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Wine Quality Predictor

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ENEL 682: Machine Learning Project Proposal

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# Proposal

I am writing this proposal to the owners of the winery “Masri Wine Ltd.”, where I believe my project can be of great benefit to your winery. As you know, ensuring consistent and high-quality wine is critical to maintain a positive reputation in the industry. Manually evaluating every bottle to ensure it meets your high standards can be a tedious process considering the large amount of wine produced on a yearly basis. For that, I am proposing a wine quality classifier that uses machine learning algorithms to assess the quality of your wine.

# Methodology

By Analyzing key parameters and features, the classifier will be able to quickly and accurately identify bottles that meet your quality criteria and those that do not. To develop the classifier, I will gather data from your winery which will be used to train the machine learning algorithms to accurately assess the quality of your wine.

Once the classifier has been developed, it can be integrated into your production process to automatically assess the quality of each bottle. This will save time and resources by reducing the need for manual evaluation and will help to ensure that only the highest quality wine is released to the market.

# Dataset | Models | Frameworks | Components

## Dataset

I will be using a public winery dataset to test my models.

If I use other datasets, I will include them in the project report instead of here.

Kaggle: Red Wine Quality

Source: https://www.kaggle.com/datasets/uciml/red-wine-quality-cortez-et-al-2009

## Models

The machine learning models suggested for such a project would be supervised ML classifiers such as Random Forest Classifier, deep feed-forward neural networks, and SVM classifier.

## Frameworks

Frameworks or libraries to be used would be sklearn, tensorflow, pandas, numpy, alongside plotting libraries like matplotlib and seaborn to display our results.

## Features

The features to be used to train the machine learning model are fixed acidity, volatile acidity, citric acid, residual sugar, chlorides, free sulfur dioxide, total sulfur dioxide, density, pH, sulphates, and alcohol. The term “quality” will be the target label.