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OOPS WITH JAVA

MINI PROJECT: STUDENT RESULT MANAGEMENT SYSTEM

STUDENT RESULT MANAGEMENT SYSTEM

Program:

```
import java.util.*;
class Student {
   private int id;
   private String name;
   private Map<String, Integer> marks;
   public Student(int id, String name) {
      this.id = id;
      this.name = name;
      this.marks = new LinkedHashMap<>(); // Using LinkedHashMap to maintain order of
subjects
      initializeSubjects();
   }
   private void initializeSubjects() {
      marks.put("Math", 0);
      marks.put("Science", 0);
      marks.put("English", 0);
      marks.put("History", 0);
      marks.put("Computer Science", 0);
   }
   public int getId() {
      return id;
   }
   public String getName() {
      return name;
   }
```

```
    public void addMarks(String subject, int mark) {
        if (marks.containsKey(subject)) {
            marks.put(subject, mark);
        } else {
            System.out.println("Invalid subject. Please enter a valid subject.");
        }
    }

    public void viewMarks() {
        System.out.println("Marks for " + name + ":");
        for (Map.Entry<String, Integer> entry : marks.entrySet()) {
            System.out.println(entry.getKey() + ": " + entry.getValue());
        }
    }

    @Override
    public String toString() {
        return "ID: " + id + ", Name: " + name;
    }
}

class StudentResultManager {
    private Map<Integer, Student> students = new HashMap<>();

    public void addStudent(Student student) {
        students.put(student.getId(), student);
    }
```

```
    public void viewStudents() {
        if (students.isEmpty()) {
            System.out.println("No students in the system.");
        } else {
            for (Student student : students.values()) {
                System.out.println(student);
            }
        }
    }

    public Student getStudentById(int id) {
        return students.get(id);
    }
}

public class stdres{
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        StudentResultManager manager = new StudentResultManager();
        while (true) {
            System.out.println("\nStudent Result Management System");
            System.out.println("1. Add Student");
            System.out.println("2. View Students");
            System.out.println("3. Add Marks");
            System.out.println("4. View Marks");
            System.out.println("5. Exit");
            System.out.print("Enter your choice: ");
            int choice = scanner.nextInt();
```

```
            switch (choice) {
                case 1:
                    System.out.print("Enter Student ID: ");
                    int id = scanner.nextInt();
                    scanner.nextLine(); // Consume newline
                    System.out.print("Enter Student Name: ");
                    String name = scanner.nextLine();
                    manager.addStudent(new Student(id, name));
                    System.out.println("Student added successfully.");
                    break;
                case 2:
                    manager.viewStudents();
                    break;
                case 3:
                    System.out.print("Enter Student ID: ");
                    int studentId = scanner.nextInt();
                    scanner.nextLine(); // Consume newline
                    Student student = manager.getStudentById(studentId);
                    if (student != null) {
                        System.out.print("Enter Subject (Math, Science, English, History, Computer
Science): ");
                        String subject = scanner.nextLine();
                        System.out.print("Enter Marks: ");
                        int marks = scanner.nextInt();
                        student.addMarks(subject, marks);
                        System.out.println("Marks added successfully.");
                    } else {
                        System.out.println("Student not found.");
                    }
                    break;
```

```
            case 4:
                System.out.print("Enter Student ID: ");
                int viewId = scanner.nextInt();
                Student viewStudent = manager.getStudentById(viewId);
                if (viewStudent != null) {
                    viewStudent.viewMarks();
                } else {
                    System.out.println("Student not found.");
                }
                break;
            case 5:
                System.out.println("Exiting...");
                scanner.close();
                return;
            default:
                System.out.println("Invalid choice. Please try again.");
        }
    }
}
```