In [ ]:

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import java.util.ArrayList;
import java.util.Scanner;

public class StudentRecordManagementSystem {

    private static ArrayList<Student> students = new ArrayList<>();
    private static int totalStudents = 0;

    public static void main(String[] args) {
        displayMenu();
    }

    private static void displayMenu() {
        Scanner scanner = new Scanner(System.in);
        int option = 0; // Initialize option before using it in the loop c

        do {
            System.out.println("Student Record Management System Menu:");
            System.out.println("1. Add a new student");
            System.out.println("2. Update student information");
            System.out.println("3. View student details");
            System.out.println("4. Exit");
            System.out.print("Enter your choice: ");

            try {
                option = scanner.nextInt();
                scanner.nextLine();  // Consume the newline character left
            } catch (Exception e) {
                System.out.println("Invalid input. Please enter a valid op
                scanner.nextLine();  // Consume the invalid input
                continue;
            }

            switch (option) {
                case 1:
                    addStudent(scanner);
                    break;
                case 2:
                    updateStudent(scanner);
                    break;
                case 3:
                    viewStudentDetails(scanner);
                    break;
                case 4:
                    System.out.println("Exiting the Student Record Managem
                    break;
                default:
                    System.out.println("Invalid option. Please enter a num
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            }

        } while (option != 4);

        scanner.close();
    }

    private static void addStudent(Scanner scanner) {
        System.out.println("Add a new student:");
        System.out.print("Enter student name: ");
        String name = scanner.nextLine();
        System.out.print("Enter student ID: ");
        int id = scanner.nextInt();
        System.out.print("Enter student age: ");
        int age = scanner.nextInt();
        System.out.print("Enter student grade: ");
        double grade = scanner.nextDouble();

        Student newStudent = new Student(id, name, age, grade);
        students.add(newStudent);
        totalStudents++;

        System.out.println("Student added successfully.");
    }

    private static void updateStudent(Scanner scanner) {
        System.out.println("Update student information:");
        System.out.print("Enter student ID to update: ");
        int idToUpdate = scanner.nextInt();

        boolean studentFound = false;
        for (Student student : students) {
            if (student.getId() == idToUpdate) {
                System.out.print("Enter new student name: ");
                student.setName(scanner.next());
                System.out.print("Enter new student age: ");
                student.setAge(scanner.nextInt());
                System.out.print("Enter new student grade: ");
                student.setGrade(scanner.nextDouble());

                System.out.println("Student information updated successful
                studentFound = true;
                break;
            }
        }

        if (!studentFound) {
            System.out.println("Student with ID " + idToUpdate + " not fou
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        }
    }

    private static void viewStudentDetails(Scanner scanner) {
        System.out.println("View student details:");
        System.out.print("Enter student ID to view details: ");
        int idToView = scanner.nextInt();

        boolean studentFound = false;
        for (Student student : students) {
            if (student.getId() == idToView) {
                System.out.println("Student Details:");
                System.out.println("Name: " + student.getName());
                System.out.println("Age: " + student.getAge());
                System.out.println("Grade: " + student.getGrade());

                studentFound = true;
                break;
            }
        }

        if (!studentFound) {
            System.out.println("Student with ID " + idToView + " not found
        }
    }

    private static class Student {
        private int id;
        private String name;
        private int age;
        private double grade;

        public Student(int id, String name, int age, double grade) {
            this.id = id;
            this.name = name;
            this.age = age;
            this.grade = grade;
        }

        public int getId() {
            return id;
        }

        public String getName() {
            return name;
        }

        public void setName(String name) {
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            this.name = name;
        }

        public int getAge() {
            return age;
        }

        public void setAge(int age) {
            this.age = age;
        }

        public double getGrade() {
            return grade;
        }

        public void setGrade(double grade) {
            this.grade = grade;
        }
    }
}
```