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)

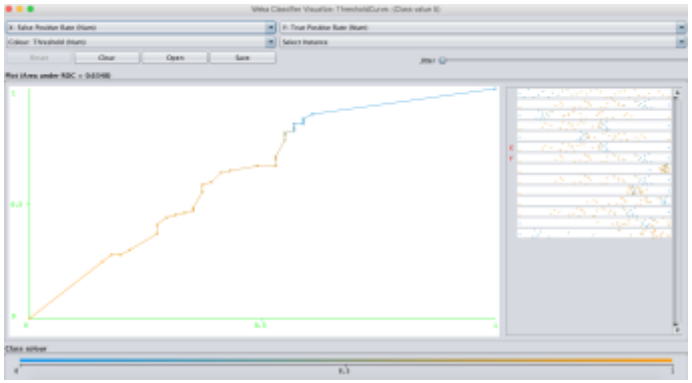
Number of instances considered for classifying are 149

**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 | 0 | a = 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | b = 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | c = 2 |
| 0 | 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 | 0 | 0 | i = 8 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | j = 9 |

ROC curve for Quality 5



**Classifying using 1- NN**

Correctly Classified Instances 95
Accuracy: 63.7584 %
Incorrectly Classified Instances 54
Error Rate: 36.2416 %

## Confusion Matrix:

```
  a  b  c  d  e  f  g  h  i  j   <-- classified as
  0  0  0  0  0  0  0  0  0  0 |  a = 0
  0  0  0  0  0  0  0  0  0  0 |  b = 1
  0  0  0  0  0  0  0  0  0  0 |  c = 2
  0  0  0  0  0  0  0  0  0  0 |  d = 3
  0  0  0  0  2  3  2  0  0  0 |  e = 4
  0  0  0  0  2 81 13  2  0  0 |  f = 5
  0  0  0  0  1 19 12  6  0  0 |  g = 6
  0  0  0  0  0  3  3  0  0  0 |  h = 7
  0  0  0  0  0  0  0  0  0  0 |  i = 8
  0  0  0  0  0  0  0  0  0  0 |  j = 9
```

ROC curve for Quality 5