Wine quality: An analysis

A study on the effect of wine features in determing quality

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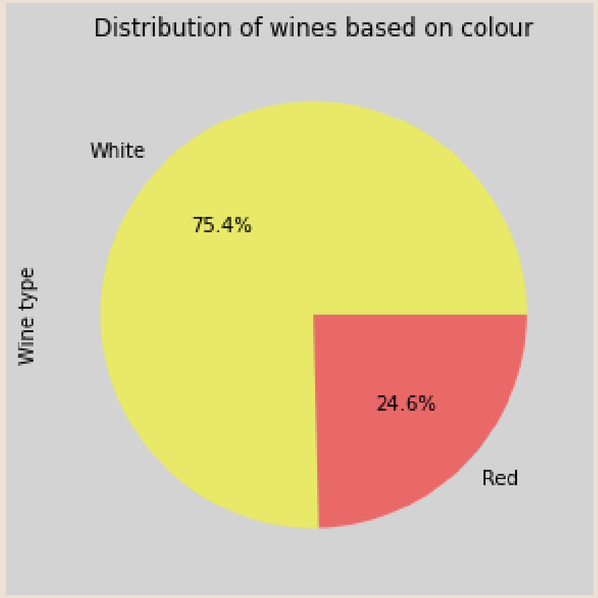
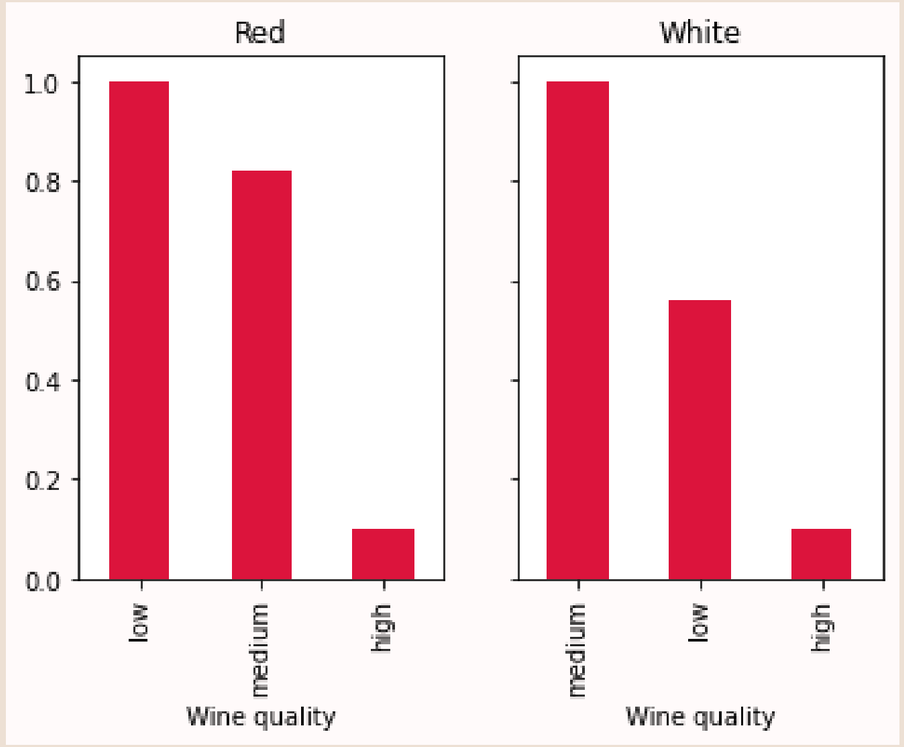


The distribution of wines is heavily towards whites, constituting 3/4 of the total

