Name - KARTIK
Roll no. - 2401730073

ASSIGNMENT - 3

JAVA - ASSIGNMENT

```
// InvalidMarksException.java
class InvalidMarksException extends Exception {
    public InvalidMarksException(String message) {
        super(message);
    }
}

// Student.java
class Student {
    int rollNumber;
    String studentName;
    int[] marks = new int[3];

    public Student(int rollNumber, String studentName, int[] marks) {
        this.rollNumber = rollNumber;
        this.studentName = studentName;
        this.marks = marks;
    }

    public void validateMarks() throws InvalidMarksException {
        for(int i = 0; i < marks.length; i++) {
            if(marks[i] < 0 || marks[i] > 100) {
                throw new InvalidMarksException("Invalid marks for
                subject" + (i+1) + ":" + marks[i]);
            }
        }
    }

    public double calculateAverage() {
        int sum = 0;
        for(int m : marks) sum += m;
        return sum / 3.0;
    }
```

```
Public Void displayResult() {
    double avg = calculateAverage();
    System.out.println("Roll Number:" + rollNumber);
    System.out.println("Student Name:" + studentName);
    System.out.println("Marks:" + marks[0] + " " + marks[1] + " ");
    System.out.println("Average:" + avg);
    System.out.println("Result:" + (avg >= 40 ? "Pass" : "Fail"));
    }
}
```

```
// ResultManager.java
import java.util.Scanner;

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();
      int[] marks = new int[3];
      for (int i = 0; i < 3; i++) {
            System.out.print("Enter marks for 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("Error: " + e.getMessage());
    } Catch (Exception e) {
        System.out.println("Input Error: " + e.getMessage());
    } Finally {
        System.out.println("Returning to main Menu...");
    }
}
Public void showStudentDetails () {
    try {
        System.out.print("Enter Roll no. to search:");
        int roll = sc.nextInt();
        for (int i=0; i< Count; i++) {
            if (students [i].rollNumber == roll)
                students [i].displayResult();
                return;
            }
        }
        System.out.println("Student not found.");
    } Catch (Exception e) {
        System.out.println("Error:" + e.getMessage());
    } Finally {
        System.out.println("Search Completed.");
    }
}
```

```
Public void MainMenu() {
    Int Choice = 0;
    While (Choice != 3) {
    System.out.println("==== Student Result Management
                                System ====");
    System.Out.println("1. Add Student");
    System.out.println("2. Show Student Details");
    System.Out.println("3. Exit");
    System.out.print("Enter your choice:");

     Choice = Sc.nextInt();

     Switch (Choice) {
        Case 1 : add Student(); break;
        Case 2 : ShowStudent Details(); break;
        Case 3: System.Out.println("Exciting program.
                Thank you!"); break;
        default : System.Out.println("Invalid Choice!");
    }
  }
}

Public static void main(String [] args) {
    Result Manager sm = new Result Manager();
    sm.main Menu();
  }
}
```