RWorksheet_Sanceda#4a

2024-11-17

```
#1.
#a. The data displays the Shoe Size, Height, and Gender.

    ShoeSize <- c(6.5,9.0,8.5,8.5,10.5,7.0,9.5,9.0,13.0,7.5,10.5,8.5,12.0,10.5,13.0,11.5,8.5,5.0,10.0,6

    Height <-c(66.0,68.0,64.5,65.0,70.0,64.0,70.0,71.0,72.0,64.0,74.5,67.0,71.0,71.0,77.0,72.0,59.0,62.

    Gender <- c("F","F","F","F","M","F","F","F","M","F","M","F","M","M","M","M","F","F","M","F","F","M"

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

```
##    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
```

```r
#b.

    Male <- subset(Shoes_Tble, Gender == "M", select = c(ShoeSize, Gender, Height))
    Male
```

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

```r
    Female <- subset(Shoes_Tble, Gender == "F", select = c(ShoeSize, Gender, Height))
    Female
```

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

```r
#c.

    Mean_Size <- mean(ShoeSize)
    Mean_Size
```

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

```r
    Mean_Height <- mean(Height)
    Mean_Height
```

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

```
#d. Yes, because the bigger or taller you are the more likely your shoe size is also bigger.
```

```
#2.

    Months <- c("March", "April", "January", "November", "January", "September", "October", "September"

    Factor_Mnths <- factor(Months)
    Factor_Mnths
```

```
##  [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
```

```
    assign("Factor_Months_Vector",Factor_Mnths)
    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)
```

```
##    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)
    DirFreq <- data.frame(Direction, Frequency)
    DirFreq
```

```
##   Direction Frequency
## 1      East         1
## 2      West         4
## 3     North         3
```

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

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

```
#5.

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

```
##   Student 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.

    N <- readline(prompt = "Enter a number 1 to 50:")
```

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

```
    if(N == 20){
      print("TRUE")
    }else if(N <= 50 && N >= 0){
      N
    }else{
      print("The number is way beyond the range of 1 and 50.")
    }
```

```
## [1] "The number is way beyond the range of 1 and 50."
```

```
#7.
   min_bills <- function(price) {
  bills <- c(1000, 500, 200, 100, 50)


  count <- 0

  for (bill in bills) {
    if (price <= 0) {
      break
    }
    count <- count + floor(price / bill)

    price <- price %% bill
  }
```

```
  return(count)
}


snack_price <- as.integer(readline(prompt = "Enter the price of the snack (divisible by 50): "))
```

```
## Enter the price of the snack (divisible by 50):
```

```
if (is.na(snack_price) %% 50 == 0) {
  cat("Minimum number of bills needed:", min_bills(snack_price), "\n")
} else {
  cat("The price must be divisible by 50.\n")
}
```

```
## The price must be divisible by 50.
```

```
#8
#a
Grades <- data.frame (Name = c("Annie", "Thea", "Steve", "Hanna"),
                      Grade_1 = c(85, 65, 75, 95),
                      Grade_2 = c(65, 75, 55, 75),
                      Grade_3 = c(85, 90, 80, 100),
                      Grade_4 = c(100, 90, 85, 90)
                      )
Grades
```

```
##    Name Grade_1 Grade_2 Grade_3 Grade_4
## 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
for (i in 1:nrow(Grades)) {
  ascore <- sum(Grades[i, 2:5]) / 4
  if (ascore > 90) {
    cat(Grades$Name[i], "'s average grade this semester is", ascore, "\n")
  }
}
```

```
#c
for (j in 2:ncol(Grades)) {
  T_avg <- sum(Grades[, j]) / nrow(Grades)
  if ( T_avg  < 80) {
    cat("The", colnames(Grades)[j], "test was difficult.\n")
  }
}
```

```
## The Grade_2 test was difficult.
```

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

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