RWorksheet_Basa#4a

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

```
Table <- 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
  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, 7
  Gender = c("F", "F", "F", "F", "M", "F", "F", "F", "M", "F", "M", "F", "M", "M", "M", "M", "F", "F", "
)

print(Table)
```

```
##    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. Describe the data. Data contains shoe size, height, and gender.

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

```r
male <- Table[Table$Gender == "M",]
female <- Table[Table$Gender == "F",]

print(male)
```

```
##    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
```

```r
print(female)
```

```
##    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.

```r
meanShoe_size <- mean(Table$Shoe_size)
meanHeight <- mean(Table$Height)

print(paste("Mean Shoe Size:", meanShoe_size))
```

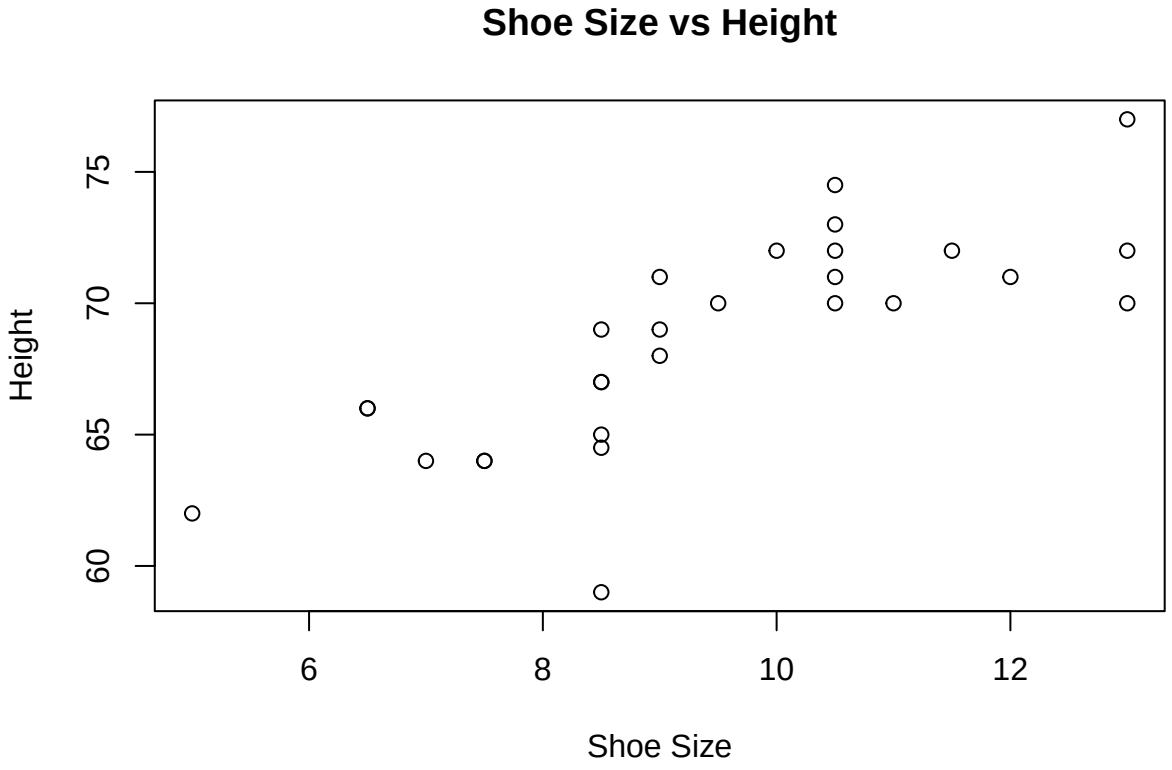
```
## [1] "Mean Shoe Size: 9.41071428571429"
```

```r
print(paste("Mean Height:", meanHeight))
```

```
## [1] "Mean Height: 68.5714285714286"
```

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

```r
plot(Table$Shoe_size, Table$Height, main="Shoe Size vs Height", xlab="Shoe Size", ylab="Height")
```



Factors A nominal variable is a categorical variable without an implied order. This means that it is impossible to say that 'one is worth more than the other'. In contrast, ordinal variables do have a natural ordering. Example: Gender <- c("M","F","F","M") factor_Gender <- factor(Gender) factor_Gender

[1] M F F M

Levels: F M

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. Consider data consisting of the names of months: "March","April","January","November","January", "September","October","September","November","August", "January","November","November","February","May","August", "July","December","August","August","September","N April")

```
vectorMonths <- c("March", "April", "January", "November", "January", "September", "October", "Septembe


factor_months_vector <- factor(vectorMonths)
print(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. Then check the summary() of the months_vector and factor_months_vector. | Interpret the results of both vectors. Are they both equally useful in this case?

```
summary_vectorMonths <- summary(vectorMonths)
summary_factor_months_vector <- summary(factor_months_vector)

print(summary_vectorMonths)
```

```
##    Length     Class      Mode
##        24 character character
```

```
print(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. Create a vector and factor for the table below. Direction Frequency East 1 West 4 North 3 Note: Apply the factor function with required order of the level. new_order_data <- factor(factor_data,levels = c("East","West","North")) print(new_order_data)

```
factor_data <- c("East", "West", "North")
frequency_vector <- c(1, 4, 3)
new_order_data <- factor(factor_data,levels = c("East","West","North"))
print(new_order_data)
```

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

5. Enter the data below in Excel with file name = import_march.csv

Figure 2: Excel Data

a. Import the excel file into the Environment Pane using read.table() function. Write the code.

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

b. View the dataset. Write the R scripts and its result.

```
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
```