Assignment 2: Logistic Regression with Bagging

Apply logistic regression to this [Bank Note Authentication](#) dataset. A **CSV** file is also included in the code base. Your goal is to predict whether a banknote is original.

- Class 0 (Negative class): Fake
- Class 1 (Positive class): Original

Please find the necessary boilerplate codes here > [Assignment 2 Code Base](#)
There are missing parts in the code that you need to implement. You have two tasks.

Task 1: Simple Logistic Regression

Refer to **run_logistic_regression.py**. That code should handle data reading, splitting, training, and performance reporting.

Task 2: Logistic Regression with Bagging

Refer to **run_logistic_regression_with_bagging.py**. That code should handle data reading, splitting, training, and performance reporting. For ensembling, you need to train classifiers on different samples from the **training** dataset. The **BaggingClassifier** class should be able to generate samples and train separate classifiers on its own.

Additional Information

- You **must** use NumPy and Pandas.
- Using Sklearn, Scikit, Keras, Tensorflow, PyTorch - or other frameworks that include these implementations is prohibited.
- Please refer to [Precision and recall - Wikipedia](#) for the performance metrics
- Write the code in such a way that you can quickly incorporate a new dataset (with a different number of samples and attributes)
- You don't have to follow the design pattern by heart. You are allowed some creative independence.

Contact us if you find any discrepancies.
Deadline 17 December (Saturday), 12:05 AM