



**Green University of Bangladesh**  
**Department of Computer Science and Engineering (CSE)**  
**Faculty of Sciences and Engineering**  
**Semester: (Spring, Year:2023), BSc. in CSE (Day)**

**LAB REPORT - 05**

**Course Title:** Artificial Intelligence Lab

**Course Code:** CSE-316

**Section:** PC-201 DC

**Student Details**

| Name |                 | Students Id |
|------|-----------------|-------------|
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**Lab Date:** 10-06-2023

**Submission Date:** 16-06-2023

**Course Teacher's Name:** Rusmita Halim Chaity

[For Teachers use only: **Don't Write Anything inside this box**]

**Lab Report Status**

**Marks:** .....

**Signature:** .....

**Comments:** .....

**Date:** .....

## 1. TITLE OF THE LAB EXPERIMENT

Implementation Neural Network classification algorithm using Weka.

## 2. OBJECTIVES/AIM

- To learn about basic component of Weka.
- To acquire knowledge about Weka.
- To learn about Neural Network classification algorithm.
- To evaluate the results of a data file.
- To make training model.
- To evaluate a testing file and compare with different parameters.

## 3. PROCEDURE / ANALYSIS / DESIGN

**Problem:** Run Neural Network classification algorithm and evaluate the results of the method on a data file. Also make training model and use the training model to evaluate a testing file and compare accuracy values for different parameters.

