

## RWorksheet\_Talon#4a

Cedric Mikhail Talon

2023-10-25

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

#a. Describe the data.

[illegible]

##	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

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

```
MaleDF <- subset(hhd, Gender == "M")
FemaleDF <- subset(hhd, Gender == "F")
```

MaleDF

```
##      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
```

FemaleDF

```
##      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(hhd$Shoe_Size)
meanHeight <- mean(hhd$Height)
```

```
paste("the ano ah:", meanSS)
```

```
## [1] "the ano ah: 9.41071428571429"
```

```
paste("ang ano:", meanHeight)
```

```
## [1] "ang ano: 68.5714285714286"
```

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

*#Yes, Because*

*#2. Construct character vector months to a factor with factor() and assign the result to #factor\_months\_vector. Print out factor\_months\_vector and assert that R prints out #the factor levels below the actual values.*

```
months_vector <- c("March", "April", "January", "November", "January",  
                  "September", "October", "September", "November", "August",  
                  "January", "November", "November", "February", "May", "August",  
                  "July", "December", "August", "August", "September", "November", "February",  
                  "April")
```

```
months_vector
```

```
## [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"
```

*#3*

```
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
```

*#the usefulness depends on the situation*

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

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

```
## [1] East West West West West North North North  
## Levels: East West North
```

*#Enter the data below in Excel with file name = import\_march.csv*

*#4. Create a vector and factor for the table below.*

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

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

```
## Levels: 1 3 4 East North West
```

```
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
```

```
#5.
```

```
read.table(file = "/cloud/project/RWorkSheet#4/import_march.csv", header = TRUE, sep = ",")
```

```
##           X           X.1           X.2           X.3  
## 1 Students Strategy 1 Strategy 2 Strategy 3  
## 2      Male           8           10           8  
## 3           4           8           6  
## 4           0           6           4  
## 5      Female        14           4          15  
## 6           10           2          12  
## 7           6           0           9
```

```
reading <- read.csv("import_march.csv")  
reading
```

```
##           X           X.1           X.2           X.3  
## 1 Students Strategy 1 Strategy 2 Strategy 3  
## 2      Male           8           10           8  
## 3           4           8           6  
## 4           0           6           4  
## 5      Female        14           4          15  
## 6           10           2          12  
## 7           6           0           9
```

```
#6.
```

```
# Function to check if a number is in a specified range  
randomNum <- readline(prompt = "Enter number from 1 to 50: ")
```

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

```
#error cannot knit if there is as.numeric  
#randomNum <- as.numeric(randomNum)
```

```
paste("The number you have chosen is", randomNum)
```

```
## [1] "The number you have chosen is "
```

```
if (randomNum > 50) {  
  paste("The number selected is beyond the range of 1 to 50")  
} else if (randomNum == 20) {  
  paste("TRUE")  
} else {  
  paste(randomNum)  
}
```

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

```
#7.
```

```
minimumBills <- function(price) {
```

```

min_bills <- price %/% 50
paste("The minimum no. of bills:", min_bills)
}

```

```

minimumBills(900)

```

```

## [1] "The minimum no. of bills: 18"

```

```

# 8.a

```

```

names <- 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)

```

```

grade <- data.frame(
  Name = names,
  Grade1 = grade1,
  Grade2 = grade2,
  Grade3 = grade3,
  Grade4 = grade4
)

```

```

# 8.b

```

```

grade$Average <- (grade$Grade1 + grade$Grade2 + grade$Grade3 + grade$Grade4) / 4

```

```

average_grade <- grade[grade$Average > 90,]
average_grade

```

```

## [1] Name      Grade1  Grade2  Grade3  Grade4  Average
## <0 rows> (or 0-length row.names)

```

```

if (nrow(average_grade) > 0) {
  paste(average_grade$Name, "'s average grade this semester is", average_grade$Average)
} else {
  paste("No students have an average math score over 90.")
}

```

```

## [1] "No students have an average math score over 90."

