```r
# I am using the Seatbelts dataset.
# It is about the Road Casualties in Great Britain 1969-84. Compulsary wearing of Seatbelts
View(Seatbelts)
```

```r
# Reading the Dataset
data<-data.frame(Seatbelts)
head(data)
```

```
##   DriversKilled drivers front rear   kms PetrolPrice VanKilled law
## 1           107    1687   867  269  9059   0.1029718        12   0
## 2            97    1508   825  265  7685   0.1023630         6   0
## 3           102    1507   806  319  9963   0.1020625        12   0
## 4            87    1385   814  407 10955   0.1008733         8   0
## 5           119    1632   991  454 11823   0.1010197        10   0
## 6           106    1511   945  427 12391   0.1005812        13   0
```

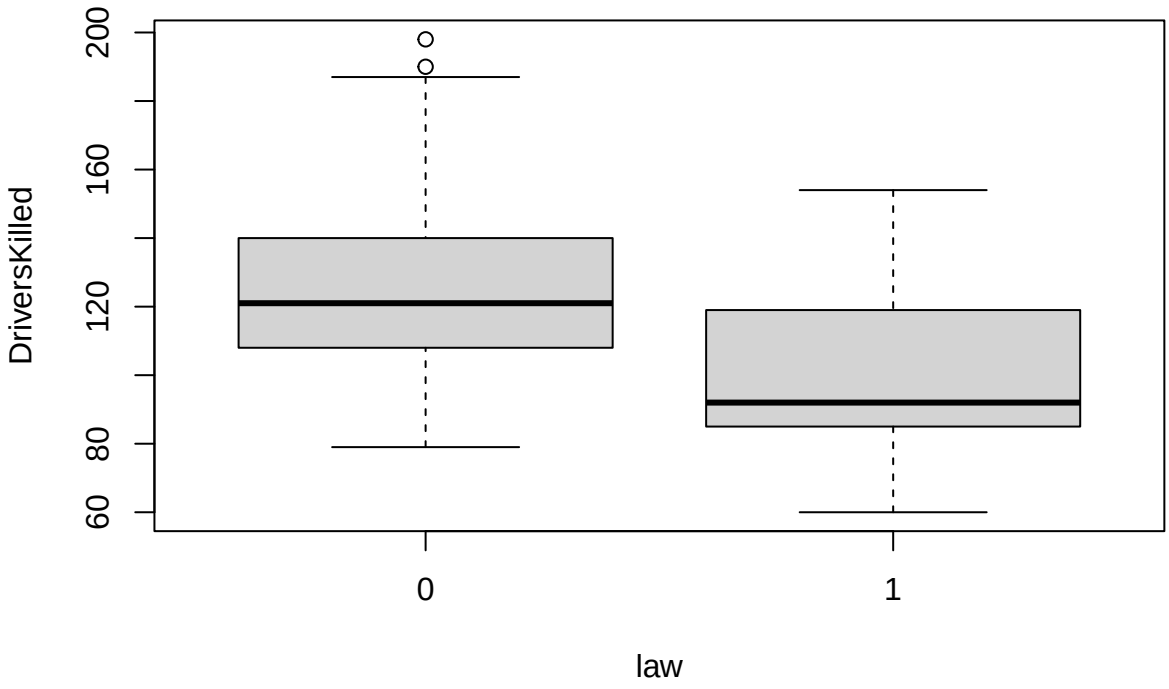
```r
# Boxplot
# Avg. no. drivers killed when the seatbelt law was not in effect i.e,0
mean(data$DriversKilled[data$law==0])
```

```
## [1] 125.8698
```

```r
# Avg. no. drivers killed when the seatbelt law was in effect i.e, 1
mean(data$DriversKilled[data$law==1])
```

```
## [1] 100.2609
```

```r
#Boxplot
boxplot(DriversKilled~law,data = data)
```




```
# Sampling
# Law=0
mean(sample(data$DriversKilled[data$law==0],size=15, replace = TRUE))
```

```
## [1] 134.2
```

```
# Law=1
mean(sample(data$DriversKilled[data$law==1],size=12, replace = TRUE))
```

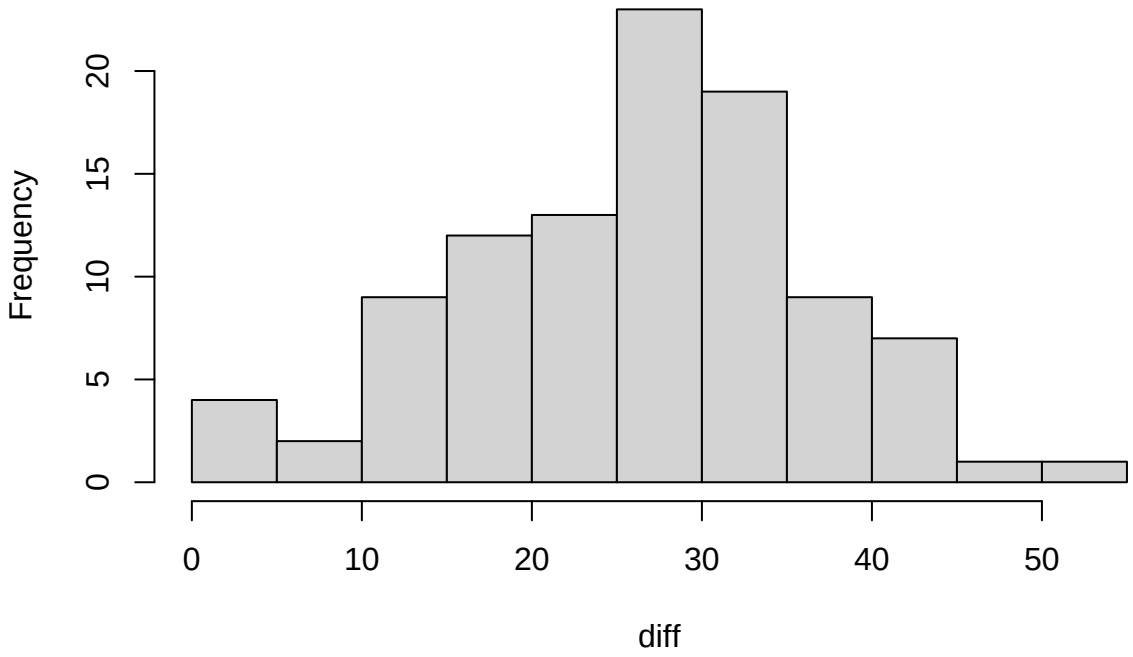
```
## [1] 103.5833
```

```
# Difference Value
d<-mean(sample(data$DriversKilled[data$law==0],size=15, replace = TRUE))-mean(sample(data$DriversKilled
