Experiment No - 6

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Title - Experiments with Bayesian classifier on weka.

Aim - To perform experiments with Bayesian classifier on weka.

Theory - Bayesian classifier is collection of classification algo. based on Baye's Theorem. Given the probability distribution, Baye's classifier can provably achieve optimal result. Bayesian method is based on the probability theory. The theorem finds the probability of another event that already occurred.

Consider the weather.arff file used in WEKA - for training the Naive Bayes model.

- open the arff file in preprocessor tab of weka explorer.
- click on edit button then new viewer window with data table will be loaded.
- To create a test set with cool and high parameters of attributes temp & humidity respectively, & edit values as shown in fig.
- select nothing on play attribute click ok and save data as separate file. file should look like:

@ relation 'weather symbolic - weka-filters. unsupervised. attribute Remove - R1, 4'
@ attribute temperature {hot, mild, cool}
@ attribute humidity {high, normal}

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@ attribute play {yes, no}
@ data
cool, high ?
The question "?" mark is standard way of representing missing value in weka.

- Building Naive's Bayes model:
  - Load file weather data again in explorer & then go to classify tab.
  - press on 'choose' classifier button and from tree menu select Naive Bayes.
  - Be sure that play attribute is selected as class selector and press start button to build model. Model outputs some info. on how accurate it classifier and other parameters.

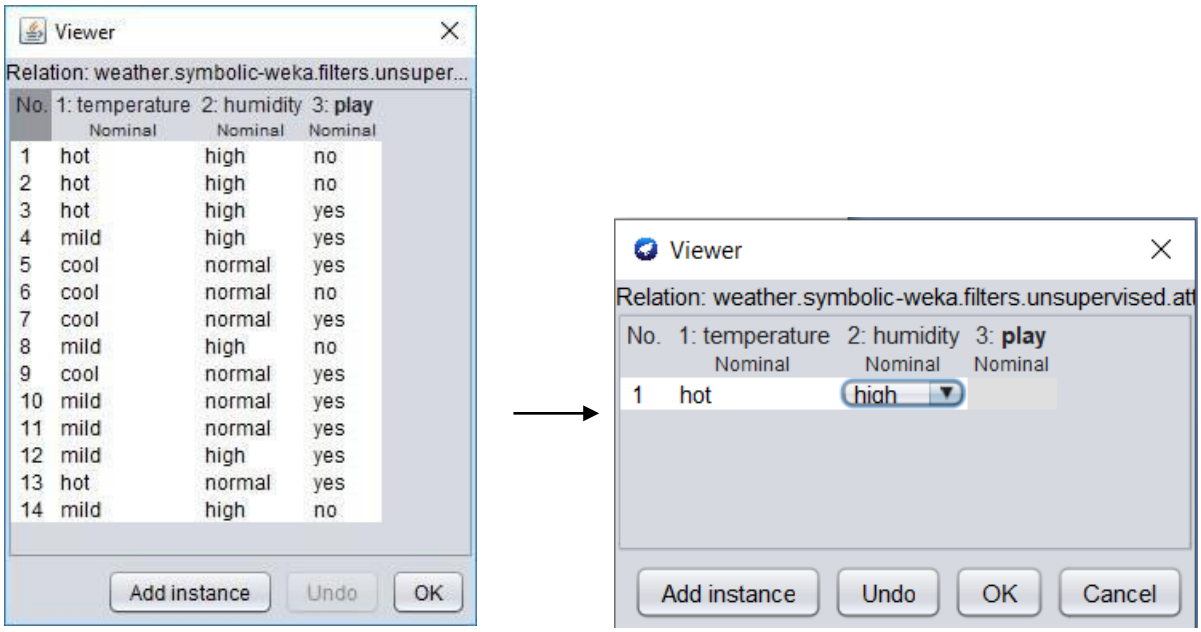
    correctly classified Instances 9 64.2857 %
    Incorrectly classified Instances 5 35.7143 %

- Evaluating classifier with test set:
  Now we need to load the test data we've created before for this.
  - select supplied test set & click button set.
  - click more options wherein new window choose plain Text from output prediction
  - The click left mouse button on a recently created model on result list & select Re-evaluate model on the current test set.

