Project_1_Stark.R

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```
#Task 2
MHW <- read.table('MHW.txt', header=TRUE, sep=',')
head(MHW)
```

```
##   r c grain straw
## 1 1 1  3.63  6.37
## 2 2 1  4.07  6.24
## 3 3 1  4.51  7.05
## 4 4 1  3.90  6.91
## 5 5 1  3.63  5.93
## 6 6 1  3.16  5.59
```

```
MHW[1:10, ]
```

```
##     r c grain straw
## 1   1 1  3.63  6.37
## 2   2 1  4.07  6.24
## 3   3 1  4.51  7.05
## 4   4 1  3.90  6.91
## 5   5 1  3.63  5.93
## 6   6 1  3.16  5.59
## 7   7 1  3.18  5.32
## 8   8 1  3.42  5.52
## 9   9 1  3.97  6.03
## 10 10 1  3.40  5.66
```

```
attach(MHW)

#Task 3
summary(MHW)
```

```
##        r               c          grain           straw
##  Min.   : 1.00   Min.   : 1   Min.   :2.730   Min.   :4.100
##  1st Qu.: 5.75   1st Qu.: 7   1st Qu.:3.638   1st Qu.:5.878
##  Median :10.50   Median :13   Median :3.940   Median :6.360
##  Mean   :10.50   Mean   :13   Mean   :3.949   Mean   :6.515
##  3rd Qu.:15.25   3rd Qu.:19   3rd Qu.:4.270   3rd Qu.:7.170
##  Max.   :20.00   Max.   :25   Max.   :5.160   Max.   :8.850
```

```
summary(grain)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   2.730   3.638   3.940   3.949   4.270   5.160
```

```
summary(straw)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   4.100   5.878   6.360   6.515   7.170   8.850
```

```
min(grain)
```

```
## [1] 2.73
```

```
max(grain)
```

```
## [1] 5.16
```

```
mean(grain)
```

```
## [1] 3.94864
```

```
median(grain)
```

```
## [1] 3.94
```

```
var(grain)
```

```
## [1] 0.2100202
```

```
sd(grain)
```

```
## [1] 0.4582796
```

```
quantile(grain)
```

```
##     0%    25%    50%    75%   100%
## 2.7300 3.6375 3.9400 4.2700 5.1600
```

```
IQR(grain)
```

```
## [1] 0.6325
```

```
min(straw)
```

```
## [1] 4.1
```

```
max(straw)
```

```
## [1] 8.85
```

```
mean(straw)
```

```
## [1] 6.5148
```

```
median(straw)
```

```
## [1] 6.36
```

```
var(straw)
```

```
## [1] 0.8069553
```

```
sd(straw)
```

```
## [1] 0.8983069
```

```
quantile(straw)
```

```
##     0%    25%    50%    75%   100%
## 4.1000 5.8775 6.3600 7.1700 8.8500
```

