

RWorksheet_Elizalde#4b

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#1.

```
vectorA <- c(1, 2, 3, 4, 5)

result <- matrix(0, nrow = 5, ncol = 5)

for (i in 1:5) {
  for (j in 1:5) {
    result[i, j] <- abs(vectorA[i] - vectorA[j])
  }
}
print(result)
```

```
##      [,1] [,2] [,3] [,4] [,5]
## [1,]    0    1    2    3    4
## [2,]    1    0    1    2    3
## [3,]    2    1    0    1    2
## [4,]    3    2    1    0    1
## [5,]    4    3    2    1    0
```

#2.

```
l <- 5

for (i in 1:l){
  for (p in 1:i){
    cat("*")
  }
  cat("\n")
}
```

```
## *
## **
## ***
## ****
## *****
```

#3.

```
input <- as.integer(readline(prompt = "Enter the starting number for Fibonacci Sequence: "))
```

```
## Enter the starting number for Fibonacci Sequence:
```

```
a <- 0
b <- 1
```

```
repeat{
  nextnum <- a+b

  if(!is.na(nextnum) > 500){ break
  }
  a <- b
  b <- nextnum

  if(!is.na(nextnum) >= input){
    cat(nextnum, "\n")
  }
}
```

#4. #a.

```
df1 <- read.csv("/cloud/project/Rworksheet4b/HouseholdData.csv")
df1
```

```
##      Respondents      Sex Father.s.Occupation Persons.at.Home Siblings.at.School
## 1             1    Male                1             5             2
## 2             2 Female                2             7             3
## 3             3 Female                3             3             0
## 4             4    Male                3             8             5
## 5             5    Male                1             6             2
## 6             6 Female                2             4             3
## 7             7 Female                2             4             1
## 8             8    Male                3             2             2
## 9             9 Female                1            11             6
## 10            10    Male                3             6             2
##      Types.of.Houses
## 1             Wood
## 2             Congrete
## 3             Congrete
## 4             Wood
## 5      Semi-concrete
## 6      Semi-concrete
## 7             Wood
## 8      Semi-concrete
## 9      Semi-concrete
## 10            Congrete
```

```
head(df1, 6)
```

```
##      Respondents      Sex Father.s.Occupation Persons.at.Home Siblings.at.School
## 1             1    Male                1             5             2
## 2             2 Female                2             7             3
## 3             3 Female                3             3             0
## 4             4    Male                3             8             5
## 5             5    Male                1             6             2
## 6             6 Female                2             4             3
##      Types.of.Houses
## 1             Wood
## 2             Congrete
## 3             Congrete
## 4             Wood
```

```
## 5    Semi-concrete
## 6    Semi-concrete

#b. Both has 14 observations
```

```
m <- subset(df1, Sex == "Male")
m
```

```
##      Respondents  Sex Father.s.Occupation Persons.at.Home Siblings.at.School
## 1              1 Male                1              5              2
## 4              4 Male                3              8              5
## 5              5 Male                1              6              2
## 8              8 Male                3              2              2
## 10             10 Male                3              6              2
##      Types.of.Houses
## 1              Wood
## 4              Wood
## 5      Semi-concrete
## 8      Semi-concrete
## 10     Congrete
```

```
f <- subset(df1, Sex == "Female")
f
```

```
##      Respondents  Sex Father.s.Occupation Persons.at.Home Siblings.at.School
## 2              2 Female                2              7              3
## 3              3 Female                3              3              0
## 6              6 Female                2              4              3
## 7              7 Female                2              4              1
## 9              9 Female                1             11              6
##      Types.of.Houses
## 2      Congrete
## 3      Congrete
## 6      Semi-concrete
## 7      Wood
## 9      Semi-concrete
```

```
males <- nrow(m)
females <- nrow(f)
cat("Number of observations for Male:", males, "\n")
```

```
## Number of observations for Male: 5
```

