round(average,2),".\n"))
}
```

```
## Annie average of this semester is 82.5 .
## Thea average of this semester is 81.5 .
## Steve average of this semester is 77.5 .
## Hanna average of this semester is 92.5 .
```

```r
#c
for(test_num in 1:4){
  total <-grade1+grade2+grade3+grade4
  average <-total/4

  if (average[test_num]<80){
```

```
    cat("The", test_num,"test was difficult.\n")
  }
}
```

```
## The 3 test was difficult.
```

```
#d
for (i in 1:length(name)){
  for (i in 1:length(name)){
    highest_grade <- grade1[i]
    if (grade2[i] > highest_grade){
      highest_grade <- grade2[i]
    }
    if (grade3[i] > highest_grade){
      highest_grade <- grade3[i]
    }
    if (grade4[i] > highest_grade){
      highest_grade <- grade4[i]
    }
  }


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

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