**Instructions**

**Data:**

iris.xlsx: A relatively close discrete data set bayes\_train.xlsx: A relatively continuous data set, adapted from lr\_train.xlsx, also Discrete modeling data can be used to predict the probability of occurrence when the output xlsx is of 3 classes: 0,1,2

**Parameters:**

There are four parameters as follows:

method\_list={'normal','mvmn','kernel','mn'};

We know that Bayesian formula needs to model the prior distribution, the above is the distribution of data modeling, for example: continuous x I model as Gaussian normal distribution.

The interpretation of these four parameters is generally:

Discrete use of 'mvmn' continuous use of 'normal' When using 'normal', you can plot a prior Gaussian distribution (provided that method uses normal) variable important graph:

Figure 1

% need to more than 2021 b version

% explainer = shapley(Mdl,X);

% plot(explainer) This is a good explainer that comes with the new version. It uses shapley's algorithm from game theory. If the version is not enough, ignore the comments.

Figure 2

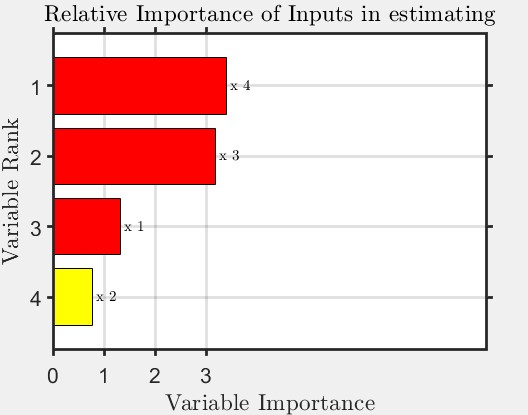
want\_num= round(0.8\*feature\_num); want\_num= round(0.8\*feature\_num); % represents the number of factors you need, i.e. the most important n factors

mat\_loss=draw\_importance(X,Y,method,feature\_num,want\_num); As with random forests, I constructed my own algorithm for the importance of variables:

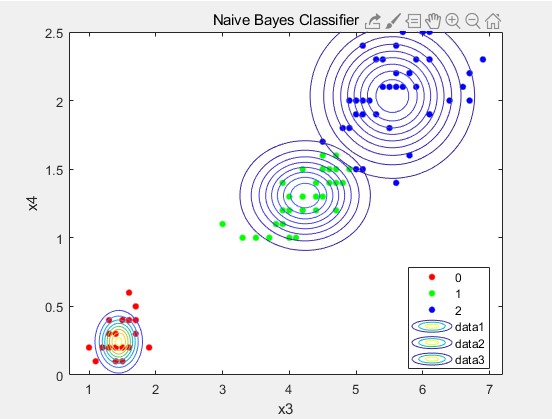
The loss pair modeled by each variable was used to model the data, and -log(loss) was used as the variable score.

Correctness verification for Figure 2: use 'normal', iris.xlsx

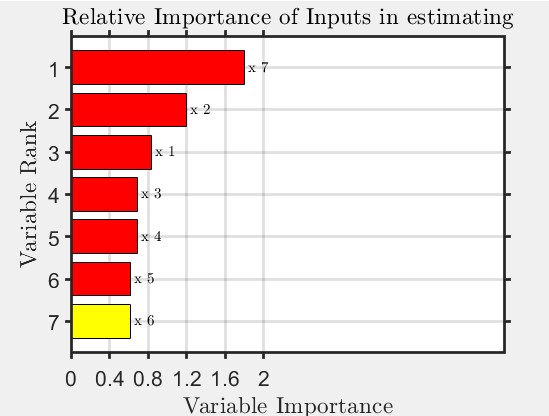
We get x3, x4 is more important



Looking at the Gaussian distribution, you can see that the boundary is indeed clearer using these two variables:



For another dataset, bayes\_train.xlsx, mvmn works a little better:



**Others:**

Output xlsx, the training situation of the plot training set, the confusion matrix graph, the output accuracy rate, the confusion matrix graph of the plot test set, the output accuracy rate are similar to the usual.

**Results Preview:**

Improved saving of relative to absolute road force.



The file structure is as follows:

