Lab 5: Experimental Setup and Classification using NN (Week 6)

1 – Objectives

In this work you will use Scikit-learn to implement a classification task using NN and gain insights on the configuration of MLP hyperparameters and the process of experimental setup.

We will use the Sales-Win-Loss data set from last lab Scikit-learn tutorial. The dataset contains the sales campaign data of an automotive parts wholesale supplier.

The classifier will be used to predict which sales campaign will result in a loss and which will result in a win.

2 – Data preprocessing and Experimental Setup

Use the previously acquired knowledge to preprocess the data as you deem necessary, and create your Train, Validation and Test sets. Don't forget that you should only use your Test set after you are satisfied with all NN parametrization and hyperparametrization. Consider if using cross-validation is necessary.

3 – Classification Task

Use Scikit-learn (https://scikit-learn.org/) to implement a NN MLP classifier that predicts which campaigns will be successful (**from sklearn.neural_network import** MLPClassifier)

You will need to configure and optimize your NN in order to obtain good results. Do your best…

4 – Evaluation and Validation

Use the previously acquired knowledge to evaluate and validate the performance of your classifier properly.

5 – Report

Write an optional report where you indicate the options you made regarding the data preparation, the experimental setup, the construction of the model, and the evaluation and validation process. The report is optional but will be used as a bonus in your final grade. Send the report before Tuesday, April 21st to:

joao.carvalho@tecnico.ulisboa.pt

Note that you will likely be able to reuse this report for the upcoming evaluation project. Hence, any extra-effort you make here will pay off later.