RWorksheet-4a

2023-10-25

#1

```r
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)

Height <- c(66.0, 68.0, 64.5, 65.0, 70.0, 64.0, 70.0, 71.0, 72.0, 64.0, 74.0, 67.0, 71.0, 71.0)

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

library("writexl")
df <- data.frame(ShoeSize, Height, Gender)
print(df)
```

```
##    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   74.0      M
## 12      8.5   67.0      F
## 13     12.0   71.0      M
## 14     10.5   71.0      M
```

```r
write_xlsx(df, "C:\\Users\\Ron\\Desktop\\Test\\people.xlsx")
```

```r
m_subset <- subset(df, Gender == "M", select = c("ShoeSize", "Gender"))
f_subset <- subset(df, Gender == "F", select = c("ShoeSize", "Gender"))

m_subset
```

```
##    ShoeSize Gender
## 5      10.5      M
## 9      13.0      M
## 11     10.5      M
## 13     12.0      M
## 14     10.5      M
```

```r
f_subset
```

```
##    ShoeSize Gender
## 1       6.5      F
## 2       9.0      F
```

```
## 3        8.5      F
## 4        8.5      F
## 6        7.0      F
## 7        9.5      F
## 8        9.0      F
## 10       7.5      F
## 12       8.5      F
```

```r
Shoesize <- mean(df$ShoeSize)
height <- mean(df$Height)
Shoesize
```

```
## [1] 9.321429
```

```r
height
```

```
## [1] 68.39286
```

```r
#Is a correlation between shoe size and height, it is not a strict one because these two factors are no
```

#2

```r
 months <- c("March", "April", "January", "November", "January", "September", "October", "September", "
 
factor_months <- factor(months)
print(factor_months)
```

```
##  [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

```r
   summary_months <- summary(months)
   summary_monthsVector <- summary(factor_months)


   summary_months
```

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

```r
   summary_monthsVector
```

```
##     April    August  December  February   January      July     March       May
##         2         4         1         2         3         1         1         1
##  November   October September
##         5         1         3
```

#4

```r
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
```

2

```r
table <- read.table(file = "Import_March.csv", header = TRUE, sep = ',')
table
```

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

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

```
## The chosen number is: 44
```

```r
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")
}
```

```
## 44
```

```r
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 <- 2800
calculate_min_bills(price_of_snack)
```

```
## Minimum number of bills needed to purchase the snack: 5
```

```r
#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
```

```r
#B
students$Average <- (students$Grade1 + students$Grade2 + students$Grade3 + students$Grade4) / 4
```

```r
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")
  }
}
```

```r
#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.
```

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

```r
#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
```