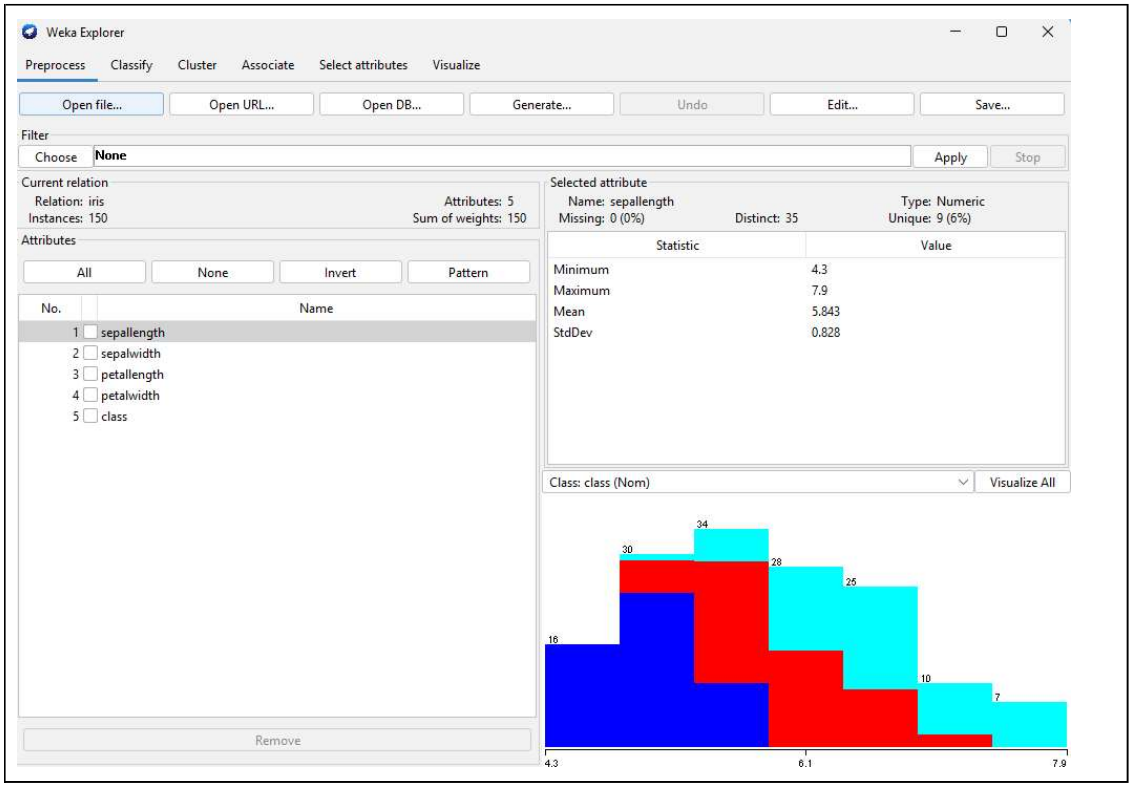
Practical No : 03

Aim: Demonstrate an application of Near Neighbor search. (WEKA)

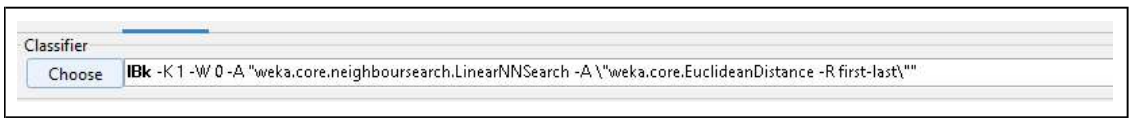
1. Load Data

- Open Weka
- Load a dataset (eg, iris atff dataset provided with Weka)



