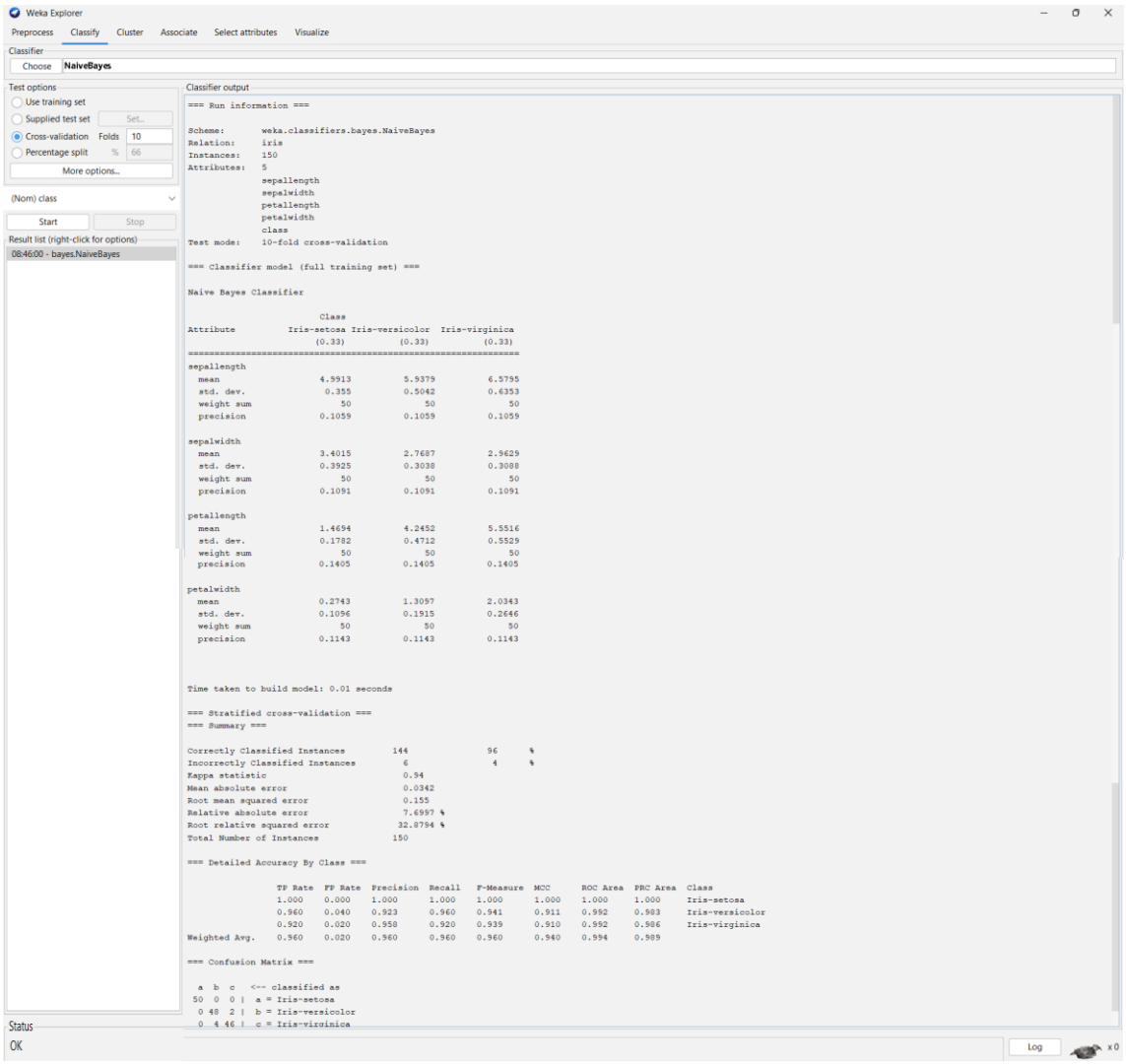
EXPERIMENT 8



Student Name : ..... Roll No.: .....

Experiment No. : ..... Date : .....

Experiment-8

- **Objective:-** Naive Bayes algorithm implementation on continous dataset- (IRIS dataset) using WEKA explorer.

In PDF : $\frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2\right)$.

- **Theory:-** Naive Bayes algorithm is a probabilistic classifier based on Bayes theorem assuming independence b/w features.

- **Steps:-**

1. Open weka and go to explorer panel.
2. Load dataset (IRIS dataset)
3. Click on classify Tab.
4. Choose Naive Bayes from bayes in classifier panel.
5. Set test option.
6. Click the Start Button.

- **Results:-** Naive Bayes classifier in weka successfully classifies IRIS dataset by predicting species based on feature probabilities & class wise statistics.

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Viva - Questions :-

Q1 Enumerate significance of Gaussian probability density function (GPDF) for NB algo. application to continous dataset.

→ GPDF is significant for Naive Bayes in continous dataset because :-

1. Handles continous data
2. Assumes Normal distribution
3. Computes class probabilities
4. Smooth decision Boundaries

Q2 How can the model performance be evaluated for any classification Algorithm?

→ 1. Accuracy → Overall correctness of prediction
2. Precision → correct positive prediction out of total predictive positives
3. F1 score → Harmonic mean of precision & recall.
4. Cross Validation → evaluates scalability & generalization