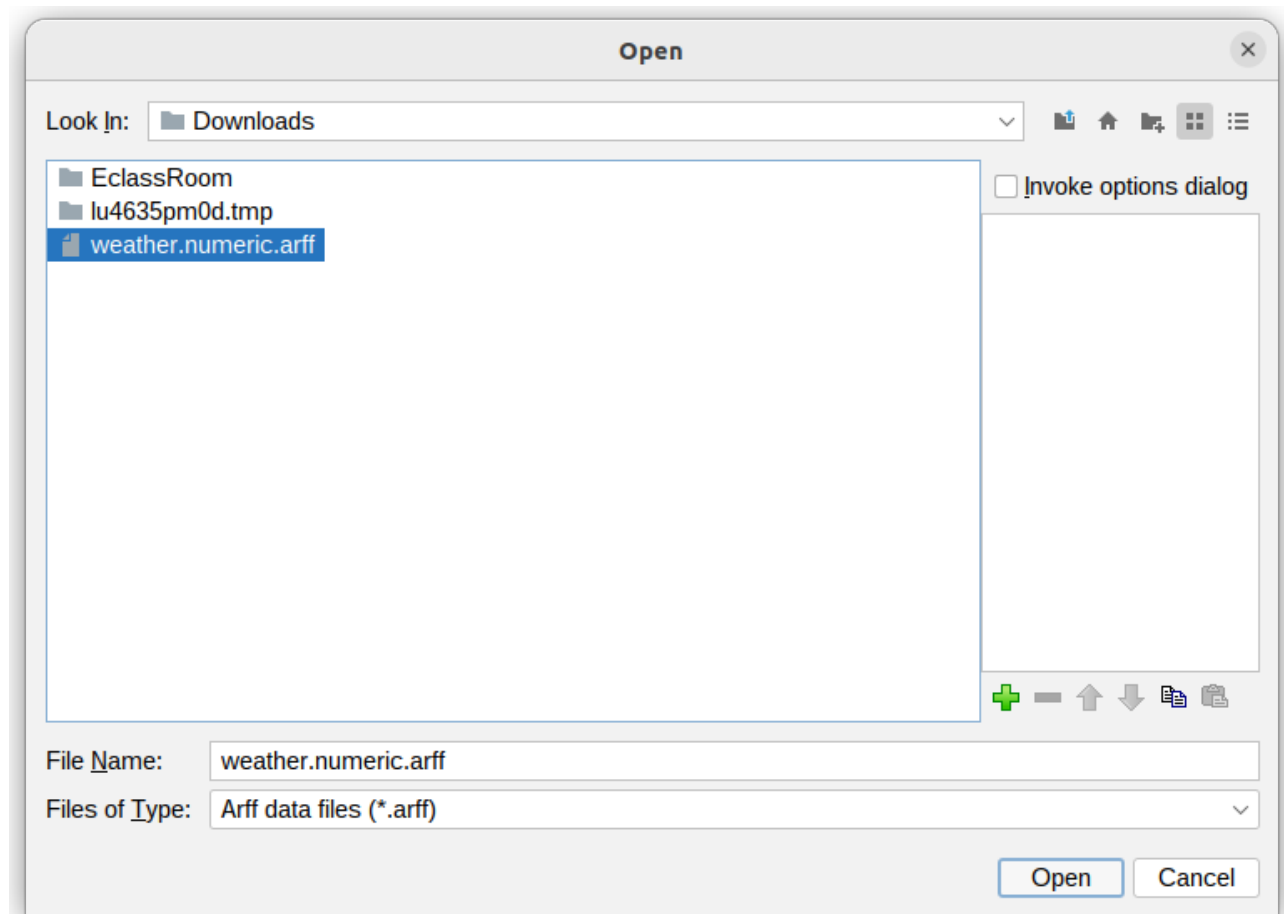
### The working system,

1. Open Weka, click Explorer from the main menu and click Open File to load the data file.
2. After uploading the file, click on the Classification tab and select NeuralNetwork from the list of available classifiers.
3. The "NeuralNetwork" option allows you to set the number of layers and hidden neurons in each layer. Activation function and learning speed can also be selected. These parameters can have a large effect on the performance of the classifier, so it may be worth experimenting with different values.
4. After setting the parameters, click the Start button to run the classifier on the data.
5. After the classifier is finished, you can evaluate its performance by clicking the Results List tab. Here you can see the classification accuracy and other metrics like confusion matrix and ROC curve.
6. To create a training model, you can use the same steps as above, but apply them to a different training file. After training the classifier, you can save the model by clicking the Save Model button.
7. To evaluate the test file using the trained model, upload the test file and click on the Classification tab. Instead of selecting "NeuralNetwork" from the list of classifiers, select "Load Model" and select the training model you saved in step 6.
8. After running the classifier on the test set, you can compare the accuracy values with the values obtained from the training set to see how well the model generalizes to new data.

