WINE QUALITY PREDICTION

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ABOUT

Wine Quality Prediction

Wine classification is a difficult task since taste is the least understood of the human senses. A good wine quality prediction can be very useful in the certification phase, since currently the sensory analysis is performed by human tasters, being clearly a subjective approach.

An automatic predictive system can be integrated into a decision support system, helping the speed and quality of the oenologist performance. Furthermore, a feature selection process can help to analyse the impact of the analytical tests. If it is concluded that several input variables are highly relevant to predict the wine quality, since in the production process some variables can be controlled, this information can be used to improve the wine quality.

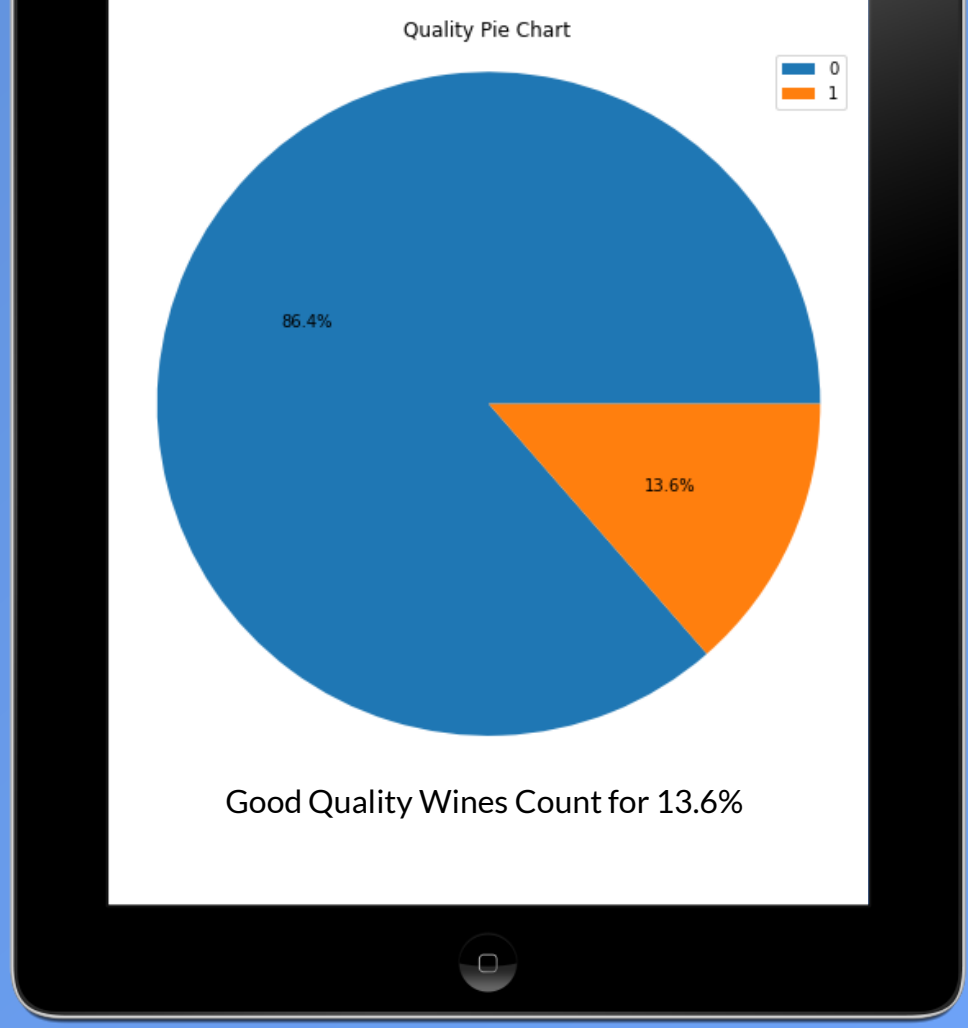
ABOUT

The Dataset

The Dataset used has been obtained from the Machine Learning Repositories for students of the University of Massachusetts, Amherst, USA .

The Provided Data Contains Various Factors of Acidity / Chemical Compositions that involves in the Production of Wine and its Quality Measurement factors.