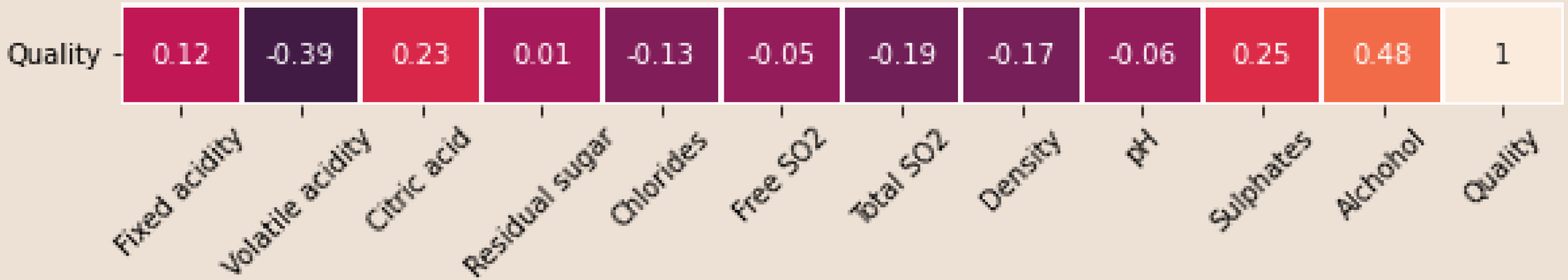


Wines were scored from on a scale from 3 to 9, deliminating the low, medium and high quality labels.

The quality distribution seems to be the same to both types.

• Wines with a quality score of 6 are designated medium quality.
•Above that is high quality, and immediately below low quality

Red wines



White wines

Combined wines

From the previous heatmaps, we can deduce that alcohol is the strongest indicator for quality on both wines. Volatile acidity is inversely correlated with quality as well.

Type specific features

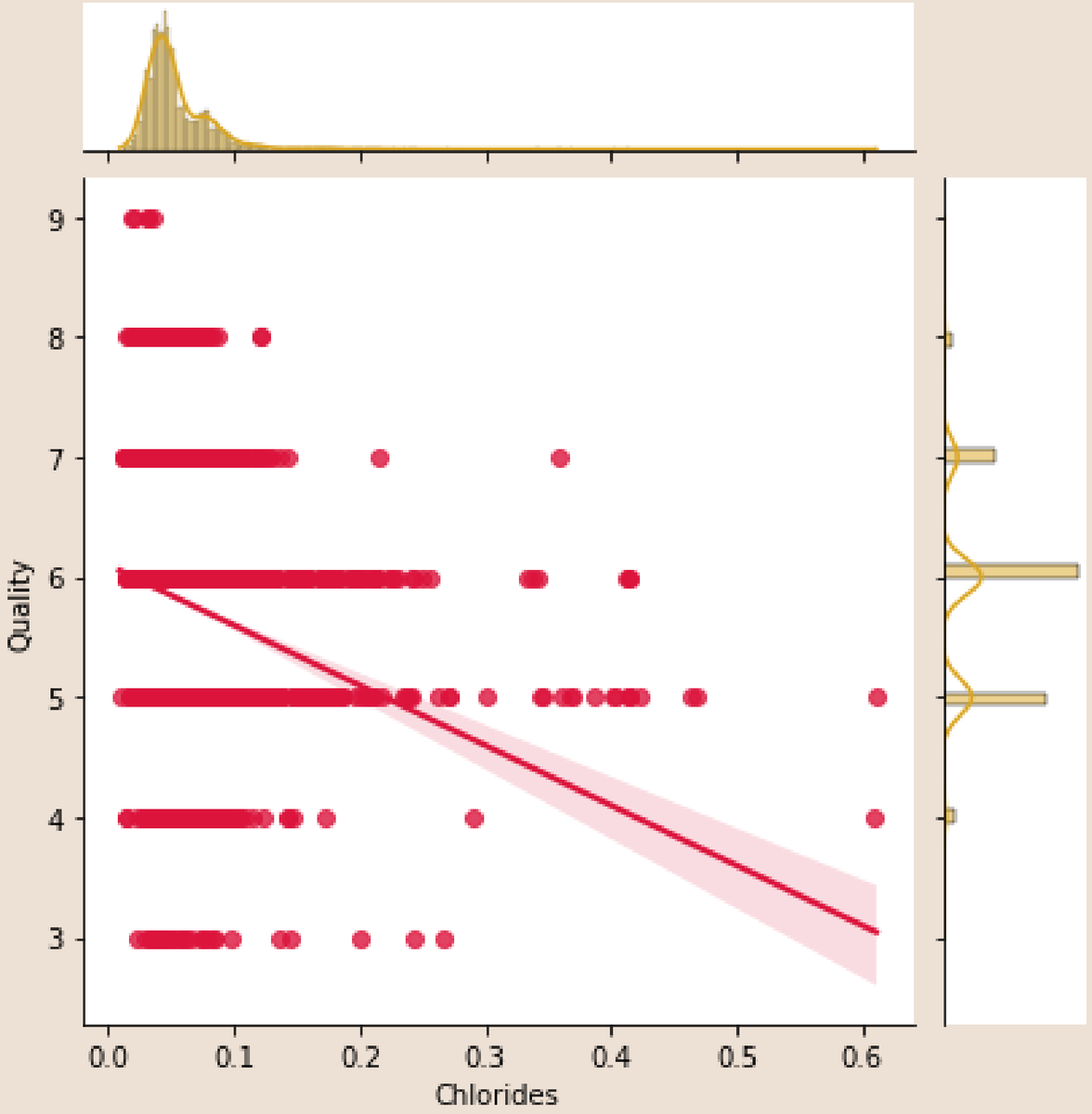
• For white wines, chlorides and total SO2 have an *negative* effect on quality.