```
IQR(straw)
```

```
## [1] 1.2925
```

```
yield.ratio=grain/straw
```

```r
#Task 4
stem(grain)
```

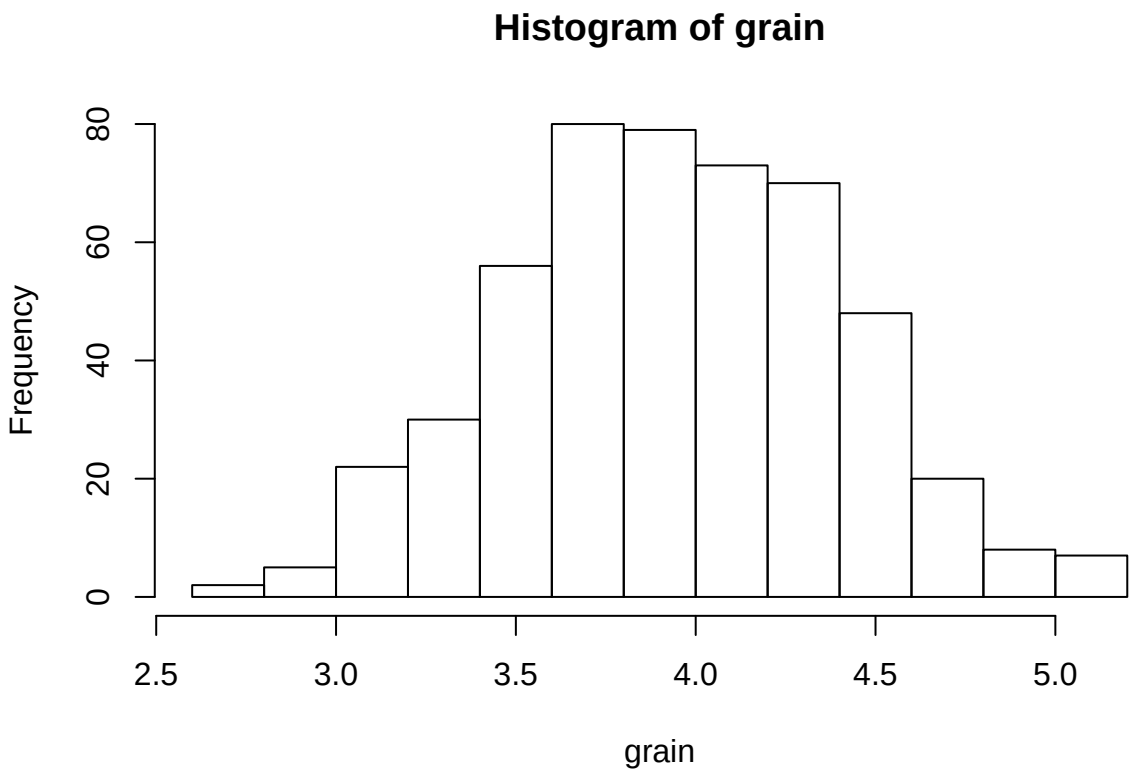
```
##
##   The decimal point is 1 digit(s) to the left of the |
##
##   27 | 38
##   28 | 45
##   29 | 279
##   30 | 144555557899
##   31 | 4446678999
##   32 | 2345589999
##   33 | 002455666677789999
##   34 | 00112233444444566777777888999
##   35 | 0111233444455566667778999 9
##   36 | 000111113333344444566666677777888999 9
##   37 | 0001111112222223334444455555666666777789999 9
##   38 | 001122222333444445556666777799999 9
##   39 | 011111111222223333344444455566666677777777999 9
##   40 | 011122333344555666666677777778888899999999 9
##   41 | 00011111223334455557777799999
##   42 | 000011111112223333444444666777777889999999
##   43 | 01112233335666667777788889999999
##   44 | 00111112222344455666667777899
##   45 | 0112222234445667888999
##   46 | 1344446678899
##   47 | 3356677
##   48 | 466
##   49 | 12349
##   50 | 279
##   51 | 3336
```

