## RWorksheet\_Aguas5

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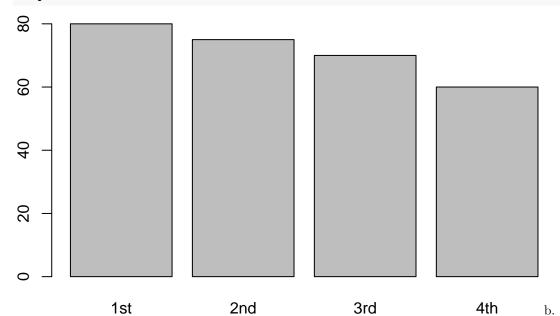
#### RWORKSHEET 5

1. The table shows the enrollment of BS in Computer Science. SY 2010-2011.

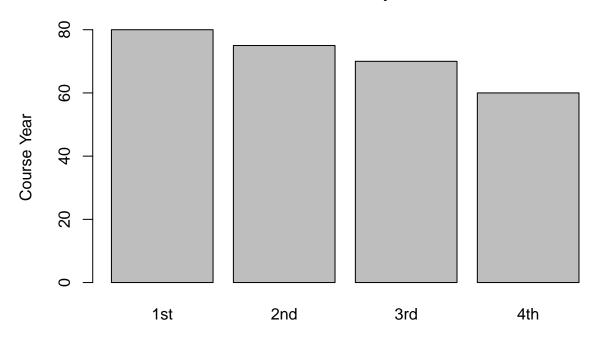
```
## Course.Year X2019.2020
## 1 1st 80
## 2 2nd 75
## 3 3rd 70
## 4 4th 60
```

a.

```
barr <- c("1st" = 80, "2nd" = 75, "3rd" = 70, "4th" = 60)
barplot(barr)</pre>
```



### **Enrollment of BS Computer Science**



#### number of students

2. Th

monthly income of De Jesus family was spent on the following: 60% on Food, 10% on electricity, 5% for savings, and 25% for other miscellaneous expenses. a.

```
needs <- c("Food", "Electricity", "Savings", "MiscellaneousExpenses")
finance <- c(60,10,5,25)

expenses <- data.frame(needs,finance)
expenses</pre>
```

```
## needs finance
## 1 Food 60
## 2 Electricity 10
## 3 Savings 5
## 4 MiscellaneousExpenses 25
```

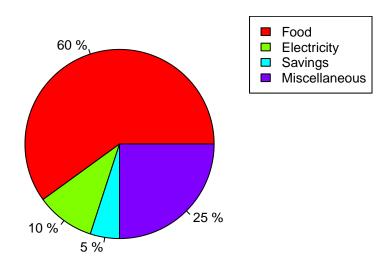
lamesa <- table(expenses)
lamesa</pre>

```
##
                           finance
## needs
                            5 10 25 60
##
     Electricity
                              1 0 0
##
                            0
     Food
                               0
                                  0
                                     1
##
     MiscellaneousExpenses 0
                                  1
##
     Savings
                               0
  b.
```

```
finance <- c(60,10,5,25)

data <- round(finance/sum(finance)*100,1)
data <- paste(data, "%", sep = " ")</pre>
```

## **De Jesus Family Monthly Expenses**



3. Open the mtcars dataset.

```
a.
```

```
data("mtcars")

cars <- (mtcars$mpg)

cars

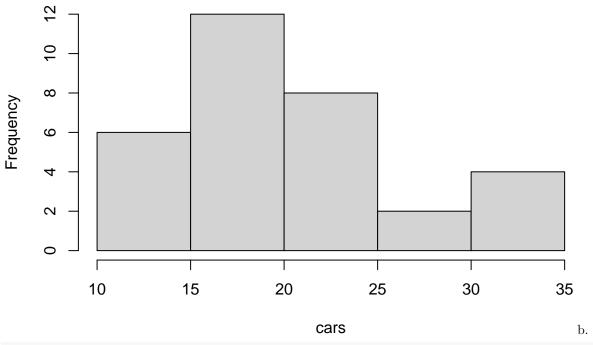
## [1] 21.0 21.0 22.8 21.4 18.7 18.1 14.3 24.4 22.8 19.2 17.8 16.4 17.3 15.2 10.4

## [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

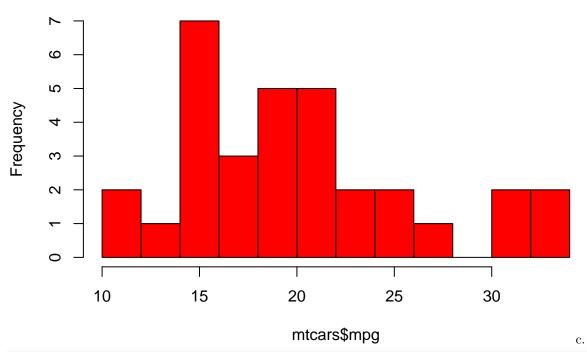
hist(cars)
```

