RWorksheet_Sicabalo#5

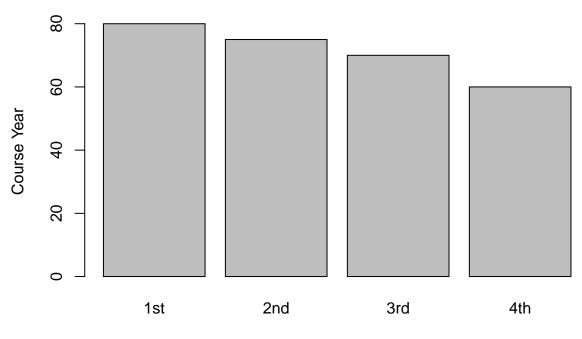
Mark Lexter Sicabalo

2022-12-05

```
#Worksheet#5
#Mark lexter Sicabalo BSIT 2-A
#1. The table shows the enrollment of BS in Computer Science, SY 2010-2011.
students <- data.frame("Course Year"= c("1st","2nd","3rd","4th"), "2019-2020" = c(80, 75, 70, 60))
students
     Course. Year X2019.2020
##
             1st
## 1
                         80
## 2
             2nd
                         75
## 3
                         70
             3rd
#a. Plot the data using a bar graph. Write the codes and copy the result.
stud_dta <- c("1st" = 80, "2nd" = 75, "3rd" = 70, "4th" = 60)
barplot(stud_dta)
8
9
                                                                   4th
              1st
                               2nd
                                                 3rd
```

#b.Using the same table, label the barchart with Title = "Enrollment of BS Computer Science horizontal
stud_dta <- c("1st" = 80, "2nd" = 75, "3rd" = 70, "4th" = 60)
barplot(stud_dta, main = "Enrollment of BS Computer Science", xlab = "number of students", ylab = "Cour</pre>

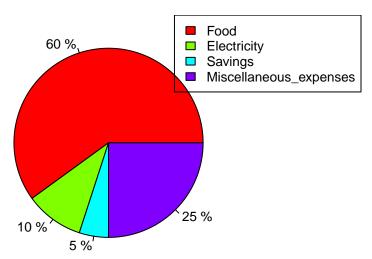
Enrollment of BS Computer Science



number of students

```
#2. The monthly income of De Jesus family was spent on the following: 60% on Food, 10% on electricity,
#a. Create a table for the above scenario. Write the codes and its result.
debit <- c("Food", "Electricity", "Savings", "Miscellaneous_expenses")</pre>
money \leftarrow c(60, 10, 5, 25)
spend <- data.frame(debit, money)</pre>
spend
##
                       debit money
## 1
                        Food
## 2
                 Electricity
                                 10
                     Savings
                                 5
## 4 Miscellaneous_expenses
                                 25
tble <- table(spend)</pre>
tble
##
                            money
## debit
                             5 10 25 60
##
     Electricity
                                1 0 0
##
     Food
                                0
##
     Miscellaneous_expenses 0
                                   1
     Savings
                             1 0 0
#b. Plot the data using a pie chart. Add labels, colors and legend. Write the codes and its result.
money = c(60, 10, 5, 25)
dta <- round(money/sum(money)*100,1)</pre>
```

De Jesus family Monthly Expense



```
#3. Open the mtcars dataset.

#a. Create a simple histogram specifically for mpg (miles per gallon) variable.

#Use $ to select the mpg only. Write the codes and its result.

data(mtcars)

mcars <-(mtcars$mpg)

mcars

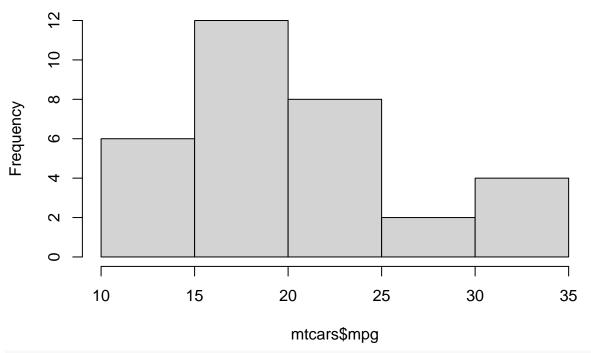
## [1] 21.0 21.0 22.8 21.4 18.7 18.1 14.3 24.4 22.8 19.2 17.8 16.4 17.3 15.2 10.4

## [16] 10.4 14.7 32.4 30.4 33.9 21.5 15.5 15.2 13.3 19.2 27.3 26.0 30.4 15.8 19.7

## [31] 15.0 21.4

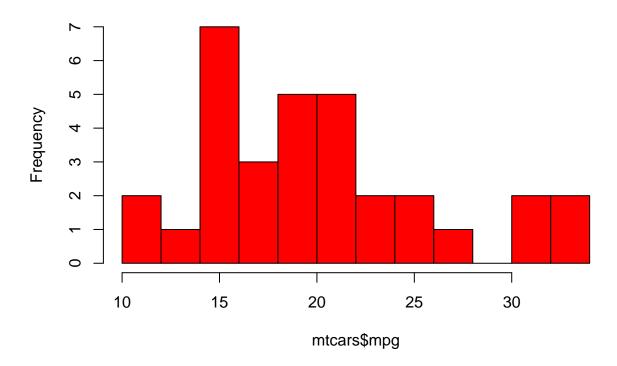
hist(mtcars$mpg)
```

Histogram of mtcars\$mpg



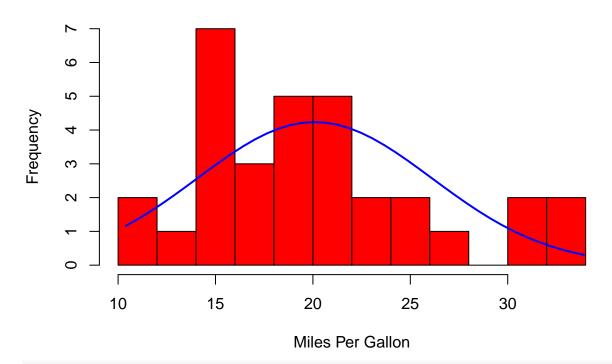
#b. Colored histogram with different number of bins. hist(mtcars\$mpg, breaks=12, col="red") Note: break hist(mtcars\$mpg, breaks=12, col="red")