d
```

```
## [1] 21.36667
```

```
# Finding the difference b/w the 2 values
diff<-replicate(100,mean(sample(data$DriversKilled[data$law==0],size=15,replace = TRUE))-mean(sample(da
```

```
# Histogram
hist(diff)
```




```
# Quantiles
quantile(diff,c(0.025,0.975))
```

```
##      2.5%     97.5%
##  3.295417 43.670417
```

```
# T-Test
t.test(data$DriversKilled[data$law==0],data$DriversKilled[data$law==1])
```

```
##
##  Welch Two Sample t-test
##
## data:  data$DriversKilled[data$law == 0] and data$DriversKilled[data$law == 1]
## t = 5.1253, df = 29.609, p-value = 1.693e-05
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  15.39892 35.81899
## sample estimates:
## mean of x mean of y
##  125.8698  100.2609
```

```
# From the above test
```

```r
mean( mtcars$mpg[ mtcars$am == 0 ] ) # Automatic transmissions
```

```
## [1] 17.14737
```

```r
mean( mtcars$mpg[ mtcars$am == 1 ] ) # Manual transmissions
```

```
## [1] 24.39231
```

```r
mean(sample(mtcars$mpg[ mtcars$am == 0 ],size=19,replace=TRUE) ) # Automatic
```

```
## [1] 18.91053
```

```r
mean(sample(mtcars$mpg[ mtcars$am == 1 ],size=13,replace=TRUE) ) # Manual
```

```
## [1] 23.55385
```

```r
d<-mean(sample(mtcars$mpg[mtcars$am == 0],size=19,replace=TRUE))-mean(sample(mtcars$mpg[mtcars$am == 1]
d
```

```
## [1] -6.995951
```

```r
meanDiffs <- replicate(100,mean( sample(mtcars$mpg[ mtcars$am == 0 ],size=19,replace=TRUE)) - mean(samp
hist(meanDiffs)
```