Namely, Fixed Acidity, Volatile Acidity, Citric Acid, Residual Sugar, Chlorides, Free Sulphur Di-Oxide, Total Sulphur Di-Oxide, Density, pH, Sulphates, Alcohol, and Quality



Good Quality Wines Count for 13.6%

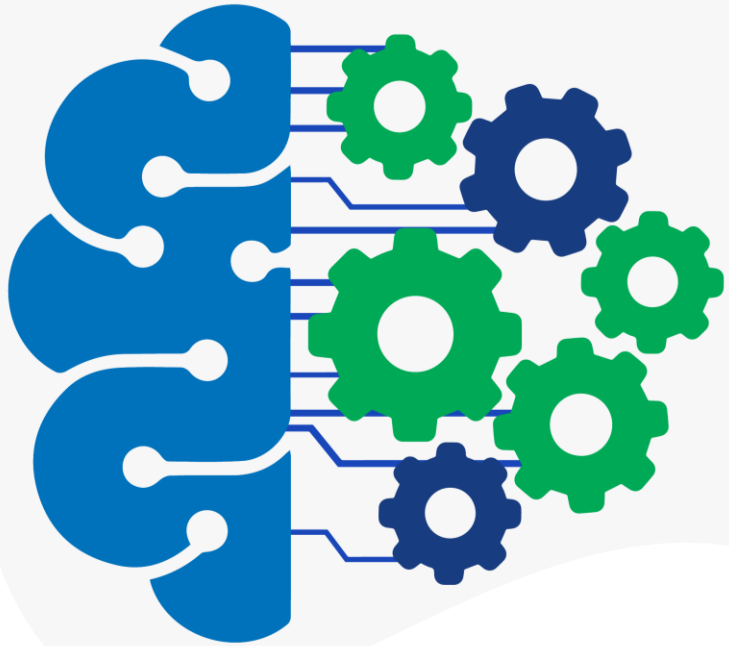
Data Preprocessing

Since the data has been already Numerical not much of Pre-processing is required other than loading the data into the Data Frames by using the read function with the ' ; ' as separator value. And have induced a new data column Grade based on the Quality, i.e. If Quality rating is above 7 it is considered as Good which is Categorically as '1' and rating below 7 is Bad, which is Categorically as '0' .

PREDICTION MODELS

6 Models have been comparatively tested for acquiring better accuracy

The data has been trained and tested by using multiple machine learning models for acquiring better accuracy of the Prediction of Quality of Wine.

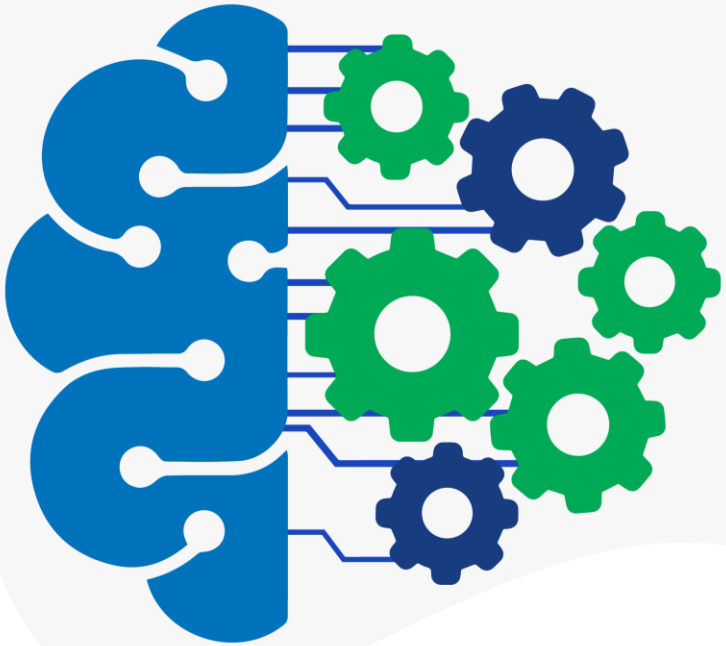


1. **Decision Tree**
2. **Random Forest**
3. **K Neighbors**
4. **Gaussian NB**
5. **SVC**
6. **XG Boost**