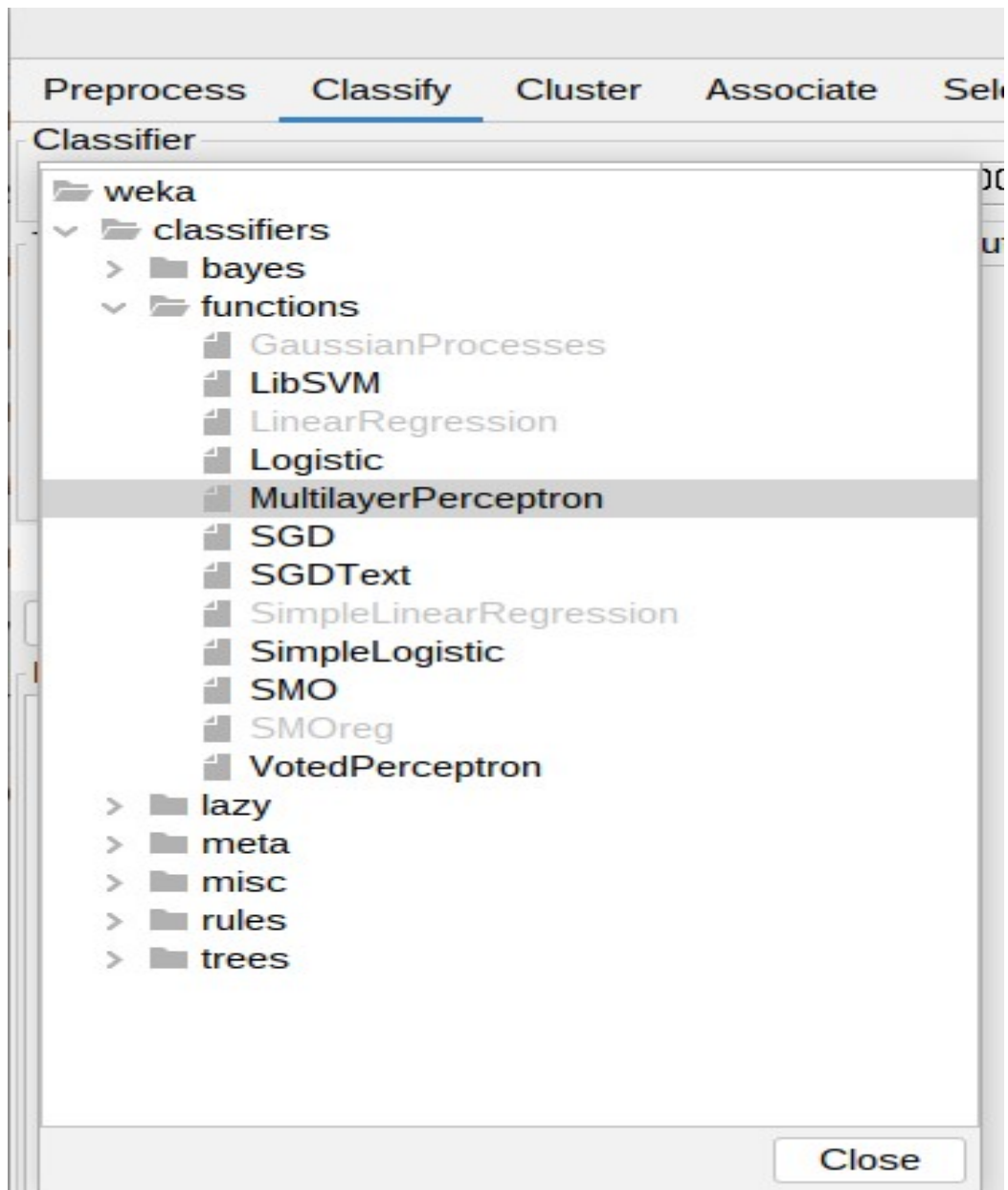
## 4. IMPLEMENTATION



