

# Explaining wine quality

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Daily XP 0

### Explaining wine quality

Below is a SHAP visualization of the importance of data features used in a regression model to estimate the quality of red wine samples, using chemical properties (sulfates, alcohol, density, etc.) as predictor attributes or features.

- The plot shows the relative importance of predictor attributes (chemical properties) in the inference process applied by the model for estimating the quality of a given observation (red wine sample).
- The range of feature values is represented by colors ranging from blue (lowest) to pink (highest). The position of each feature's colored bar concerning the horizontal axis shows the effect feature values have in the resulting model output: some features' values lead to higher outputs when they are higher, while some other features' values lead to lower outputs when they are higher.

Take a deep look at the above SHAP plot, and select which of the following statements about model explainability and feature importance are true :

Answer the question

XP

#### Possible Answers

Select all correct answers

☒ Feature importance is ranked in descending order in the SHAP plot. 

PRESS 1

☒ Alcohol is the most influential chemical property of red wine in determining its quality, according to this regression model. 

PRESS 2

☐ Features like chlorides, fixed acidity, density, and pH, have little importance in predicting wine quality and therefore should be discarded and not used by the model. 

PRESS 3

☒ Higher values of the alcohol feature have a positive impact in increasing the predicted output for wine quality level. 

PRESS 4

☐ Higher values of the sulphates feature have a negative impact in the predicted output, decreasing the value of wine quality. 

PRESS 5

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#### Hint

- The role of the vertical color legend at the right-hand side (Feature value) is crucial to understand the relationship between predictor features' values, and the resulting outputs returned by the model, i.e. wine quality estimations. Observe how the highest (pink) feature values affect the model's output values (horizontal axis).
- Even features with less importance than others may still contribute to a good model accuracy, i.e. many chemical properties could play their part in correctly assessing the wine quality.

Did you find this helpful?

☒ Yes ☐ No

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Take a deep look at the above SHAP plot, and select which of the following statements about model explainability and feature importance are true:

**Answer:**

- Feature importance is ranked in descending order in the SHAP plot.
- Alcohol is the most influential chemical property of red wine in determining its quality, according to this regression model.
- Higher values of the alcohol feature have a positive impact in increasing the predicted output for wine quality level.
- Even features with less importance than others may still contribute to a good model accuracy, i.e., many chemical properties could play their part in correctly assessing the wine quality.