

Project Name: Grade - Software

Names: Chima Ukachukwu & Shubam Mahi

Creating a student scenario:

Student Scenario:

Name: Chima - Shubam

- Homework Percentages: 95, 85, 75, 90, 80, 88, 92, 78
- Quiz Percentages: 88, 76, 85, 90, 82
- Mid-term Percentage: 75
- Final-term Percentage: 88
- Project Percentage: 95

Manual Evaluation:

1. Homework average = $(95 + 85 + 75 + 90 + 80 + 88 + 92 + 78) / 8 = 85.75$
2. Quiz average = $(88 + 76 + 85 + 90 + 82) / 5 = 82.2$
3. Final Percentage = $(85.75 * 0.15) + (82.2 * 0.05) + (75 * 0.25) + (88 * 0.30) + (95 * 0.25) \approx 84.77$

GitHub Repository:

- Repository Name: Grade-Software

Implementation and Testing:

1. Clone the repository:

 Git CMD

```
C:\Users\ukach>git clone https://github.com/mrpc4/-Grade-Software.git
```

2. Compile and run the Java code:

```
cd Grade-Software
javac Grade.java
java Grade
```

Problem Solved by this product:

This product solves the problem of calculating a student's final grade based on various assessments, including homework, quizzes, mid-term and final exams, and a project. The program takes input percentages for different components of the student's performance, applies specified weightings to each category, and then calculates the final percentage and assigns a letter grade according to a predefined grading scale.

In summary, the problem addressed by the product is automating the process of determining a student's overall performance and providing a final grade based on a weighted combination of different assessments. This can be useful for educators and students to quickly assess academic performance and assign corresponding letter grades.

Features:

- **Functionality:** The software calculates the final grade based on input percentages for homework, quizzes, exams, and projects.
- **Usability:** User-friendly console-based interface for entering student data.
- **Reliability:** Code uses appropriate data types and methods for accurate calculations.
- **Performance:** Efficiently calculates averages and final grades.
- **Extendability:** Easily extendable for additional assignments or assessments.

Final Report:

Project Management:

- Identified the problem of calculating final grades for students based on various assessments.
- Utilized an object-oriented approach for code organization and readability.
- Implemented features for calculating homework and quiz averages, as well as the final grade.

Difficulties Encountered:

- Ensuring the accuracy of the grading calculation formula.
- Balancing simplicity and flexibility in the code structure.

Screenshots:

Entering student data.

```

PS C:\Users\ukach> & 'C:\Program Files\Java\jdk-21\bin\java.exe' '-enable-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Program Files\WPSico\temp\vscodesas_560d7\jdt_ws\jdt.ls-java-project\bin' 'Grade'
Name: Shubham Mahi - Chima Ukachukwu (Final Group Project)
Percent in homework 1 :
5
Percent in homework 2 :
5
Percent in homework 3 :
5
Percent in homework 4 :
5
Percent in homework 5 :
7
Percent in homework 6 :
8
Percent in homework 7 :
9
Percent in homework 8 :
5
Percent in quiz 1 :
6
Percent in quiz 2 :
3
Percent in quiz 3 :
6
Percent in quiz 4 :
7
Percent in quiz 5 :
9
Mid term percentage :
20

```

Final output with calculated grade.

```

8
Percent in homework 7 :
9
Percent in homework 8 :
5
Percent in quiz 1 :
6
Percent in quiz 2 :
3
Percent in quiz 3 :
6
Percent in quiz 4 :
7
Percent in quiz 5 :
9
Mid term percentage :
20
Final term percentage :
30
Project percentage :
50

Final Percentage is: 44.184375
Letter Grade: F
PS C:\Users\ukach>

```

Source code of Grade-System:

```

// Author: Shubam Mahi - Chima Ukachukwu (Group Project)

import java.util.Scanner;

public class Grade {
    private double homework;

```

```

private double quiz;

public Grade() {
    homework = 0;
    quiz = 0;
}

public String getLetterGrade(double finalPercentage) {
    if (finalPercentage >= 90) {
        return "A";
    } else if (finalPercentage >= 80) {
        return "B";
    } else if (finalPercentage >= 70) {
        return "C";
    } else if (finalPercentage >= 60) {
        return "D";
    } else {
        return "F";
    }
}

public void calculateHomework(int... homeworkPercentages) {
    homework = calculateAverage(homeworkPercentages) * 100 / 8;
}

public void calculateQuiz(int... quizPercentages) {
    quiz = calculateAverage(quizPercentages) * 100 / 5;
}

private double calculateAverage(int... values) {
    double sum = 0;
    for (int value : values) {
        sum += value;
    }
    return (double) sum / values.length;
}

public double calculateFinalGrade(int exam1, int exam2, int project) {
    double homeworkWeight = 0.15;
    double quizWeight = 0.05;
    double exam1Weight = 0.25;
    double exam2Weight = 0.30;
    double projectWeight = 0.25;

```

```

        return (homework * homeworkWeight) + (quiz * quizWeight) + (exam1 *
exam1Weight)
        + (exam2 * exam2Weight) + (project * projectWeight);
    }

    public static void main(String[] args) {
        System.out.println("Name: Shubham Mahi - Chima Ukachukwu (Final Group
Project)");

        Scanner scan = new Scanner(System.in);

        int[] homeworkPercentages = new int[8];
        int[] quizPercentages = new int[5];

        for (int i = 0; i < 8; i++) {
            System.out.println("Percent in homework " + (i + 1) + " : ");
            homeworkPercentages[i] = scan.nextInt();
        }

        for (int i = 0; i < 5; i++) {
            System.out.println("Percent in quiz " + (i + 1) + " : ");
            quizPercentages[i] = scan.nextInt();
        }

        System.out.println("Mid term percentage : ");
        int exam1 = scan.nextInt();
        System.out.println("Final term percentage : ");
        int exam2 = scan.nextInt();
        System.out.println("Project percentage : ");
        int project = scan.nextInt();

        Grade grade = new Grade();
        grade.calculateHomework(homeworkPercentages);
        grade.calculateQuiz(quizPercentages);

        double finalPercentage = grade.calculateFinalGrade(exam1, exam2,
project);
        String letterGrade = grade.getLetterGrade(finalPercentage);

        System.out.print(" \nFinal Percentage is: " + finalPercentage);
        System.out.println("\nLetter Grade: " + letterGrade);
    }
}

```