



Department of Electrical and Computer Engineering
Second Semester, 2023/2024

Artificial Intelligence, ENCS3340

Project #2: Machine Learning for Classification

Due date: June, 23, 2024

Late submission: 10% per day.

Teams: This project is intended for teams of 2 students. You can work with students from any section

Goal: In this project students will learn how to use machine learning tools to test different algorithms for classification tasks.

Specifications: You need to compare different machine learning algorithms for a classification task using **WEKA**. Each group has to choose one dataset to experiment with **based on the last digit of the least student id in the team mod3 as follows:**

No.	Dataset
0	Speaker Accent Recognition Dataset (Link)
1	Early stage diabetes risk prediction Dataset (Link)
2	Raisin Dataset (Link)

You have to test at least 3 models: Decision Tree, Naïve Bayes, and MLP. For each model make sure to do the following:

- Preprocess at least one attribute (e.g., discretization of continuous attributes).
- Test the model using 5-fold cross validation and report the confusion matrix, accuracy, precision, recall, and F1-score.
- Change at least one hyper-parameter of the model and study its effect.

Submissions:

- 1- Please submit a **report** (up to **4 pages**) to describe the used dataset, attributes, experiments you did, settings for each experiment, and the results. You have to include snapshots from the tool to illustrate your work, and make sure to comment on and discuss all your results. Write a final conclusion to compare the performance of all the tested methods.
- 2- A **screen recording** showing the procedure you did starting by uploading the dataset to the tool and ending with testing one classifier of your choice. Make sure to have a text editor open in the background with the group members names and IDs written there

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

Good Luck