Artificial Neural Networks (RWeka) CIS400/600

Fundamentals of Data and Knowledge Mining

Problem 0 - Data

1. Install `RWeka` package
2. Load `RWeka` library
3. Load **IRIS** dataset (iris.csv) and print summary of dataset

Problem 1 - Artificial Neural Networks

1. Create a neural network
2. Perform **Hold-out** model selection with equal data split
3. Train the model on training dataset using default parameters. Let us call this model `ORIG_NN`. Later, train the model using learning rates 0.4 and 0.5 and for each learning rate, epoch values are 500 and 1000. List R commands (total of five, one for `ORIG_NN` and four for the parameters). List error rate per epoch for these conditions.
4. Use `ORIG_NN` and test it on test set
5. Print confusion matrix with actual values along rows and predicted values along columns
6. Write R command to calculate **accuracy**
7. Write R command to calculate **precision**

8. Write R command to calculate **recall**

9. Write R command to calculate **f-score**

Problem 2 - Model Evaluation

1. Use `ORIG_NN` from problem 1 but evaluate it on entire IRIS data using 10-fold cross-validation. Print results of cross-validation.