Histogram of mtcars\$mpg



```
#c. Add a Normal Curve
#x <- mtcars$mpg
#h<-hist(x, breaks=10, col="red", xlab="Miles Per Gallon",
         main="Histogram with Normal Curve")
\#xfit < -seq(min(x), max(x), length = 40)
#yfit < -dnorm(xfit, mean=mean(x), sd=sd(x))
#yfit <- yfit*diff(h$mids[1:2])*length(x)</pre>
#lines(xfit, yfit, col="blue", lwd=2)
#Copy the result.
x <- mtcars$mpg
h<-hist(x, breaks=10, col="red", xlab="Miles Per Gallon",
        main="Histogram with Normal Curve")
xfit<-seq(min(x),max(x),length=40)</pre>
yfit<-dnorm(xfit,mean=mean(x),sd=sd(x))</pre>
yfit <- yfit*diff(h$mids[1:2])*length(x)</pre>
lines(xfit, yfit, col="blue", lwd=2)
```

Histogram with Normal Curve



```
#4. Open the iris dataset. Create a subset for each species.
#a. Write the codes and its result.
data("iris")
spcies <- data.frame(iris)</pre>
```

```
##
       Sepal.Length Sepal.Width Petal.Length Petal.Width
                                                              Species
## 1
                5.1
                             3.5
                                          1.4
                                                       0.2
                                                               setosa
## 2
                4.9
                             3.0
                                          1.4
                                                       0.2
                                                               setosa
## 3
                4.7
                             3.2
                                          1.3
                                                       0.2
                                                               setosa
```

spcies

##	1	1 6	2 1	1 5	0 0	
	=	4.6	3.1	1.5	0.2	setosa
##	5	5.0	3.6	1.4	0.2	setosa
##	6	5.4	3.9	1.7	0.4	setosa
##	7	4.6	3.4	1.4	0.3	setosa
##	8	5.0	3.4	1.5	0.2	setosa
##	9	4.4	2.9	1.4	0.2	setosa
##	10	4.9	3.1	1.5	0.1	setosa
##	11	5.4	3.7	1.5	0.2	setosa
##	12	4.8	3.4	1.6	0.2	setosa
##	13	4.8	3.0	1.4	0.1	setosa
##	14	4.3	3.0	1.1	0.1	setosa
##	15	5.8	4.0	1.2	0.2	setosa
##	16	5.7	4.4	1.5	0.4	setosa
##	17	5.4	3.9	1.3	0.4	setosa
##	18	5.1	3.5	1.4	0.3	setosa
##	19	5.7	3.8	1.7	0.3	setosa
##	20	5.1	3.8	1.5	0.3	setosa
##	21	5.4	3.4	1.7	0.2	setosa
##	22	5.1	3.7	1.5	0.4	setosa
##	23	4.6	3.6	1.0	0.2	setosa
##	24	5.1	3.3	1.7	0.5	setosa
##	25	4.8	3.4	1.9	0.2	setosa
##	26	5.0	3.0	1.6	0.2	setosa
##	27	5.0	3.4	1.6	0.4	setosa
##	28	5.2	3.5	1.5	0.2	setosa
##	29	5.2	3.4	1.4	0.2	setosa
##	30	4.7	3.2	1.6	0.2	setosa
##	31	4.8	3.1	1.6	0.2	setosa
##	32	5.4	3.4	1.5	0.4	setosa
##	33	5.2	4.1	1.5	0.1	setosa
##	34	5.5	4.2	1.4	0.2	setosa
##	35	4.9	3.1	1.5	0.2	setosa
##	36	5.0	3.2	1.2	0.2	setosa
##	37	5.5	3.5	1.3	0.2	setosa
##	38	4.9	3.6	1.4	0.1	setosa
##	39	4.4	3.0	1.3	0.2	setosa
##	40	5.1	3.4	1.5	0.2	setosa
##	41	5.0	3.5	1.3	0.3	setosa
##	42	4.5	2.3	1.3	0.3	setosa
##	43	4.4	3.2	1.3	0.2	setosa
##	44	5.0	3.5	1.6	0.6	setosa
##	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
##	51	7.0	3.2	4.7	1.4 vers	sicolor
##	52	6.4	3.2	4.5	1.5 vers	sicolor
##	53	6.9	3.1	4.9	1.5 vers	sicolor
##	54	5.5	2.3	4.0	1.3 vers	sicolor
##	55	6.5	2.8	4.6	1.5 vers	sicolor
##	56	5.7	2.8	4.5	1.3 vers	sicolor
##	57	6.3	3.3	4.7	1.6 vers	sicolor

## 58	4.9	2.4	3.3	1.0 versicolor
## 59	6.6	2.9	4.6	1.3 versicolor
## 60	5.2	2.7	3.9	1.4 versicolor
## 61	5.0	2.0	3.5	1.0 versicolor
## 62	5.9	3.0	4.2	1.5 versicolor
## 63	6.0	2.2	4.0	1.0 versicolor
## 64	6.1	2.9	4.7	1.4 versicolor
## 65	5.6	2.9	3.6	1.3 versicolor
## 66	6.7	3.1	4.4	1.4 versicolor
## 67	5.6	3.0	4.5	1.5 versicolor
## 68	5.8	2.7	4.1	1.0 versicolor
## 69	6.2	2.2	4.5	1.5 versicolor
## 70	5.6	2.5	3.9	1.1 versicolor
## 71	5.9	3.2	4.8	1.8 versicolor
## 72	6.1	2.8	4.0	1.3 versicolor
## 73	6.3	2.5	4.9	1.5 versicolor
## 73 ## 74	6.1	2.8	4.7	1.2 versicolor
## 7 4 ## 75	6.4	2.9	4.3	1.3 versicolor
## 75 ## 76	6.6	3.0	4.4	1.4 versicolor
## 70 ## 77	6.8	2.8	4.8	1.4 versicolor
	6.7	3.0		
## 78			5.0	1.7 versicolor
## 79	6.0	2.9	4.5	1.5 versicolor
## 80	5.7	2.6	3.5	1.0 versicolor
## 81	5.5	2.4	3.8	1.1 versicolor
## 82	5.5	2.4	3.7	1.0 versicolor
## 83	5.8	2.7	3.9	1.2 versicolor
## 84	6.0	2.7	5.1	1.6 versicolor
## 85	5.4	3.0	4.5	1.5 versicolor
## 86	6.0	3.4	4.5	1.6 versicolor
## 87	6.7	3.1	4.7	1.5 versicolor
## 88	6.3	2.3	4.4	1.3 versicolor
## 89	5.6	3.0	4.1	1.3 versicolor
## 90	5.5	2.5	4.0	1.3 versicolor
## 91	5.5	2.6	4.4	1.2 versicolor
## 92	6.1	3.0	4.6	1.4 versicolor
## 93	5.8	2.6	4.0	1.2 versicolor
## 94	5.0	2.3	3.3	1.0 versicolor
## 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
## 101	6.3	3.3	6.0	2.5 virginica
## 102	5.8	2.7	5.1	1.9 virginica
## 103	7.1	3.0	5.9	2.1 virginica
## 104	6.3	2.9	5.6	1.8 virginica
## 105	6.5	3.0	5.8	2.2 virginica
## 106	7.6	3.0	6.6	2.1 virginica
## 107	4.9	2.5	4.5	1.7 virginica
## 108	7.3	2.9	6.3	1.8 virginica
## 109	6.7	2.5	5.8	1.8 virginica
## 110	7.2	3.6	6.1	2.5 virginica
## 111	6.5	3.2	5.1	2.0 virginica
				9

##	112	6.4	2.7	5.3	1.9	virginica
##	113	6.8	3.0	5.5	2.1	virginica
##	114	5.7	2.5	5.0	2.0	virginica
##	115	5.8	2.8	5.1	2.4	virginica
##	116	6.4	3.2	5.3	2.3	virginica
##	117	6.5	3.0	5.5	1.8	virginica
##	118	7.7	3.8	6.7	2.2	virginica
##	119	7.7	2.6	6.9	2.3	virginica
##	120	6.0	2.2	5.0	1.5	virginica
##	121	6.9	3.2	5.7	2.3	virginica
##	122	5.6	2.8	4.9	2.0	virginica
##	123	7.7	2.8	6.7	2.0	virginica
##	124	6.3	2.7	4.9	1.8	virginica
##	125	6.7	3.3	5.7	2.1	virginica
##	126	7.2	3.2	6.0	1.8	virginica
##	127	6.2	2.8	4.8	1.8	virginica
##	128	6.1	3.0	4.9	1.8	virginica
##	129	6.4	2.8	5.6	2.1	virginica
##	130	7.2	3.0	5.8	1.6	virginica
##	131	7.4	2.8	6.1	1.9	virginica
##	132	7.9	3.8	6.4	2.0	virginica
##	133	6.4	2.8	5.6	2.2	virginica
##	134	6.3	2.8	5.1	1.5	virginica
##	135	6.1	2.6	5.6	1.4	virginica
##	136	7.7	3.0	6.1	2.3	virginica
##	137	6.3	3.4	5.6	2.4	virginica
##	138	6.4	3.1	5.5	1.8	virginica
##	139	6.0	3.0	4.8	1.8	virginica
##	140	6.9	3.1	5.4	2.1	virginica
##	141	6.7	3.1	5.6	2.4	virginica
##	142	6.9	3.1	5.1	2.3	virginica
##	143	5.8	2.7	5.1	1.9	virginica
##	144	6.8	3.2	5.9	2.3	virginica
##	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

setosaDF <- data.frame(iris)
setosaDF</pre>

##		Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
##	1	5.1	3.5	1.4	0.2	setosa
##	2	4.9	3.0	1.4	0.2	setosa
##	3	4.7	3.2	1.3	0.2	setosa
##	4	4.6	3.1	1.5	0.2	setosa
##	5	5.0	3.6	1.4	0.2	setosa
##	6	5.4	3.9	1.7	0.4	setosa
##	7	4.6	3.4	1.4	0.3	setosa
##	8	5.0	3.4	1.5	0.2	setosa
##	9	4.4	2.9	1.4	0.2	setosa
##	10	4.9	3.1	1.5	0.1	setosa
##	11	5.4	3.7	1.5	0.2	setosa

	12	4.8	3.4	1.6	0.2	setosa
##	13	4.8	3.0	1.4	0.1	setosa
##	14	4.3	3.0	1.1	0.1	setosa
##	15	5.8	4.0	1.2	0.2	setosa
##	16	5.7	4.4	1.5	0.4	setosa
##	17	5.4	3.9	1.3	0.4	setosa
##	18	5.1	3.5	1.4	0.3	setosa
##	19	5.7	3.8	1.7	0.3	setosa
##	20	5.1	3.8	1.5	0.3	setosa
##	21	5.4	3.4	1.7	0.2	setosa
##	22	5.1	3.7	1.5	0.4	setosa
##	23	4.6	3.6	1.0	0.2	setosa
##	24	5.1	3.3	1.7	0.5	setosa
##	25	4.8	3.4	1.9	0.2	setosa
##	26	5.0	3.0	1.6	0.2	setosa
##	27	5.0	3.4	1.6	0.4	setosa
##	28	5.2	3.5	1.5	0.2	setosa
##	29	5.2	3.4	1.4	0.2	setosa
##	30	4.7	3.2	1.6	0.2	setosa
##	31	4.8	3.1	1.6	0.2	setosa
##	32	5.4	3.4	1.5	0.4	setosa
##	33	5.2	4.1	1.5	0.1	setosa
##	34	5.5	4.2	1.4	0.2	setosa
##	35	4.9	3.1	1.5	0.2	setosa
##	36	5.0	3.2	1.2	0.2	setosa
##	37	5.5	3.5	1.3	0.2	setosa
##	38	4.9	3.6	1.4	0.1	setosa
##	39	4.4	3.0	1.3	0.2	setosa
##	40	5.1	3.4	1.5	0.2	setosa
##	41	5.0	3.5	1.3	0.3	setosa
##	42	4.5	2.3	1.3	0.3	setosa
##	43	4.4	3.2	1.3	0.2	setosa
##	44	5.0	3.5	1.6	0.6	setosa
##	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
##		4.6	3.2	1.4	0.2	setosa
##		5.3	3.7	1.5	0.2	setosa
##		5.0	3.3	1.4	0.2	setosa
	51	7.0	3.2	4.7	1.4 vers	
	52	6.4	3.2	4.5	1.5 vers	
	53	6.9	3.1	4.9	1.5 vers	
	54	5.5	2.3	4.0	1.3 vers	
	55	6.5	2.8	4.6	1.5 vers	
##	56	5.7	2.8	4.5	1.3 vers	
	57	6.3	3.3	4.7	1.6 vers	
	58	4.9	2.4	3.3	1.0 vers	
##	59	6.6	2.9	4.6	1.3 vers	
##	60	5.2	2.7	3.9	1.4 vers	
##	61	5.0	2.0	3.5	1.4 vers	
##	62	5.9	3.0	4.2	1.5 vers	
##		6.0	2.2	4.0	1.0 vers	
##		6.1	2.9	4.7	1.4 vers	
##		5.6	2.9	3.6	1.4 vers	
π#	00	0.0	۷. ن	0.0	1.0 AET	TCOTOT

