Glass Dataset Exploration

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```
library(mlbench)
library(dplyr)
library(e1071)
library(ggplot2)
```

Glass Dataset

```
data(Glass)
str(Glass)
```

```
## 'data.frame':    214 obs. of  10 variables:
##  $ RI  : num  1.52 1.52 1.52 1.52 1.52 ...
##  $ Na  : num  13.6 13.9 13.5 13.2 13.3 ...
##  $ Mg  : num  4.49 3.6 3.55 3.69 3.62 3.61 3.6 3.61 3.58 3.6 ...
##  $ Al  : num  1.1 1.36 1.54 1.29 1.24 1.62 1.14 1.05 1.37 1.36 ...
##  $ Si  : num  71.8 72.7 73 72.6 73.1 ...
##  $ K   : num  0.06 0.48 0.39 0.57 0.55 0.64 0.58 0.57 0.56 0.57 ...
##  $ Ca  : num  8.75 7.83 7.78 8.22 8.07 8.07 8.17 8.24 8.3 8.4 ...
##  $ Ba  : num  0 0 0 0 0 0 0 0 0 0 ...
##  $ Fe  : num  0 0 0 0 0 0.26 0 0 0 0.11 ...
##  $ Type: Factor w/ 6 levels "1","2","3","5",..: 1 1 1 1 1 1 1 1 1 1 ...
```

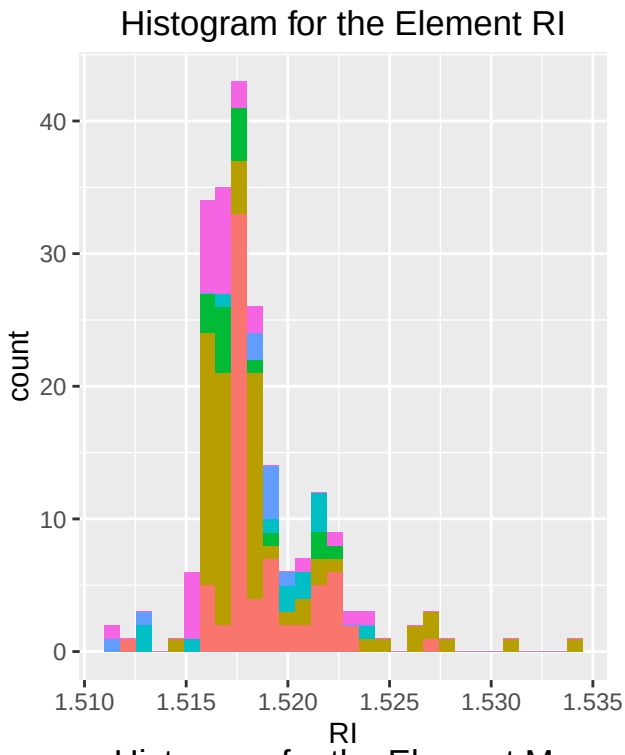
There are 9 predictors and 1 outcome. Separating the predictor and outcome variables, we get.

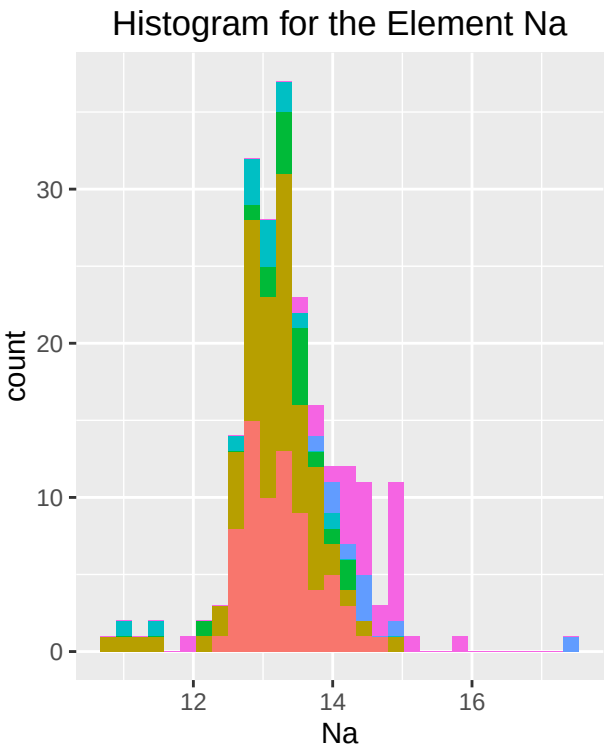
```
glassPredictors <- Glass %>% select(-Type)
glassTypes <-  Glass %>% select(Type)
```

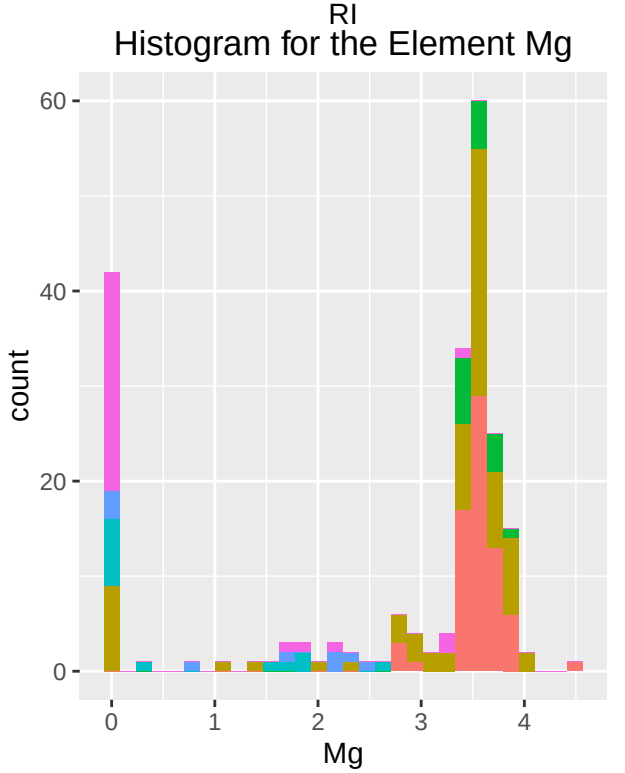
Skewness

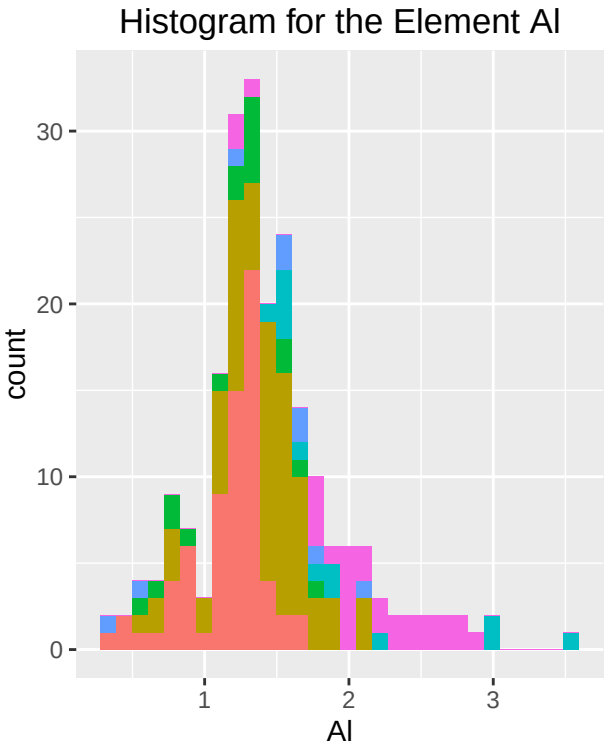
```
