

Assignment = 3

```

import java.util.InputMismatchException;
import java.util.Scanner;
class InvalidMarksException extends Exception {
    public InvalidMarksException (String message) {
        super (message);
    }
}
class Student {
    private int rollNumber;
    private String studentName;
    private int [] marks = new int [3];
    public Student (int rollNumber, String studentName, int [] marks)
        throws InvalidMarksException {
        this. rollNumber = rollNumber;
        this. studentName = studentName;
        this. marks = marks;
        validateMarks ();
    }
    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 (double) sum / marks. length;
    }
}

```

```
public void displayResult() {
    System.out.println("Roll Number: " + rollNumber);
    System.out.println("Student Name: " + studentName);
    System.out.println("Marks:");
    for (int m : marks) System.out.println(m + " ");
    System.out.println();
    double avg = calculateAverage();
    System.out.println("Average: " + avg);
    if (avg >= 40)
        System.out.println("Result: Pass");
    else
        System.out.println("Result: Fail");
}
```

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public int getRollNumber(){
 return rollNumber;

y

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public class Main{

Student[] students = new Student[100];

int count = 0;

Scanner sc = new Scanner(System.in);

public void addStudent(){

try {

System.out.println("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.println("Enter marks for subject" + (i + 1) + ":");

```
marks[i] = sc.nextInt();
```

}

```
students[count++] = new Student(roll, name, marks);
```

```
System.out.println("Student added successfully.");
```

```
} catch (InvalidMarksException e) {
```

```
System.out.println("Error : " + e.getMessage());
```

```
} catch (InputMismatchException e) {
```

```
System.out.println("Error : Invalid Input! Enter valid");
```

```
sc.nextLine();
```

```
} finally {
```

```
System.out.println();
```

}

```
public void showStudentDetails() {
```

```
try {
```

```
System.out.print("Enter Roll No to search : ");
```

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

```
boolean found = false;
```

```
for (int i = 0; i < count; i++) {
```

```
if (students[i].getRollNumber() == roll) {
```

```
students[i].displayResult();
```

```
found = true;
```

```
break;
```

}

}

```
if (!found) {
```

```
System.out.println("Student with rollno " + roll +  
" not found.");
```

}

```
} catch (InputMismatchException e) {
```

```
System.out.println("Error : Invalid roll no!");
```

```
sc.nextLine();
```

```
} finally {
```

System.out.println("Search completed.\n");
3

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public void mainMenu(){

while(true){

try{

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:");

int choice = sc.nextInt();

switch(choice){

case 1: addStudent(); break;

case 2: addShowStudentDetails(); break;

case 3:

System.out.println("Exiting program.");

return; Thank you!!

default;

System.out.println("Invalid choice. Try again");

3 case

3 catch (InputMismatchException e){

System.out.println("Error: Enter
numeric choice only!");

sc.nextLine();

3

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public static void main (String [] args){

Main obj = new Main();

obj.mainMenu();

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