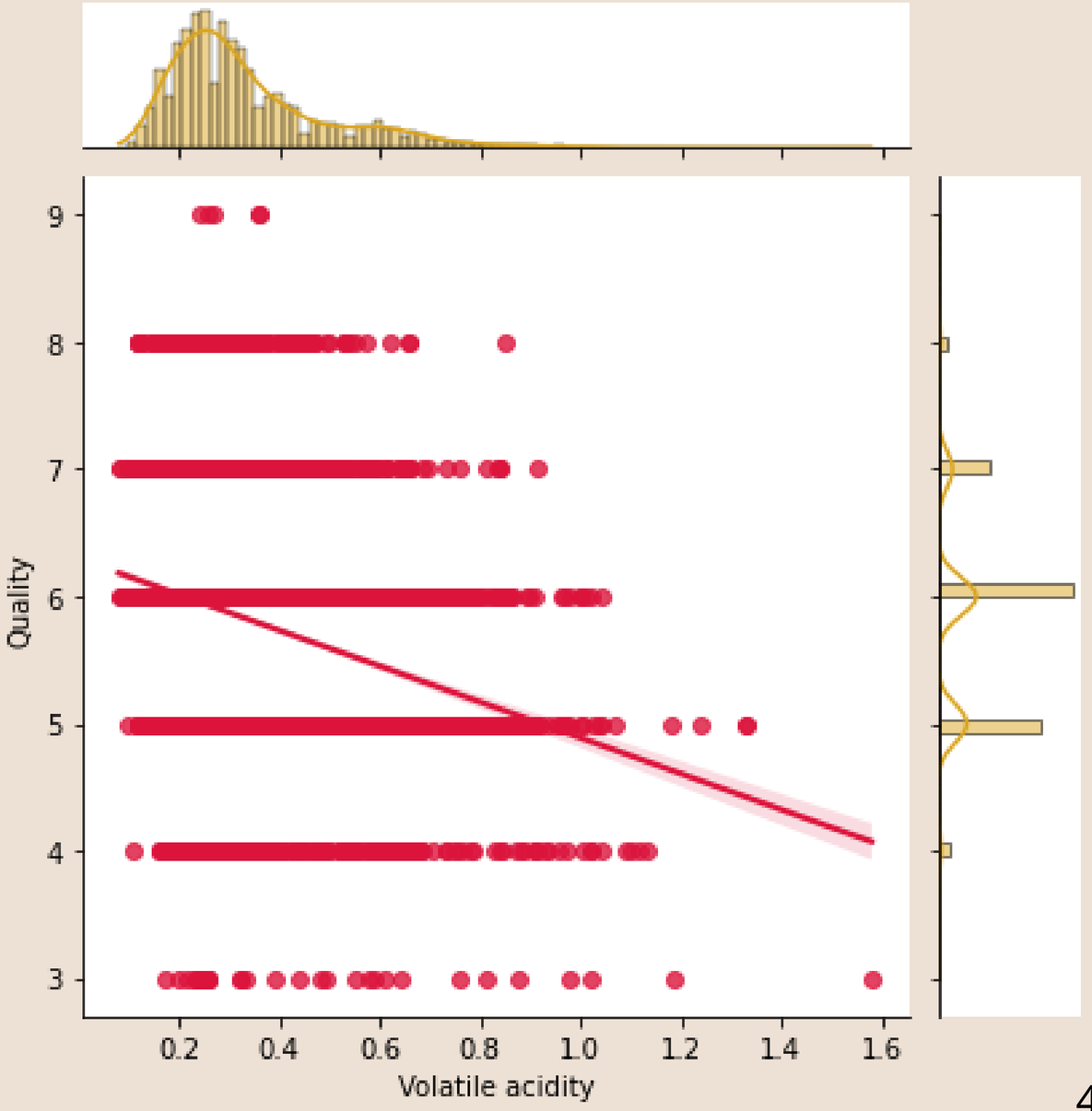
• In the case of red wines, sulphates and citric acid have *positive* effect.

