

RWorksheet_Tolentino#4a

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2023-10-25

#1.

#a.This will provide you with summary statistics for the shoe size and height variables.

```
data<- data.frame(  
  Shoe_Size = c(6.5,9.0,8.5,8.5,10.5,7.0,9.5,9.0,13.0,7.5,10.5,8.5,12.0,10.5,13.0,11.5,8.5,5.0,10.0,6.5  
  Height = c(66.0,68.0,64.5,65.0,70.0,64.0,70.0,71.0,72.0,64.0, 74.5, 67.0,71.0,71.0,77.0,72.0, 59.0,62  
)  
data
```

```
##      Shoe_Size Height  
## 1          6.5   66.0  
## 2          9.0   68.0  
## 3          8.5   64.5  
## 4          8.5   65.0  
## 5         10.5   70.0  
## 6          7.0   64.0  
## 7          9.5   70.0  
## 8          9.0   71.0  
## 9         13.0   72.0  
## 10         7.5   64.0  
## 11        10.5   74.5  
## 12         8.5   67.0  
## 13        12.0   71.0  
## 14        10.5   71.0  
## 15        13.0   77.0  
## 16        11.5   72.0  
## 17         8.5   59.0  
## 18         5.0   62.0  
## 19        10.0   72.0  
## 20         6.5   66.0  
## 21         7.5   64.0  
## 22         8.5   67.0  
## 23        10.5   73.0  
## 24         8.5   69.0  
## 25        10.5   72.0  
## 26        11.0   70.0  
## 27         9.0   69.0  
## 28        13.0   70.0
```

#b.

```
Gender = c("F","F","F","F","M", "F","F","F", "M", "F","M","F","M","M", "M","M", "F","F","M","F","F","M"  
males <- subset(data, Gender == "M")  
males
```

```
##      Shoe_Size Height
```

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

```
females <- subset(data, Gender == "F")
females
```

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

```
#c.
mean(data$Shoe_Size)
```

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

```
mean(data$Height)
```

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

```
#d.
#Yes, because I observe that the taller you are the bigger shoe size you would have.
```

```
#2.
factor_months_vector <- factor(c("March", "April", "January", "November", "January", "September", "October", "November", "January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December", "January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"))
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(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
```

#For the factor_months_vector, you will get a count of each unique value, which tells you how many times

#4.

```
factor_data <- c("East", "West", "North")
frequency <- c(1,4,3)

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

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

#5.

```
student_table <- read.table(file = 'import_march.csv', header = TRUE, sep = ',')
student_table
```

```
##  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.

```
random_number <- sample(1:50, 1)

cat("The chosen number is:", random_number, "\n")
```

```
## The chosen number is: 2
```

```
if (random_number == 20) {
  cat("TRUE\n")
} else if (random_number < 1 || random_number > 50) {
  cat("The number selected is beyond the range of 1 to 50\n")
} else {
  cat(random_number, "\n")
}
```

```
## 2
```

#7.

```
calculate_min_bills <- function(price_of_snack) {
  bill_denominations <- c(1000, 500, 200, 100, 50)
  total_bills <- 0

  for (bill in bill_denominations) {
    num_bills_needed <- price_of_snack %/% bill
    price_of_snack <- price_of_snack %% bill
    total_bills <- total_bills + num_bills_needed
  }

  cat("Minimum number of bills needed to purchase the snack:", total_bills, "\n")
}
```

```

}

price_of_snack <- 1350
calculate_min_bills(price_of_snack)

## Minimum number of bills needed to purchase the snack: 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.

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

for (i in 1:nrow(students)) {
  if (students$Average[i] > 90) {
    cat(students$Name[i], "'s average grade this semester is", students$Average[i], "\n")
  }
}

#c
test1_average <- sum(students$Grade1) / nrow(students)
test2_average <- sum(students$Grade2) / nrow(students)
test3_average <- sum(students$Grade3) / nrow(students)
test4_average <- sum(students$Grade4) / nrow(students)

if (test1_average < 80) {
  cat("The 1st test was difficult.\n")
}
if (test2_average < 80) {
  cat("The 2nd test was difficult.\n")
}

## The 2nd test was difficult.

if (test3_average < 80) {
  cat("The 3rd test was difficult.\n")
}
if (test4_average < 80) {
  cat("The 4th test was difficult.\n")
}

```

```

#d.
for (i in 1:nrow(students)) {
  highest_grade <- students$Grade1[i]
  if (students$Grade2[i] > highest_grade) {
    highest_grade <- students$Grade2[i]
  }
  if (students$Grade3[i] > highest_grade) {
    highest_grade <- students$Grade3[i]
  }
  if (students$Grade4[i] > highest_grade) {
    highest_grade <- students$Grade4[i]
  }
  if (highest_grade > 90) {
    cat(students$Name[i], "'s highest grade this semester is", highest_grade, "\n")
  }
}

```

```

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

```