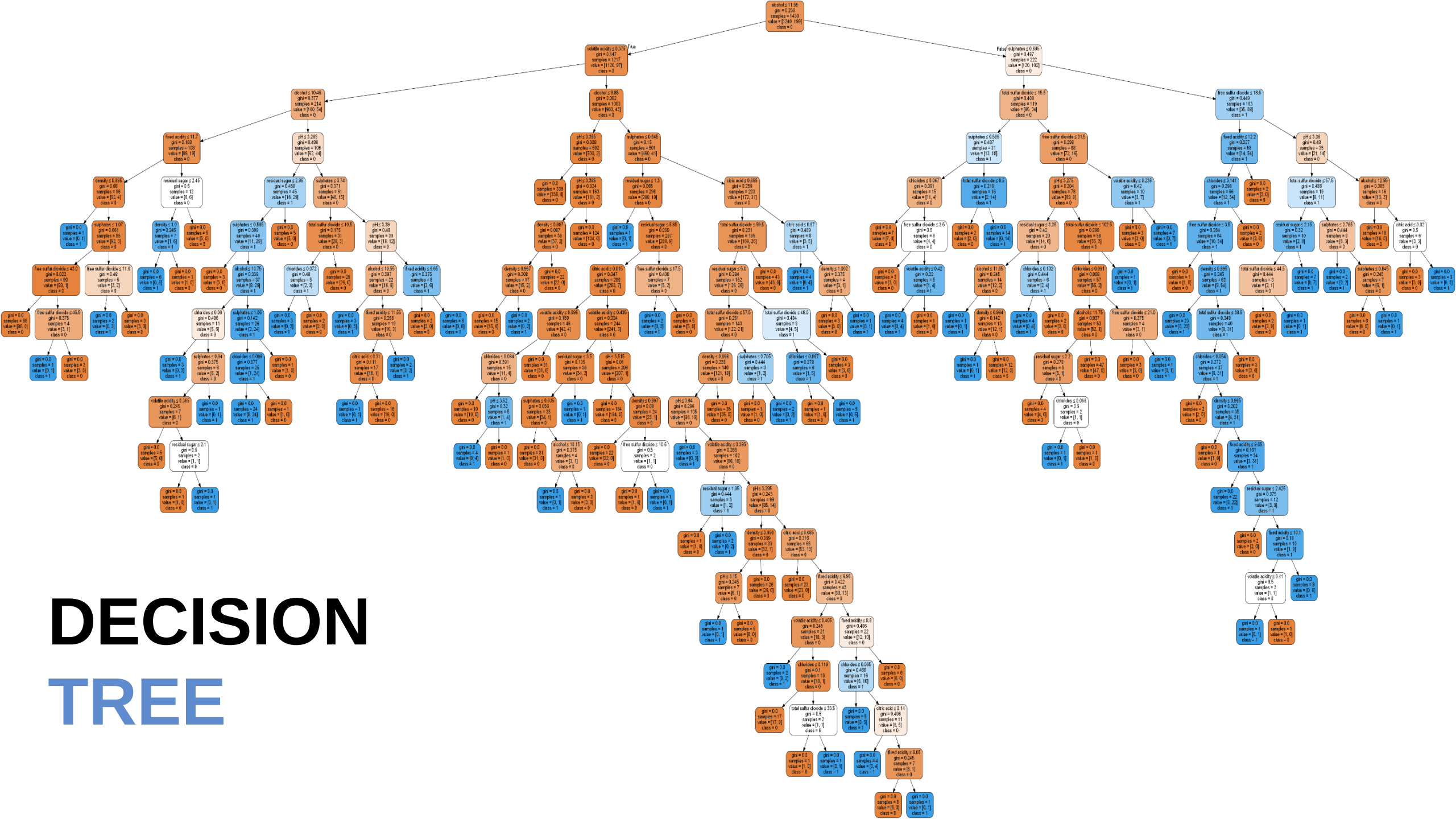
MODEL ACCURACY

6 Models have been comparatively tested for acquiring better accuracy

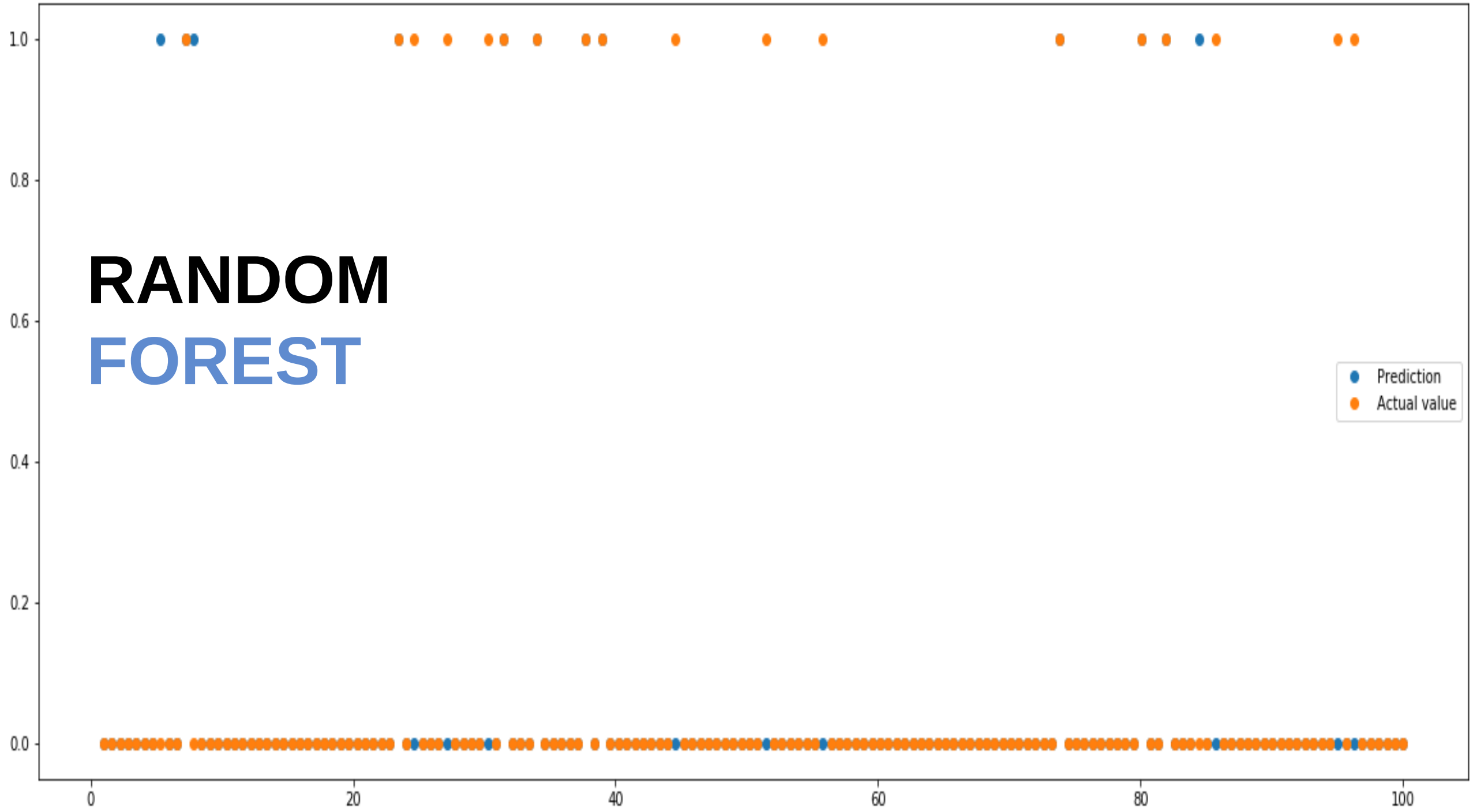
The data has been trained and tested by using multiple machine learning models for acquiring better accuracy of the Prediction of Quality of Wine. And their accuracy are mentioned below :



88%	**Decision Tree**	87%	**K Neighbors**	90%	**SVC**
91%	**Random Forest**	85%	**Gaussian NB**	88%	**XG Boost**


DECISION
TREE

RANDOM FOREST



THANK YOU

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