ML Assignment

The goal of this assignment is to implement classification algorithms in C++.

There are 2 options:

- Option 1:
  Implement from scratch Support Vector Machine (SVM) and Artificial Neural Networks (ANN). For the optimization part of SVM, you'll have to implement the Sequential Minimal Optimization (SMO) algorithm or any other similar algorithm. Please, consult with the instructor if you want to use anything other than SMO.

- Option 2:
  Implement Decision Tree (DT), SVM and ANN. The implementations of DT and ANN must be from scratch. As for SVM, the optimization part can be done using any existing library provided that proper citation is given.

Your implementation should have a single main function that asks the user to select the dataset to be used. The two datasets we're considering are:

- Small Dataset:
https://archive.ics.uci.edu/ml/datasets/Mesothelioma%C3%A2%E2%82%AC%E2%84%A2s+disease+data+set+

- Large Dataset:

https://archive.ics.uci.edu/ml/datasets/Diabetic+Retinopathy+Debrecen+Data+Set

Then, the models under considerations are trained and tested on the selected dataset.

For the small dataset, your code must use 5-folds cross validation and outputs the average accuracy for the five folds.

As for the large dataset, it should use 80% of the data for training and 20% for testing. It should output the confusion matrix in addition to the precision, recall and f1-measure.