```r
stem(straw)
```

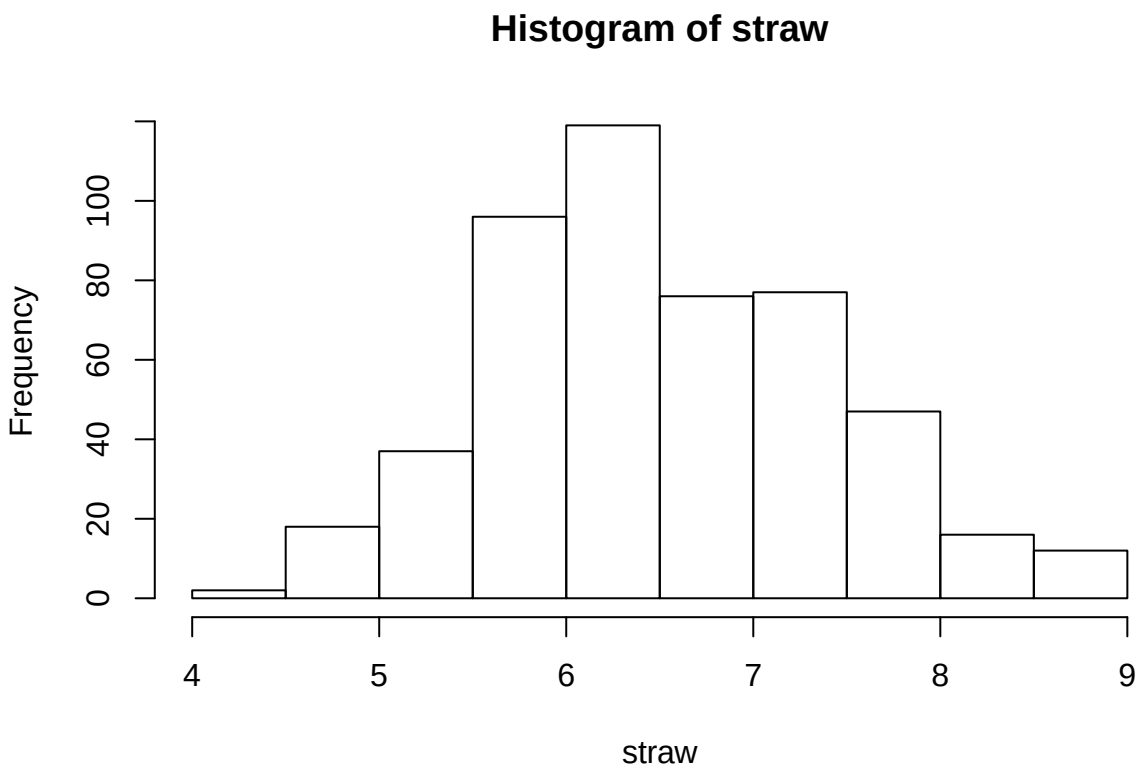
```
##
##   The decimal point is 1 digit(s) to the left of the |
##
##   40 | 0
##   42 | 8
##   44 | 367
##   46 | 226167
##   48 | 1155667
##   50 | 00557911228
##   52 | 0014452338
##   54 | 011112355677788890222667888888999
##   56 | 00115566688889900001112568888899
##   58 | 000122222344444566777789901122233345556666778899999
##   60 | 11233333344556677888899900011112333344444445555555677788 9
##   62 | 000111334455677889999901233333344455555566677777889
##   64 | 2334455667990344455566779
##   66 | 00233444678900012245567889 9
##   68 | 012235566777899011133355566788888999
##   70 | 00233344555566788890011346677778999
##   72 | 000233456668888990011122333445667899
##   74 | 1136790001112233457789
```

