

## Rworksheet\_Mijares#4a

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No. 1

```
Shoes <- 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
```

Shoes

##	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. The data frame consists of different Shoe Size, Height, and Genders.
```

## b.

```
M_subset <- subset(Shoes, Gender == "M", select = c(Shoe_size, Height))
```

```
M_subset
```

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

```
F_subset <- subset(Shoes, Gender == "F", select = c(Shoe_size, Height))
```

```
F_subset
```

```
##      Shoe_size Height
## 1          6.5   66.0
## 2          9.0   68.0
## 3          8.5   64.5
## 4          8.5   65.0
## 6          7.0   64.0
## 7          9.5   70.0
## 8          9.0   71.0
## 10         7.5   64.0
## 12         8.5   67.0
## 17         8.5   59.0
## 18         5.0   62.0
## 20         6.5   66.0
## 21         7.5   64.0
## 24         8.5   69.0
```

c.

```
mean(Shoes$Shoe_size)
```

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

```
mean(Shoes$Height)
```

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

d.

The taller you are the bigger the shoe size

No. 2

```
months_vector <- c("March", "April", "January", "November", "January", "September", "October", "September")

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
## 12 Levels: November April August December February January July March ... September
```

### No. 3

```
summary(months_vector)

##      Length      Class      Mode
##          24 character character

summary(factor_months_vector)

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

No. factor\_months\_vector is more useful than months\_vector because it precisely factors each month ## No. 4

```
directions <- c("East", "West", "North")

freq <- c(1,4,3)

factor_data <- rep(directions,freq)

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

new_order_data

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

### No. 5

```
## a&b

file <- "import_march.csv"

data <- read.table(file, header = TRUE, sep = ",", stringsAsFactors = FALSE)

print(data)

##      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

## No. 6

```
## user_input = as.numeric(readline(prompt = "Enter a random number from 1 to 50: "))

user_input <- 20

if(user_input == 20){
  print(TRUE)
}else if(user_input >= 1 && user_input <= 50){
  print(user_input)
}else{
  print("The number selected is beyond the range of 1 to 50")
}
```

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

## No. 7

```
min_bills <-function(snackPrice){
  bills <- c(1000, 500, 200, 100, 50)

  num_bills <- 0

  for(bill in bills){
    count <- snackPrice %/% bill

    snackPrice <- snackPrice %% bill

    num_bills <- num_bills + count
  }

  return(num_bills)
}

## snackPrice <- as.numeric(readline(prompt = "Enter the price of the snack you purchased (Must be divi.

snackPrice <- 1500
min_bills_needed <- min_bills(snackPrice)

print(paste("The minimum number of bills needed to pay is ", min_bills_needed))

## [1] "The minimum number of bills needed to pay is  2"
```

## No. 8

```
## a.
```

```
Grade_1stsem <- data.frame(
  Name = c("Annie", "Thea", "Steve", "Hanna"), Grade1 = c(85, 65, 75, 95), Grade2 = c(65, 75, 55, 75),
)
```

```
Grade_1stsem
```

```
##      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.
```

```
Grade_1stsem$Average <- (Grade_1stsem$Grade1 + Grade_1stsem$Grade2 +
  Grade_1stsem$Grade3 + Grade_1stsem$Grade4) / 4
```

```
for (i in 1:nrow(Grade_1stsem)) {
  student_name <- Grade_1stsem$Name[i]
  student_average <- Grade_1stsem$Average[i]
  result1 <- paste(student_name, "'s average grade this semester is", round(student_average, 2), ".")
  print(result1)
}
```

```
## [1] "Annie 's average grade this semester is 83.75 ."
```

```
## [1] "Thea 's average grade this semester is 80 ."
```

```
## [1] "Steve 's average grade this semester is 73.75 ."
```

```
## [1] "Hanna 's average grade this semester is 90 ."
```

```
## There is no student that got an average that is over 90 points in the 1st semester
```

```
## c.
```

```
total_scores <- colSums(Grade_1stsem[, 2:5])
```

```
num_students <- nrow(Grade_1stsem)
```

```
average_scores <- total_scores / num_students
```

```
difficult_tests <- average_scores < 80
```

```
if (any(difficult_tests)) {
  result2 <- paste("Test", which(difficult_tests), "was difficult.")
  print(result2)
}
```

```
## [1] "Test 2 was difficult."
```

```
## d.
```

```
for (i in 1:nrow(Grade_1stsem)) {
```

```
  scores <- Grade_1stsem[i, 2:5]
```

```
  highest_score <- scores[1]
```

```
  for (score in scores) {
```

```
    if (score > highest_score) {  
      highest_score <- score  
    }  
  }  
  
  if (highest_score > 90) {  
    print(paste(Grade_1stsem$Name[i], "'s highest grade this semester is", highest_score))  
  }  
}  
  
## [1] "Annie 's highest grade this semester is 100"  
## [1] "Hanna 's highest grade this semester is 100"
```