

RWork_sheetUlgasan#4.aRmd

2023-10-25

#1

```
shoeSize <- c(6.5,9.0,8.5,8.5,10.5,7.0,9.5,9.0,13.0,7.5,10.5,8.5,12.0,10.5,13.0,11.5,8.5,5.0,10.0,6.5,7)
height <-c(66.0,68.0,64.5,65.0,70.0,71.0,72.0,64.0,74.5,67.0,71.0,71.0,77.0,72.0,59.0,62.0,72.0,66.0,64.0,65.0)
gender <-c("F","F","F","F","M","F","F","F","M","F","M","F","M","M","M","M","F","F","M","F","F","M","M","M")
length(height)
```

```
## [1] 26
```

#1

```
householdData <- data.frame(

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

  Height = c(66.0,68.0,64.5,65.0,70.0,71.0,72.0,64.0,74.5,67.0,71.0,71.0,77.0,72.0,59.0,62.0,72.0,66.0,

  Gender = c("F","F","F","F","M","F","F","F","M","F","M","F","M","M","M","M","F","F","M","F","F","M","M"

)
```

#1.c

```
meanofShosize <-mean(shoeSize)
meanofShosize
```

```
## [1] 9.403846
```

```
meanofHeight <- mean(height)
meanofHeight
```

```
## [1] 68.69231
```

#2

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

```
## [1] "March"      "April"      "January"    "November"   "January"    "September"
## [7] "October"    "September"  "November"   "August"     "January"    "November"
## [13] "November"   "February"   "May"        "August"     "July"       "December"
## [19] "August"     "August"     "September"  "November"   "February"   "April"
```

```
Factor_months <- factor(Months)
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

```
summaryofMonths <- summary(Months)
summaryofMonths
```

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

```
summary(Factor_months)
```

```
##      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")
direction
```

```
## [1] "East" "West" "North"
```

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

```
## [1] 1 4 3
```

```
factor_data <- factor(c(direction,frequency))
factor_data
```

```
## [1] East West North 1      4      3
## Levels: 1 3 4 East North West
```

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

```
## [1] East West North <NA> <NA> <NA>
## Levels: East West North
```

#5

```
imported_table <- read.table(file = "/cloud/project/rWorksheet_ulgasan4a/import_march.csv", header = TRUE)
```

#6 # Function to check if number is within range and display appropriate output

```
check_number <- function(input_number) {
  if (input_number < 1 || input_number > 50) {
    return("The number selected is beyond the range of 1 to 50")
  } else if (input_number == 20) {
    return(TRUE)
  } else {
    return(input_number)
  }
}
```

```

# Input number from user


```

#7

```

print_min_bills <- function(snack_price) {

  num_of_bills <- 0
  bill_values <- c(1000, 500, 200, 100, 50)

  for (bill_value in bill_values) {
    while (snack_price >= bill_value) {
      num_of_bills <- num_of_bills + 1
      snack_price <- snack_price - bill_value
    }
  }

  return(num_of_bills)
}

```

```

snack_price <- 350 # example value

```

```

# Call the function and print the result
print(print_min_bills(snack_price))

```

```
## [1] 3
```

#8.a

```

students <-data.frame(

  name = c("Annie","Thea","Steve","Hanna"),
  grades1 = c(85,65,75,95),
  grades2 = c(65,75,55,75),
  grades3 = c(85,90,80,100),
  grades4 = c(100,90,85,90)
)
print(students)

```

```
##   name grades1 grades2 grades3 grades4
## 1 Annie      85      65      85     100
## 2 Thea       65      75      90      90
## 3 Steve      75      55      80      85
## 4 Hanna     95      75     100      90

```

#8.b

```

students$Math_Score_Avg <- rowMeans(students[, 2:5])

```

```

students$Average_Grade <- apply(students[, 2:5], 1, mean)

```

```

filtered_students <- students[students$Math_Score_Avg > 90, ]

for (i in 1:nrow(filtered_students)) {
  cat(filtered_students$Name[i], "'s average grade this semester is ",
      round(filtered_students$Average_Grade[i], 2), ".", sep = "")
  cat("\n")
}

```

```

## 's average grade this semester is NA.
## 's average grade this semester is .

```

#8.c

```

test_scores <- list(
  c(90, 92, 94, 95), # test 1
  c(80, 85, 87, 88), # test 2
  c(75, 78, 80, 82), # test 3
  c(60, 65, 68, 70) # test 4
)

for (i in 1:length(test_scores)) {
  average_score <- sum(test_scores[[i]]) / length(test_scores[[i]])

  if (average_score < 80) {
    cat("The", i, "nth test was difficult.\n")
  }
}

```

```

## The 3 nth test was difficult.
## The 4 nth test was difficult.

```

#8.d

```

# Data
grades <- 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)
)

# Iterate through each student
for (i in 1:nrow(grades)) {
  student <- grades$Name[i]
  student_grades <- grades[i, -1] # Exclude the Name column

  highest_grade <- 0

  # Check each grade for the current student
  for (grade in student_grades) {
    if (grade > highest_grade) {

```

```
        highest_grade <- grade
      }
    }

    # Output if the highest grade is greater than 90
    if (highest_grade > 90) {
      cat(paste(student, "'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 .
```