skewNess <- apply(glassPredictors,2,skewness)
skewNess
```

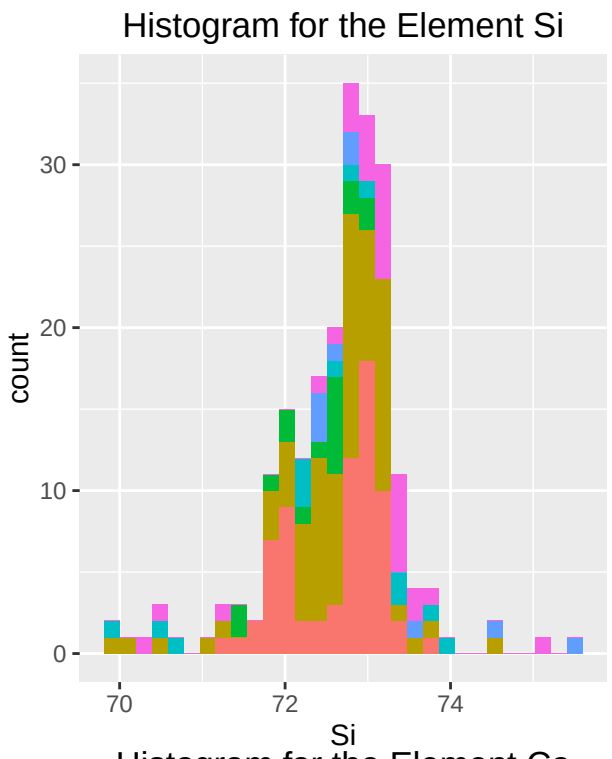
```
##         RI         Na         Mg         Al         Si          K
##  1.6027151  0.4478343 -1.1364523  0.8946104 -0.7202392  6.4600889
##         Ca         Ba         Fe
##  2.0184463  3.3686800  1.7298107
```

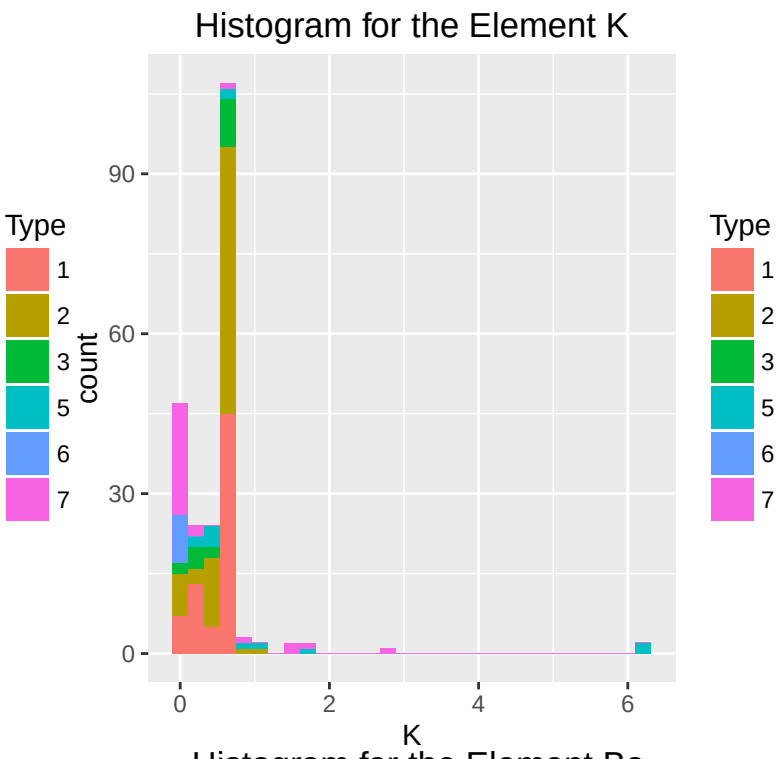

Histogram for the Element RI
count
RI
0
10
20
30
40
1.510
1.515
1.520
1.525
1.530
1.535
Type
1
2
3
5
6
7

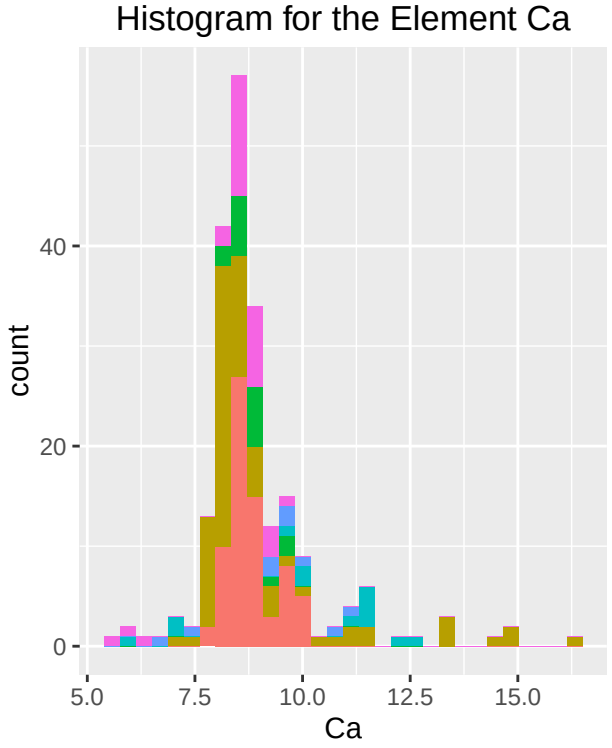

Histogram for the Element Na
count
Na
0
10
20
30
12
14
16
Type
1
2
3
5
6
7

