

Part 1

*Lecturer: Dr. Adi Akavia**Student(s): M.Rowaida,H.Maymana,K.Afnan*

1 Summary

In machine learning, the decision tree is an algorithm for classification. We implement decision tree algorithm. Then, we test accuracy of our decision tree algorithm classification results.

2 PPML A

Motivation: trying to learn the data we use Decision Tree algorithm to practice it. based on features, Decision Tree represents a procedure for classifying data. We implement the code in three main steps :

- Import And Load Dataset.
- Train and Evaluate the Model.
- Make Predictions.

2.1 Import And Load Dataset

Canser, we can easily import the dataset through keras.using mnist load data method returns the training data along with the testing data and its labels.

2.2 Train and Evaluate

The main part of this submission, After getting the Data we use Gini Algorithm for training, We built it all from the scratch the Tree and the algorithms.

Code: we implement *TreeTrain* and *Gini* functions

2.3 Make Predictions

Using threshold zero function on the training tree we could predict the coming inputs.

Code: we implement *TreePredict* and *I0* functions.

3 Results

The Final Tree accuracy was 0.9773.