

2IV35 Visualization Set 3

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1 Dataset

Many people in the world take joy in drinking wine although many of them do not have a clue about what they are actually drinking and what makes their wine taste better than others. Many people go to wine-connaisseurs for advice, or enter liquor stores where usually someone has some knowledge about wines, to help give advice on the purchase. However, it has many properties which can be measured other than the year. For example, sweetness, acidity and even chlorides play a part in the taste and quality of the wine. Not even the best and most experienced connaisseurs can possibly have tasted and formed an opinion on every wine in existence. Which means that it can be beneficial to have a way to objectively analyze wines to help determine which wines are expected to be good and which are not. Ofcourse the same principle also applies to producers of wine, who can use the conclusions to see whether their new wine stands any chance of being succesfull.

2 Analysis of the data

TODO

3 Visualizations

The visualizations listed in this section are implmented to help analyze the dataset

3.1 Scatter plot

Since we are interested in correlation of data, it makes sense to use a scatter plot since it can visualize this correlation. As the dataset already has a quality parameter available, we want to (possibly) correlate all other parameters to the listed quality. Using this analysis it will become possible to see which parameters influence the quality more and which influence it less.

Usefullness of this visualization would be limited if all differences in measurements are very small and therefor the datapoints would lie close to each other. On the other hand, if the differences are big, but no corrolation is found, scatter plots are useless too.

3.2 Interval tree

The interval tree is a specialized visualization specific to this dataset. It allows for specifying of intervals to which all values are subdivided for easy visualization.

The root of the tree has children for all parameters and each of these children have children for every existing quality. When creating the interval tree, input of the user is required in the form of the number of required intervals (n). The program then creates n equal devidions represented as children (leaves). Those children then get colored and scaled. The smallest value for a interval gets colored red, the highest green and all intermittent values on a linear scale from red to yellow to green.

The size of the children depicts the number of elements which fall into that interval. Whenever a leave is big, more measurements were made which fell into its interval. This

also points us to the problem with the interval tree. Whenever values follow a distribution which resembles a normal distribution, the middle value will be very big, since almost all measurements will fall in the middle interval. This problem worsens with a low number of intervals.

3.3 Median tree

Median trees can be used to determine the average quality for a specific parameter. It again takes a parameter but instead of using it to subdivide the total interval into equal sub-intervals, instead it creates n (nearly) equally sized buckets and gives the bucket the average quality of the wines in that bucket.

3.4 Average tree

The average tree does the same as the interval tree, except it uses the average to divide the total interval. Therefore we can see what the impact of some value is, since either one or the other bag is much bigger.

This is useful when the measurements are very unbalanced, for example: one measurement is ten times bigger than all other measurements. If the program has to divide the total interval in 3 sections, we get 1 green leaf, while all intermittent values are not visible since they have a size of 0 and a node of size nearly 100% containing all but the very big valued wine, which obviously does not give a desired result.

4 Results

TODO

5 Conclusion

Using our visualizations we see that a top wine usually has a relatively high alcohol and sulfur dioxide concentration while the concentration of chlorides, total and residual sulfur dioxide.