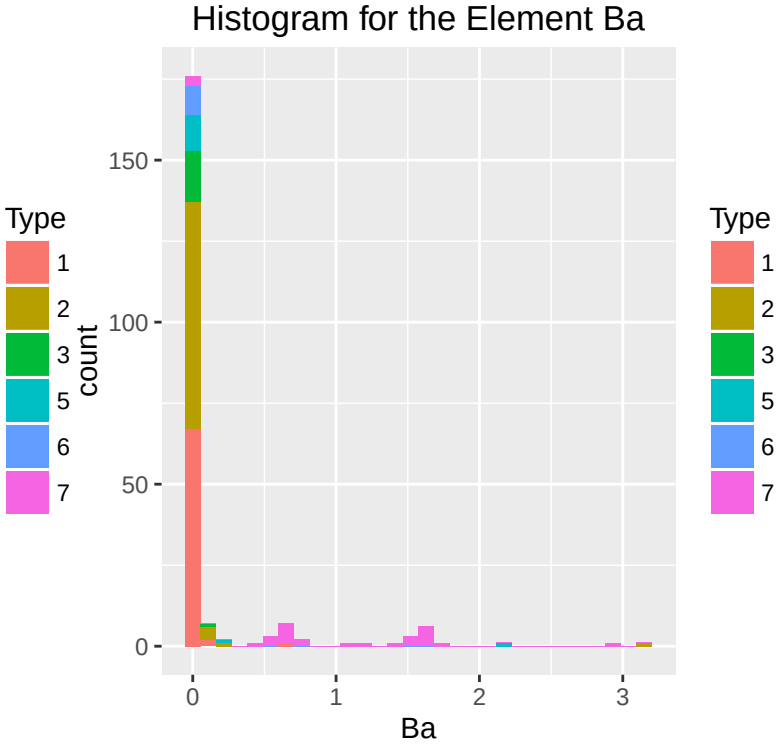

Histogram for the Element Mg
count
Mg
0
20
40
60
0
1
2
3
4
Type
1
2
3
5
6
7

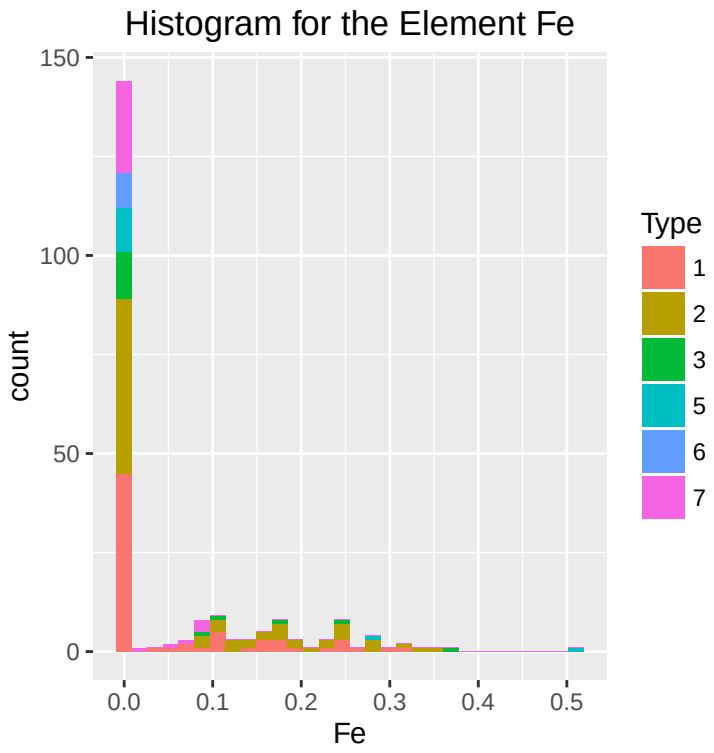

Histogram for the Element Al
count
Al
0
10
20
30
1
2
3
Type
1
2
3
5
6
7


Histogram for the Element Si
count
30
20
10
0
70
72
74
Si


Histogram for the Element K
count
90
60
30
0
0
2
4
6
K
Type
1
2
3
5
6
7


Histogram for the Element Ca
count
40
20
0
5.0
7.5
10.0
12.5
15.0
Ca


Histogram for the Element Ba
count
150
100
50
0
0
1
2
3
Ba
Type
1
2
3
5
6
7


Histogram for the Element Fe
150
100
50
0
count
0.0
0.1
0.2
0.3
0.4
0.5
Fe
Type
1
2
3
5
6
7