Techniques of Artificial Intelligence

Exercises – WEKA

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30. **Locally weighted learning and WEKA**
Use the "circles.csv" dataset for this exercise.

    - Investigate whether the locally weighted learning algorithm does manage to classify the data correctly.
    - Investigate the different test options which are provided by WEKA. Can you show an important difference in performance depending on the method used for evaluating your hypothesis?
    - Do the results depend on the number of neighbours used? How and Why?
    - Identify the different available weighting schemes. Do the results depend on the weighting scheme which is used? Why is that?

31. **Neural networks and WEKA**
Use the circles.csv dataset also for this exercise. Investigate the influence of the number of hidden layers on the performance of the classifier. Motivate your findings.

32. **Experimenter (Algorithms comparison with 10 fold cross validation)**
Use "splice.arff" dataset.

    - Make a comparative performance analysis of the given dataset using ID3 and Naïve Bayes learner with Zero-R as the base classifier learner. Describe and motivate the observed trend in the performance.

33. **Experimenter (with processed dataset)**

    - Open the "splice.arff" dataset in "Explorer" and apply the correct filter on the data (preprocess tab, choose an unsupervised attribute filter). Save the dataset as "splice_new.arff"
    - Redo the comparative performance analysis using ID3 and Naïve Bayes learner with Zero-R as the base classifier learner. Describe and motivate the observed trend in the performance compared to exercise 32.

34. **Experimenter (Evaluation of datasets on algorithm)**
Use the datasets "splice.arff", "blood_fat_corrupted.arff", "schizo.arff".

    - Open the datasets in the experimenter. Use the algorithm ID3 with 10-fold cross validation technique. What do you observe? In case of any execution error report the same and motivate the reason for the same.
    - Repeat the experiment using Naïve Bayes learner. Describe and motivate the observed trend in the performance