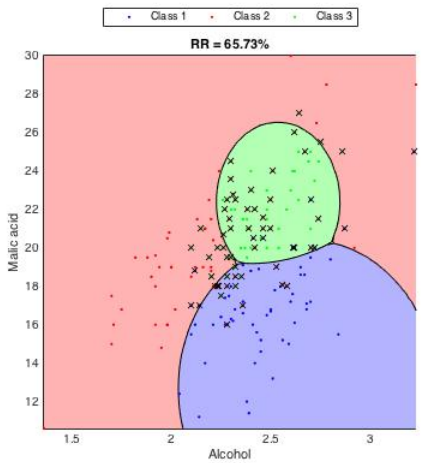
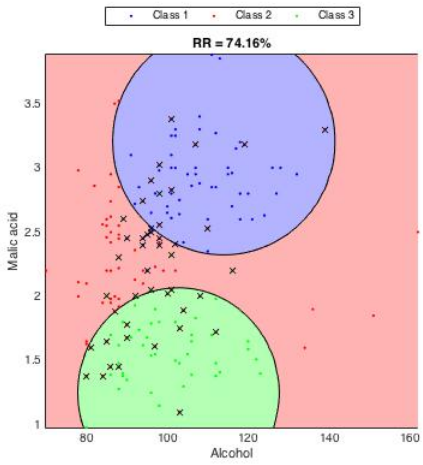
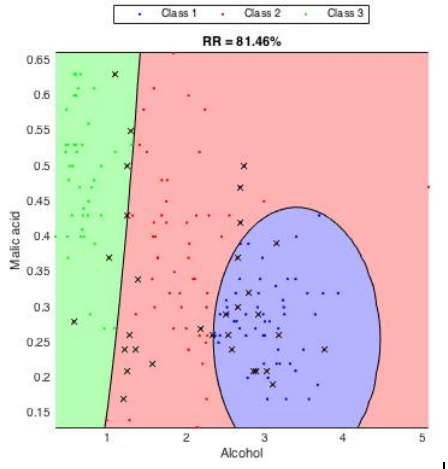
HW15 M10

Answer (for reference only)

1.

For data(3:4, :)	For data(5:6, :)	For data(7:8, :)
		
Observation		
In these three figures, we can find that RR is better in the data(7:8, :). That is because the data is more independent, so it can classify them better.		


```
for i = 3 : 2 : 7
    DS=prData('wine');
    DS.input=DS.input(i:i+1, :);
    [nbcPrm, logLike, recogRate, hitIndex]=nbcTrain(DS);
    DS.hitIndex=hitIndex;
    figure;
    nbcPlot(DS, nbcPrm, 'decBoundary');
    axis square
end
```

2.

- How to train

> Identify class PDF by MLE for 1D Gaussians

> Class PDF is the product of all the corresponding feature PDFs

> The formula is:

$$Pdf_C(\mathbf{x}) = Pdf_C(x_1) * Pdf_C(x_2) * \cdots * Pdf_C(x_d)$$

- How to test

> Assign a sample to the class by taking class prior into consideration

> Like the formula:

$$C = \arg\max_C \Pr(C) * Pdf_C(\mathbf{x})$$

- Strength?

> Fast computations during training and evaluation

> Robust than QC

- Weakness?

> Cannot deal with bi-modal data

> Class boundary not as complex as QC