

20/11/25

classmate

Date _____

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Assignment - 3

Student Result Management System

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

```
public class ResultManager {
```

```
    static class InvalidMarksException extends  
        Exception {
```

```
    public InvalidMarksException(String msg) {
```

```
        super(msg);
```

```
}
```

```
}
```

```
static class Student {
```

```
    int roll;
```

```
    String name;
```

```
    int[] marks;
```

```
    Student (int roll, String name, int[] marks) { }
```

```
    throws InvalidMarksException { }
```

```
    if(marks == null || marks.length != 3)
```

```
        throw new InvalidMarksException("Marks  
        must be provided for 3 subj");
```

```
    this.roll = roll;
```

```
this.name = name;  
this.marks = marks;  
validateMarks();  
}
```

```
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]);  
}
```

```
double average() {  
    return (marks[0] + marks[1] + marks[2]) /  
    3.0;
```

{

```
Boolean isPass() {
```

```
for (int m : marks) if (m < 35) return false;  
return true;
```

{

```
void display() {
```

```
System.out.println("Roll Number: " + roll);  
System.out.println("Student Name: " + name);
```

```
System.out.print("Marks: ");
System.out.println(marks[0] + " " + marks[1]
+ " " + marks[2]);
```

```
System.out.println("Average: " + average());
System.out.println("Result: " + (isPass() ?
"Pass" : "Fail"));
```

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```
private Student[] students;
private int count = 0;
private Scanner sc = new Scanner(System.in);
public ResultManager(int capacity) {
    students = new Student[capacity];}
```

```
public void addStudent() throws InvalidMarksException {
```

```
if(count >= students.length) {
    System.out.println("Storage full");
    return;
}
```

```
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();
}
```

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

```
System.out.println("Student added successfully.
    Returning to main menu...");
```

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

```
try {
    int roll = sc.nextInt();
    for (int i=0; i<count; i++) {
        if (students[i].roll == roll && students[i].name != null) {
            name = students[i].name;
        }
    }
}
```

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

```
System.out.println("Search completed");
return;
```

{}

System.out.println("student with roll number "+roll+" not found.");

} catch (InputMismatchException e) {

System.out.println("Please enter a valid integer roll number");

sc.nextLine();

{}

public void mainMenu() {

boolean running = true;

while (running) {

System.out.println("\n == 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");

try {

int choice = sc.nextInt();

switch (choice) {

case 1:

```
try {
```

```
    addStudent();
```

```
} catch (InputMismatchException ime) {
```

```
    System.out.println("Error : Ifime.got  
Message() + "returning to main menu");
```

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

```
}
```

```
break;
```

```
case 2 :
```

```
    showStudentDetails();
```

```
    break;
```

```
case 3 :
```

```
    System.out.println("Exiting program. Thank You!");
```

```
    running = false;
```

```
    break;
```

```
default:
```

```
    System.out.println("Invalid choice. Enter 1-3.");
```

```
    if (sc.hasNextInt())
```

```
} catch (InputMismatchException ime) {
```

```
    System.out.println("Invalid input. Please  
enter an integer choice");
```

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

```
}
```

```
finally {
    System.out.println("Retrieving file from menu..."));
}
}

sc.close();
System.out.println("Scanner closed");
}
```

```
public static void main (String [] args) {  
    Scanner temp = new Scanner (System.in);  
    System.out.print ("Enter how many  
    student you want to  
    store : ");
```

```
int capacity = temp.nextInt();  
System.out.println();
```

ResultManager sm = new ResultManager
(capacity);

gum : mathMenu (7);

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