Vikram
24017301701
B-Tech CSE (AI/ML)

Date
DELTA Pg No.

Assignment-3

Student Result Management System.

Code:- import java.util.*;

```
Class Main{
    Public static void main (String[] args {
        ResultManager rm = new Result Manager ();
        rm. mainMenu();
    }
}
Class InvalidMarksException extends Exception{
    public InvalidMarksException (String msg) {
        super(msg);
    }
}

Class Student {
    int rollnumber;
    String studentname;
    int[] marks = new int[3];

    public student (int roll, String name, int[] marks {
        this. roll number = roll;
        this. studentName = name;
        this. marks = marks;

    }
```

```
public void validateMarks() throws InvalidMarksExcepti
{
if (marks == null || marks.length != 3) {
    throw new InvalidMarksException("Marks data is missing!");
}

for (int m : marks) {
    if (m == -1) {
        throw new InvalidMarksException("Marks cannot be NULL!");
    }
if (m < 0 || m > 100) {
    throw new InvalidMarksException("Marks must be between 0 and
100!");
    }
}
}
public double calculateAverage() {
    int sum = 0;
for (int m : marks) sum += m;
    return sum/3.0;
}
public void displayResult() {
System.out.println("\n--- Student Result ---");
System.out.println("Roll no.: " + rollNumber);
System.out.println("Name: " + studentName);
System.out.println("Marks:");

    boolean pass = true;
for (int i=0; i<3; i++) {
    System.out.println("Subject " + (i+1) + ": " + marks[i]);
    if (marks[i] < 40) pass = false;
```

```
}
System.out.println("Average: " + calculateAverage());
System.out.println("Status: " + (pass ? "PASS" : "FAIL"));
    }
}

public class ResultManager {
    Student[] students = new Student[100];
    int count = 0;
    Scanner sc = new Scanner(System.in);
    public void addStudent() {
        try {
            System.out.print("Enter Roll Number: ");
            int roll = sc.nextInt();

            sc.nextLine();
            System.out.print("Enter Student Name: ");
            String name = sc.nextLine();

            if (name == null || name.trim().isEmpty()) {
                throw new NullPointerException("Student name cannot be
                Empty!");
            }
            int[] marks = new int[3];
            System.out.print("Subject " + (i+1) + ": ");
                marks[i] = sc.nextInt();
        }
        Student s = new Student(roll, name, marks);
        s.validateMarks();

        Students[count++] = s;
        System.out.println("Student Added Successfully!");
    }
```

```
} catch (InvalidMarksException e) {
 System.out.println("Invalid Marks Error: " + e.getMessage());
}
Student s = new Student(roll, name, marks);
s.validateMarks();
Stu
Student[count++] = s;
System.out.println("Student Added Successfully!");
}
Catch (InvalidMarksException e) {
System.out.println("Input Mismatch Error! Please enter numeric
values only.");
Sc.nextLine();
}
} catch(NullPointerException e) {
 System.out.println("Missing Data Error: " + e.getMessage());

} catch(Exception e) {
System.out.println("Missing Data Error: " + e.getMessage());

} catch(NullPointerException e) {
 System.out.println("Missing Data Error: " + e.getMessage());

} catch(Exception e) {
    System.out.println("Unexpected Error: " + e.getMessage());
  }
 }
}

public void showStudentDetails() {
   try {
 System.out.print("Enter Roll number to search:");
```

```
int roll = sc.nextInt();

boolean found = false;
for (int i=0; i<count; i++) {
  if (Student[i].rollNumber == roll) {
Student[i].displayResult();
found = true;
  break;
  }
}
if (!found) System.out.println("Student Not found!");
  }
Catch (InputMismatchException e) {
  System.out.println("Input mismatch! Please enter a valid
roll number.")
  sc.nextLine();
  }
}
public void mainMenu() {
  try {
    int choice;
  do {
System.out.println("\n--- Student Result Manager ---");
  System.out.println("1. Add Student");
System.out.println("2. Show Student Details");
System.out.println("3. Exit");
  System.out.print("Enter choice: ");

  choice = sc.nextInt();
```

```
switch (choice){
case 1 : addStudent(); break;
case 2 : showStudentDetails(); break;
case 3 : System.out.println("Exiting..."); break;
default : System.out.println("Invalid choice!!");
}
} while (choice != 3);
}
finally {
    System.out.println("Thank you for using the Student Result
System!!");
}
}
```