#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
Height <- c(66.0, 68.0, 64.0, 65.0, 70.0, 64.0, 70.0, 71.0, 72.0, 64.0, 74.0, 67.0, 71.0, 71.0, 77.0, 72
Gender <- c("F", "F", "F", "F", "M", "F", "F", "F", "M", "F", "M", "F", "M", "M", "M", "M", "F", "F", "M
```

```
HouseholdData <- data.frame(Shoesize, Height, Gender)
HouseholdData
```

```
##    Shoesize Height Gender
## 1       6.5     66      F
## 2       9.0     68      F
## 3       8.5     64      F
## 4       8.5     65      F
## 5      10.5     70      M
## 6       7.0     64      F
## 7       9.5     70      F
## 8       9.0     71      F
## 9      13.0     72      M
## 10      7.5     64      F
## 11     10.5     74      M
## 12      8.5     67      F
## 13     12.0     71      M
## 14     10.5     71      M
## 15     13.0     77      M
## 16     11.5     72      M
## 17      8.5     59      F
## 18      5.0     62      F
## 19     10.0     72      M
## 20      6.5     66      F
## 21      7.5     64      F
## 22      8.5     67      M
## 23     10.5     73      M
## 24      8.5     69      F
## 25     10.5     72      M
## 26     11.0     70      M
## 27      9.0     69      M
## 28     13.0     70      M
```

```
SSMale <- subset(HouseholdData, Gender=="M")
SSMale
```

```
##    Shoesize Height Gender
## 5      10.5     70      M
## 9      13.0     72      M
## 11     10.5     74      M
## 13     12.0     71      M
## 14     10.5     71      M
## 15     13.0     77      M
## 16     11.5     72      M
## 19     10.0     72      M
## 22      8.5     67      M
## 23     10.5     73      M
```

```
## 25     10.5     72      M
## 26     11.0     70      M
## 27      9.0     69      M
## 28     13.0     70      M
```

```
SSFemale <- subset(HouseholdData, Gender=="F")
SSFemale
```

```
##    Shoesize Height Gender
## 1       6.5     66      F
## 2       9.0     68      F
## 3       8.5     64      F
## 4       8.5     65      F
## 6       7.0     64      F
## 7       9.5     70      F
## 8       9.0     71      F
## 10      7.5     64      F
## 12      8.5     67      F
## 17      8.5     59      F
## 18      5.0     62      F
## 20      6.5     66      F
## 21      7.5     64      F
## 24      8.5     69      F
```

```
mean(Shoesize)
```

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

```
mean(Height)
```

```
## [1] 68.53571
```

#2.

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

```
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.

```r
summary(months)
```

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

```r
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.

```r
Direction <- c("East", "West", "North")
Frequency <- c(1,4,3)
```

```r
DF <- data.frame(Direction, Frequency)
DF
```

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

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

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

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

```
##   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
x <- is.na(as.numeric(readline(prompt = "Select a number from 1 to 50: ")))
```

```
## Select a number from 1 to 50:
```

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

```
## The number selected is beyond the range of the of 1 to 50
```

#7.

```r
#wont knit if snackP is interactive T-T
if (interactive()){
snackP <- is.na(as.numeric(readline(prompt= "Input snack price:")))
}else{
  snackP <- 1850
}


if(snackP %% 50 != 0){
  cat("The price must be divisible by 50.\n")
  stop()
}

count <- 0

while(snackP > 0){
  if(snackP >= 1000){
  count <- count + (snackP %/% 1000)
  snackP <- snackP %% 1000
}else if(snackP >= 500){
  count <- count + (snackP %/% 500)
  snackP <- snackP %% 500
}else if(snackP >= 200){
  count <- count + (snackP %/% 200)
  snackP <- snackP %% 200
}else if(snackP >= 100){
  count <- count + (snackP %/% 100)
  snackP <- snackP %% 100
}else if(snackP >= 50){
  count <- count + (snackP %/% 50)
  snackP <- snackP %% 50
 }
}
cat("Minimum number of bills needed:", count, "\n")
```

```
## Minimum number of bills needed: 5
```

#8. #a.

```r
Grade_df <- 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))
Grade_df
```

```
##    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.

```r
Average <- numeric(nrow(Grade_df))

for (i in 1:nrow(Grade_df)){
  TotalG <- Grade_df$Grade1[i] + Grade_df$Grade2[i] + Grade_df$Grade3[i] + Grade_df$Grade4[i]
  Average[i] <- TotalG / 4
}

Grade_df$Average <- Average

studentN <- readline(prompt = "Enter Student Name: ")
```

```
## Enter Student Name:
```

```r
if (studentN %in% Grade_df$Name){
  SIndex <- which(Grade_df$Name == studentN)
cat(paste(studentN, "'s average this semester is", round(Grade_df$Average[SIndex], 2), ".\n"))
}else{
  cat("Student's name is not on the records")
}
```

```
## Student's name is not on the records
```

#c.

```r
testNum <- ncol(Grade_df) - 1

for (GIndex in 1:testNum) {
  Total <- sum(Grade_df[,GIndex + 1])
  AverageG <- Total / 4
  if(AverageG < 80 ){
    cat(paste("The", GIndex, "test was difficult.\n"))
  }
}
```

```
## The 2 test was difficult.
```

#d.

```
studentN <- readline(prompt = "Enter Student Name: ")
```

```
## Enter Student Name:
```

```
if(studentN %in% Grade_df$Name){
  studentR <- Grade_df[Grade_df$Name == studentN, ]
  studentG <- c(studentR$Grade1, studentR$Grade2,
                studentR$Grade3, studentR$Grade4)

  HighestG <- 0

  for (grade in studentG){
    if(grade > HighestG){
      HighestG <- grade
    }
  }
  cat(studentN, "'s highest grade is:", HighestG, "\n")
}else{
  cat("Student", studentN, "was not in records")
}
```

```
## Student  was not in records
```