

# ASSIGNMENT 4

## Project Title:

Grapes to Greatness: Machine Learning in Wine Quality Prediction

## Description:

Predicting wine quality using machine learning is a common and valuable application in the field of data science and analytics. Wine quality prediction involves building a model that can assess and predict the quality of a wine based on various input features, such as chemical composition, sensory characteristics, and environmental factors.

The two datasets are related to red and white variants of the Portuguese "Vinho Verde" wine. For more details, consult the reference [Cortez et al., 2009]. Due to privacy and logistic issues, only physicochemical (inputs) and sensory (the output) variables are available (e.g. there is no data about grape types, wine brand, wine selling price, etc.).

These datasets can be viewed as classification or regression tasks. The classes are ordered and not balanced (e.g. there are much more normal wines than excellent or poor ones).

**Dataset:** [link](#)

## Task:

- Load the Dataset
- Data preprocessing including visualization
- Machine Learning Model building
- Evaluate the model
- Test with random observation