RWorksheet_saludo#4a

#1 #a

```
Gender <- c("M","F","F","M","M","F","M","F")
ShoeSize <- c(42,38,37,44,43,36,45,39)
Height <- c(170,158,155,175,172,160,178,162)

shoe_data <- data.frame(Gender, ShoeSize, Height)
shoe_data
```

```
##   Gender ShoeSize Height
## 1      M       42    170
## 2      F       38    158
## 3      F       37    155
## 4      M       44    175
## 5      M       43    172
## 6      F       36    160
## 7      M       45    178
## 8      F       39    162
```

#b

```
male_data <- subset(shoe_data, Gender == "M")
female_data <- subset(shoe_data, Gender == "F")

male_data
```

```
##   Gender ShoeSize Height
## 1      M       42    170
## 4      M       44    175
## 5      M       43    172
## 7      M       45    178
```

```
female_data
```

```
##   Gender ShoeSize Height
## 2      F       38    158
## 3      F       37    155
## 6      F       36    160
## 8      F       39    162
```

#c

```
mean(shoe_data$ShoeSize)
```

```
## [1] 40.5
```

```
mean(shoe_data$Height)
```

```
## [1] 166.25
```

#2

```
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")

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
```

#3

```
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
```

#4

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

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
```

#5 #a

```
march_data <- read.csv("import_march.csv", header = TRUE)
```

#b

```
head(march_data)
```

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

```
print(march_data)
```

```
##   Students Strategy.1 Strategy.2 Strategy.3
## 1     Male          8         10          8
## 2     Male          4          8          6
```

```
## 3     Male          0          6          4
## 4   Female         14          4         15
## 5   Female         10          2         12
## 6   Female          6          0          9
```

#6

```
search_number <- function(x) {
  if (x < 1 || x > 50) {
    print("The number selected is beyond the range of 1 to 50")
  } else if (x == 20) {
    print(TRUE)
  } else {
    print(x)
  }
}

search_number(sample(1:50, 1))
```

```
## [1] 18
```

#7

```
min_bills <- function(price) {
  bills <- c(1000, 500, 200, 100, 50)
  count <- 0

  for (bill in bills) {
    count <- count + price %/% bill
    price <- price %% bill
  }
  count
}

min_bills(850)
```

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

#8 #a

```
students <- 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)
)

students
```

```
##    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

```r
for (i in 1:nrow(students)) {
  avg <- (students[i,2] + students[i,3] + students[i,4] + students[i,5]) / 4
  if (avg > 90) {
    cat(students$Name[i], "average grade this semester is", avg, "\n")
  }
}
```

#c

```r
for (j in 2:5) {
  avg_test <- sum(students[,j]) / nrow(students)
  if (avg_test < 80) {
    cat("The", j-1, "the test was difficult\n")
  }
}
```

```
## The 2 the test was difficult
```

#d

```r
for (i in 1:nrow(students)) {
  highest <- students[i,2]
  for (j in 3:5) {
    if (students[i,j] > highest) {
      highest <- students[i,j]
    }
  }
  if (highest > 90) {
    cat(students$Name[i], "highest grade this semester is", highest, "\n")
  }
}
```

```
## Annie highest grade this semester is 100
## Hanna highest grade this semester is 100
```