```
##   76 | 0144577912233333359
##   78 | 024466789123689
##   80 | 256675578
##   82 | 333317
##   84 | 5388
##   86 | 1342458
##   88 | 55
```

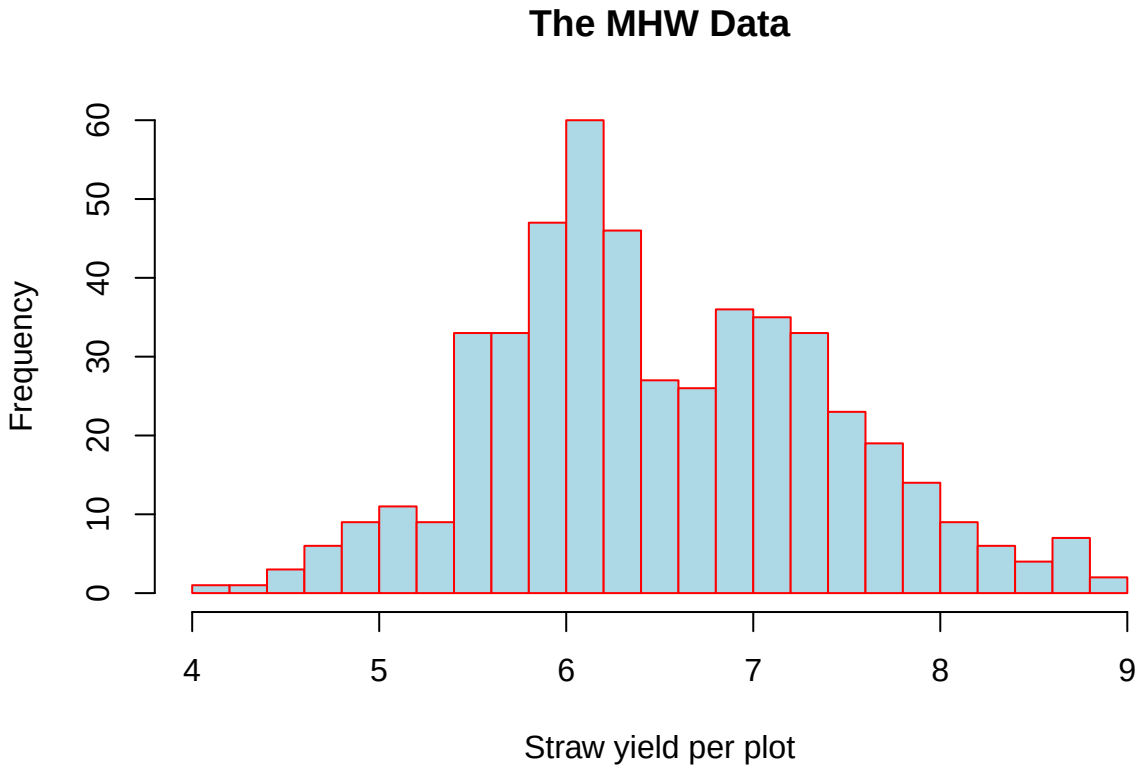
```
hist(grain)
```



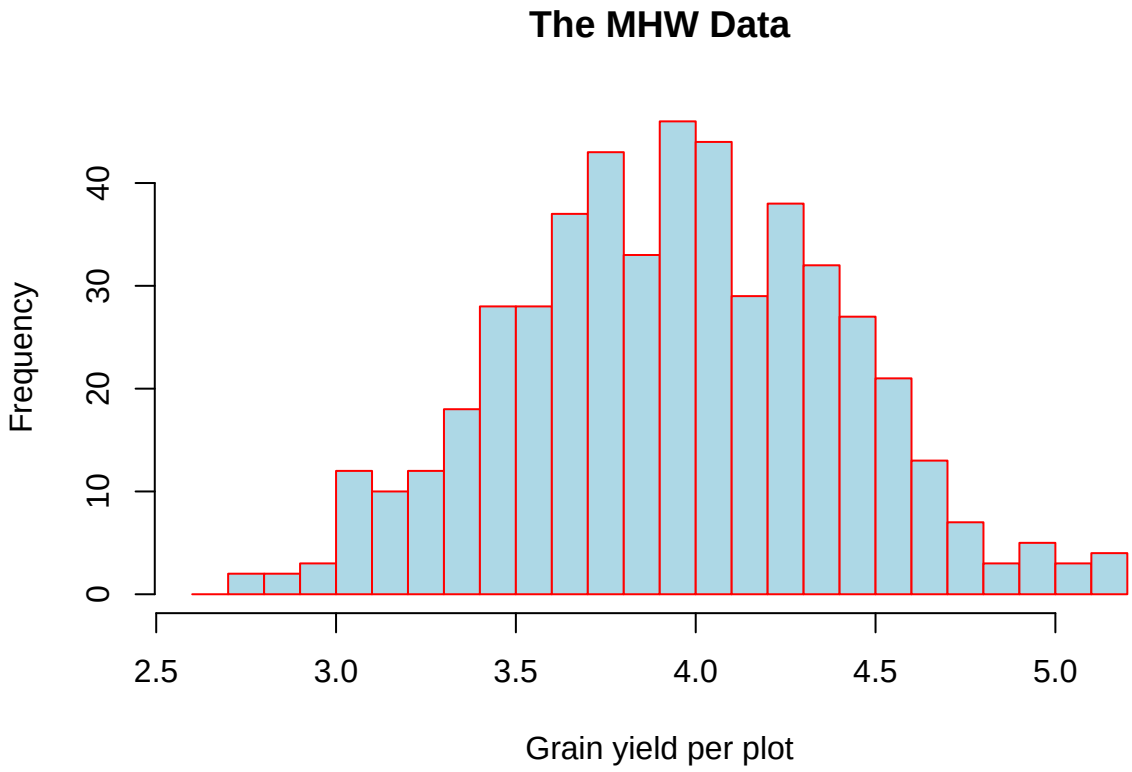

