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UNIVERSITY INSTITUTE OF COMPUTING

PROJECT REPORT
ON
Student Cgpa and Grade Calculator

Program Name: BCA

Subject Name/Code: Data Structures(23CAT-201)

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ABSTRACT

The Student Grade Calculator is a C program designed to compute a student's academic performance based on marks obtained in various subjects. The program takes input for subject names and corresponding marks, calculates the total marks, CGPA (Cumulative Grade Point Average), and assigns a grade based on predefined criteria. This tool helps automate the evaluation process, ensuring accuracy and efficiency in determining academic results.

Introduction:

Academic grading is a critical aspect of education, requiring precise calculations to evaluate student performance. Manual computation can be error-prone and time-consuming.

This project implements a C-based grading system that automates the process by:

- **Accepting subject names and marks as input.**
- **Calculating the total marks and CGPA.**
- **Assigning a grade based on the CGPA.**

The program is designed for simplicity, accuracy, and ease of use, making it suitable for educational institutions.

Technique:

The program follows a structured programming approach with the following key functions:

1. **calculateTotal() – Computes the sum of marks across all subjects.**
2. **calculateCGPA() – Derives the CGPA on a scale of 10.**
3. **determineGrade() – Assigns a grade (A+, A, B+, etc.) based on the CGPA.**

The logic is implemented using:

- **Arrays to store subject names and marks.**
- **Loops for input processing and total calculation.**
- **Conditional statements for grade determination.**

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System Configuration:

Software Requirements:

- Compiler: GCC (GNU Compiler Collection) or any C-compatible compiler.
- IDE: Code::Blocks, Dev-C++, or any text editor with a C compiler.
- OS: Windows, Linux, or macOS.

Hardware Requirements:

- Minimal system requirements (any modern computer).

SUMMARY

SUMMARY

Input:

- **Number of subjects.**
- **Names of each subject.**
- **Marks obtained in each subject (out of 100).**

Process:

1. **Data Collection:**

- **User inputs subject names and marks.**

2. **Calculation:**

   Total marks are computed.

   CGPA is derived using the formula:

   CGPA=(Total MarksMaximum Possible Marks)×10CGPA=(Maximum Possible MarksTotal Marks)×10

   Grade is determined based on CGPA thresholds.

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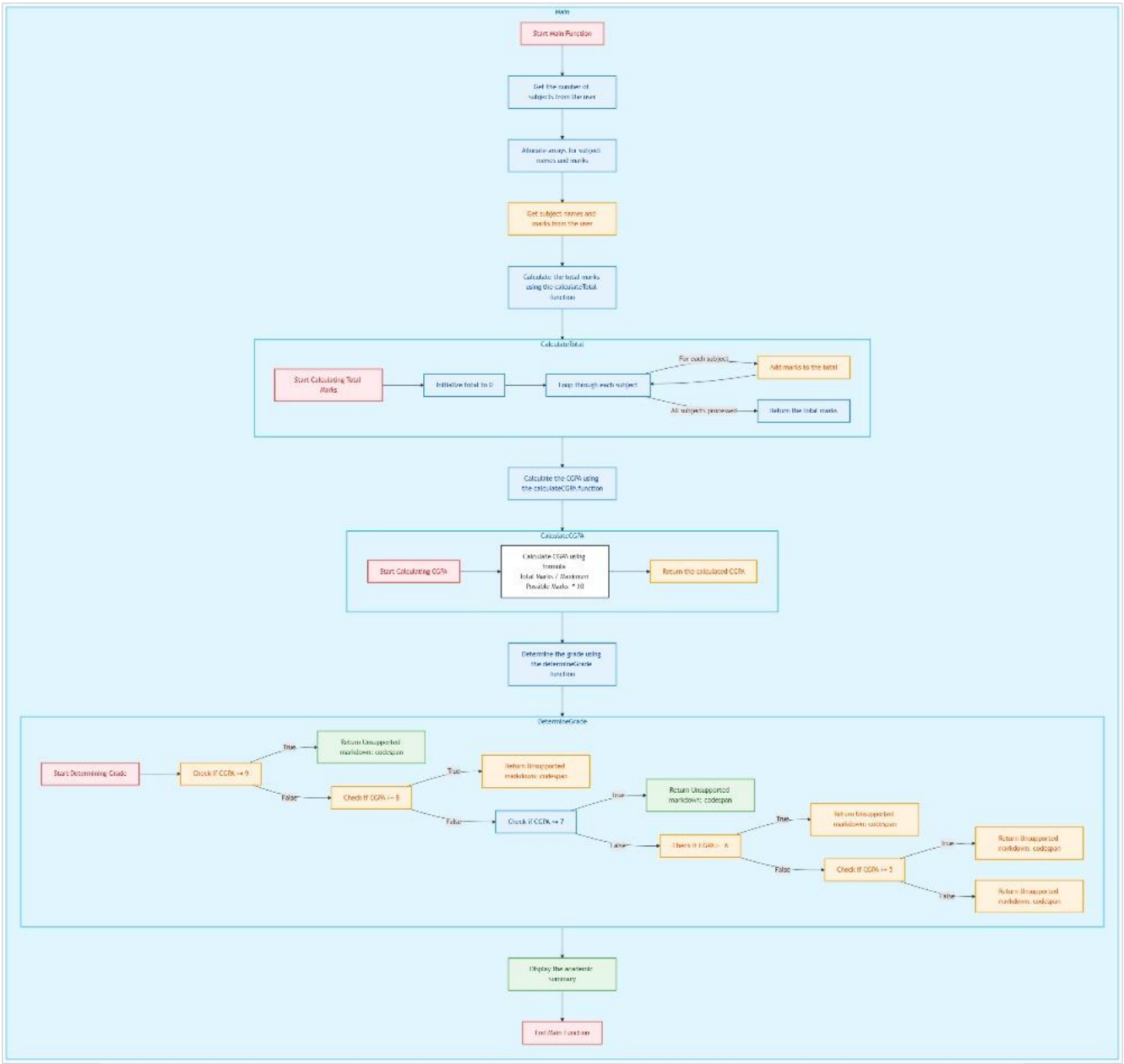
Process:



Output:

Results Display

1. **Prints header: "--- RESULT ---"**
2. **Subject-wise Marks Display**:
    - **Uses a for loop to print each subject name and marks**
    - **Format: "[Subject]: [Marks]"**
3. **Summary Statistics**:
    - **Total Marks: [value]**
    - **CGPA: [value] / 10**
    - **Grade: [letter grade]**

```
Enter the number of subjects: 3
Enter name of subject 1: Web Designing
Enter marks for Web Designing : 90
Enter name of subject 2: Math
Enter marks for Math: 90
Enter name of subject 3: Data Structure
Enter marks for Data Structure: 89

--- RESULT ---
Web Designing : 90
Math: 90
Data Structure: 89
Total Marks: 269
CGPA: 8.97 / 10
Grade: A


=== Code Execution Successful ===
```

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SUMMARY & CONCLUSION

Summary

Aspect	Details
Input	Subject names, marks.
Process	Total, CGPA, grade calculation.
Output	Structured result summary.

Conclusion:

The Student Grade Calculator successfully automates grade computation, reducing manual effort. It demonstrates core C programming concepts effectively.

Future Enhancements:

1. **GUI Implementation (using GTK or Qt).**
2. **Database Integration (to store student records).**
3. **Support for Weighted Grading (credit-based systems**).