General features

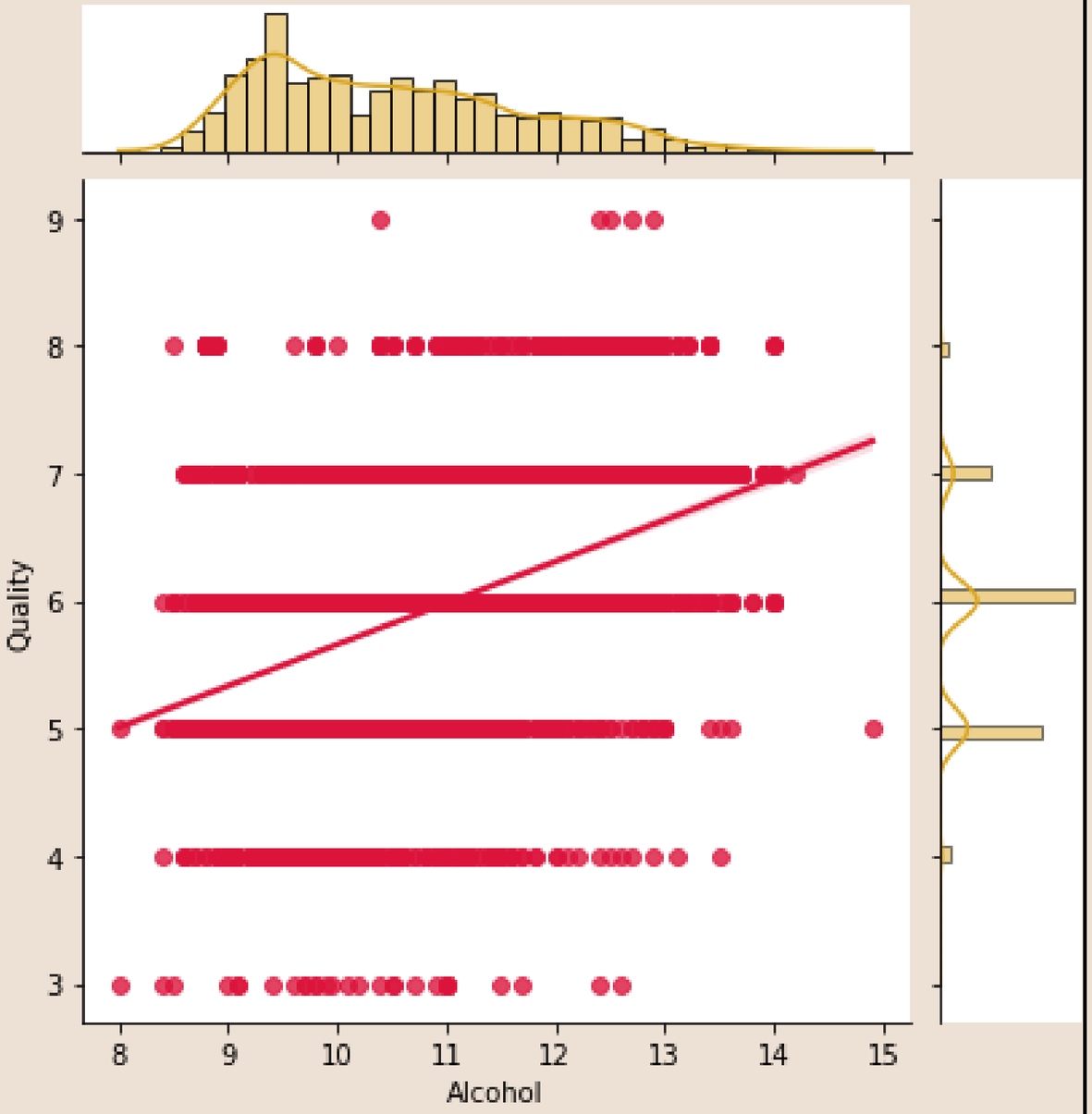
Taking into account the larger sample of white wines, we decide that the important features in a combined dataset are alcohol, with a *positive* relationship, and volatile acidity, chlorides with *negative* relationship