```
hist(straw)
```



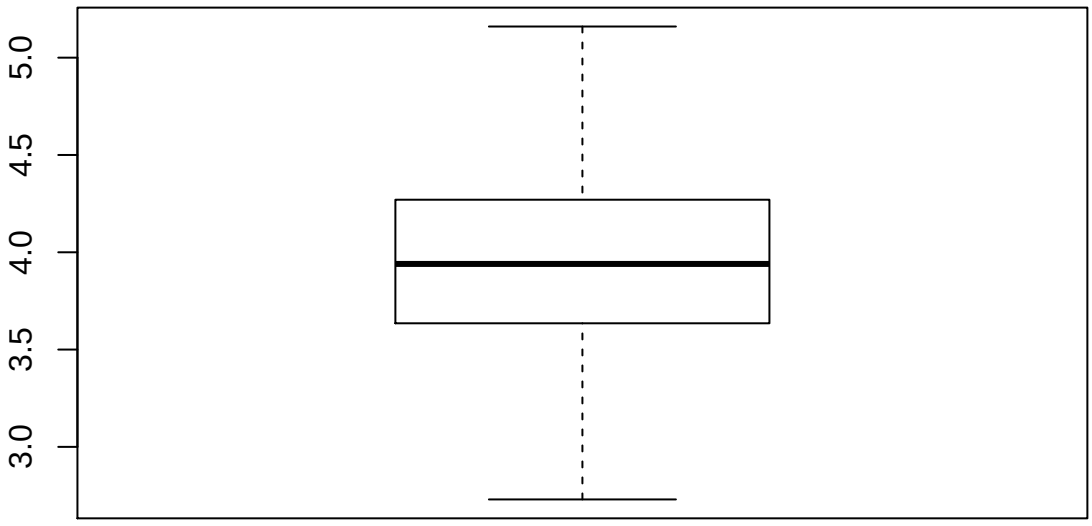

```
hist(straw, nclass=30, col = "lightblue", border = "red", main = "The MHW Data", xlab = "Straw yield pe
```



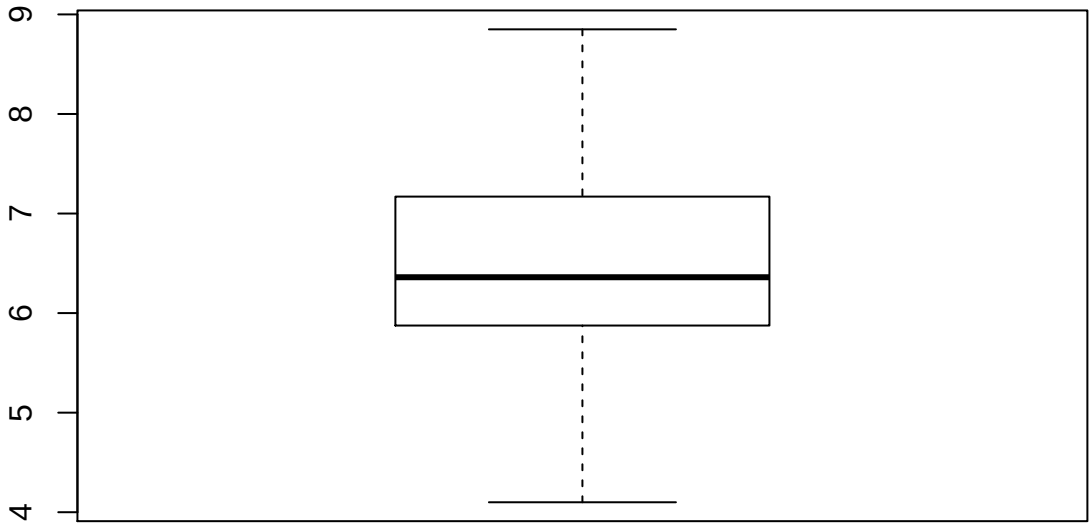

