I used data from UC IRVINE DATABASE for Machine Learning, DATASET NAME: Wine Quality Testing

The dataset has 12 features to predict the quality of the wine on the scale of 0-10 **Input variables (based on physicochemical tests):**

- 1 fixed acidity
- 2 volatile acidity
- 3 citric acid
- 4 residual sugar
- 5 chlorides
- 6 free sulfur dioxide
- 7 total sulfur dioxide
- 8 density
- 9 pH
- 10 sulphates
- 11 alcohol

Output variable (based on sensory data):

12 - quality (score between 0 and 10)

Number of instances considered for classifying are 149

Classifying using J48:

Correctly Classified Instances 92

Accuracy :61.745 %

Incorrectly Classified Instances 57

Error rate: 38.255 % Confusion Matrix:

a b c d e f g h i j <-- classified as

 $0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ a = 0$

 $0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ b = 1$

 $0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ c = 2$

 $0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ d = 3$

0 0 0 0 1 3 3 0 0 0 | e = 4

 $0\ 0\ 0\ 0\ 4\ 78\ 14\ 2\ 0\ 0\ |\ f=5$

 $0 \ 0 \ 0 \ 0 \ 2 \ 22 \ 13 \ 1 \ 0 \ 0 \ g = 6$

0 0 0 0 0 3 3 0 0 0 | h = 7

 $0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ i = 8$

 $0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ | \ j = 9$

Classifying using 1- NN

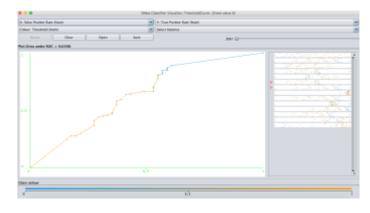
Correctly Classified Instances 95

Accuracy: 63.7584 %

Incorrectly Classified Instances 54

Error Rate: 36.2416 %

ROC curve for Quality 5



Confusion Matrix:

 $a \ b \ c \ d \ e \ f \ g \ h \ i \ j \ <\text{--- classified as}$

$$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ | \ b = 1$$

$$0\ 0\ 0\ 0\ 2\ 3\ 2\ 0\ 0\ 0\mid e=4$$

$$0\ 0\ 0\ 0\ 0\ 0\ 0\ 0\ 0\ |\ j=9$$

ROC curve for Quality 5

