Assignment 2

The Problem Statement

Student Performance Prediction This project aims to predict student academic performance using machine learning techniques. The problem is formulated as a binary classification task where the objective is to determine whether a student will pass or fail based on Demographic, Social, academic-related features.

Dataset Description

The dataset used is the Student Performance Data Set from the UCI Machine Learning Repository. It contains student information such as **study time**, **family background**, **absences**, and **previous grades** (G1, G2, G3). The final grade (**G3**) is used as the **target variable**. For this project, G3 is converted into a binary label:

- if $G3 \geq 10$, Pass (1)
- if $G3 < 10$, Fail (0)

The project will involve data preprocessing, model training using classification algorithms, and performance evaluation using accuracy, precision, recall, and F1-score.