

A  
PROJECT REPORT  
ON  
**“CGPA Calculator”**

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SUBJECT:

**PROGRAMMING AND PROBLEM SOLVING USING C++**

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# INTRODUCTION

A CGPA (Cumulative Grade Point Average) calculator in C++ is a program designed to compute a student's average grade point over multiple courses. The calculation involves gathering inputs such as the grades obtained and the corresponding credit hours for each course. The program multiplies the grade points by the credit hours, sums them up, and then divides by the total credit hours to produce the CGPA.

In this C++ code, we will:

1. Take the number of subjects/courses as input.
2. For each course, input the grade points and credit hours.
3. Compute the weighted sum of grade points.
4. Calculate the CGPA by dividing the total grade points by the total credit hours.

The program will use basic data types, loops for iteration, and functions to modularize the calculation process.

## CODE

```
#include <iostream>

using namespace std;

int main() {
    int numSubjects;

    float totalGradePoints = 0, totalCredits = 0,
    gradePoint, credit;

    cout << "Enter the number of subjects: ";
    cin >> numSubjects;

    for (int i = 1; i <= numSubjects; i++) {
        cout << "Enter grade point for subject " << i << ":
";
        cin >> gradePoint;
        cout << "Enter credit hours for subject " << i << ":
";
    }
```

```
    cin >> credit;

    totalGradePoints += gradePoint * credit;
    totalCredits += credit;
}

if (totalCredits != 0) {
    float cgpa = totalGradePoints / totalCredits;
    cout << "Your CGPA is: " << cgpa << endl;
} else {
    cout << "Error! Total credits cannot be zero." <<
endl;
}

return 0;
}
```

# OUTPUT

```
C:\Users\vedan\OneDrive\Documents\cpp codes\4.exe
Enter the number of subjects: 6
Enter grade point for subject 1: 7
Enter credit hours for subject 1: 4
Enter grade point for subject 2: 5
Enter credit hours for subject 2: 7
Enter grade point for subject 3: 9
Enter credit hours for subject 3: 8
Enter grade point for subject 4: 9
Enter credit hours for subject 4: 4
Enter grade point for subject 5: 3
Enter credit hours for subject 5: 2
Enter grade point for subject 6: 8
Enter credit hours for subject 6: 6
Your CGPA is: 7.25806

-----
Process exited after 396.1 seconds with return value 0
Press any key to continue . . .
```

## CONCLUSION

In conclusion, the C++ CGPA calculator effectively demonstrates how to handle user input, perform calculations, and output results using fundamental programming concepts such as loops, arrays, and arithmetic operations. By computing the weighted average of grade points based on credit hours, the program provides an accurate CGPA calculation. It highlights the importance of structuring code for readability and efficiency, making it a useful tool for students to track their academic performance. Additionally, this type of program can be easily extended or customized for more complex grading systems or additional features.