

Problem: Student Grade Tracker

Problem Description:

You are tasked to create a program to track student grades in a class. Each student has the following details:

- **Name** (String): The student's full name.
- **Roll Number** (Integer): A unique identifier for the student.
- **Marks** (Integer): The marks obtained by the student (out of 100).

The program should allow the user to:

1. Add a student's details (name, roll number, and marks).
2. Display all students along with their details and grades.
 - A student's grade is determined as follows:
 - Marks ≥ 90 : Grade A
 - Marks ≥ 80 and < 90 : Grade B
 - Marks ≥ 70 and < 80 : Grade C
 - Marks < 70 : Grade D
3. Calculate the average marks of all students.

The problem requires students to solve it in two ways:

1. Using **procedural programming** with separate functions and lists.
2. Using **object-oriented programming** with a `Student` class and relevant methods.

Requirements:

Procedural Programming Approach:

Write separate functions and use lists to manage the data. The following functions should be implemented:

1. `add_student(names, roll_numbers, marks) :`
 - Takes three lists (for names, roll numbers, and marks) as arguments.
 - Adds a new student's details to the lists.
2. `display_students(names, roll_numbers, marks) :`

- Takes the three lists as arguments.
- Prints all students' details, including their grades.

3. `calculate_average(marks)` :

- Takes the list of marks as an argument.
- Calculates and prints the average marks.

Object-Oriented Programming Approach:

Create a `Student` class to encapsulate the properties and behaviors of a student:

1. Attributes:

- `name` : The student's name.
- `roll_number` : The student's roll number.
- `marks` : The student's marks.

2. Methods:

- `__init__(self, name, roll_number, marks)` : Constructor to initialize a student.
- `get_grade(self)` : Calculates and returns the student's grade.

Create a `GradeBook` class to manage the list of students:

1. Attributes:

- `students` : A list to store `Student` objects.

2. Methods:

- `add_student(self, name, roll_number, marks)` : Adds a new student to the grade book.
- `display_students(self)` : Displays all students with their details and grades.
- `calculate_average(self)` : Calculates and displays the average marks of all students.

Example:

Input (Procedural or OOP):

1. Add Student: Alice, 101, 85
2. Add Student: Bob, 102, 92

3. Display All Students
4. Calculate Average Marks

Output:

Name: Alice, Roll Number: 101, Marks: 85, Grade: B

Name: Bob, Roll Number: 102, Marks: 92, Grade: A

Average Marks: 88.5