```
shoes <- 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,
                    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,
shoes
```

```
##    ShoeSize....c.6.5..9..8.5..8.5..10.5..7..9.5..9..13..7.5..10.5..
## 1                                                                6.5
## 2                                                                9.0
## 3                                                                8.5
## 4                                                                8.5
## 5                                                               10.5
## 6                                                                7.0
## 7                                                                9.5
## 8                                                                9.0
## 9                                                               13.0
## 10                                                               7.5
## 11                                                              10.5
## 12                                                               8.5
## 13                                                              12.0
## 14                                                              10.5
##    Height....c.66..68..64.5..65..70..64..70..71..72..64..74.5..67..
## 1                                                               66.0
## 2                                                               68.0
## 3                                                               64.5
## 4                                                               65.0
## 5                                                               70.0
## 6                                                               64.0
## 7                                                               70.0
## 8                                                               71.0
## 9                                                               72.0
## 10                                                              64.0
## 11                                                              74.5
## 12                                                              67.0
## 13                                                              71.0
## 14                                                              71.0
```

```
Gender <- c("F", "F", "F", "F", "M", "F", "F", "F", "M", "F", "M", "F", "M", "M")
Shoes <- cbind(shoes, Gender)
Shoes
```

```
##    ShoeSize....c.6.5..9..8.5..8.5..10.5..7..9.5..9..13..7.5..10.5..
## 1                                                                6.5
## 2                                                                9.0
## 3                                                                8.5
## 4                                                                8.5
## 5                                                               10.5
## 6                                                                7.0
## 7                                                                9.5
## 8                                                                9.0
## 9                                                               13.0
## 10                                                               7.5
## 11                                                              10.5
## 12                                                               8.5
## 13                                                              12.0
## 14                                                              10.5
##    Height....c.66..68..64.5..65..70..64..70..71..72..64..74.5..67.. Gender
```

```
## 1                                                                    66.0      F
## 2                                                                    68.0      F
## 3                                                                    64.5      F
## 4                                                                    65.0      F
## 5                                                                    70.0      M
## 6                                                                    64.0      F
## 7                                                                    70.0      F
## 8                                                                    71.0      F
## 9                                                                    72.0      M
## 10                                                                   64.0      F
## 11                                                                   74.5      M
## 12                                                                   67.0      F
## 13                                                                   71.0      M
## 14                                                                   71.0      M
```

```
mean(ShoeSize)
```

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

```
mean(Height)
```

```
## [1] 68.42857
```

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

```
##  [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(Tmonths)
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
```

```
summary(Tmonths)
```

```
##    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
```

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

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

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

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

```
##   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
```

```r
random.num <- sample(1:50, 1)

cat("The chosen number is:", random.num, "\n")
```

```
## The chosen number is: 16
```

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

```
## 16
```

```r
#7.
calc.min.bills <- function(price.snack) {
  bill.denom <- c(1000, 500, 200, 100, 50)
  total.bills <- 0

  for (bill in bill.denom) {
    num.bills.needed <- price.snack %/% bill
    price.snack <- price.snack %% bill
    total.bills <- total.bills + num.bills.needed
  }

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

price.snack <- 1350
calc.min.bills(price.snack)
```

```
## Minimum number of bills needed to purchase the snack: 4
```

```r
#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
```

```r
#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], "'The average grade this sem 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
```