Research Questions:

What are the factors that influence the quality rating for wine? Is there a difference between red and white wine factors?

Furthermore, it appears that the outliers all fall within the 3, 8 and 9 ratings. What is the difference between those wines, that contributes their place at the top or bottom of the ratings?

Step Plots – Significant Variables:

Combined – Fixed acidity, volatile acidity, citric acid, residual sugar, free sulfur dioxide, total sulfur dioxide, density, pH, sulphates, & alcohol.

Red – volatile acidity, citric acid, free sulfur dioxide, total sulfur dioxide, pH, sulphates, & alcohol

White – Fixed acidity, volatile acidity, residual sugar, chlorides, free sulfur dioxide, density, pH, sulphates, & alcohol.

Breakdown by variable

Alcohol:

Alcohol has a positive correlation with the quality rating for both red and white wines.

Sulphates:

When looking at reds and whites together, sulphates do not seem to influence the quality rating. However, when reds and whites are analyzed separately, it appears that red wines that have a higher sulphate content also have a higher quality rating.

pH

pH levels do not have much of effect on quality level.

Density

The actual difference between values is negligible, however, it appears that as density decreases, the quality rating increases.

Total Sulfur Dioxide and free sulfur Dioxide.

For whites, the higher the total sulfur dioxide, the lowered the quality rating.

Chlorides:

With both, the higher the chlorides, the lower the quality rating.

Residual sugar

Residual sugar seems to make a difference with white wines. The lower the residual sugar, the higher the quality rating.

Citric Acid:

When looking at both together, it seems citric acid has an effect on the quality rating, however, when separating them out, it seems to have a larger effect on reds. The higher the citric acid the higher the quality rating.

Volatile Acidity

When looking at both, it appears that the higher the volatile acidity, the lower the quality rating. When separating them out, that is true for the reds, but not much of an effect on whites.

Fixed Acidity:

When looking at both, it appears that the higher the volatile acidity, the lower the quality rating. When separating them out, that is true for the whites, but does not seem to make a difference for the reds.

Bias/Issues:

The vast majority of samples fell within the middle quality rating range. The sample is small for high and low ratings.

Challenges: There was a ton of significant variables. It took a bit to decide where to go.

Future – dive deeper into the low, medium and high ratings