## 66	6.7	3.1	4.4	1.4 versicolor
## 67	5.6	3.0	4.5	1.5 versicolor
## 68	5.8	2.7	4.1	1.0 versicolor
## 69	6.2	2.2	4.5	1.5 versicolor
## 70	5.6	2.5	3.9	1.1 versicolor
## 71	5.9	3.2	4.8	1.8 versicolor
## 72	6.1	2.8	4.0	1.3 versicolor
## 73	6.3	2.5	4.9	1.5 versicolor
## 74	6.1	2.8	4.7	1.2 versicolor
## 75	6.4	2.9	4.3	1.3 versicolor
## 76	6.6	3.0	4.4	1.4 versicolor
## 77	6.8	2.8	4.8	1.4 versicolor
## 78	6.7	3.0	5.0	1.7 versicolor
## 79	6.0	2.9	4.5	1.5 versicolor
## 80	5.7	2.6	3.5	1.0 versicolor
## 81	5.5	2.4	3.8	1.1 versicolor
## 82	5.5	2.4	3.7	1.0 versicolor
## 83	5.8	2.4	3.9	1.0 versicolor
			5.1	
## 84	6.0	2.7		1.6 versicolor
## 85	5.4	3.0	4.5	1.5 versicolor
## 86	6.0	3.4	4.5	1.6 versicolor
## 87	6.7	3.1	4.7	1.5 versicolor
## 88	6.3	2.3	4.4	1.3 versicolor
## 89	5.6	3.0	4.1	1.3 versicolor
## 90	5.5	2.5	4.0	1.3 versicolor
## 91	5.5	2.6	4.4	1.2 versicolor
## 92	6.1	3.0	4.6	1.4 versicolor
## 93	5.8	2.6	4.0	1.2 versicolor
## 94	5.0	2.3	3.3	1.0 versicolor
## 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
## 101	6.3	3.3	6.0	2.5 virginica
## 102	5.8	2.7	5.1	1.9 virginica
## 103	7.1	3.0	5.9	2.1 virginica
## 104	6.3	2.9	5.6	1.8 virginica
## 105	6.5	3.0	5.8	2.2 virginica
## 106	7.6	3.0	6.6	2.1 virginica
## 107	4.9	2.5	4.5	1.7 virginica
## 108	7.3	2.9	6.3	1.8 virginica
## 109	6.7	2.5	5.8	1.8 virginica
## 110	7.2	3.6	6.1	2.5 virginica
## 111	6.5	3.2	5.1	2.0 virginica
## 112	6.4	2.7	5.3	1.9 virginica
## 113	6.8	3.0	5.5	2.1 virginica
## 114	5.7	2.5	5.0	2.0 virginica
## 115	5.8	2.8	5.1	2.4 virginica
## 116	6.4	3.2	5.3	2.3 virginica
## 117	6.5	3.0	5.5	1.8 virginica
## 118	7.7	3.8	6.7	2.2 virginica
## 119	7.7	2.6	6.9	2.3 virginica

##	120	6.0	2.2	5.0	1.5	virginica
##	121	6.9	3.2	5.7	2.3	virginica
##	122	5.6	2.8	4.9	2.0	virginica
##	123	7.7	2.8	6.7	2.0	virginica
##	124	6.3	2.7	4.9	1.8	virginica
##	125	6.7	3.3	5.7	2.1	virginica
##	126	7.2	3.2	6.0	1.8	virginica
##	127	6.2	2.8	4.8	1.8	virginica
##	128	6.1	3.0	4.9	1.8	virginica
##	129	6.4	2.8	5.6	2.1	virginica
##	130	7.2	3.0	5.8	1.6	virginica
##	131	7.4	2.8	6.1	1.9	virginica
##	132	7.9	3.8	6.4	2.0	virginica
##	133	6.4	2.8	5.6	2.2	virginica
##	134	6.3	2.8	5.1	1.5	virginica
##	135	6.1	2.6	5.6	1.4	virginica
##	136	7.7	3.0	6.1	2.3	virginica
##	137	6.3	3.4	5.6	2.4	virginica
##	138	6.4	3.1	5.5	1.8	virginica
##	139	6.0	3.0	4.8	1.8	virginica
##	140	6.9	3.1	5.4	2.1	virginica
##	141	6.7	3.1	5.6	2.4	virginica
##	142	6.9	3.1	5.1	2.3	virginica
##	143	5.8	2.7	5.1	1.9	virginica
##	144	6.8	3.2	5.9	2.3	virginica
##	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

versicolorDF <- data.frame(iris)
versicolorDF</pre>

##		Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
##	1	5.1	3.5	1.4	0.2	setosa
##	2	4.9	3.0	1.4	0.2	setosa
##	3	4.7	3.2	1.3	0.2	setosa
##	4	4.6	3.1	1.5	0.2	setosa
##	5	5.0	3.6	1.4	0.2	setosa
##	6	5.4	3.9	1.7	0.4	setosa
##	7	4.6	3.4	1.4	0.3	setosa
##	8	5.0	3.4	1.5	0.2	setosa
##	9	4.4	2.9	1.4	0.2	setosa
##	10	4.9	3.1	1.5	0.1	setosa
##	11	5.4	3.7	1.5	0.2	setosa
##	12	4.8	3.4	1.6	0.2	setosa
##	13	4.8	3.0	1.4	0.1	setosa
##	14	4.3	3.0	1.1	0.1	setosa
##	15	5.8	4.0	1.2	0.2	setosa
##	16	5.7	4.4	1.5	0.4	setosa
##	17	5.4	3.9	1.3	0.4	setosa
##	18	5.1	3.5	1.4	0.3	setosa
##	19	5.7	3.8	1.7	0.3	setosa