# **Histogram of cars**



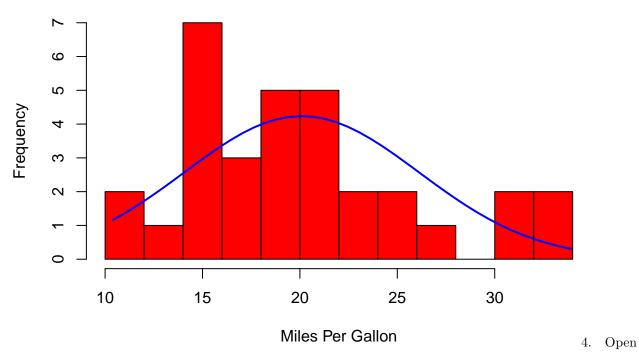
hist(mtcars\$mpg, breaks=12, col="red")

# Histogram of mtcars\$mpg



```
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)
lines(xfit, yfit, col="blue", lwd=2)</pre>
```

## **Histogram with Normal Curve**



the iris dataset. Create a subset for each species. a.

```
data("iris")
eachspec <- data.frame(iris)
eachspec</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
##	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	
##	52	6.4	3.2	4.5	1.5 vers	
##	53	6.9	3.1	4.9	1.5 vers	
##		5.5	2.3	4.0	1.3 vers	
##		6.5	2.8	4.6	1.5 vers	
##	57	5.7 6.3	2.8 3.3	4.5	1.3 vers	
	58	4.9	2.4	4.7 3.3	1.0 vers	
	59	6.6	2.9	4.6	1.0 vers	
	60	5.2	2.7	3.9	1.4 ver	
##	61	5.0	2.0	3.5	1.0 vers	
##	62	5.9	3.0	4.2	1.5 vers	
##	63	6.0	2.2	4.0	1.0 vers	
##	64	6.1	2.9	4.7	1.4 vers	
##	65	5.6	2.9	3.6	1.3 vers	
##	66	6.7	3.1	4.4	1.4 vers	
##	67	5.6	3.0	4.5	1.5 vers	
##	68	5.8	2.7	4.1	1.0 vers	
##	69	6.2	2.2	4.5	1.5 vers	
##	70	5.6	2.5	3.9	1.1 vers	sicolor
##	71	5.9	3.2	4.8	1.8 vers	sicolor

## 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	2.7	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
"" 400	5.8	2.7	5.1	1.9 virginica
## 102	5.0			
## 102 ## 103	7.1	3.0	5.9	2.1 virginica
			5.9 5.6	•
## 103	7.1	3.0		1.8 virginica
## 103 ## 104	7.1 6.3	3.0 2.9	5.6	1.8 virginica 2.2 virginica
## 103 ## 104 ## 105	7.1 6.3 6.5	3.0 2.9 3.0	5.6 5.8	1.8 virginica 2.2 virginica 2.1 virginica
## 103 ## 104 ## 105 ## 106	7.1 6.3 6.5 7.6	3.0 2.9 3.0 3.0	5.6 5.8 6.6	1.8 virginica 2.2 virginica 2.1 virginica
## 103 ## 104 ## 105 ## 106 ## 107	7.1 6.3 6.5 7.6 4.9	3.0 2.9 3.0 3.0 2.5	5.6 5.8 6.6 4.5	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108	7.1 6.3 6.5 7.6 4.9 7.3	3.0 2.9 3.0 3.0 2.5 2.9 2.5	5.6 5.8 6.6 4.5 6.3 5.8	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109	7.1 6.3 6.5 7.6 4.9 7.3 6.7	3.0 2.9 3.0 3.0 2.5 2.9	5.6 5.8 6.6 4.5 6.3	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110	7.1 6.3 6.5 7.6 4.9 7.3 6.7	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6	5.6 5.8 6.6 4.5 6.3 5.8 6.1	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110 ## 111 ## 111	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2 2.7	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 1.9 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110 ## 111 ## 111	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2 6.5 6.4	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3 5.5	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 1.9 virginica 2.1 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110 ## 111 ## 112 ## 113 ## 114	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2 6.5 6.4 6.8 5.7	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2 2.7	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3 5.5	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 1.9 virginica 2.1 virginica 2.1 virginica 2.0 virginica 2.1 virginica 2.0 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110 ## 111 ## 112 ## 113 ## 114 ## 115	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2 6.5 6.4	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2 2.7 3.0 2.5 2.8	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3 5.5 5.0	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 1.9 virginica 2.1 virginica 2.0 virginica 2.1 virginica 2.2 virginica 2.3 virginica 2.4 virginica 2.4 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110 ## 111 ## 112 ## 113 ## 114 ## 115	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2 6.5 6.4 6.8 5.7	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2 2.7 3.0 2.5	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3 