```

```

# 8.c

```

```

first_Test <- sum(grade$Grade1) / nrow(grade)
first_Test

```

```

## [1] 80

```

```

second_Test <- sum(grade$Grade2) / nrow(grade)
second_Test

```

```

## [1] 67.5

```

```

third_Test <- sum(grade$Grade3) / nrow(grade)
third_Test

```

```
## [1] 88.75
```

```
fourth_Test <- sum(grade$Grade4) / nrow(grade)
fourth_Test
```

```
## [1] 91.25
```

```
if (first_Test < 80) {
  paste("The 1st test was difficult.")
} else if(second_Test < 80) {
  paste("The 2nd test was difficult.")
} else if(third_Test < 80) {
  paste("The 3rd test was difficult.")
} else if(fourth_Test < 80) {
  paste("The 4th test was difficult.")
} else {
  paste("No test had an average score less than 80.")
}
```

```
## [1] "The 2nd test was difficult."
```

```
# 8.d
```

```
if (grade$Grade1[1] > 90) {
  print(paste(grade$Name[1], "'s highest grade this semester is", grade$Grade1[1], ".", sep = ""))
} else if (grade$Grade2[1] > 90) {
  print(paste(grade$Name[1], "'s highest grade this semester is", grade$Grade2[1], ".", sep = ""))
} else if (grade$Grade3[1] > 90) {
  print(paste(grade$Name[1], "'s highest grade this semester is", grade$Grade3[1], ".", sep = ""))
} else if (grade$Grade4[1] > 90) {
  print(paste(grade$Name[1], "'s highest grade this semester is", grade$Grade4[1], ".", sep = ""))
}
```

```
## [1] "Annie's highest grade this semester is100."
```

```
if (grade$Grade1[2] > 90) {
  print(paste(grade$Name[2], "'s highest grade this semester is", grade$Grade1[2], ".", sep = ""))
} else if (grade$Grade2[2] > 90) {
  print(paste(grade$Name[2], "'s highest grade this semester is", grade$Grade2[2], ".", sep = ""))
} else if (grade$Grade3[2] > 90) {
  print(paste(grade$Name[2], "'s highest grade this semester is", grade$Grade3[2], ".", sep = ""))
} else if (grade$Grade4[2] > 90) {
  print(paste(grade$Name[2], "'s highest grade this semester is", grade$Grade4[2], ".", sep = ""))
}
```

```
if (grade$Grade1[3] > 90) {
  print(paste(grade$Name[3], "'s highest grade this semester is", grade$Grade1[3], ".", sep = ""))
} else if (grade$Grade2[3] > 90) {
  print(paste(grade$Name[3], "'s highest grade this semester is", grade$Grade2[3], ".", sep = ""))
} else if (grade$Grade3[3] > 90) {
  print(paste(grade$Name[3], "'s highest grade this semester is", grade$Grade3[3], ".", sep = ""))
} else if (grade$Grade4[3] > 90) {
  print(paste(grade$Name[3], "'s highest grade this semester is", grade$Grade4[3], ".", sep = ""))
}
```

```
if (grade$Grade1[4] > 100) {
  print(paste(grade$Name[4], "'s highest grade this semester is", grade$Grade1[4], ".", sep = ""))
} else if (grade$Grade2[4] >= 100) {
```

```

    print(paste(grade$Name[4], "'s highest grade this semester is", grade$Grade2[4], ".", sep = ""))
} else if (grade$Grade3[4] >= 100) {
    print(paste(grade$Name[4], "'s highest grade this semester is", grade$Grade3[4], ".", sep = ""))
} else if (grade$Grade4[4] >= 100) {
    print(paste(grade$Name[4], "'s highest grade this semester is", grade$Grade4[4], ".", sep = ""))
}

```

```
## [1] "Hanna's highest grade this semester is100."
```