

#1.

```
> print(avg_alcohol)
[1] 10.42298
```

#2.

```
> cat("Maximum pH:", max_ph, "\n")
Maximum pH: 4.01
> cat("Minimum pH:", min_ph, "\n")
Minimum pH: 2.74
```

#3.

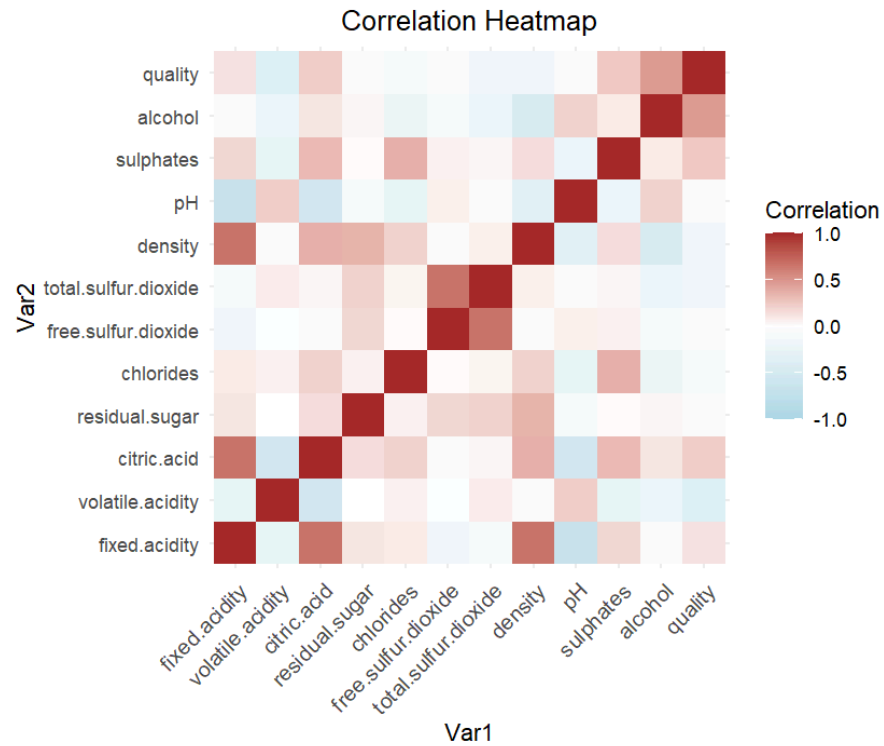
```
> print(sd_residual_sugar)
[1] 1.409928
```

#4

```
> cat("Maximum values:\n")
Maximum values:
> print(max_values)
      fixed.acidity  volatile.acidity  citric.acid  residual.sugar  chlorides  free.sulfur.dioxide  total.sulfur.dioxide
      15.90000      1.58000      1.00000      15.50000      0.61100      72.00000      289.00000
      density      pH      sulphates      alcohol      quality
      1.00369      4.01000      2.00000      14.90000      8.00000

> cat("\nMinimum values:\n")
Minimum values:
> print(min_values)
      fixed.acidity  volatile.acidity  citric.acid  residual.sugar  chlorides  free.sulfur.dioxide  total.sulfur.dioxide
      4.60000      0.12000      0.00000      0.90000      0.01200      1.00000      6.00000
      density      pH      sulphates      alcohol      quality
      0.99007      2.74000      0.33000      8.40000      3.00000
```