5.5	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 1.9 virginica 2.1 virginica 2.1 virginica 2.0 virginica 2.1 virginica 2.0 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110 ## 111 ## 112 ## 113 ## 114 ## 115 ## 116	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2 6.5 6.4 6.8 5.7 5.8 6.4	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2 2.7 3.0 2.5 2.8 3.2	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3 5.5 5.0 5.1	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 1.9 virginica 2.1 virginica 2.1 virginica 2.2 virginica 2.3 virginica 2.3 virginica 1.8 virginica 1.8 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110 ## 111 ## 112 ## 113 ## 114 ## 115 ## 116 ## 117	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2 6.5 6.4 6.8 5.7 5.8 6.4 6.5	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2 2.7 3.0 2.5 2.8 3.2	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3 5.5 5.0 5.1 5.3	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 1.9 virginica 2.1 virginica 2.1 virginica 2.2 virginica 2.3 virginica 2.3 virginica 2.3 virginica 2.3 virginica 2.2 virginica 2.2 virginica 2.2 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110 ## 111 ## 112 ## 113 ## 114 ## 115 ## 116 ## 117	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2 6.5 6.4 6.8 5.7 5.8 6.4 6.5 7.7	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2 2.7 3.0 2.5 2.8 3.2	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3 5.5 5.0 5.1 5.3 5.5	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 1.9 virginica 2.1 virginica 2.1 virginica 2.2 virginica 2.3 virginica 2.3 virginica 2.3 virginica 2.2 virginica 2.3 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110 ## 111 ## 112 ## 113 ## 114 ## 115 ## 116 ## 117 ## 118	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2 6.5 6.4 6.8 5.7 5.8 6.4 6.5 7.7	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2 2.7 3.0 2.5 2.8 3.2 3.0 3.8 2.6	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3 5.5 5.0 5.1 5.3 5.7 6.7	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 2.1 virginica 2.1 virginica 2.1 virginica 2.2 virginica 2.3 virginica 1.8 virginica 2.3 virginica 2.2 virginica 2.3 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 110 ## 111 ## 112 ## 113 ## 114 ## 115 ## 116 ## 117 ## 118 ## 119 ## 120 ## 121	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2 6.5 6.4 6.8 5.7 5.8 6.4 6.5 7.7 7.7	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2 2.7 3.0 2.5 2.8 3.2 3.0 3.8 2.6 2.2 3.2	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3 5.5 5.0 5.1 5.3 5.5 6.7 6.9 5.0 5.7	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 2.1 virginica 2.1 virginica 2.1 virginica 2.2 virginica 2.3 virginica 1.8 virginica 2.3 virginica 2.2 virginica 2.3 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110 ## 111 ## 112 ## 113 ## 114 ## 115 ## 116 ## 117 ## 118 ## 119 ## 120 ## 121	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2 6.5 6.4 6.8 5.7 5.8 6.4 6.5 7.7 7.7	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2 2.7 3.0 2.5 2.8 3.2 3.0 3.8 2.6 2.2	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3 5.5 5.0 5.1 5.3 5.5 6.7 6.9 5.0	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 2.1 virginica 2.1 virginica 2.1 virginica 2.2 virginica 2.3 virginica 2.3 virginica 2.2 virginica 2.3 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110 ## 111 ## 112 ## 113 ## 114 ## 115 ## 116 ## 117 ## 118 ## 119 ## 120 ## 121 ## 122	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2 6.5 6.4 6.8 5.7 5.8 6.4 6.5 7.7 7.7 6.0 6.9 5.6	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2 2.7 3.0 2.5 2.8 3.2 