BIRZEIT UNIVERSITY
Electrical and Computer Engineering Department
ENCS3340 "Artificial Intelligence", First Semester, 20123-2024
Machine Learning Project, Instructors: Dr. Adnan H. Yahya**,**
Due: January 10, 2024 Partner Selection Deadline: 10/12/ 2023,

Machine Learning Project

This assignment is for groups of 2 students each. If you want to do it alone you must get the permission of the instructor. The same for groups of 3 (has to involve more work).

1. Goal

In this project students will learn how to use supervised learning for real life tasks. Due to time constraints that may not allow data collection, it will be applied to training/test sets provided available on the internet. Adding substantial data to the dataset in coordination with the instructor will be rewarded. The project involves using machine learning tools for model generation and testing the models for test data and reporting on the results.

2. Specifications

The input for this assignment is as follows:

- The training set (ready from a source of partially contributed to by the students).
- The test and training data may need to be cleaned. ?
- You may use a learning tool of your choice such as WEKA, Mallet or similar.
- You may also try using deep learning tools for your work but you need to invest time in mastering that. It's your job to install the system on your machine or find a machine with the system. You can consult on that with the instructor or TA.

- You need to test a multiplicity of learning algorithms. That should include at least two of the three methods we learned: decision trees and ANN but need to include others in search for the best results from the list given in the table below.

- There should be a testing run on the test data. The results should have the form of the usual evaluation of learning algorithms summarized in a table for all tests done.

3. Submissions: Please submit the following: (in addition to the project selected abstract –one page- and partner name by 10/12/2023).

1. **Report**: Write **up to** 4 pages to describe how you designed and implemented your project, the tools used and algorithms tested, the list any assumptions you made for your project. You will need to submit a JAR file with the algorithms you tested so as to be able to use your work even without the learning tool you used.

As a further step (Bonus) You may want to experiment with how the system performs for varying sizes of test data or for varying number of classes in the classification category.

4. **Source Data** : Include all the source data you used. These need to be submitted only electronically (no hardcopies of the code) and clearly labeled (say by having informative file names).

5. **Demo:** You may be asked to demo your work to your instructor. For that you need to be able to work with your system, introduce modifications, defend your choices and test on new data and interpret the results.

4. Possible tasks (select 1 by 10/12/203 with partner selection).
https://www.datacamp.com/blog/7-ai-projects-for-all-levels
https://www.edureka.co/blog/artificial-intelligence-project-ideas/

1. Give Life: Predict Blood Donations
2. BERT for Arabic Text Classification
3- Stock Market Analysis And Forecasting
4. Medical diagnosis: of diseases of interest (Covid 19, Influenza, diabetes,Thalassymia,…).
5- Loan Eligibility Prediction:
6- Another topic that you always wanted to work on but never had a chance, approved by instructor based and a detailed abstract.

Honor Policy: All are required to adhere to the University honor policy and violations will be dealt with according to University regulations.

Good Luck