## 20	5.1	3.8	1.5	0.3	setosa
## 21	5.4	3.4	1.7	0.2	setosa
## 22	5.1	3.7	1.5	0.4	setosa
## 23	4.6	3.6	1.0	0.2	setosa
## 24	5.1	3.3	1.7	0.5	setosa
## 25	4.8	3.4	1.9	0.2	setosa
## 26	5.0	3.0	1.6	0.2	setosa
## 27	5.0	3.4	1.6	0.4	setosa
## 28	5.2	3.5	1.5	0.2	setosa
## 29	5.2	3.4	1.4	0.2	setosa
## 30	4.7	3.2	1.6	0.2	setosa
## 31	4.8	3.1	1.6	0.2	setosa
## 32	5.4	3.4	1.5	0.4	setosa
## 33	5.2	4.1	1.5	0.1	setosa
## 34	5.5	4.2	1.4	0.2	setosa
## 35	4.9	3.1	1.5	0.2	setosa
## 36	5.0	3.2	1.2	0.2	setosa
## 37	5.5	3.5	1.3	0.2	
		3.6			setosa
## 38	4.9		1.4	0.1	setosa
## 39	4.4	3.0	1.3	0.2	setosa
## 40	5.1	3.4	1.5	0.2	setosa
## 41	5.0	3.5	1.3	0.3	setosa
## 42	4.5	2.3	1.3	0.3	setosa
## 43	4.4	3.2	1.3	0.2	setosa
## 44	5.0	3.5	1.6	0.6	setosa
## 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
## 51	7.0	3.2	4.7		ersicolor
## 52	6.4	3.2	4.5		rsicolor
## 53	6.9	3.1	4.9	1.5 ve	rsicolor
## 54	5.5	2.3	4.0	1.3 ve	rsicolor
## 55	6.5	2.8	4.6	1.5 ve	rsicolor
## 56	5.7	2.8	4.5		rsicolor
## 57	6.3	3.3	4.7	1.6 ve	ersicolor
## 58	4.9	2.4	3.3	1.0 ve	ersicolor
## 59	6.6	2.9	4.6	1.3 ve	ersicolor
## 60	5.2	2.7	3.9	1.4 ve	rsicolor
## 61	5.0	2.0	3.5	1.0 ve	rsicolor
## 62	5.9	3.0	4.2	1.5 ve	rsicolor
## 63	6.0	2.2	4.0	1.0 ve	rsicolor
## 64	6.1	2.9	4.7	1.4 ve	rsicolor
## 65	5.6	2.9	3.6	1.3 ve	rsicolor
## 66	6.7	3.1	4.4	1.4 ve	rsicolor
## 67	5.6	3.0	4.5	1.5 ve	rsicolor
## 68	5.8	2.7	4.1		rsicolor
## 69	6.2	2.2	4.5		rsicolor
## 70	5.6	2.5	3.9		rsicolor
## 71	5.9	3.2	4.8		rsicolor
## 72	6.1	2.8	4.0		rsicolor
## 73	6.3	2.5	4.9		rsicolor
5	0.0		1.0	1.5	

## 74	6.1	2.8	4.7	1.2 versicolor
## 75	6.4	2.9	4.3	1.3 versicolor
## 76	6.6	3.0	4.4	1.4 versicolor
## 77	6.8	2.8	4.8	1.4 versicolor
## 78	6.7	3.0	5.0	1.7 versicolor
## 79	6.0	2.9	4.5	1.5 versicolor
## 80	5.7	2.6	3.5	1.0 versicolor
## 81	5.5	2.4	3.8	1.1 versicolor
## 82	5.5	2.4	3.7	1.0 versicolor
## 83	5.8	2.7	3.9	1.2 versicolor
## 84	6.0	2.7	5.1	1.6 versicolor
## 85	5.4	3.0	4.5	1.5 versicolor
## 86	6.0	3.4	4.5	1.6 versicolor
## 87	6.7	3.1	4.7	1.5 versicolor
## 88	6.3	2.3	4.4	1.3 versicolor
## 89	5.6	3.0	4.1	1.3 versicolor
## 90	5.5	2.5	4.0	1.3 versicolor
## 91	5.5	2.6	4.4	1.2 versicolor
## 92	6.1	3.0	4.6	1.4 versicolor
## 93	5.8	2.6	4.0	1.2 versicolor
## 94	5.0	2.3	3.3	1.0 versicolor
## 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
## 101	6.3	3.3	6.0	2.5 virginica
## 102	5.8	2.7	5.1	1.9 virginica
## 103	7.1	3.0	5.9	2.1 virginica
## 104	6.3	2.9	5.6	1.8 virginica
## 105	6.5	3.0	5.8	2.2 virginica
## 106	7.6	3.0	6.6	2.1 virginica
## 107	4.9	2.5	4.5	1.7 virginica
## 108	7.3	2.9	6.3	1.8 virginica
## 109	6.7	2.5	5.8	1.8 virginica
## 110	7.2	3.6	6.1	2.5 virginica
## 111	6.5	3.2	5.1	2.0 virginica
## 112	6.4	2.7	5.3	1.9 virginica
## 113	6.8	3.0	5.5	2.1 virginica
## 114	5.7	2.5	5.0	2.0 virginica
## 115	5.8	2.8	5.1	2.4 virginica
## 116	6.4	3.2	5.3	2.3 virginica
## 117	6.5	3.0	5.5	1.8 virginica
## 118	7.7	3.8	6.7	2.2 virginica
## 119	7.7	2.6	6.9	•
## 119 ## 120	6.0	2.2	5.0	2.3 virginica 1.5 virginica
## 120 ## 121	6.9	3.2	5.7	2.3 virginica
## 121 ## 122	5.6	2.8	4.9	2.0 virginica
## 122 ## 123	7.7	2.8	4.9 6.7	2.0 virginica
## 123 ## 124	6.3	2.7	4.9	_
## 124 ## 125	6.7	3.3	4.9 5.7	1.8 virginica
				2.1 virginica
	7.2	3.2	6.0	1.8 virginica
## 127	6.2	2.8	4.8	1.8 virginica