```
hist(grain, breaks = seq(2.6, 5.2, by = 0.1), col = "lightblue", border = "red", main = "The MHW Data",
```



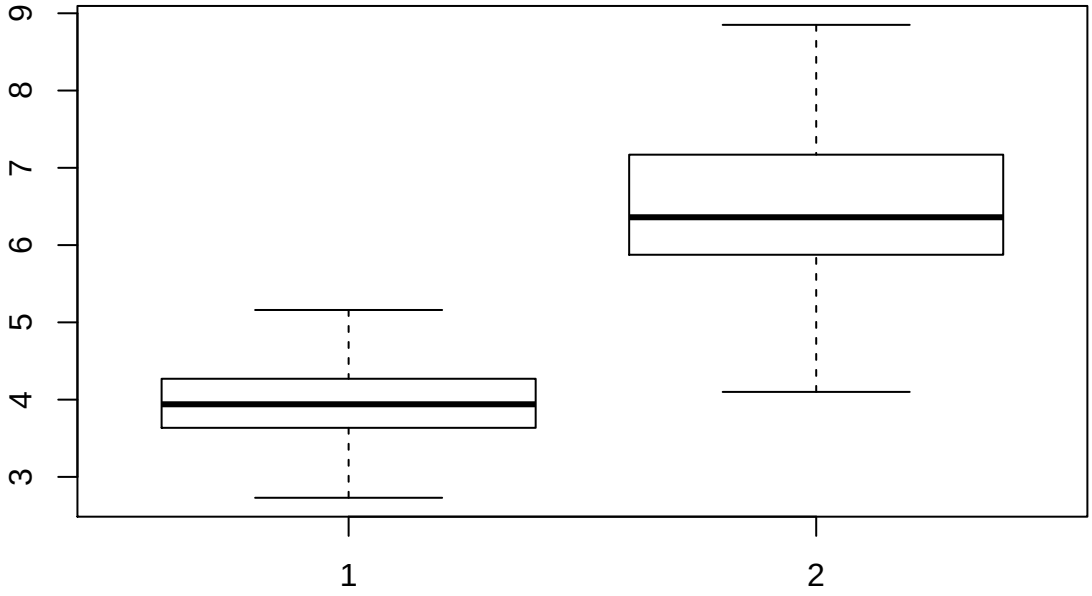

```
boxplot(grain)
```



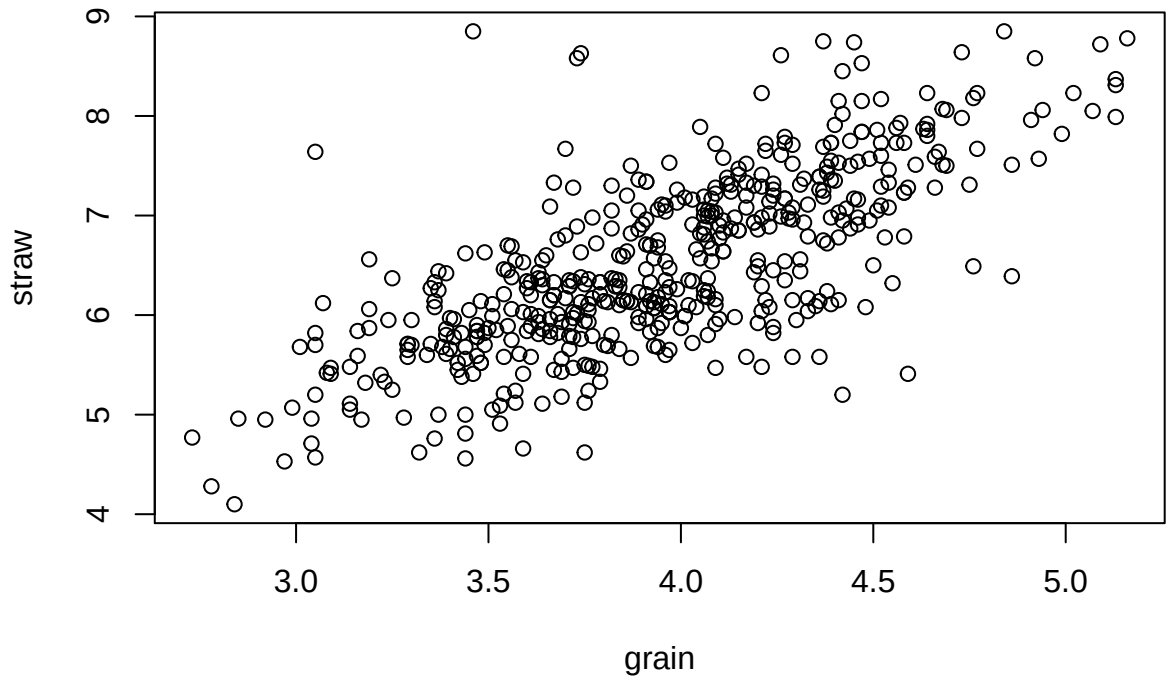

```
boxplot(straw)
```




```
boxplot(grain, straw)
```




```
plot(grain, straw)
```



What do you see in this plot?

It appears that there is a linear relationship between grain and straw.