Python Programming

Machine Learning Assignment

Cluster students into different academic performance groups based on features like:

- **Final grades**
- **Study time**
- **Failures**
- **Absences**

This helps identify:

- **Top Performers**
- **Average Students**
- **Struggling Students**

Dataset Details:

- **Dataset Name:** Student Performance Data Set

Selected Features:

Use these numerical features for clustering:

- `G1`, `G2`, `G3` → First, second, final grades
- `studytime` → Weekly study hours
- `failures` → Number of past class failures
- `absences` → Number of school absences

You should create below clusters as

- **Top Performers (Cluster 0):**
    - High grades and low failure count
    - High study time and few absences
- **Average Students (Cluster 1):**
    - Moderate scores and study time
    - Some failures or absences
- **Struggling Students (Cluster 2):**
    - Low grades, high failure and absence rate
    - Low study time