4.9 5.6	1.8	virginica
5.6		
	2.1	virginica
5.8	1.6	virginica
6.1	1.9	virginica
6.4	2.0	virginica
5.6	2.2	virginica
5.1	1.5	virginica
5.6	1.4	virginica
6.1	2.3	virginica
5.6	2.4	virginica
5.5	1.8	virginica
4.8	1.8	virginica
5.4	2.1	virginica
5.6	2.4	virginica
5.1	2.3	virginica
5.1	1.9	virginica
5.9	2.3	virginica
5.7	2.5	virginica
5.2	2.3	virginica
5.0	1.9	virginica
5.2	2.0	virginica
5.4	2.3	virginica
5.1	1.8	virginica
	6.4 5.6 5.1 5.6 6.1 5.5 4.8 5.4 5.6 5.1 5.7 5.2 5.0 5.2 5.4	6.4 2.0 5.6 2.2 5.1 1.5 5.6 1.4 6.1 2.3 5.6 2.4 5.5 1.8 4.8 1.8 5.4 2.1 5.6 2.4 5.1 2.3 5.1 1.9 5.9 2.3 5.7 2.5 5.2 2.3 5.0 1.9 5.2 2.0 5.4 2.3

virginicaDF <- data.frame(iris)
virginicaDF</pre>

##		Sepal.Length	${\tt Sepal.Width}$	Petal.Length	${\tt Petal.Width}$	Species
##	1	5.1	3.5	1.4	0.2	setosa
##	2	4.9	3.0	1.4	0.2	setosa
##	3	4.7	3.2	1.3	0.2	setosa
##	4	4.6	3.1	1.5	0.2	setosa
##	5	5.0	3.6	1.4	0.2	setosa
##	6	5.4	3.9	1.7	0.4	setosa
##	7	4.6	3.4	1.4	0.3	setosa
##	8	5.0	3.4	1.5	0.2	setosa
##	9	4.4	2.9	1.4	0.2	setosa
##	10	4.9	3.1	1.5	0.1	setosa
##	11	5.4	3.7	1.5	0.2	setosa
##	12	4.8	3.4	1.6	0.2	setosa
##	13	4.8	3.0	1.4	0.1	setosa
##	14	4.3	3.0	1.1	0.1	setosa
##	15	5.8	4.0	1.2	0.2	setosa
##	16	5.7	4.4	1.5	0.4	setosa
##	17	5.4	3.9	1.3	0.4	setosa
##	18	5.1	3.5	1.4	0.3	setosa
##	19	5.7	3.8	1.7	0.3	setosa
##	20	5.1	3.8	1.5	0.3	setosa
##	21	5.4	3.4	1.7	0.2	setosa
##	22	5.1	3.7	1.5	0.4	setosa
##	23	4.6	3.6	1.0	0.2	setosa
##	24	5.1	3.3	1.7	0.5	setosa
##	25	4.8	3.4	1.9	0.2	setosa
##	26	5.0	3.0	1.6	0.2	setosa
##	27	5.0	3.4	1.6	0.4	setosa

##	28	5.2	3.5	1.5	0.2	setosa
##	29	5.2	3.4	1.4	0.2	setosa
##	30	4.7	3.2	1.6	0.2	setosa
##	31	4.8	3.1	1.6	0.2	setosa
##	32	5.4	3.4	1.5	0.4	setosa
##	33	5.2	4.1	1.5	0.1	setosa
##	34	5.5	4.2	1.4	0.2	setosa
##	35	4.9	3.1	1.5	0.2	setosa
##	36	5.0	3.2	1.2	0.2	setosa
##	37	5.5	3.5	1.3	0.2	setosa
##	38	4.9	3.6	1.4	0.1	setosa
##	39	4.4	3.0	1.3	0.2	setosa
##	40	5.1	3.4	1.5	0.2	setosa
##	41	5.0	3.5	1.3	0.3	setosa
##	42	4.5	2.3	1.3	0.3	setosa
##	43	4.4	3.2	1.3	0.2	setosa
##	44	5.0	3.5	1.6	0.6	setosa
##	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
##	51	7.0	3.2	4.7		sicolor
##	52	6.4	3.2	4.5		sicolor
##	53	6.9	3.1	4.9		sicolor
##	54	5.5	2.3	4.0		sicolor
##	55	6.5	2.8	4.6		sicolor
##	56	5.7	2.8	4.5		sicolor
##	57	6.3	3.3	4.7		sicolor
##	58	4.9	2.4	3.3		sicolor
##	59	6.6	2.9	4.6		sicolor
##	60	5.2	2.7	3.9		sicolor
##	61	5.0	2.0	3.5		sicolor
##	62	5.9	3.0	4.2		sicolor
##	63	6.0	2.2	4.2		sicolor
	64	6.1	2.9	4.7		sicolor
	65	5.6	2.9	3.6		sicolor
		6.7	3.1			sicolor
	66 67	5.6	3.0	4.4		sicolor
	68		2.7	4.5 4.1		sicolor
		5.8				sicolor
	69	6.2	2.2	4.5		
##	70	5.6	2.5	3.9		sicolor
##	71	5.9	3.2	4.8		sicolor
##	72 73	6.1	2.8	4.0		sicolor
##	73	6.3	2.5	4.9		sicolor
##	74	6.1	2.8	4.7		sicolor
##	75 76	6.4	2.9	4.3		sicolor
##	76	6.6	3.0	4.4		sicolor
##	77	6.8	2.8	4.8		sicolor
##	78	6.7	3.0	5.0		sicolor
	79	6.0	2.9	4.5		sicolor
	80	5.7	2.6	3.5		sicolor
##	81	5.5	2.4	3.8	1.1 ver	sicolor