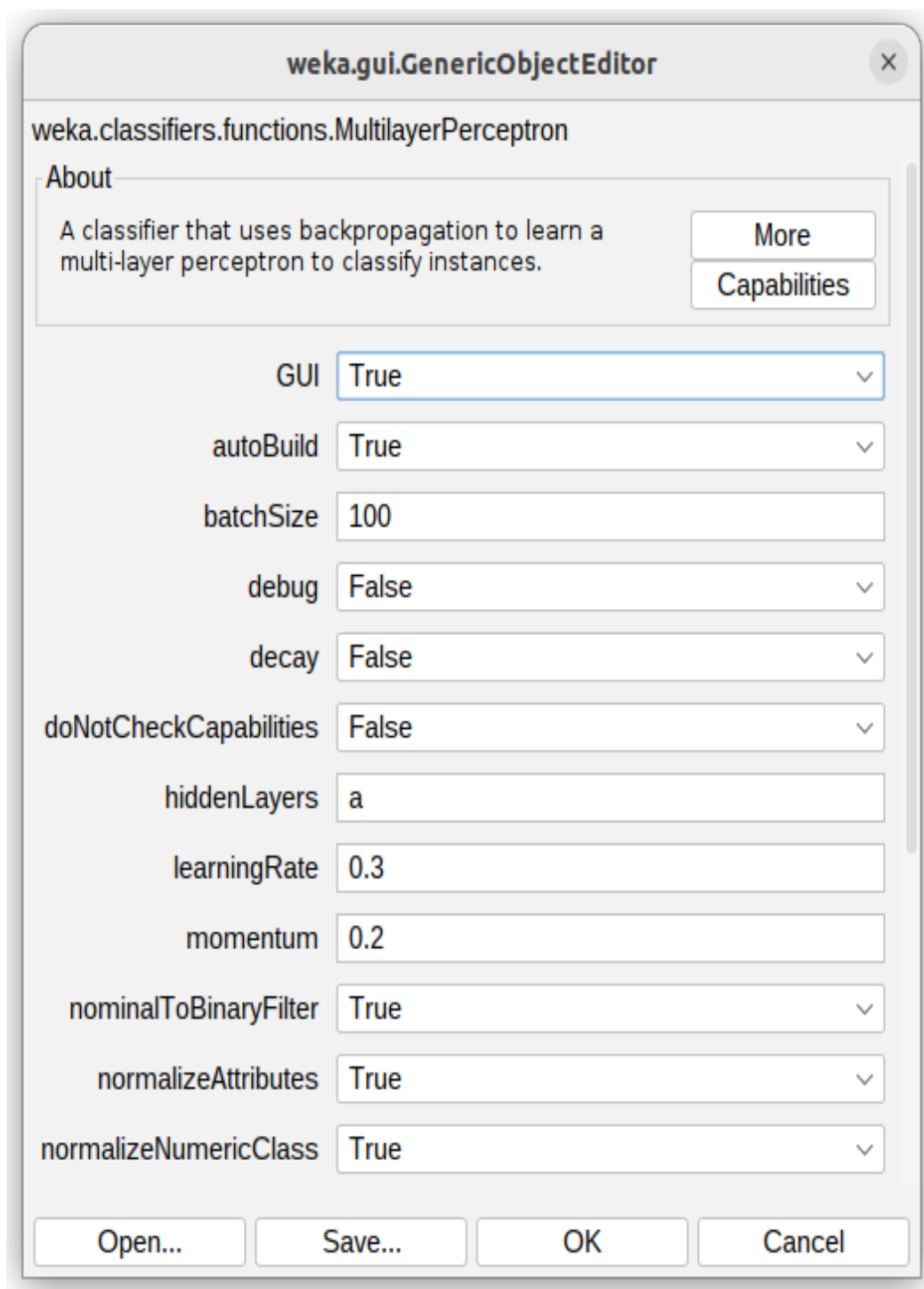
**Figure\_01:** Open Weka and click Explorer