3.0 3.8 2.6 2.2 3.2	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3 5.5 5.0 5.1 5.3 5.5 6.7 6.9 5.0 5.7 4.9	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 2.1 virginica 2.1 virginica 2.2 virginica 2.2 virginica 2.3 virginica 2.3 virginica 2.2 virginica 2.3 virginica 2.0 virginica
## 103 ## 104 ## 105 ## 106 ## 107 ## 108 ## 109 ## 110 ## 111 ## 112 ## 113 ## 114 ## 115 ## 116 ## 117 ## 118 ## 119 ## 120 ## 121 ## 122 ## 123	7.1 6.3 6.5 7.6 4.9 7.3 6.7 7.2 6.5 6.4 6.8 5.7 5.8 6.4 6.5 7.7 7.7 6.0 6.9 5.6 7.7	3.0 2.9 3.0 3.0 2.5 2.9 2.5 3.6 3.2 2.7 3.0 2.5 2.8 3.2 3.0 3.8 2.6 2.2 3.2 2.8	5.6 5.8 6.6 4.5 6.3 5.8 6.1 5.1 5.3 5.5 5.0 5.1 5.3 5.5 6.7 6.9 5.0 5.7 4.9 6.7	1.8 virginica 2.2 virginica 2.1 virginica 1.7 virginica 1.8 virginica 1.8 virginica 2.5 virginica 2.0 virginica 2.1 virginica 2.1 virginica 2.2 virginica 2.2 virginica 2.3 virginica 2.3 virginica 2.2 virginica 2.3 virginica 2.0 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

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

##		Sepal.Length	${\tt Sepal.Width}$	${\tt Petal.Length}$	${\tt Petal.Width}$	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	0.2	setosa
			2.3			
	42	4.5		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		ersicolor
	53	6.9	3.1	4.9		ersicolor
	54	5.5	2.3	4.0		ersicolor
	55	6.5	2.8	4.6		ersicolor
	56	5.7	2.8	4.5		ersicolor
##	57	6.3	3.3	4.7		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	ersicolor
##	61	5.0	2.0	3.5	1.0 ve	ersicolor
##	62	5.9	3.0	4.2	1.5 ve	ersicolor
##	63	6.0	2.2	4.0	1.0 ve	ersicolor
##	64	6.1	2.9	4.7	1.4 ve	ersicolor
##	65	5.6	2.9	3.6	1.3 ve	ersicolor
##	66	6.7	3.1	4.4	1.4 ve	ersicolor
##	67	5.6	3.0	4.5	1.5 ve	ersicolor
##	68	5.8	2.7	4.1	1.0 ve	ersicolor
##	69	6.2	2.2	4.5	1.5 ve	ersicolor
##	70	5.6	2.5	3.9	1.1 ve	ersicolor
##	71	5.9	3.2	4.8	1.8 ve	ersicolor
##	72	6.1	2.8	4.0	1.3 ve	ersicolor
##	73	6.3	2.5	4.9	1.5 ve	ersicolor
	74	6.1	2.8	4.7		ersicolor
	75	6.4	2.9	4.3		ersicolor
	76	6.6	3.0	4.4		ersicolor
	77	6.8	2.8	4.8		ersicolor
	78	6.7	3.0	5.0		ersicolor
##		6.0	2.9	4.5		ersicolor
	•	-	-	-	- '	

## 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
## 92 ## 93	5.8	2.6	4.0	1.4 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	•
		3.8		1.8 virginica
## 118	7.7		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

versicolordataf <- data.frame(iris)
versicolordataf</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
##		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		rsicolor
##	52	6.4	3.2	4.5	1.5 ver	rsicolor
##	53	6.9	3.1	4.9	1.5 ver	rsicolor
##	54	5.5	2.3	4.0	1.3 ver	rsicolor
##	55	6.5	2.8	4.6	1.5 ver	rsicolor
##	56	5.7	2.8	4.5	1.3 ver	csicolor
##	57	6.3	3.3	4.7	1.6 ver	csicolor
##	58	4.9	2.4	3.3		csicolor
##	59	6.6	2.9	4.6		csicolor
##	60	5.2	2.7	3.9		csicolor
##	61	5.0	2.0	3.5		csicolor
##	62	5.9	3.0	4.2		csicolor
##	63	6.0	2.2	4.0		csicolor
##	64	6.1	2.9	4.7		csicolor
##	65	5.6	2.9	3.6		csicolor
##	66	6.7	3.1	4.4		csicolor
##	67	5.6	3.0	4.5		csicolor
##	68	5.8	2.7	4.1		csicolor
##	69	6.2	2.2	4.5		csicolor
	70	5.6	2.5	3.9		csicolor
	71	5.9	3.2	4.8		csicolor
##	72	6.1	2.8	4.0		csicolor
##	73	6.3	2.5	4.9		csicolor
##	74	6.1	2.8	4.7		csicolor
##	75	6.4	2.9	4.3		csicolor
##	76	6.6	3.0	4.4		csicolor
##	77	6.8	2.8	4.8		csicolor
##	78	6.7	3.0	5.0		csicolor
##	79					csicolor
##	80	6.0 5.7	2.9 2.6	4.5		csicolor
				3.5		rsicolor
##	81	5.5	2.4	3.8		
##	82	5.5	2.4	3.7		rsicolor
##	83	5.8	2.7	3.9		rsicolor
	84	6.0	2.7	5.1		rsicolor
	85	5.4	3.0	4.5		rsicolor
	86	6.0	3.4	4.5		rsicolor
##	87	6.7	3.1	4.7	1.5 Vei	rsicolor

##	88	6.3	2.3	4.4	1.3	versicolor
##	89	5.6	3.0	4.1		versicolor
##	90	5.5	2.5	4.0		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
						<u> </u>