## 82	5.5	2.4	3.7	1.0 versicolor
## 83	5.8	2.7	3.9	1.2 versicolor
## 84	6.0	2.7	5.1	1.6 versicolor
## 85	5.4	3.0	4.5	1.5 versicolor
## 86	6.0	3.4	4.5	1.6 versicolor
## 87	6.7	3.1	4.7	1.5 versicolor
## 88	6.3	2.3	4.4	1.3 versicolor
## 89	5.6	3.0	4.1	1.3 versicolor
## 90	5.5	2.5	4.0	1.3 versicolor
## 91	5.5	2.6	4.4	1.2 versicolor
## 92	6.1	3.0	4.6	1.4 versicolor
## 93	5.8	2.6	4.0	1.2 versicolor
## 94	5.0	2.3	3.3	1.0 versicolor
## 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
## 101	6.3	3.3	6.0	2.5 virginica
## 101	5.8	2.7	5.1	1.9 virginica
## 102	7.1	3.0	5.9	2.1 virginica
## 103	6.3	2.9	5.6	1.8 virginica
## 104	6.5	3.0	5.8	•
## 105	7.6		6.6	•
## 106 ## 107	4.9	3.0	4.5	2.1 virginica 1.7 virginica
## 107 ## 108	7.3	2.5 2.9	6.3	•
## 108	6.7	2.5	5.8	0
## 109 ## 110	7.2	3.6	6.1	0
## 110 ## 111	6.5			2.5 virginica
		3.2	5.1	2.0 virginica
## 112	6.4	2.7	5.3	1.9 virginica
## 113	6.8	3.0	5.5	2.1 virginica
## 114	5.7	2.5	5.0	2.0 virginica
## 115	5.8	2.8	5.1	2.4 virginica
## 116	6.4	3.2	5.3	2.3 virginica
## 117	6.5	3.0	5.5	1.8 virginica
## 118	7.7	3.8	6.7	2.2 virginica
## 119	7.7	2.6	6.9	2.3 virginica
## 120	6.0	2.2	5.0	1.5 virginica
## 121	6.9	3.2	5.7	2.3 virginica
## 122	5.6	2.8	4.9	2.0 virginica
## 123	7.7	2.8	6.7	2.0 virginica
## 124	6.3	2.7	4.9	1.8 virginica
## 125	6.7	3.3	5.7	2.1 virginica
## 126	7.2	3.2	6.0	1.8 virginica
## 127	6.2	2.8	4.8	1.8 virginica
## 128	6.1	3.0	4.9	1.8 virginica
## 129	6.4	2.8	5.6	2.1 virginica
## 130	7.2	3.0	5.8	1.6 virginica
## 131	7.4	2.8	6.1	1.9 virginica
## 132	7.9	3.8	6.4	2.0 virginica
## 133	6.4	2.8	5.6	2.2 virginica
## 134	6.3	2.8	5.1	1.5 virginica
## 135	6.1	2.6	5.6	1.4 virginica

```
## 136
               7.7
                           3.0
                                       6.1
                                                   2.3 virginica
## 137
               6.3
                           3.4
                                       5.6
                                                   2.4 virginica
## 138
               6.4
                           3.1
                                       5.5
                                                   1.8 virginica
## 139
               6.0
                           3.0
                                       4.8
                                                   1.8 virginica
## 140
               6.9
                           3.1
                                                   2.1 virginica
                                       5.4
                                                   2.4 virginica
## 141
               6.7
                          3.1
                                       5.6
## 142
                                                   2.3 virginica
               6.9
                           3.1
                                       5.1
## 143
               5.8
                           2.7
                                       5.1
                                                   1.9 virginica
## 144
               6.8
                           3.2
                                       5.9
                                                   2.3 virginica
## 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
                                                   2.3 virginica
                           3.4
                                       5.4
## 150
               5.9
                           3.0
                                       5.1
                                                   1.8 virginica
```

setosa <- subset(setosaDF, Species == 'setosa')
setosa</pre>

##		Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
##	1	5.1	3.5	1.4	0.2	setosa
##	2	4.9	3.0	1.4	0.2	setosa
##	3	4.7	3.2	1.3	0.2	setosa
##	4	4.6	3.1	1.5	0.2	
	5	5.0	3.6	1.4	0.2	setosa
##	6	5.4	3.9	1.7	0.4	setosa
	7	4.6	3.4	1.4	0.3	setosa
	8	5.0	3.4	1.5	0.2	setosa
	9	4.4	2.9	1.4	0.2	setosa
##	10	4.9	3.1	1.5	0.1	setosa
##	11	5.4	3.7	1.5	0.2	setosa
##	12	4.8	3.4	1.6	0.2	setosa
##	13	4.8	3.0	1.4	0.1	setosa
##	14	4.3	3.0	1.1	0.1	setosa
##	15	5.8	4.0	1.2	0.2	setosa
##	16	5.7	4.4	1.5	0.4	setosa
##	17	5.4	3.9	1.3	0.4	setosa
##	18	5.1	3.5	1.4	0.3	setosa
##	19	5.7	3.8	1.7	0.3	setosa
##	20	5.1	3.8	1.5	0.3	setosa
##	21	5.4	3.4	1.7	0.2	setosa
	22	5.1	3.7	1.5	0.4	setosa
	23	4.6	3.6	1.0	0.2	setosa
	24	5.1	3.3	1.7	0.5	setosa
	25	4.8	3.4	1.9	0.2	setosa
##	26	5.0	3.0	1.6	0.2	setosa
##	27	5.0	3.4	1.6	0.4	setosa
##	28	5.2	3.5	1.5	0.2	setosa
##	29	5.2	3.4	1.4	0.2	setosa
##	30	4.7	3.2	1.6	0.2	setosa
##	31	4.8	3.1	1.6	0.2	setosa
	32	5.4	3.4	1.5	0.4	setosa
##	33	5.2	4.1	1.5	0.1	setosa
##	34	5.5	4.2	1.4	0.2	setosa
##	35	4.9	3.1	1.5	0.2	setosa

##	36	5.0	3.2	1.2	0.2	setosa
##	37	5.5	3.5	1.3	0.2	setosa
##	38	4.9	3.6	1.4	0.1	setosa
##	39	4.4	3.0	1.3	0.2	setosa
##	40	5.1	3.4	1.5	0.2	setosa
##	41	5.0	3.5	1.3	0.3	setosa
##	42	4.5	2.3	1.3	0.3	setosa
##	43	4.4	3.2	1.3	0.2	setosa
##	44	5.0	3.5	1.6	0.6	setosa
##	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

