Assignment-3

Name: Amruth Jha , Roll no.: 2401730081

Code

```
import java.util.InputMismatchException;
import java.util.Scanner;

class InvalidMarksException extends Exception {
public InvalidMarksException (String Message){
    super (Message);
    }
}
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]);
    }
    }
}
```

```
catch (InvalidMismatchException e) {
    System.out.println("Error: " + e.getMessage());
}
break;

case 2:
    showStudentDetails();
    break;

case 3:
    System.out.println("Existing program. Thank You!");
    return;
default:
    System.out.println("Invalid choice");
}
}
finally {
    sc.close();
    System.out.println("Scanner closed. Program ended.");
}
}
public static void main(String[] args) {
    ResultManager manager = new ResultManager();
    manager.mainMenu();
}
}
```

```
for(int i=0; i<count; i++){
    if(student[i]!= null && student[i].rollNumber == roll){
        students[i].displayResult();
        found = true;
        break;
    }
}
if(!found){
    System.out.println("Student not found.");
}
catch(InputMismatchException e){
    System.out.println("Error: Input mismatch!");
    sc.nextLine();
}
}
public void MainMenu(){
try{
    while(true){
    System.out.println("\n ======= Student Result Management
                                    System ======");
    System.out.println("1. Add Student");
    System.out.println("2. Show Details");
    System.out.println("3. Exit");
    System.out.println("Enter your choice:");
        int choice = sc.nextInt();

switch(choice){
    case 1:
        try{
            addStudent();
    }
```

```
Scanner sc = new Scanner(System.in);
public void addStudent() throws InvalidMarksException {
try{
    System.out.print("Enter Roll Number: ");
    int roll = sc.nextInt();
    sc.nextLine();
  System.out.println("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 (InputMismatchException e)
{
System.out.println("Error: Invalid input type");
sc.nextLine();
}
}
public void showStudentDetails(){
    try{
        System.out.println("Enter Roll Number to search:");
        int roll = sc.nextInt();
        boolean found = false;
```

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

public void displayResult(){
    System.out.println("Roll Number:" + rollNumber);
    System.out.println("Student Name:" + StudentName);
    System.out.print("Marks:");
        for(int m:marks){
            System.out.print(m+" ");
}
System.out.println();

double avg = calculateAverage();
System.out.print("Average" + avg);

if(avg >=90){
    System.out.println("Result : Pass"); }
else{
    System.out.println("Result: Fail");
}
}
}
public class ResultManager{
 Student[] Students = new Student[100];
      int count = 0;
```