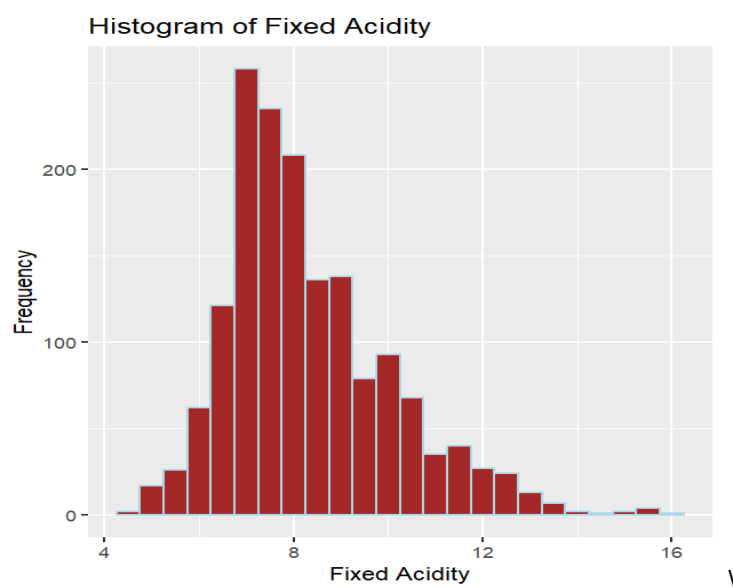
#6



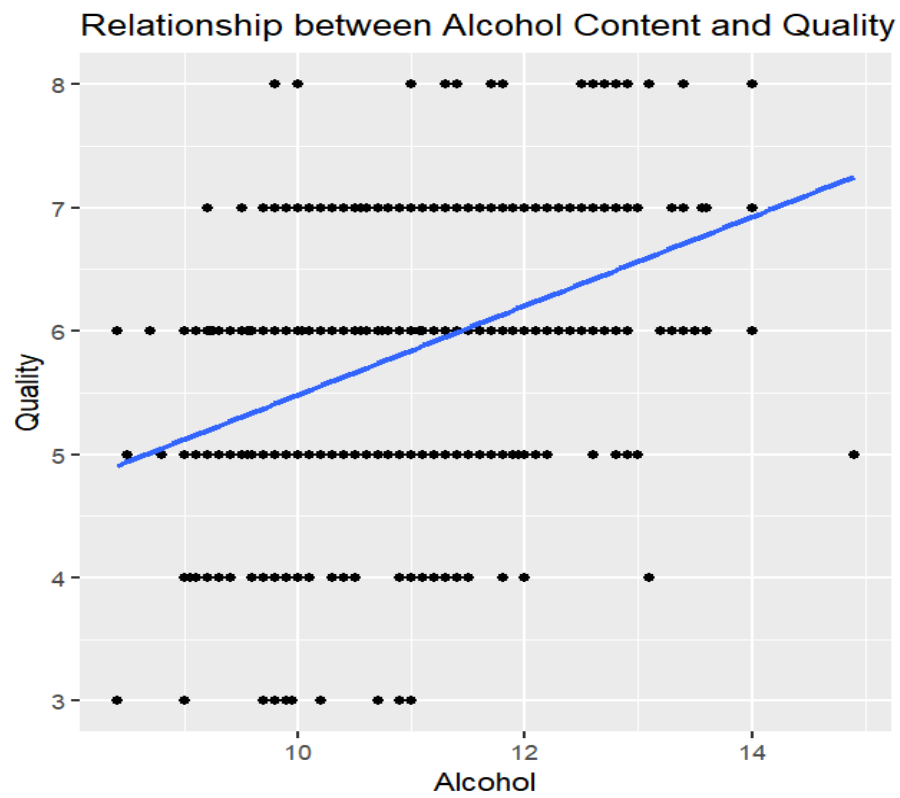
#7.

```
> print(high_quality_wines)  
[1] 217
```