##	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

virginicadataf <- data.frame(iris)
virginicadataf</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
##		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
##		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 34	5.2 5.5	4.1 4.2	1.5	0.1	setosa
##	35	4.9	3.1	1.4 1.5	0.2	setosa
##	36	4.9 5.0	3.1	1.5	0.2	setosa setosa
##	37	5.0	3.2	1.3	0.2	setosa setosa
	38	4.9	3.6	1.3	0.2	setosa setosa
##	39	4.9	3.0	1.4	0.1	setosa
##	40	5.1	3.4	1.5	0.2	setosa
##				1.3	0.2	setosa setosa
##	41	5.0	3.5	1.3	0.3	selusa

## <b>1</b> 0	4 -	0.0	4 0	0.2
## 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 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	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
## 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				1.0 versicolor
	5.5	2.4	3.7	
## 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

"" 00	F 7	0.0	4.0	4.0 : 7
## 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
## 141 ## 142	6.9	3.1	5.1	2.4 virginica
## 142 ## 143	5.8	2.7	5.1	1.9 virginica
## 143 ## 144	6.8	3.2	5.9	
	6.7	3.3	5.7	2.5 virginica
## 146 ## 147	6.7	3.0	5.2	2.3 virginica
## 147 ## 148	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

setosa <- subset(setosadataf, 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	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 26	4.8 5.0	3.4 3.0	1.9 1.6	0.2	setosa
##	27	5.0	3.4	1.6	0.4	setosa setosa
##	28	5.0	3.4	1.5	0.4	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(versicolordataf, 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		versicolor
##	58	4.9	2.4	3.3		versicolor
##	59	6.6	2.9	4.6		versicolor
##	60	5.2	2.7	3.9		versicolor
	61	5.0	2.0	3.5		versicolor
##	62	5.9	3.0	4.2		versicolor
##	63	6.0	2.2	4.0		versicolor
##		6.1	2.9	4.7		versicolor
##		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 75	6.1	2.8	4.7		versicolor
	75 76	6.4 6.6	2.9	4.3 4.4		versicolor versicolor
	77	6.8	3.0 2.8	4.4		versicolor
	78	6.7	3.0	5.0		versicolor
	79	6.0	2.9	4.5		versicolor
##		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
##		6.0	2.7	5.1		versicolor
##		5.4	3.0	4.5		versicolor
##		6.0	3.4	4.5		versicolor
##		6.7	3.1	4.7	1.5	versicolor
##		6.3	2.3	4.4		versicolor
##	89	5.6	3.0	4.1		versicolor
##		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

virginica <- subset(virginicadataf, 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		virginica
##	107	4.9	2.5	4.5		virginica
	108	7.3	2.9	6.3		virginica
	109	6.7	2.5	5.8		virginica
	110	7.2	3.6	6.1		virginica
	111	6.5	3.2	5.1		virginica
	112	6.4	2.7	5.3		virginica
	113	6.8	3.0	5.5		virginica
	114	5.7	2.5	5.0		virginica
	115	5.8	2.8	5.1		virginica
	116	6.4	3.2	5.3		virginica
	117	6.5	3.0	5.5		virginica
	118	7.7	3.8	6.7		virginica
	119	7.7	2.6	6.9		virginica
	120	6.0	2.2	5.0		virginica
	121	6.9	3.2	5.7		virginica
	122	5.6	2.8	4.9		virginica
	123	7.7	2.8	6.7		virginica
	124	6.3	2.7	4.9		virginica
	125	6.7	3.3	5.7		virginica
	126	7.2	3.2 2.8	6.0		virginica
	127	6.2		4.8		virginica
	128 129	6.1 6.4	3.0 2.8	4.9		virginica
	130	7.2	3.0	5.6 5.8		virginica
	131	7.4	2.8	6.1		virginica virginica
	132	7.9	3.8	6.4		virginica
	133	6.4	2.8	5.6		virginica
	134	6.3	2.8	5.1		virginica
	135	6.1	2.6	5.6		virginica
	136	7.7	3.0	6.1		virginica
	137	6.3	3.4	5.6		virginica
	138	6.4	3.1	5.5		virginica
	139	6.0	3.0	4.8		virginica
	140	6.9	3.1	5.4		virginica
	141	6.7	3.1	5.6		virginica
	142	6.9	3.1	5.1		virginica
##	143	5.8	2.7	5.1		virginica
	144	6.8	3.2	5.9		virginica
	145	6.7	3.3	5.7		virginica
	146	6.7	3.0	5.2		virginica
	147	6.3	2.5	5.0		virginica
	148	6.5	3.0	5.2		virginica
##	149	6.2	3.4	5.4	2.3	virginica