versicolor <- subset(versicolorDF, Species == 'versicolor')
versicolor</pre>

##		Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
##	51	7.0	3.2	4.7	1.4	versicolor
##	52	6.4	3.2	4.5	1.5	versicolor
##	53	6.9	3.1	4.9	1.5	versicolor
##	54	5.5	2.3	4.0	1.3	versicolor
##	55	6.5	2.8	4.6	1.5	versicolor
##	56	5.7	2.8	4.5	1.3	versicolor
##	57	6.3	3.3	4.7	1.6	versicolor
##	58	4.9	2.4	3.3	1.0	versicolor
##	59	6.6	2.9	4.6	1.3	versicolor
##	60	5.2	2.7	3.9	1.4	versicolor
##	61	5.0	2.0	3.5		versicolor
##	62	5.9	3.0	4.2	1.5	versicolor
##	63	6.0	2.2	4.0		versicolor
##	64	6.1	2.9	4.7		versicolor
##	65	5.6	2.9	3.6		versicolor
##	66	6.7	3.1	4.4		versicolor
##	67	5.6	3.0	4.5		versicolor
##	68	5.8	2.7	4.1		versicolor
##	69	6.2	2.2	4.5		versicolor
##	70	5.6	2.5	3.9		versicolor
	71	5.9	3.2	4.8		versicolor
	72	6.1	2.8	4.0		versicolor
##	73	6.3	2.5	4.9		versicolor
	74	6.1	2.8	4.7		versicolor
##	75	6.4	2.9	4.3		versicolor
	76	6.6	3.0	4.4		versicolor
	77	6.8	2.8	4.8		versicolor
	78	6.7	3.0	5.0	=	versicolor
	79	6.0	2.9	4.5		versicolor
	80	5.7	2.6	3.5		versicolor
##		5.5	2.4	3.8		versicolor
##		5.5	2.4	3.7		versicolor
##		5.8	2.7	3.9		versicolor
	84	6.0	2.7	5.1		versicolor
##	85	5.4	3.0	4.5	1.5	versicolor

##	86	6.0	3.4	4.5	1.6 versicolor
##	87	6.7	3.1	4.7	1.5 versicolor
##	88	6.3	2.3	4.4	1.3 versicolor
##	89	5.6	3.0	4.1	1.3 versicolor
##	90	5.5	2.5	4.0	1.3 versicolor
##	91	5.5	2.6	4.4	1.2 versicolor
##	92	6.1	3.0	4.6	1.4 versicolor
##	93	5.8	2.6	4.0	1.2 versicolor
##	94	5.0	2.3	3.3	1.0 versicolor
##	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

virginica <- subset(virginicaDF, Species == 'virginica')
virginica</pre>

##		Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
##	101	6.3	3.3	6.0	2.5	virginica
##	102	5.8	2.7	5.1	1.9	virginica
##	103	7.1	3.0	5.9	2.1	virginica
##	104	6.3	2.9	5.6	1.8	virginica
##	105	6.5	3.0	5.8	2.2	virginica
##	106	7.6	3.0	6.6	2.1	virginica
##	107	4.9	2.5	4.5	1.7	virginica
##	108	7.3	2.9	6.3	1.8	virginica
##	109	6.7	2.5	5.8	1.8	virginica
##	110	7.2	3.6	6.1	2.5	virginica
##	111	6.5	3.2	5.1	2.0	virginica
##	112	6.4	2.7	5.3	1.9	virginica
##	113	6.8	3.0	5.5	2.1	virginica
##	114	5.7	2.5	5.0	2.0	virginica
##	115	5.8	2.8	5.1	2.4	virginica
##	116	6.4	3.2	5.3	2.3	virginica
##	117	6.5	3.0	5.5	1.8	virginica
##	118	7.7	3.8	6.7	2.2	virginica
##	119	7.7	2.6	6.9	2.3	virginica
##	120	6.0	2.2	5.0	1.5	virginica
##	121	6.9	3.2	5.7	2.3	virginica
##	122	5.6	2.8	4.9	2.0	virginica
##	123	7.7	2.8	6.7	2.0	virginica
##	124	6.3	2.7	4.9	1.8	virginica
##	125	6.7	3.3	5.7	2.1	virginica
##	126	7.2	3.2	6.0	1.8	virginica
	127	6.2	2.8	4.8		virginica
##	128	6.1	3.0	4.9	1.8	virginica
	129	6.4	2.8	5.6		virginica
##	130	7.2	3.0	5.8	1.6	virginica
##	131	7.4	2.8	6.1	1.9	virginica
	132	7.9	3.8	6.4		virginica
	133	6.4	2.8	5.6	2.2	virginica
	134	6.3	2.8	5.1		virginica
##	135	6.1	2.6	5.6	1.4	virginica

```
7.7
                             3.0
                                          6.1
## 136
                                                       2.3 virginica
## 137
                6.3
                             3.4
                                          5.6
                                                       2.4 virginica
## 138
                                          5.5
                6.4
                             3.1
                                                      1.8 virginica
## 139
                6.0
                             3.0
                                          4.8
                                                       1.8 virginica
## 140
                6.9
                             3.1
                                          5.4
                                                       2.1 virginica
## 141
                6.7
                            3.1
                                          5.6
                                                      2.4 virginica
## 142
                6.9
                             3.1
                                          5.1
                                                      2.3 virginica
## 143
                5.8
                             2.7
                                          5.1
                                                      1.9 virginica
## 144
                6.8
                             3.2
                                          5.9
                                                      2.3 virginica
## 145
                6.7
                                          5.7
                                                      2.5 virginica
                            3.3
## 146
                6.7
                             3.0
                                          5.2
                                                       2.3 virginica
## 147
                             2.5
                6.3
                                          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
#b. Get the mean for every characteristics of each species using colMeans().
#Write the codes and its result.
#Example: setosa <- colMeans(setosa[sapply(setosaDF, is.numeric)])</pre>
setosa1 <- colMeans(setosa[sapply(setosaDF, is.numeric)])</pre>
setosa1
## Sepal.Length Sepal.Width Petal.Length Petal.Width
          5.006
                       3.428
                                     1.462
                                                   0.246
virginica1 <- colMeans(virginica[sapply(virginicaDF, is.numeric)])</pre>
virginica1
## Sepal.Length Sepal.Width Petal.Length Petal.Width
                                     5.552
                       2.974
versicolor1 <- colMeans(versicolor[sapply(versicolorDF, is.numeric)])</pre>
versicolor1
## Sepal.Length Sepal.Width Petal.Length Petal.Width
          5.936
                       2.770
#c. Combine all species by using rbind()
#The table should be look like this:
cmbne <- rbind(setosa1, versicolor1, virginica1)</pre>
dfcmbne <- data.frame(cmbne)</pre>
df cmbne
               Sepal.Length Sepal.Width Petal.Length Petal.Width
##
## setosa1
                      5.006
                                   3.428
                                                1.462
                                                             0.246
                      5.936
                                   2.770
                                                4.260
                                                             1.326
## versicolor1
## virginica1
                      6.588
                                   2.974
                                                5.552
                                                             2.026
#d. From the data in 4-c: Create the barplot().
#Write the codes and its result.
#The barplot should be like this.
barplot(height = as.matrix(dfcmbne), main = "Iris Data",
        ylab = "Mean Scores",
        beside = T, col = rainbow(3))
```

Iris Data

