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**Final Project – Enhanced Grading System**

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## **I. Introduction**

We all know the education system in the Philippines is always a hit or miss, whether a governing decision is neglected by the society or forcing redundant policies that cater to less education is always somewhere in their line of work to 'fix' education. There is always an issue with regards to the past of the Philippines wherein it is still haunted by the Spanish regulation wherein they limit the education of the filipinos. Accounting for this happened twice now also with the Americans, as we Filipinos really struggle for education (Kumar & Sharma, 2014). When it comes to the present wherein we pinpoint the education system as a whole internationally which the country adopts, according to this study, the grading system that everyone adopts is obsolete and forcefully promotes competition among peers(Kumar & Sharma, 2014). It is true that there are flaws in the education system we are using today. Regardless of this it's better to prioritize the health of university students over trying to come up with a perfect solution towards the system as a whole. With this in mind the climbing rates of anxiety, stress and depression of university students are somewhat growing rapidly (Regehr et al., 2013). There are a ton of ways to solve stress in universities such as programs and what not but we as researchers believe one of the more important ways to remove stress is improving quality of life for the students.

The proposed program the researchers have created would be an automatic calculator that would calculate if you've passed or not. Essentially, the program would be a GPA calculator, Passing score checker, and a Final grade calculator all at once. With the

added benefit of two things, Firstly, the program would be created in a graphical user interface(GUI) and secondly, the program is coded correctly so it corresponds to each individual passing grade of each course the user is taking. Take note that the values for the calculations change if passing scores are different from each course therefore, the program is handy for those with courses having different passing scores.

## **II. Related Work**

### **II.I Calculator.net GPA Calculator**

The famous calculator.net on the web is very proficient in being direct into finding GPA without any unnecessary outputs. While it considers each course's units being taken, passing score for each is missing. Essentially, the website is purely for just looking for your GPA with the only requirement being knowing your final grade in order to calculate your GPA. Other cool features that the website offers is calculating needed points to aim for a specific GPA, the calculation the program uses, and the respective letter grade equivalent to its numerical final grade.

### **II.II Laboratory Manual Grading Scheme**

Essentially, the researchers got the idea of choosing quality education and formulating a grading system/ grading scheme for our project. But of course, we won't just copy everything from the manual. First thing, we will make improvements when it comes to improving the overall code and adding other features such as implementing it in a GUI and creating a user login for the code. Furthermore, we plan adding features that would merge both GPA calculator and Grade calculator from calculator.net.

### **II.III Calculator.net Grade Calculator**

Finally, it's essential to know what grade you are inputting towards looking if you've passed the course or not. With the build up of adding your grades and their respective weight towards assignments, a grade calculator has always been an essential kit towards university students. The program of calculator.net would be implemented in our proposed program as towards having options in either using grading scheme or grade calculator.

## **III. Proposed Application**

The suggested application intends to create a user-friendly program with a safe user login mechanism and an extensive grade calculator that adheres to the university's grading system. This application's main goal is to help students calculate their grades after each term precisely and effectively. The application seeks to streamline the grade computation process, improve user experience, and support students' academic performance by offering a seamless interface and abiding by the university's grading regulations.

### **A. User Log-in System**

The program will have a strong user login system to guarantee privacy and security. Users will need to sign up for this system and create individual accounts using their login information, which includes their username, password, and email address. A suitable data validation method will be used upon registration, and passwords will be safely saved using industry-standard encryption technologies.

Access to the grade calculator and other relevant functions will be granted after user credentials have been verified by the login feature.

## **B. Grading Scheme Integration**

The application will follow the university's specific grading policy, taking into account various grade ranges and their accompanying letter grades. To obtain the necessary data and correctly execute the grading policy within the application, the research team will work closely with university authorities. This integration makes sure that the calculated grades meet the requirements and standards of the university.

## **C. Grade Calculator**

The grade calculator, which enables students to enter their grades for various assignments, tests, or other evaluation criteria, is the application's main feature. Users will have the freedom to choose the weightage or percentage of each component, taking into account the needs of the grading scheme. Based on the inputs, the program will calculate the final grade and show it to the user. For better academic preparation, the grade calculator may also have additional capabilities including the capacity to track grade history and compute hypothetical grades.

## **IV. Implementation/OOP Aspects**

1. Mathhandler.java - Handles the calculation. It contains several static methods for performing different mathematical calculations

2. `main.java` - the main interface. It provides a user-friendly interface for interacting with the `MathHandler` class. The program displays a menu of mathematical operations and accepts user input to perform
3. `UI.java` - the user interface. It represents the user interface for the calculator
4. `graphics.java` - the graphics that is displayed in the ui. It represents a custom `JPanel` that handles the graphics displayed in the UI.

## **V. Walkthrough/Data/Results**

### **1. User Registration and Log-in**

- The user accesses the website for the application and hits the "Register" button.
- The user fills out the registration form with their selected username, password, and email address.
- When registration is successful, the user is taken to the login page.
- The user clicks the "Login" button after entering their information.
- The program validates the login information and authorizes access to the main dashboard.

### **2. Grade Input**

- The user chooses the current academic term or course for which they want to compute their grades in the main dashboard.
- The program provides a form for users to fill out where they can enter their grades for various evaluation criteria, including homework assignments, tests, and exams.

- Assume the user has the aforementioned grades for the various components:
  - Project 1: 89/100
  - Project 2: 85/100
  - Midterm Exam: 71/100
  - Final Exam: 92/100
- The form is sent once the user inputs these grades in the respective input areas.

### **3. Grade Calculation and Results**

- The application interprets the grades entered in accordance with the university's grading policy.
- Assuming that the grading system uses the following letter grades:
  - **4.0:** 95-100%
  - **3.5:** 89-95%
  - **3.0:** 83-89%
  - **2.5:** 78-83%
  - **2.0:** 72-78%
  - **1.5:** 66-72%
  - **1.0:** 60-66%
  - **0.0:** Below 60%
- The application takes into account the weights or percentages assigned to each component when calculating the overall grade.
- Let's assume that each component has the following weight:



- **Projects: 30%**
- **Midterm Exam: 30%**
- **Final Exam: 40%**
- The following is the outcome of the grade calculation:
  - **Total Weighted Grade:**  $[0.3 * ((89 + 85)/2)] + (0.3 * 71) + (0.4 * 92) = 84.2$
  - **Number Grade: 3.0**

## VI. Conclusion and Future Work

It is evident from the facts given that the Philippine educational system has difficulties and has shortcomings. There has been a long-lasting effect from the historical legacy of inadequate education during the Spanish and American colonial periods. The grading system is also thought to be outdated and encourages unhealthy competitiveness among pupils. The current circumstance draws attention to the rising levels of stress, anxiety, and depression among college students. While there are many programs and efforts that colleges may use to combat stress, the researchers think that it's crucial to improve students' quality of life.

Accordingly, the researchers suggest an application that, by offering an automated calculator, tries to reduce stress. This software would combine the functions of a GPA calculator, a passing score checker, and a calculator for the final grade. A graphical user interface (GUI) for user-friendly interaction would be included in the application. Additionally, the program is made to adjust to the distinct passing grade standards of each subject, making it appropriate for students with a variety of passing scores.

By making this tool available, the researchers want to help students keep track of their academic progress and lessen the pressure that comes with manually calculating marks. It is crucial to remember that while this software can help the education system in the Philippines in terms of grade calculation, it is only a small part of a complete strategy for resolving the system's larger problems.

## **VII. Contributions**

## VIII. References

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