```
## 150
       5.9 3.0 5.1 1.8 virginica
 b.
setosa_ <- colMeans(setosa[sapply(setosadataf,is.numeric)])</pre>
setosa_
## Sepal.Length Sepal.Width Petal.Length Petal.Width
                                  1.462
         5.006
                     3.428
                                              0.246
versicolor_ <- colMeans(versicolor[sapply(versicolor,is.numeric)])</pre>
versicolor_
## Sepal.Length Sepal.Width Petal.Length Petal.Width
                                  4.260
       5.936
                     2.770
virginica_ <- colMeans(virginica[sapply(virginica,is.numeric)])</pre>
virginica_
## Sepal.Length Sepal.Width Petal.Length Petal.Width
       6.588
                    2.974
                                5.552
                                              2.026
  c.
combi <- rbind(setosa_, versicolor_, virginica_)</pre>
irisd <- data.frame(combi)</pre>
irisd
##
              Sepal.Length Sepal.Width Petal.Length Petal.Width
               5.006
## setosa
                            3.428 1.462 0.246
## versicolor_
                                            4.260
                   5.936
                                2.770
                                                        1.326
                    6.588
                                            5.552
## virginica_
                                2.974
                                                        2.026
  d.
barplot(height = as.matrix(irisd), main = "Iris Data", xlab = "Characteristics",
       ylab = "Mean Scores",
       beside =T, col = rainbow(3)
```

# Iris Data

