JAVA ASSIGNMENT 1 (LAB)

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GITHUB LINK- GITHUBLINK

CODE:-

```java
1   import java.util.*;
2
3   // Parent class for demonstration
4   class Person {
5       protected String name;
6   }
7
8   // Student class inherits from Person
9   class Student extends Person {
10      private int rollNo;
11      private String course;
12      private double marks;
13      private char grade;
14
15      // Empty constructor
16      public Student() {}
17
18      // Constructor with parameters
19      public Student(int rollNo, String name, String course, double marks) {
20          this.rollNo = rollNo;
21          this.name = name;
22          this.course = course;
23          this.marks = marks;
24          evaluateGrade();
25      }
26
27      // Input method
28      public void readData(Scanner sc) {
29          System.out.print("Enter Roll No: ");
30          rollNo = sc.nextInt();
31          sc.nextLine(); // consume newline
32
33          System.out.print("Enter Full Name: ");
34          name = sc.nextLine();
35
36          System.out.print("Enter Course Name: ");
```

```java
        System.out.print("Enter Course Name: ");
        course = sc.nextLine();

        while (true) {
            System.out.print("Enter Marks (0-100): ");
            marks = sc.nextDouble();
            if (marks >= 0 &&  marks <= 100) break;
            System.out.println(" Invalid! Please enter between 0 and 100.");
        }

        evaluateGrade();
    }

    // Grade calculation logic
    private void evaluateGrade() {
        if (marks >= 90) grade = 'A';
        else if (marks >= 70) grade = 'B';
        else if (marks >= 50) grade = 'C';
        else grade = 'D';
    }

    // Display details
    public void display() {
        System.out.println("\n");
        System.out.println("Roll Number : " + rollNo);
        System.out.println("Name        : " + name);
        System.out.println("Course      : " + course);
        System.out.println("Marks       : " + marks);
        System.out.println("Grade       : " + grade);
    }
}

// Main driver class
public class StudentPortal {
```

```java
68    // Main driver class
69    public class StudentPortal {
      Run | Debug
70        public static void main(String[] args) {
71            Scanner sc = new Scanner(System.in);
72            ArrayList<Student> records = new ArrayList<>();
73            int choice;
74
75            do {
76                System.out.println("\nStudent Record System");
77                System.out.println("1. Register Student");
78                System.out.println("2. View All Students");
79                System.out.println("3. Quit");
80                System.out.print("Enter choice: ");
81                choice = sc.nextInt();
82
83                switch (choice) {
84                    case 1:
85                        Student s = new Student();
86                        s.readData(sc); //input function call kra
87                        records.add(s); // array m add krdia
88                        System.out.println(" Student added successfully!");
89                        break;
90
91                    case 2:
92                        if (records.isEmpty()) {
93                            System.out.println(" No student data available.");
94                        } else {
95                            System.out.println("\n Student Records");
96                            for (Student stu : records) {
97                                stu.display();
98                            }
99                        }
00                        break;
101
102                    case 3:
103                        System.out.println("Exiting code");
104                        break;
105
106                    default:
107                        System.out.println("Please select a valid option.");
108                }
109            } while (choice != 3);
110
111            sc.close();
112        }
113    }
```

OUTPUT:-

```
java labassignment1 }

1. Add Student
2. Display Students
3. Exit
Enter your choice:
```