Name : Maher Atef Maher

Task1

Calculator Program:

Create a program that performs basic arithmetic operations like addition, subtraction, multiplication, and division

Code :

```c
int main() {
    char operation;
    double num1, num2, result;

    // Prompt the user to enter an operation
    printf("Enter an operation (+, -, *, /): ");
    scanf("%c", &operation);

    // Prompt the user to enter two numbers
    printf("Enter two numbers: ");
    scanf("%lf %lf", &num1, &num2);

    // Perform the selected operation
    switch (operation) {
        case '+':
            result = num1 + num2;
            printf("Result: %.2lf\n", result);
            break;
        case '-':
            result = num1 - num2;
            printf("Result: %.2lf\n", result);
            break;
        case '*':
            result = num1 * num2;
            printf("Result: %.2lf\n", result);
            break;
        case '/':
            if (num2 != 0) {
                result = num1 / num2;
                printf("Result: %.2lf\n", result);
            } else {
                printf("Error: Division by zero is not allowed.\n");
            }
            break;
        default:
            printf("Error: Invalid operation.\n");
            break;
    }

    return 0;
}
```

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Task 2

Counting Vowels and Consonants in a String

Task: Write a program that counts the number of vowels and consonants in a string.

Concepts Covered: String manipulation, conditionals, and character counting.

```c
#include <stdio.h>
#include <ctype.h> // For tolower() function

int main() {
    char str[100];
    int vowels = 0, consonants = 0;
    int i;

    // Prompt the user to enter a string
    printf("Enter a string: ");
    fgets(str, sizeof(str), stdin);

    // Loop through each character of the string
    for (i = 0; str[i] != '\0'; i++) {
        // Convert the character to lowercase to handle both uppercase and lowercase letters
        char ch = tolower(str[i]);
```

```c
        // Check if the character is a letter
        if (ch >= 'a' && ch <= 'z') {
            // Check if the character is a vowel
            if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {
                vowels++;
            } else {
                consonants++;
            }
        }
    }

    // Display the results
    printf("Number of vowels: %d\n", vowels);
    printf("Number of consonants: %d\n", consonants);

    return 0;
}
```