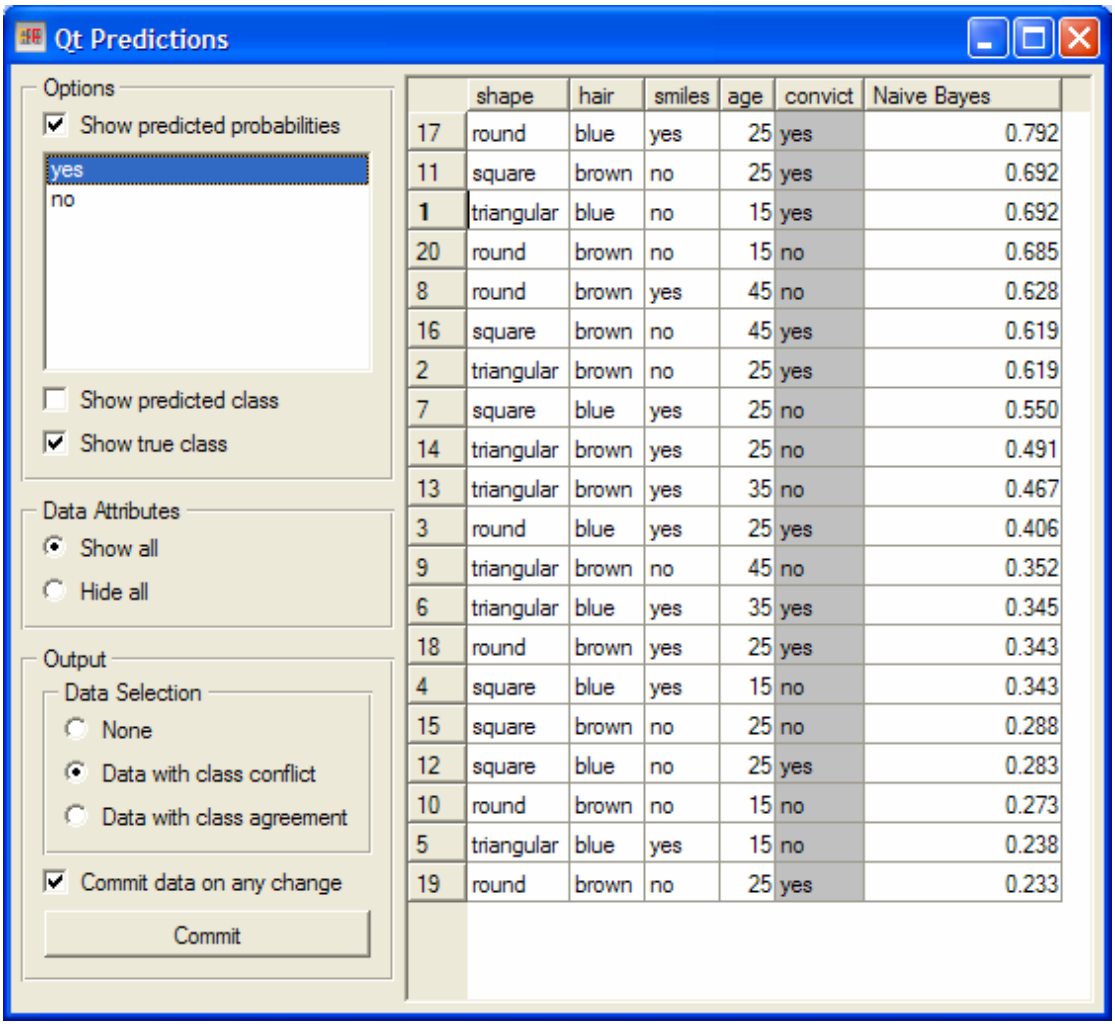
ROC CURVE

We have obtained the data set on 20 terrorist suspects, which contains several attributes, including the shape of the head, color of hair, their spirit when captured and their age. We have then used other information sources to find out who of suspects was terrorist and who not. For faster and more appropriate identification of the suspects in the future, we have built a predictive model (Naive Bayes) to estimate the target probability (terrorist). The results of applying such a model are give below.



	shape	hair	smiles	age	convict	Naive Bayes
17	round	blue	yes	25	yes	0.792
11	square	brown	no	25	yes	0.692
1	triangular	blue	no	15	yes	0.692
20	round	brown	no	15	no	0.685
8	round	brown	yes	45	no	0.628
16	square	brown	no	45	yes	0.619
2	triangular	brown	no	25	yes	0.619
7	square	blue	yes	25	no	0.550
14	triangular	brown	yes	25	no	0.491
13	triangular	brown	yes	35	no	0.467
3	round	blue	yes	25	yes	0.406
9	triangular	brown	no	45	no	0.352
6	triangular	blue	yes	35	yes	0.345
18	round	brown	yes	25	yes	0.343
4	square	blue	yes	15	no	0.343
15	square	brown	no	25	no	0.288
12	square	blue	no	25	yes	0.283
10	round	brown	no	15	no	0.273
5	triangular	blue	yes	15	no	0.238
19	round	brown	no	25	yes	0.233

a) Using above predictions, construct the ROC curve of the model on given data set.
b) Comment on the quality of this model [given this particular data set].
c) We randomly draw one positive and one negative case. Estimate the probability that the model will predict the higher probability for the positive case.