

RWorksheet_asenjo#4a

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1.

```
HouseHoldData <- data.frame (
  ShoeSize = 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, 10.5),
  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, 70.0, 66.0, 68.0),
  Gender = c("F", "F", "F", "F","M", "F", "F", "F","M","F","M","F","M","M", "M", "M", "F", "F", "M", "F")
)
```

HouseHoldData

##	ShoeSize	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 shows that it has three columns namely, shoesize, height and, gender with 28 rows.

b.

```
s <- subset(HouseHoldData, Gender == "M" & ShoeSize&Height)
s
```

```
##      ShoeSize 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
```

```
s2 <- subset(HouseHoldData, Gender == "F" & ShoeSize&Height)
s2
```

```
##      ShoeSize 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.

```
sm <- mean(HouseHoldData$ShoeSize)
sm
```

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

```
hm <- mean(HouseHoldData$Height)
hm
```

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

d. No, because there are some respondents that is taller but has smaller shoe size that others who are shorter.

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
## 11 Levels: April August December February January July March May ... September
```

3. Yes, they are both useful because it shows the length, class, mode, and the number of repetitions of the character of two vectors.

```
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.

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

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

```
factor_data <- direction
```

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

```
new_order_data
```

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

5. a.

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

- b.

```
import_march
```

```
##      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
```

```
p <- as.integer( readline(prompt="Enter a number between 1 to 50: "))
```

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

```
if(!is.na(p) && p == 20){
  print("TRUE")
}else if (!is.na(p) && p >= 1 && p <= 50){
```

```

    cat("Your number is", p)
  }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"
```

7.

```
p <- as.numeric(readline(prompt="Enter a price that is divisible by 50: "))
```

```
## Enter a price that is divisible by 50:
```

```

m <- function(p) {
  b <- 0
  if (!is.na(p) && p >= 1000) {
    b <- b + p %/% 1000
    p <- p %% 1000
  }
  4
  if (!is.na(p) && p >= 500) {
    b <- b + p %/% 500
    p <- p %% 500
  }
  if (!is.na(p) && p >= 200) {
    b <- b + p %/% 200
    p <- p %% 200
  }
  if (!is.na(p) && p >= 100) {
    b <- b + p %/% 100
    p <- p %% 100
  }
  if (!is.na(p) && p >= 50) {
    b <- b + p %/% 50
    p <- p %% 50
  }
  return(b)
}
m(p)

```

```
## [1] 0
```

8. a.

```

g <- 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)
)
g

```

```

##      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.

```
a <- rowSums(g[,-1]) / (ncol(g) - 1)
if (any(a > 90)) {
  n <- g$Name[a > 90]
  s <- a[a > 90]
  cat(paste(n, "'s average grade this semester is ", s, ".\n", sep = ""))
} else{
  cat("There are no student that has an average grade over 90.\n")
}
```

```
## There are no student that has an average grade over 90.
```

c.

```
t <- colSums(g[,-1]) / nrow(g)
if (any(t < 80)) {
  d <- which(t < 80)
  cat(paste("The", d, "th test was difficult.\n"))
} else {
  cat("All of the tests had average scores of 80 or above.\n")
}
```

```
## The 2 th test was difficult.
```

d.

```
h <- apply(g[,-1], 1, function(x) sort(x, decreasing = TRUE)[1])
if (any(h > 90)) {
  hn <- g$Name[h > 90]
  hs <- h[h > 90]
  cat(paste(hn, "'s highest grade this semester is ", hs, ".\n"))
} else {
  cat("There are no student that has a highest grade exceeded 90.\n")
}
```

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

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