**Figure\_02:** Insert weather.numeric.arff dataset

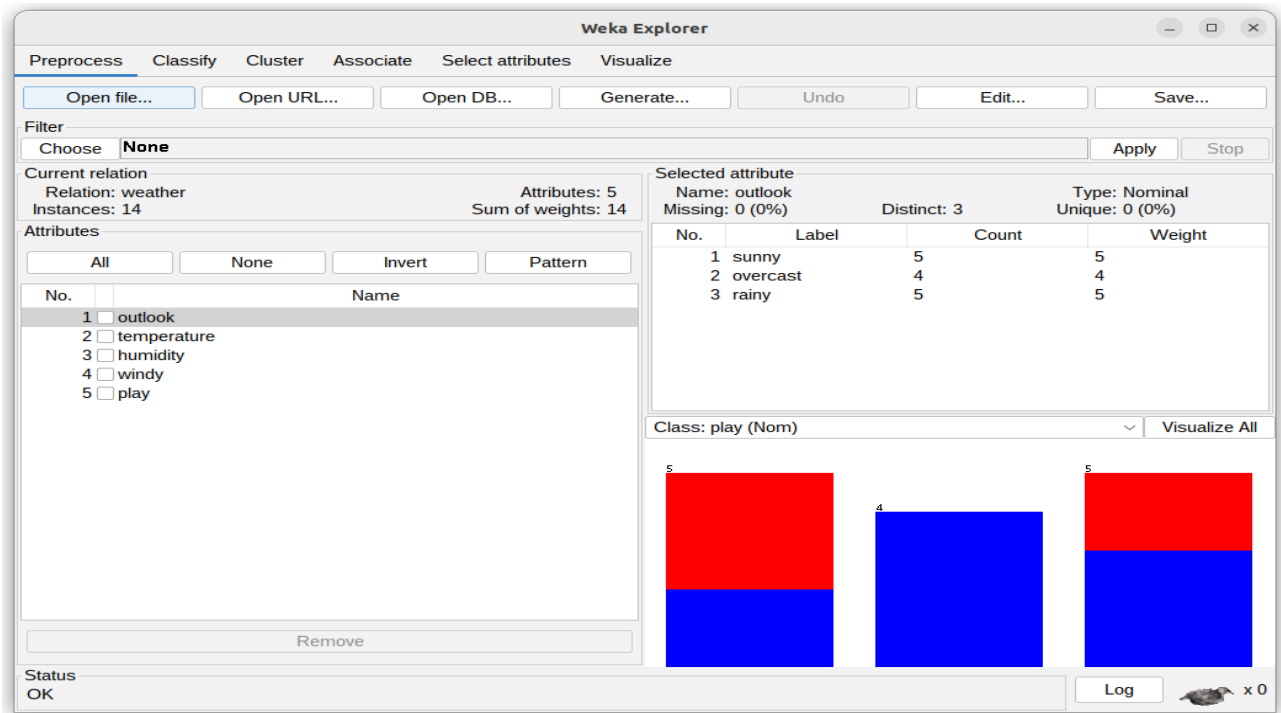


**Figure\_03:** Select MultilayerPerceptron for Neural Network

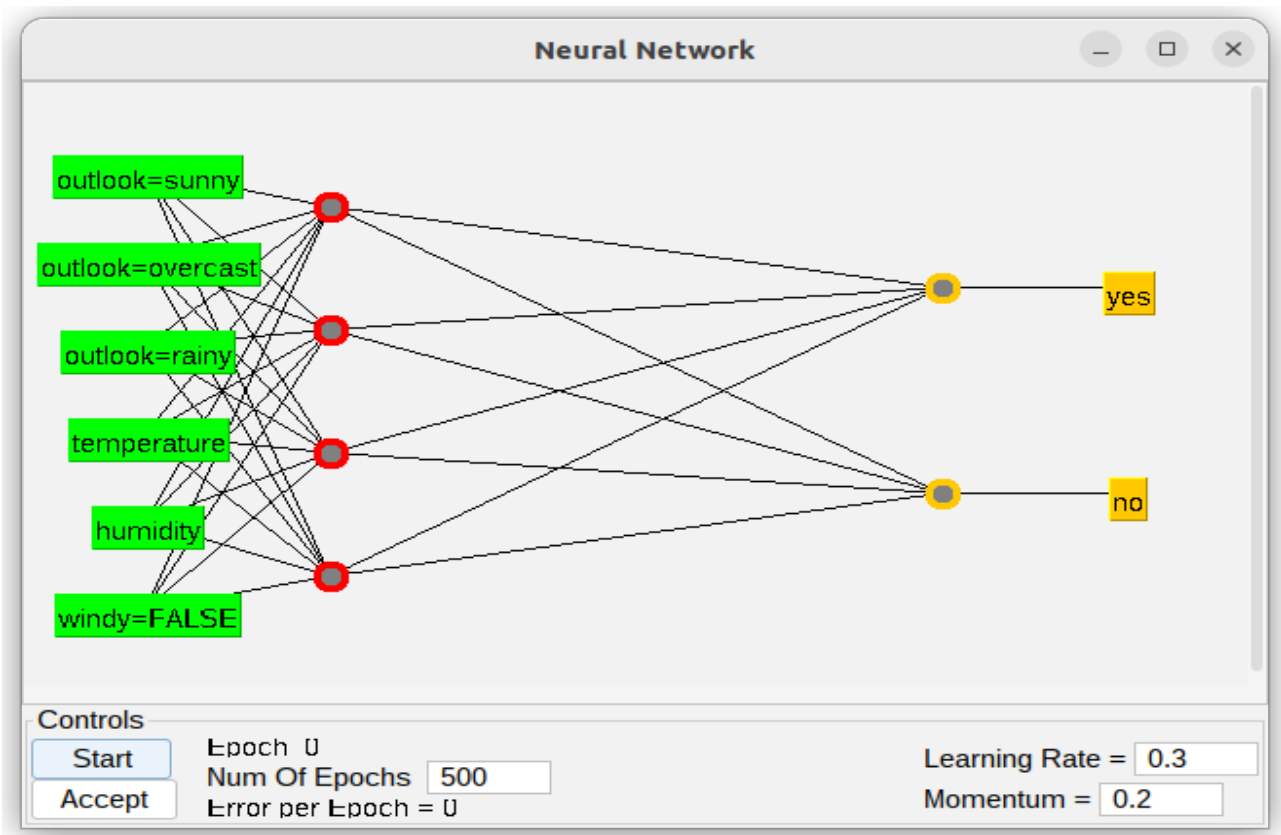


**Figure\_04:** Put true value for GUI

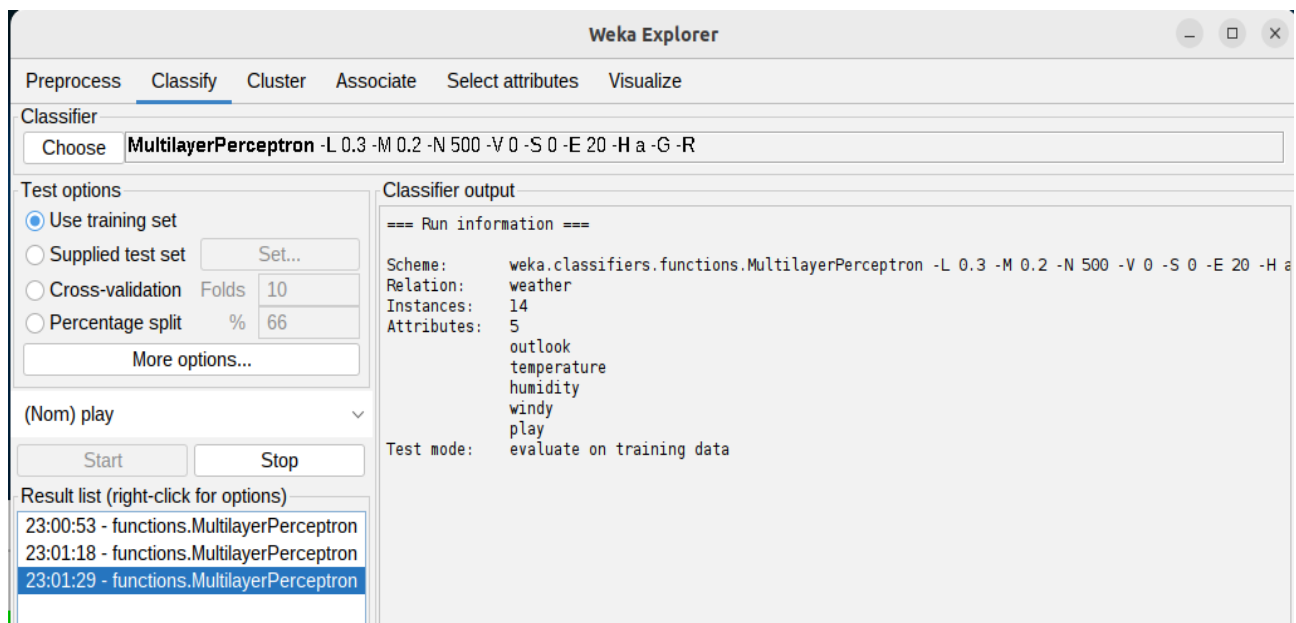
## 5. TEST RESULT / OUTPUT



Figure\_05: Output of non-Neural Network for GUI



Figure\_06: Output of Neural Network for GUI



**Figure\_07:** Output of Neural Network for classify

According to figure\_05 it shows the graphical output of the weather.numeric.arff dataset. But we need to use neural network. So we go to functions to find MultilayerPerceptron that shows figure\_03. Now we put true value for GUI that shows figure\_04. Now click start to see the graphical output of the weather.numeric.arff dataset using neural network that shows figure\_06 and figure\_07 shows the output of Neural Network for classify.

## 6. ANALYSIS AND DISCUSSION

This experiment mainly based on software. So, it may have software error. Based on the focused objective(s) to learn the step-by-step working system of this problem. Weka is an open-source data mining software that provides a user-friendly interface for implementing and training neural networks. The first step in implementing a neural network classification algorithm using Weka involves preparing the dataset, selecting an appropriate neural network architecture, training the model, evaluating its performance, and applying it to new data. Weka provides a range of tools and algorithms for implementing and training neural networks, making it an excellent choice for implementing neural network-based classification algorithms. The main hard part of this experiment is successfully completed the problem using Weka. We face so many problem for understanding new new function of Weka and their working system. Now, we get so many knowledge to execute those function. Those are very important for our future.