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TASK 2

Student grade calculator

## 📄 **Java Program Report: Student Grade Calculator**

### 🔷 ****1. Title****

**Student Grade Calculator Using Java**

### 🔷 ****2. Introduction****

The **Student Grade Calculator** is a simple Java console application that allows users to input marks for multiple subjects and computes:

* The **total marks**
* The **average percentage**
* The final **grade**

This project helps in understanding core Java programming concepts such as conditional statements, loops, user input, and arithmetic operations.

### 🔷 ****3. Objective****

The main goal of this project is to:

* Accept marks from a student for a given number of subjects.
* Validate the marks (ensuring they are between 0 and 100).
* Calculate the **total** and **average percentage**.
* Assign a **grade** based on the calculated percentage using grading criteria.

### 🔷 ****4. Tools and Technology Used****

| **Item** | **Details** |
| --- | --- |
| Programming Language | Java |
| JDK Version | Java 8 or higher |
| IDE/Editor | IntelliJ, Eclipse, NetBeans, or any text editor |
| Execution Platform | Command Line or IDE Terminal |
| Concepts Used | Loops, Conditionals, User Input, Arithmetic, Type Casting |

### 🔷 ****5. Features of the Program****

* Accepts dynamic number of subjects from the user.
* Validates each subject's marks to be within the range of 0 to 100.
* Uses a loop for repeated inputs and cumulative calculations.
* Calculates average percentage.
* Assigns grades based on standard grading logic.
* Displays final result in a clean and readable format.

### 🔷 ****6. Grading Criteria****

| **Average Percentage** | **Grade** |
| --- | --- |
| 90% and above | A+ |
| 80% – 89% | A |
| 70% – 79% | B |
| 60% – 69% | C |
| 50% – 59% | D |
| Below 50% | F |

### 🔷 ****7. Java Code****

import java.util.Scanner;

public class StudentGradeCalculator

{

    public static void main(String[] *args*)

    {

        Scanner sc=new Scanner(System.in);

        System.out.println( "Enter the no of subjects: ");

        int subjects=sc.nextInt();

        if (subjects<=0)

        {

            System.out.println("Please enter a valid number of the subjects.");

            return;

        }

        int totalMarks=0;

        int maxMarksOfSubject=100;

        for(int i=1;i<=subjects;i++)

        {

            System.out.println("Enter the marks in subject " + i + " (out of 100):");

            int marks=sc.nextInt();

            if (marks < 0 || marks >  maxMarksOfSubject)

            {

                System.out.println("Marks should be in the range of 0 to 100. please enter valid marks.");

                i--;

            }

            else

            {

                totalMarks+=marks;

            }

        }

        double avgpercent=(double)totalMarks/(subjects\*maxMarksOfSubject)\*100;

    System.out.println("Total Marks: "+totalMarks);

    System.out.println("Average Percentage: " + avgpercent + "%");

    String grade;

    if(avgpercent>=90)

    {

        grade="A+";

    }

    else if(avgpercent>=80)

    {

        grade="A";

    }

    else if(avgpercent>=70)

    {

        grade="B";

    }

    else if(avgpercent>=60)

    {

        grade="C";

    }

    else if(avgpercent>=50)

    {

        grade="D";

    }

    else

    {

        grade="F";

    }

    System.out.println("Grade: " + grade);

}

}

**🔷 8. Sample Output**

PS C:\Users\Asus Tuf\OneDrive\Desktop\codsoft\TASK 4> & 'C:\Program Files\Java\jdk-24\bin\java.exe' '--enable-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\Asus Tuf\AppData\Roaming\Code\User\workspaceStorage\15a02ffa98f2d1a6624c9c5125dfbde1\redhat.java\jdt\_ws\jdt.ls-java-project\bin' 'StudentGradeCalculator'

Enter the no of subjects:

5

Enter the marks in subject 1 (out of 100):

85

Enter the marks in subject 2 (out of 100):

90

Enter the marks in subject 3 (out of 100):

75

Enter the marks in subject 4 (out of 100):

95

Enter the marks in subject 5 (out of 100):

10

Total Marks: 355

Average Percentage: 71.0%

Grade: B

**🔷 9. Concepts Demonstrated**

* **Scanner class**: To take input from user.
* **For loop**: To take repeated input for multiple subjects.
* **Conditionals (if-else)**: To apply grading logic and validation.
* **Type casting**: Casting integers to double for precise percentage calculation.
* **Basic input validation**: Prevents wrong data entry (marks > 100 or < 0).

**🔷 10. Strengths of the Program**

* Simple and interactive.
* Prevents invalid data entry.
* Easy to read and understand.
* Modular and maintainable code structure.

**🔷 11. Suggestions for Improvement**

* Add subject names instead of just numbering them.
* Use a class to represent a Student with multiple subjects.
* Allow for different maximum marks per subject.
* Export the report (marks, percentage, grade) to a file.
* Add GUI using Java Swing or JavaFX for a better user interface.

**🔷 12. Conclusion**

This program successfully demonstrates how to use **basic Java syntax and logic** to build a useful tool like a **Student Grade Calculator**. It helps students practice programming fundamentals and understand how software can be applied to solve everyday tasks like grade evaluation.

With slight enhancements, this program can be extended into a full-fledged student result management system.