

RWorksheet_Bansara#4a

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#1

```
household_data <- data.frame(  
  Shoesize = c(6.5,9.0,8.5,8.5,10.5,7.0,9.5,9.0,13.0,7.5,10.5,8.5,12.0,10.5,13.0,11.5,8.5,5.0,10.0,  
  Height = c(66.0,68.0,64.5,65.0,70,64.0,70.0,71.0,72.0,64.0,74.5,67.0,71.0,71.0,77.0,72.0,59.0,62.0,  
  Gender = c("F","F","F","F","M","F","F","F","M","F","M","F","M","M","M","M","M","F","F","M","F","F","M"  
)  
household_data
```

##	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

```
names(household_data) <- c("Shoe size","Height","Gender")  
household_data
```

##	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
```

#1a the male's height and shoe size is higher than the female's height and weight

#1b

```
Male_sh <- subset(household_data, Gender == 'M')
```

```
Female_sh <- subset(household_data, Gender == 'F')
```

#1c

```
mean_sh <- mean(household_data$Shoesize & household_data$Height)
mean_sh
```

```
## [1] NaN
```

#1d Is there a relationship between shoe size and height? Why?

Yes, because if your height is small, then your shoe size is small. And if your height is big then your shoe size is big.

#2

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

```
##      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
```

```
# the results display how many the months that put in the vector and display how many of the same month
```

```
#4
```

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

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

```
factor_direct <- factor(Direction)
```

```
factor_direct
```

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

```
factor_freq <- factor(Frequency)
```

```
factor_freq
```

```
## [1] 1 4 3  
## Levels: 1 3 4
```

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

```
print(new_order_data)
```

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

```
new_order_data2 <- factor(factor_freq,levels = c(1,4,3))
```

```
print(new_order_data2)
```

```
## [1] 1 4 3  
## Levels: 1 4 3
```

```
#5a
```

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

```
#5b
```

```
Exceldata
```

```
##      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
```

```
#6 Full Search
```

```
number_input <- readline(prompt="Enter number from 1 to 50:  
")
```

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

```
if(number_input>50){
  print("The number is beyond the range of 1 to 50")
}else{
  print("TRUE")
}
```

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

```
#7Change
minimumprice <- function(price) {

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

minimumprice(90)
```

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

```
#8a Create a data frame
mathgrades <- 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)
)
mathgrades
```

```
##      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
```

```
#8b
```

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

highgrades <- mathgrades[mathgrades$Average > 90, ]

if(nrow(highgrades)>0){
  print(highgrades$Name, "s average grade this semester is:", highgrades)
}else{
  print("there is no student that got 90 average grades")
}
```

```
## [1] "there is no student that got 90 average grades"
```

```
#8c
average_scores <- colMeans(mathgrades[, -1])

if (average_scores[1] < 80) {
  print("The 1st test was difficult.\n")
}else if (average_scores[2] < 80) {
```

```

    print("The 2nd test was difficult.\n")
} else if (average_scores[3] < 80) {
    print("The 3rd test was difficult.\n")
} else if (average_scores[4] < 80) {
    print("The 4th test was difficult.\n")
} else {
    print("No test that students find it difficult")
}

```

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

```

#8d
#annie

```

```

if (mathgrades[1,2] > mathgrades[1,3] && mathgrades[1,2] > mathgrades[1,4] && mathgrades[1,2] > mathgrades[1,5]) {
    anniescoret <- mathgrades[1,2]
} else if (mathgrades[1,3] > mathgrades[1,4] && mathgrades[1,3] > mathgrades[1,5]) {
    anniescore <- mathgrades[1,3]
} else if (mathgrades[1,4] > mathgrades[1,5] && mathgrades[1,2] > mathgrades[1,5]) {
    anniescore <- mathgrades[1,4]
} else {
    anniescore <- mathgrades[1,5]
}

```

```
# thea scores
```

```

if (mathgrades[2,2] > mathgrades[2,3] && mathgrades[2,2] > mathgrades[2,4] && mathgrades[2,2] > mathgrades[2,5]) {
    theascore <- mathgrades[2,2]
} else if (mathgrades[2,3] > mathgrades[2,4] && mathgrades[2,3] > mathgrades[2,5]) {
    theascore <- mathgrades[2,3]
} else if (mathgrades[2,4] > mathgrades[2,5] && mathgrades[2,2] > mathgrades[2,5]) {
    theascore <- mathgrades[2,4]
} else {
    theascore <- mathgrades[2,5]
}

```

```
# steve scores
```

```

if (mathgrades[3,2] > mathgrades[3,3] && mathgrades[3,2] > mathgrades[3,4] && mathgrades[3,2] > mathgrades[3,5]) {
    stevescore <- mathgrades[3,2]
} else if (mathgrades[3,3] > mathgrades[3,4] && mathgrades[3,3] > mathgrades[3,5]) {
    stevescore <- mathgrades[3,3]
} else if (mathgrades[3,4] > mathgrades[3,5] && mathgrades[3,2] > mathgrades[3,5]) {
    stevescore <- mathgrades[3,4]
} else {
    stevescore <- mathgrades[3,5]
}

```

```
# hanna scores
```

```

if (mathgrades[4,2] > mathgrades[4,3] && mathgrades[4,2] > mathgrades[4,4] && mathgrades[4,2] > mathgrades[4,5]) {
    hannascore <- mathgrades[4,2]
} else if (mathgrades[4,3] > mathgrades[4,4] && mathgrades[4,3] > mathgrades[4,5]) {
    hannascore <- mathgrades[4,3]
} else if (mathgrades[4,4] > mathgrades[4,5] && mathgrades[4,2] > mathgrades[4,5]) {
    hannascore <- mathgrades[4,4]
}

```

```

} else {
  hannascore <- mathgrades[4,5]
}

mathgrades$HighestGrades <- c(anniescore, theascore, stevescore, hannascore)

highest90 <- mathgrades[mathgrades$HighestGrades > 90,]
highest90

##      Name Grade1 Grade2 Grade3 Grade4 Average HighestGrades
## 1 Annie      85      65      85      100  83.75          100
## 4 Hanna      95      75     100      90  90.00          100

if (nrow(highest90) > 0) {
  paste(highest90$Name, "'s highest grade this semester is", highest90$HighestGrade)
} else {
  paste("No students have an average math score over 90.")
}

## [1] "Annie 's highest grade this semester is 100"
## [2] "Hanna 's highest grade this semester is 100"

```