EEL PROJECT

ASSIGNMENT 5

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Research

We had created a college scenario where you need to compute the sum of scores from 10 subjects. This could help in determining the total marks or average marks. we had used different functions to implement operations in our program.

We had used these websites for references

1. Recursive Functions - GeeksforGeeks

   In other words, a recursive function is a function that solves a problem by solving smaller instances of the same problem. This technique is commonly used in programming to solve problems that can be broken down into simpler, similar subproblems
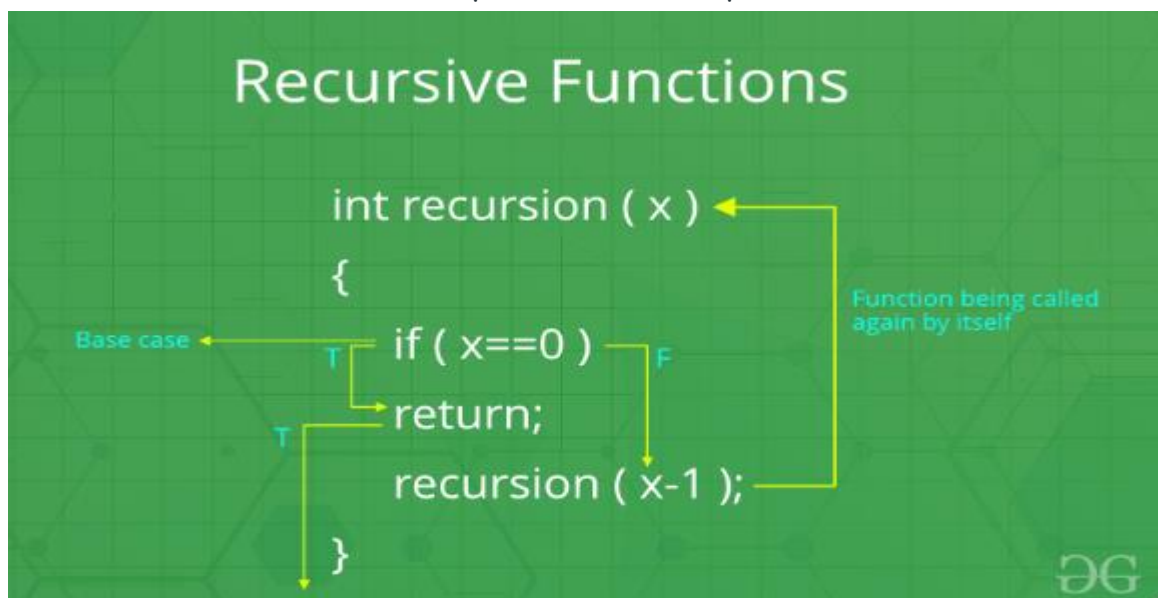
2. [For loop Syntax - GeeksforGeeks](#)

For loop is a control flow statement in programming that allows you to execute a block of code repeatedly based on a specified condition. It is commonly used when you know how many times you want to execute a block of code.
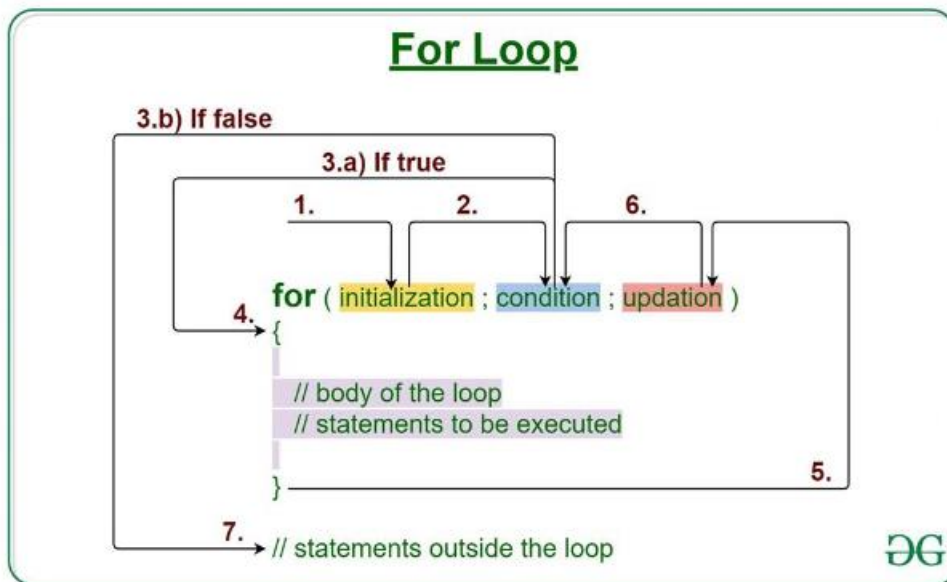
For loop Syntax

