Lab 3 Wine Quality Data

The WineQT dataset is a collection of data pertaining to various attributes of wine samples. It includes both chemical characteristics of the wines as well as subjective quality ratings. The dataset contains several chemical attributes of wines, such as fixed acidity, volatile acidity, citric acid, residual sugar, chlorides, free sulfur dioxide, total sulfur dioxide, density, pH, sulphates, and alcohol content. These features provide information about the composition and properties of the wines.

1. **Fixed Acidity:** The concentration of non-volatile acids in the wine, which contributes to its tartness or sourness. It is typically measured in grams per liter (g/L).
2. **Volatile Acidity:** The concentration of volatile acids in the wine, primarily acetic acid, which can give the wine a vinegar-like taste. It is also measured in grams per liter (g/L).
3. **Citric Acid:** The concentration of citric acid in the wine, which can impart a fresh, citrusy flavor. It is measured in grams per liter (g/L).
4. **Residual Sugar:** The amount of sugar remaining in the wine after fermentation, which affects the wine's sweetness. It is typically measured in grams per liter (g/L).
5. **Chlorides:** The concentration of chlorides in the wine, which can contribute to its saltiness. It is measured in grams per liter (g/L).
6. **Free Sulfur Dioxide:** The concentration of sulfur dioxide (SO2) that is not bound to other molecules, which acts as an antioxidant and antimicrobial agent in the wine. It is usually measured in parts per million (ppm).
7. **Total Sulfur Dioxide:** The total concentration of sulfur dioxide in the wine, including both free and bound forms. It is also measured in parts per million (ppm).
8. **Density:** The density of the wine, which is influenced by the concentration of sugars, alcohol, and other dissolved solids. It is typically measured in grams per milliliter (g/mL) or kilograms per liter (kg/L).
9. **pH:** The acidity or alkalinity of the wine, which affects its taste, stability, and microbial growth. It is a dimensionless quantity measured on a scale from 0 to 14, with lower values indicating higher acidity.
10. **Sulphates:** The concentration of sulfates in the wine, which can act as a preservative and antioxidant. It is usually measured in grams per liter (g/L).
11. **Alcohol:** The percentage of alcohol by volume (ABV) in the wine, which influences its body, flavor, and perceived warmth. It is typically measured as a percentage.
12. **Quality:** A subjective rating of the overall quality of the wine, often based on sensory evaluations by experts or consumers. It is often measured on a scale from 1 to 10, with higher values indicating better quality.
13. **Id:** A unique identifier for each wine sample or observation in the dataset. It is typically used for indexing and referencing purposes and does not contain any meaningful information about the wine itself.