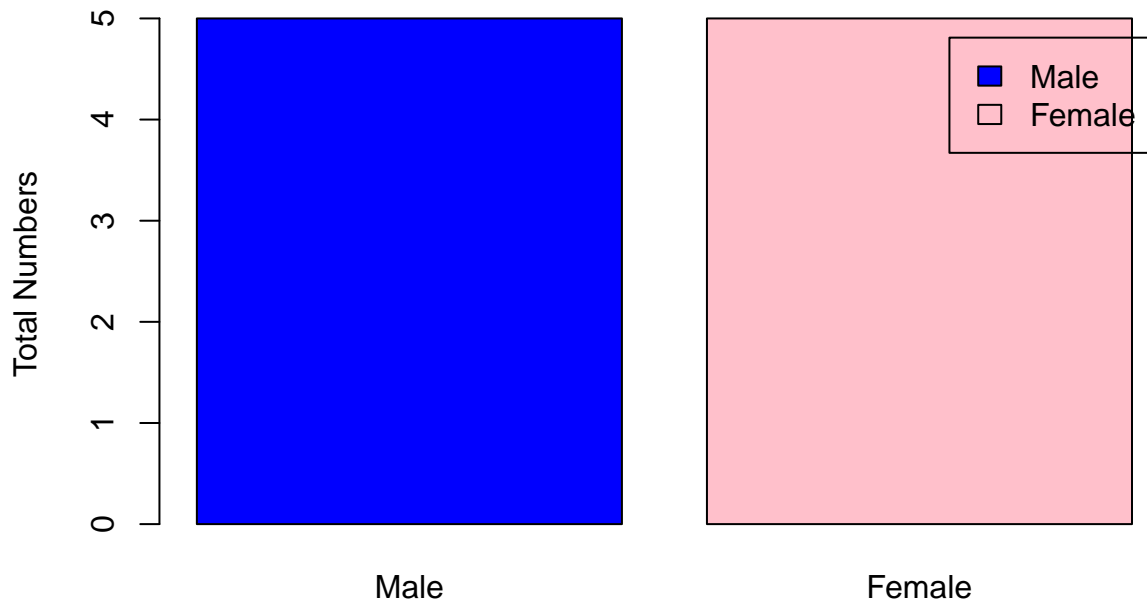
```
cat("Number of observations for Female:", females, "\n")
```

```
## Number of observations for Female: 5
```

```
#c.
```

```
bplot <- c(males,females)
names(bplot) <- c("Male", "Female")
barplot(bplot, main = "Male and Female", xlab = "Gender", ylab = "Total Numbers", col = c("blue", "pink"))
```

Male and Female



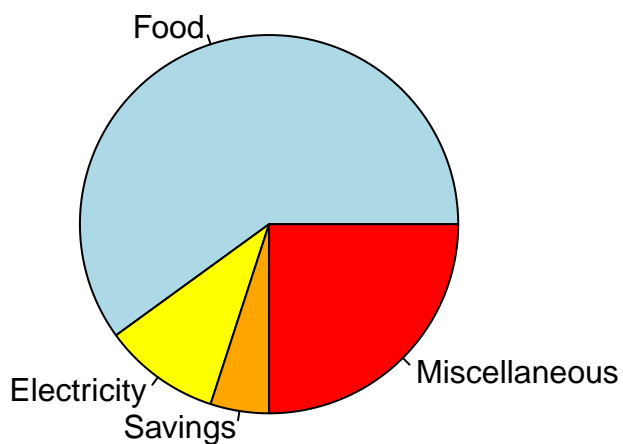
Gender

#5.

```
bills <- c("Food", "Electricity", "Savings", "Miscellaneous")
values <- c(60, 10, 5, 25)
```

```
Plotters <- pie(values, labels = c("Food", "Electricity", "Savings", "Miscellaneous"), col = c("lightblue", "yellow", "orange", "red"))
```

Expenditures



#6. #a.

```
data(iris)
str(iris)
```

```
## 'data.frame': 150 obs. of 5 variables:
## $ Sepal.Length: num 5.1 4.9 4.7 4.6 5 5.4 4.6 5 4.4 4.9 ...
## $ Sepal.Width : num 3.5 3 3.2 3.1 3.6 3.9 3.4 3.4 2.9 3.1 ...
```

```
## $ Petal.Length: num 1.4 1.4 1.3 1.5 1.4 1.7 1.4 1.5 1.4 1.5 ...
## $ Petal.Width : num 0.2 0.2 0.2 0.2 0.2 0.4 0.3 0.2 0.2 0.1 ...
## $ Species      : Factor w/ 3 levels "setosa","versicolor",...: 1 1 1 1 1 1 1 1 1 1 ...
#b.
```

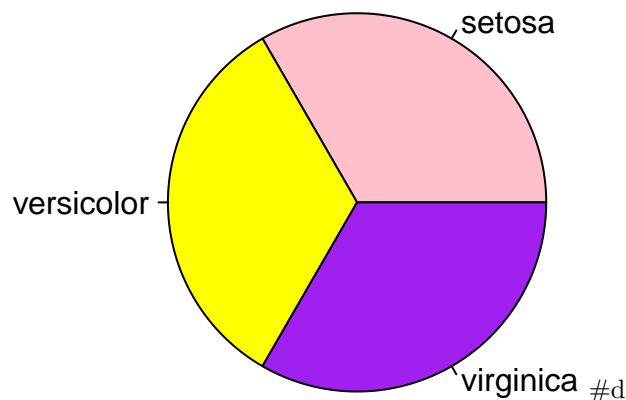
```
meanI <- colMeans(iris[, 1:4])
meanI
```

```
## Sepal.Length Sepal.Width Petal.Length Petal.Width
##      5.843333      3.057333      3.758000      1.199333
```

```
#c
```

```
speciesC <- table(iris$Species)
pie(speciesC, main="Species Distribution", col=c("pink", "yellow", "purple"), labels=names(speciesC))
```

