Assignment Complex Network Analysis

Objective.

The objective of this assignment is to acquire skills in analyzing a dataset through the application of classification methods learned during the lectures. You will have to use different classifiers, adjust their parameters and produce a detailed report of the results obtained.

Dataset

The dataset provided contains a dataset with descriptive attributes and a binary or multiclass destination variable. Your task is to apply classification methods seen during the course to predict the target variable based on the provided attributes.

Assignment phases.

You have to do the following phases:

1. Preliminary Analysis:
    - Load the dataset and analyze its structure.
    - Identify the target variable and descriptive attributes.
2. Data Preprocessing:
    - Handle any missing values or outliers.
    - Perform coding if necessary (e.g., if there are categorical attributes).
3. Training/Test set splitting of the Dataset:
    - Split the dataset into a training set and a test set.
4. Application of Classifiers:
    - Use at least the different classifiers seen in class.
    - Use multiple parameter combinations for each classifier to optimize the performance.
5. Evaluation of Results:
    - Evaluate the performance of the classifiers with the various parameters using metrics such as.
      precision, recall, accuracy, and F1-score.
    - Calculate The confusion matrix of the classifiers.

Final Report:

- Presents the results in a comparative table showing the results of all the Classifiers

  Do no forget to start the report with a **cover page** including *academic year, your firstname/lastname, student id number (numero di matricula)*, a brief description of the dataset, index of the report and a comment on the general result classifier performances.