The assignment aims at exploiting Machine Learning for Alzheimer's disease detection. This task is very important for medical purposes since Alzheimer is the root cause of a huge part of dementia cases and the causes of its development are still not totally known.

The detection is based on the analysis of the time needed by the patients to solve a set of tasks, plus information associated with their scholarly, age, etc. The analysis is not trivial, since i) the outputs may not be complete and ii) because there are patients that, although showing signs associable with Alzheimer's disease, are affected by other forms of dementia or by depression.

The task for this project is to determine whether a patient has or not the disease, by means of a machine learning model trained on some medical high-level information. In particular, the model can predict one of the following classes:

1. **Assenza di patologia**, meaning that the patient is not affected by the disease;
2. **Disturbo cognitivo lieve**, meaning that the patient is affected by a cognitive disorder that will not strongly affect his/her life;
3. **Disturbo depressivo**, indicating that the cognitive disorder is caused by depression;
4. **Malattia di Alzheimer**, indicating that the patient has Alzheimer's disease;

Each student has to predict the actual class for all the instances in the test dataset, realizing one or more prediction models using data analysis and machine learning techniques trained on the training datasets. The following steps have to be conducted and documented:

- Business and Data Understanding
- Data Preparation
- Modelling

In particular, the prediction model has to be able to correctly predict the disease for each patient in the test dataset. The performance measure to maximize is Accuracy. Each participant is free to add new features, to modify the current features and to use external tools (i.e. Knime, MatLab, Python etc.).