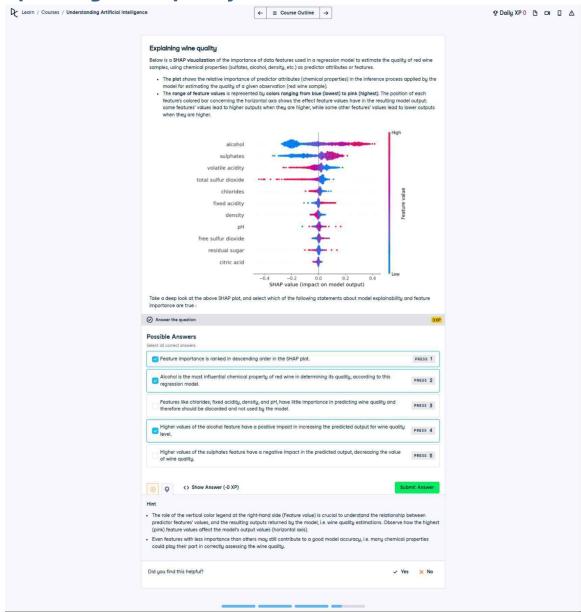
## **Explaining wine quality**



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:**

- 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.