

MAD Assignment 2: Student Management System in Dart

```
// Person class
class Person {
  String _name;
  int age;

  // Constructor
  Person(this._name, this.age);

  // Getter for name
  String get name => _name;

  // Setter for name with validation
  set name(String newName) {
    if (newName.isNotEmpty) {
      _name = newName;
    } else {
      print("Name cannot be empty!");
    }
  }

  // Display method
  void display() {
    print("Name: \$_name, Age: \$_age");
  }
}

// Student class inherits Person
class Student extends Person {
  int rollNumber;
  String course;

  // Default constructor
  Student(String name, int age, this.rollNumber, this.course) : super(name, age);

  // Named constructor
  Student.named({required String name, required int age, required this.rollNumber,
    required this.course})
    : super(name, age);

  // Override display method
  @override
  void display() {
    print("Roll No: \$_rollNumber, Name: \$_name, Age: \$_age, Course: \$_course");
  }
}

// Filter and display students by course
void displayStudentsByCourse(List<Student> students, String course) {
  print("\nStudents enrolled in \$_course:");
  for (var student in students) {
```

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        if (student.course == course) {
            student.display();
        }
    }
}

void main() {
    // Create student objects
    Student s1 = Student("Ali", 20, 101, "Math");
    Student s2 = Student.named(name: "Sara", age: 22, rollNumber: 102, course: "Science");
    Student s3 = Student("Ahmed", 21, 103, "Math");
    Student s4 = Student.named(name: "Zara", age: 23, rollNumber: 104, course: "English");

    // Set and validate name
    s1.name = ""; // Will show validation error
    s1.name = "Ali Raza";

    // Store students in a list
    List<Student> students = [s1, s2, s3, s4];

    // Print all student details
    print("All Student Details:\n");
    for (var student in students) {
        student.display();
    }

    // Filter by course
    displayStudentsByCourse(students, "Math");
}

```