3 Lab work

Goal: to gain practice in building classification / prediction models, using cross validation, enhancing the model performance.

Assignment

1. Pick up a target attribute for dataset of lab work 1 (if not defined by dataset owner).
2. If necessary, perform rearrangements on target attribute values (e.g. wide range of numerical attribute values change by smaller number of (categorical) intervals (e.g. range of forecasted values 1..2000 can be changed by 1..5 intervals)).
3. Build a model for prediction or classification of your dataset.
4. Apply 10-fold cross validation method to know averaged prediction performance of the developed classifier. Model accuracy should be at least 80%.
5. Apply any of the measures (examples are given next) in order to increase the averaged performance by 5 per cents and repeat step 4:
    a. Rearrange dataset
    b. Change learning rate
    c. Change activation function
    d. Change ANN structure

Report should contain:

1. Initial dataset description
2. A list of possible dataset rearrangement with comments
3. Architecture of ANN (indicating neurons at each layer) including values of parameters (learning rate, activation function)
4. Results of 10-fold cross validation experiments (cost function value at each fold, averaged value)
5. Description of measures taken in order to increase ANN performance. Repeat 4th step for documenting improved model performance.
6. Conclusions