From the following graphs we can visually understand the effect chlorides and volatile acidity have on wine quality.





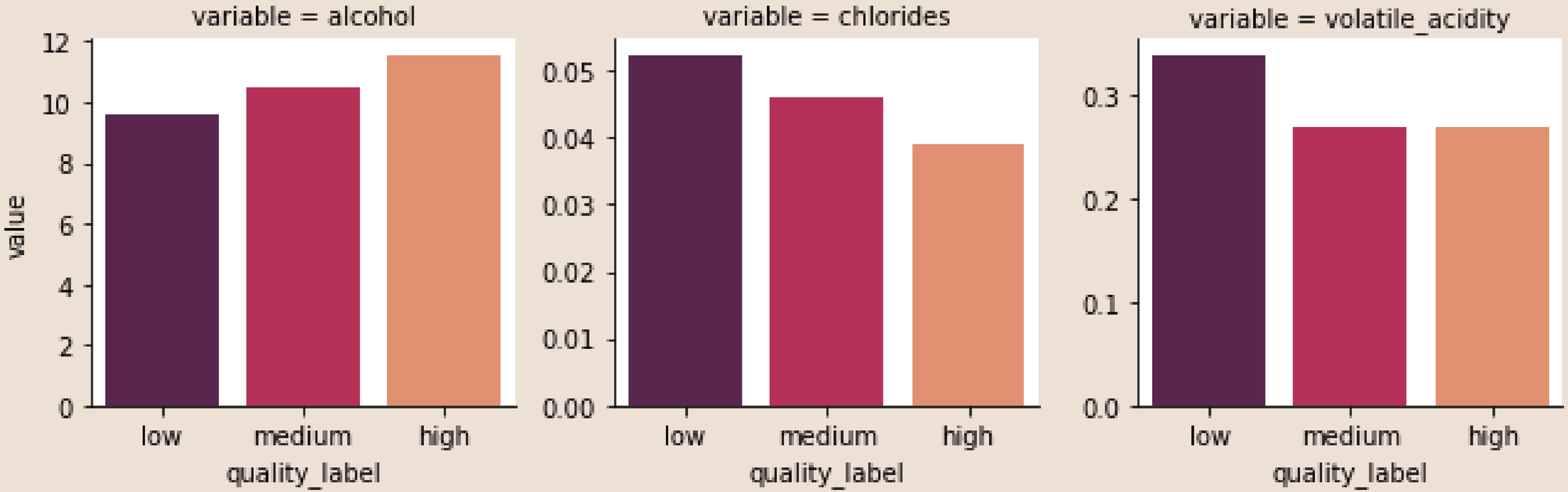
Here we can witness the positive relationship between alcoholic content and higher quality.



- In short, we can confidently assume that the aforementioned three features have the greatest effect on wine quality score.

- Does that effect translate to a meaningfull deviation in quality labels as well though?

We see that indeed there is a measurable difference between low, medium and high quality wines, at least regarding chlorides and alcohol. Volatile acidity is more of a benchmark designating the low quality wines.



Summary

We saw that the main indiactor for a wines quality is alcohol.

Volatile acidity, chlorides, total SO2 can negatively affect the quality.

Sulphates, citric acid can positevely affect the quality.