Analyse

While creating this programe we were getting compile time and run time error continuously, after discussing among the group members we researched on the problems and found a website called geeks for geeks, it is basically a problem-solving platform where we found the solutions for our problems, thus our errors were rectified.

As we had already mentioned the links of websites referred above for your reference.

Work done by the group members:

Sachin helped with the code, word file, gathering information.

Shruti has gathered the information regarding pointer and recursive function   and basic syntax, also helped to rectify the errors (i.e. syntax and compile error) while programming

Nidhi made the word file and helped with the code

Bhavna built the program.

Ideate

We had made the the program using pointe and recursive function call in which we are calculating the sum of 10 subjects and calculating the average marks of these subjects and giving the pass or fail status of that particular student

We did the following modifications in the code:

1. **Recursive Function:**

 The function calculates Sum using a pointer to traverse the array and calculates the sum of the 10 elements.

 It uses pointer arithmetic (arr + 1) to move to the next element.

 2. **Real-Life Problem:**

 The program simulates entering grades for 10 subjects.

 It calculates the sum and average of the 10 scores, providing feedback to the student.

 3. **Creative Touch:**

 Added a summary of all scores.

 Calculates the average and provides a pass/fail status based on a threshold (50%).

Build

```c
#include <stdio.h>


int calculateSum(int *arr, int n) {
    if (n == 0) {
        return 0;
    }
    return *arr + calculateSum(arr + 1, n - 1);
}

int main() {
    int scores[10];
    int n = 10;
    int sum;
    char choice;

    do {
        printf("Enter the scores of 10 subjects (0-100):\n");
        for (int i = 0; i < n; i++) {
            while (1) {
                printf("Subject %d: ", i + 1);
                scanf("%d", &scores[i]);
                if (scores[i] >= 0 && scores[i] <= 100) {
                    break;
                }
                printf("Invalid input! Please enter marks between 0 and
100.\n");
            }
        }


        sum = calculateSum(scores, 10);


        printf("\n--- Summary ---\n");
        printf("Scores of all 10 subjects: ");
        for (int i = 0; i < n; i++) {
            printf("%d ", scores[i]);
        }
        printf("\nSum of the first 10 scores: %d\n", sum);
```

```c
        double average = sum / 10.0;
        printf("Average of the first 10 scores: %.2f\n", average);



        if (average >= 50.0) {
            printf("Status: Passed!\n");
        } else {
            printf("Status: Failed. Better luck next time.\n");
        }



        printf("\nDo you want to enter marks for another student? (y/n): ");
        scanf(" %c", &choice);

    } while (choice == 'y' || choice == 'Y');

    printf("Thank you for using the program. Goodbye!\n");
    return 0;
}
```

Test

OUTPUT OF OUR CODE

```
Enter the scores of 10 subjects (0-100):
Subject 1: 78
Subject 2: 890
Invalid input! Please enter marks between 0 and 100.
Subject 2: 90
Subject 3: 90
Subject 4: 90
Subject 5: 89
Subject 6: 89
Subject 7: 89
Subject 8: 89
Subject 9: 90
Subject 10: 90

--- Summary ---
Scores of all 10 subjects: 78 90 90 90 89 89 89 89 90 90
Sum of the first 10 scores: 884
Average of the first 10 scores: 88.40
Status: Passed!

Do you want to enter marks for another student? (y/n): y
```

Implement

Now we can say that output is implemented and our code is also running successfully.

We can implement the project for the calculation marks of students.

We know that GitHub is used by many people and in corporate sector. So publishing on GitHub will help us to reach out to a large number of consumers.

NidhiYadav-411/students-pass-fail-status