Species Distribution



```
setosa <- subset(iris, Species == "setosa")
versicolor <- subset(iris, Species == "versicolor")
virginica <- subset(iris, Species == "virginica")
tail(setosa, 6)
```

```
##      Sepal.Length Sepal.Width Petal.Length Petal.Width Species
## 45           5.1         3.8         1.9         0.4 setosa
## 46           4.8         3.0         1.4         0.3 setosa
## 47           5.1         3.8         1.6         0.2 setosa
## 48           4.6         3.2         1.4         0.2 setosa
## 49           5.3         3.7         1.5         0.2 setosa
## 50           5.0         3.3         1.4         0.2 setosa
```

```
tail(versicolor, 6)
```

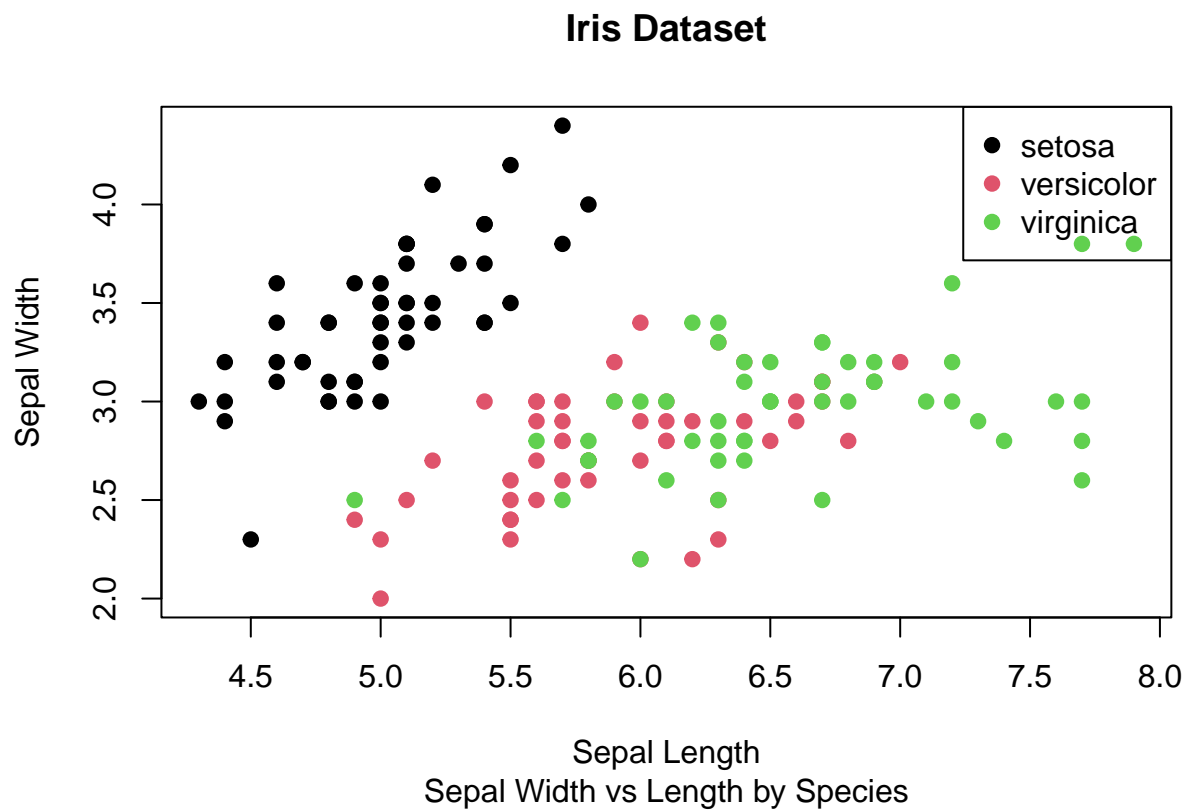
```
##      Sepal.Length Sepal.Width Petal.Length Petal.Width Species
## 95           5.6         2.7         4.2         1.3 versicolor
## 96           5.7         3.0         4.2         1.2 versicolor
## 97           5.7         2.9         4.2         1.3 versicolor
## 98           6.2         2.9         4.3         1.3 versicolor
## 99           5.1         2.5         3.0         1.1 versicolor
## 100          5.7         2.8         4.1         1.3 versicolor
```

```
tail(virginica, 6)
```

```
##      Sepal.Length Sepal.Width Petal.Length Petal.Width  Species
## 145          6.7         3.3         5.7         2.5 virginica
## 146          6.7         3.0         5.2         2.3 virginica
## 147          6.3         2.5         5.0         1.9 virginica
## 148          6.5         3.0         5.2         2.0 virginica
## 149          6.2         3.4         5.4         2.3 virginica
## 150          5.9         3.0         5.1         1.8 virginica
```

```
#e
```

```
plot(iris$Sepal.Length, iris$Sepal.Width, col=iris$Species, pch=19,
main="Iris Dataset", xlab="Sepal Length", ylab="Sepal Width",
sub="Sepal Width vs Length by Species")
legend("topright", legend=levels(iris$Species), col=1:3, pch=19)
```



```
#7.
```