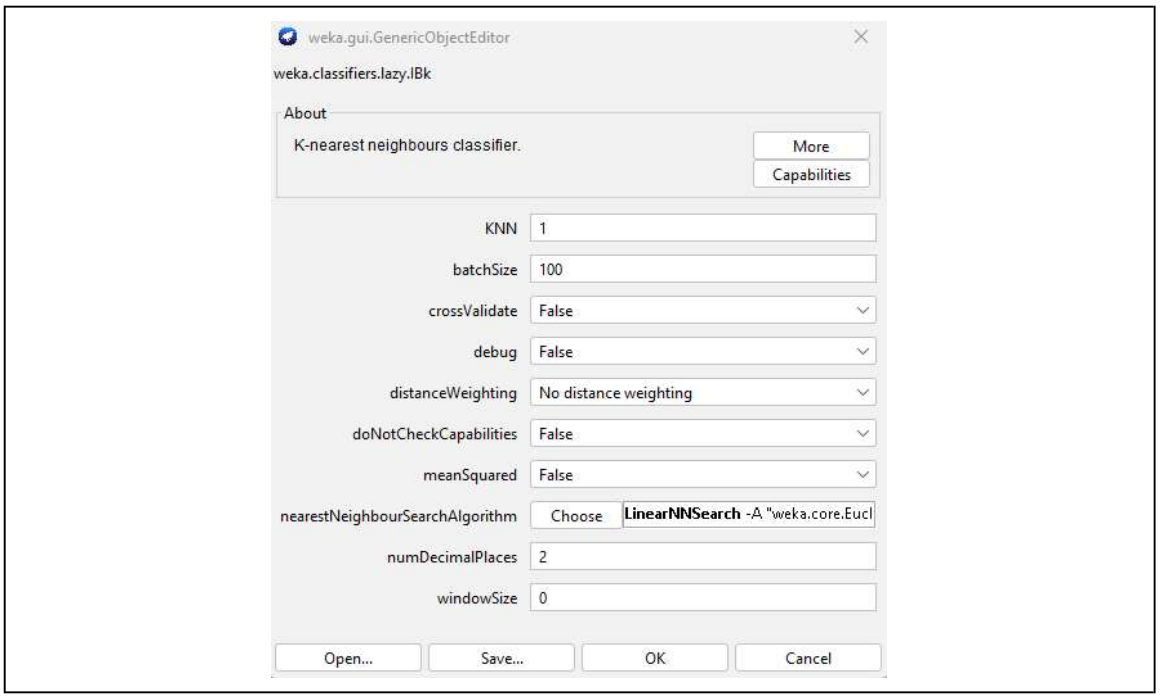
2. Choose k-NN Algorithm

- Go to the'Classify" tab
- Select the IBk classifier (this is Weka's implementation of k-Nearest Neighbor)



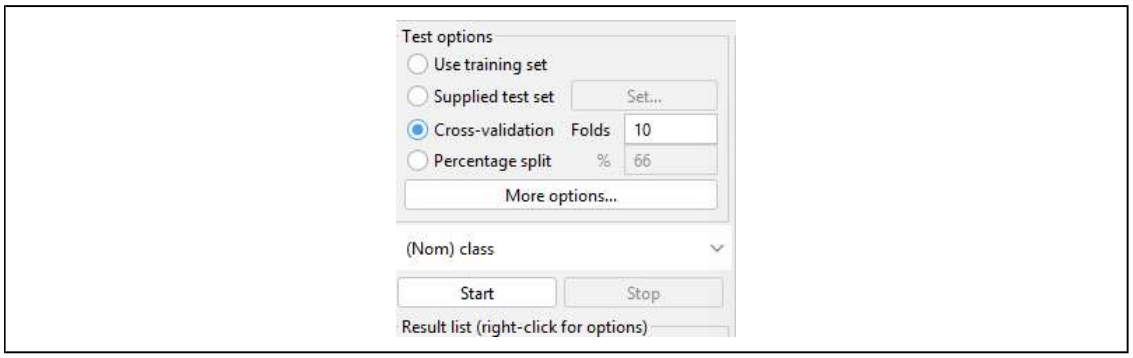
3. **Set Parameters:**

- Click on IBK
- Set the k parameter (number of neighbors) and other settings, such as distance function (Euclidean, Manhattan, ete.)



4. **Run Classiication**

- Choose a test option (e. g.. cross-validation or pereentage splt) Cick "Stat" to run the k-NN classification
- Observe the results, including accuracy and confusion matrix



5. Visualize Results:

- Use the "Visualize" tab to explore how the k-NN algorithm classified instances based on their neighbors

Classifier output

```
=== Run information ===

Scheme:       weka.classifiers.lazy.IBk -K 1 -W 0 -A "weka.core.neighboursearch.LinearNNSearch -A \"weka.core.Euclidean
Relation:     iris
Instances:    150
Attributes:   5
              sepallength
              sepalwidth
              petallength
              petalwidth
              class
Test mode:    10-fold cross-validation

=== Classifier model (full training set) ===

IB1 instance-based classifier
using 1 nearest neighbour(s) for classification


Time taken to build model: 0 seconds

=== Stratified cross-validation ===
=== Summary ===

Correctly Classified Instances         143               95.3333 %
Incorrectly Classified Instances         7                4.6667 %
Kappa statistic                          0.93
Mean absolute error                      0.0399
Root mean squared error                  0.1747
Relative absolute error                  8.9763 %
Root relative squared error             37.0695 %
Total Number of Instances              150
```