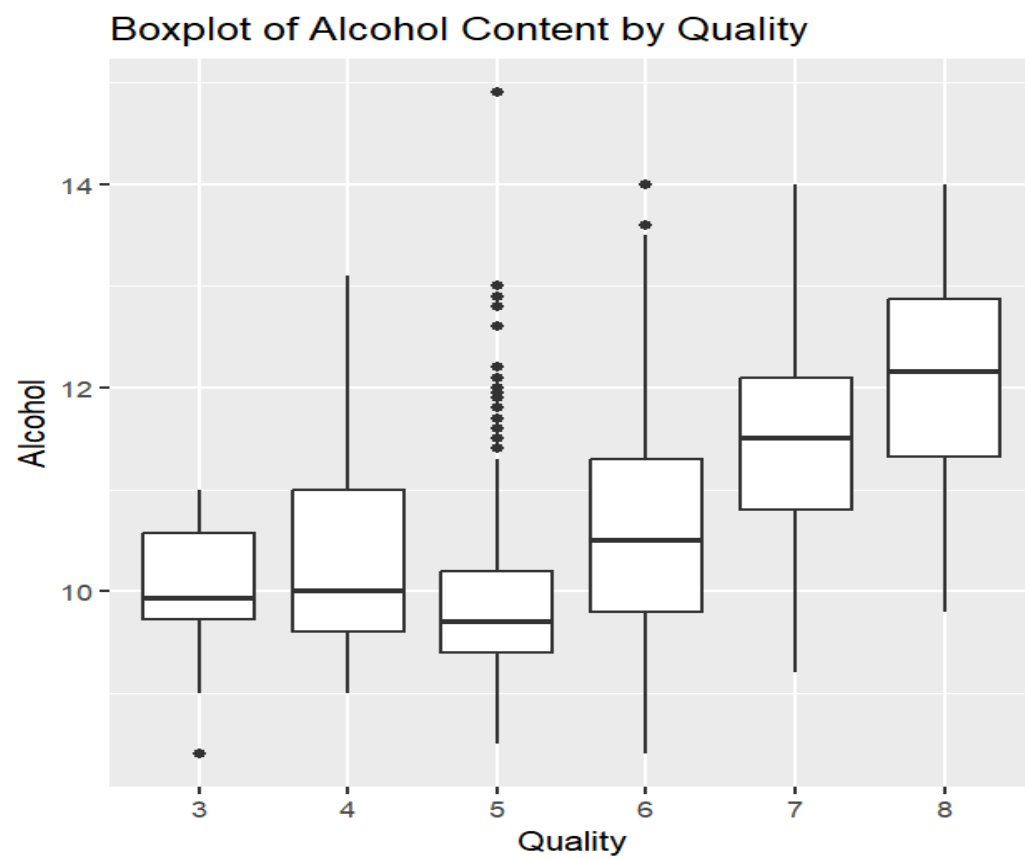
#8



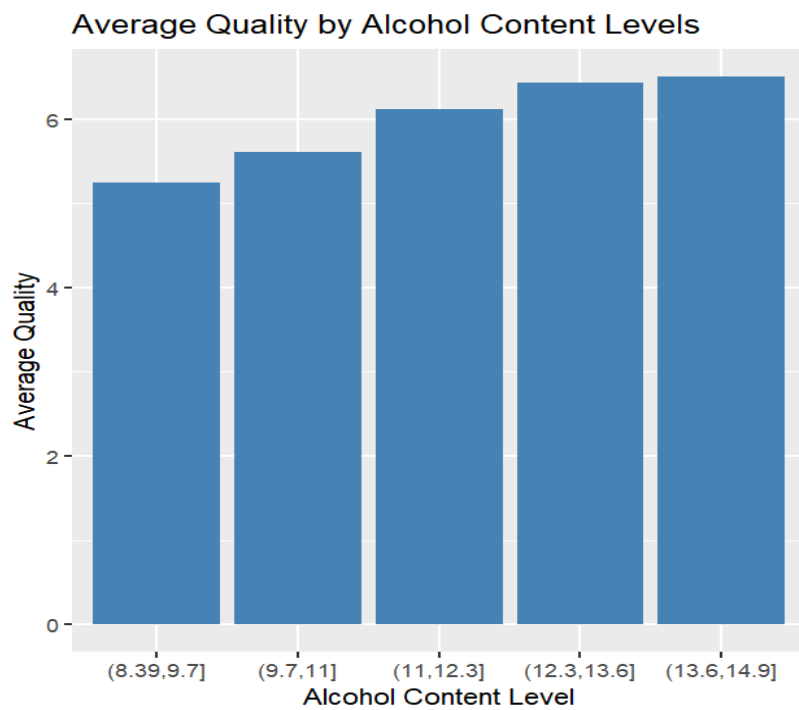
#9



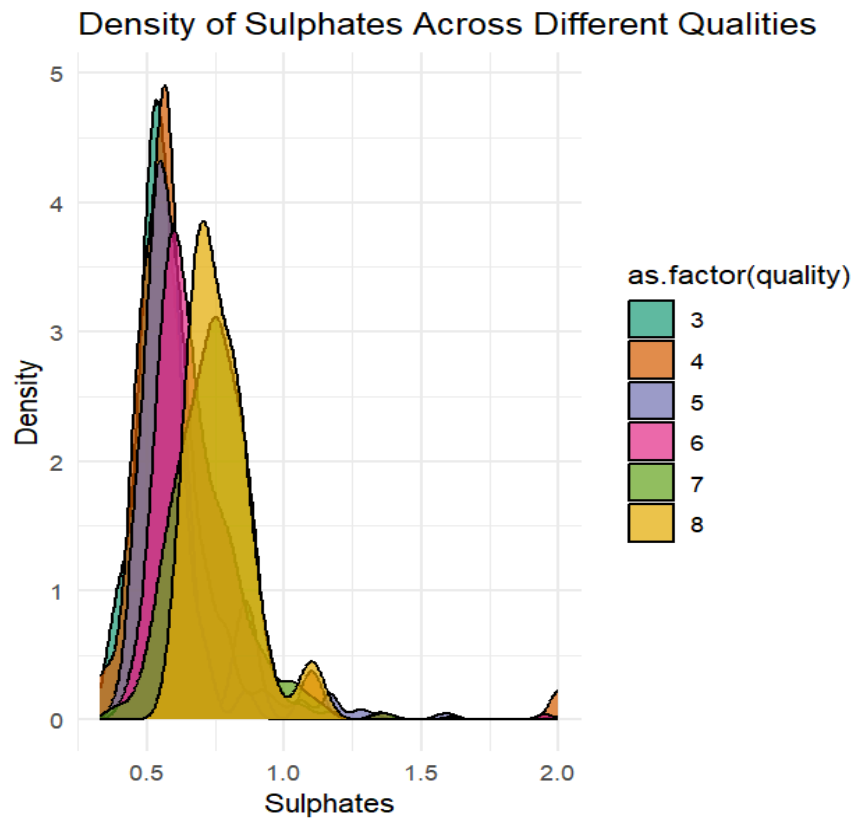
#10



#11



#12



#13

```
> summary(anova_result)
              Df Sum Sq Mean Sq F value Pr(>F)
alcohol         1   236.3    236.3   468.3 <2e-16 ***
Residuals    1597   805.9      0.5
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

#14

Welch Two Sample t-test

```
data: high_quality_alcohol and low_quality_alcohol
t = 17.45, df = 283.78, p-value < 2.2e-16
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 1.124097 1.409927
sample estimates:
mean of x mean of y
 11.51805  10.25104
```

#15