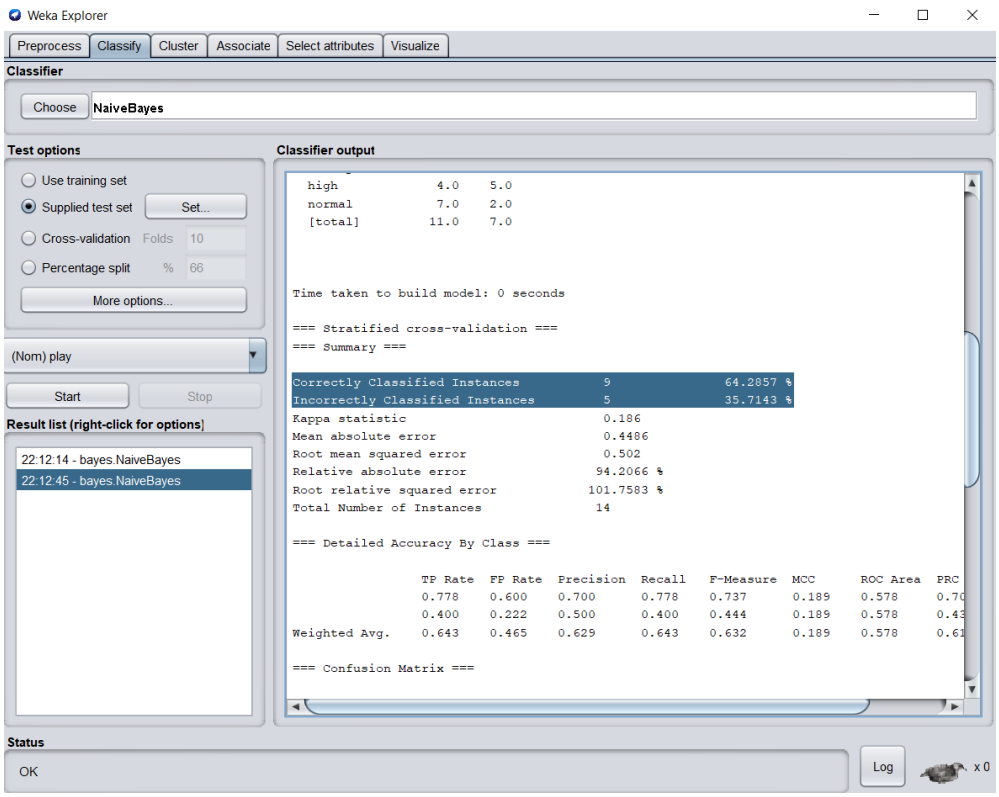
Conclusion - Thus, I studied Bayesian classifier & performed experiments on weka.

Outputs:

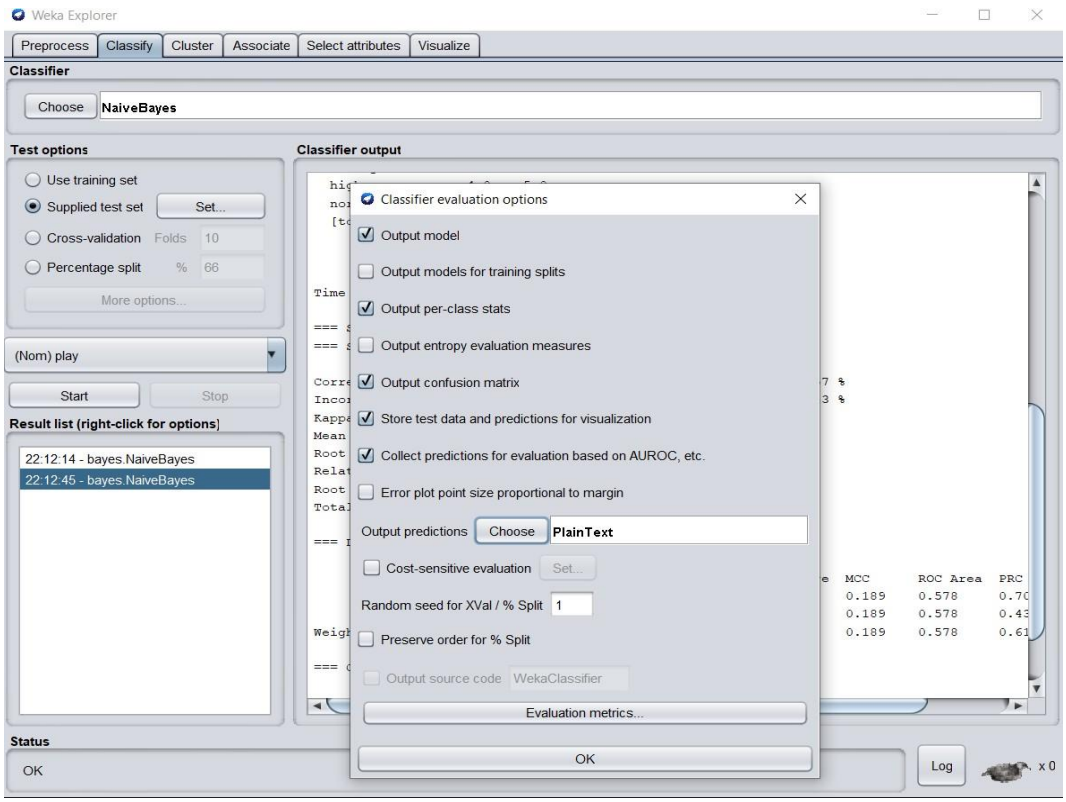
Loading weather.arff file in weka explorer and then viewing it on viewer window



Model outputs some information:



Evaluating classifier with the test set and setting classifier evaluation options:



Predicition for your given data cool and hot like this: