- **C program to evaluate postfix expression**

Code:

```
#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>

#define MAX_SIZE 100

struct Stack {
    int top;
    int items[MAX_SIZE];
};

void initialize(struct Stack *s) {
    s->top = -1;
}

int isEmpty(struct Stack *s) {
    return s->top == -1;
}

void push(struct Stack *s, int value) {
    if (s->top == MAX_SIZE - 1) {
        printf("Stack Overflow\n");
        exit(1);
    }
    s->items[++s->top] = value;
```

```c
}

int pop(struct Stack *s) {
    if (isEmpty(s)) {
        printf("Stack Underflow\n");
        exit(1);
    }
    return s->items[s->top--];
}

int evaluatePostfix(char *expression) {
    struct Stack stack;
    initialize(&stack);

    for (int i = 0; expression[i]; i++) {
        if (isdigit(expression[i])) {
            push(&stack, expression[i] - '0');
        } else {
            int operand2 = pop(&stack);
            int operand1 = pop(&stack);
            switch (expression[i]) {
                case '+':
                    push(&stack, operand1 + operand2);
                    break;
                case '-':
                    push(&stack, operand1 - operand2);
                    break;
                case '*':
```

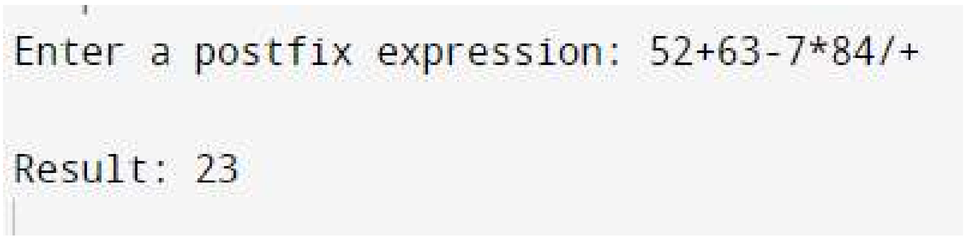
```
                push(&stack, operand1 * operand2);
                break;
            case '/':
                if (operand2 == 0) {
                    printf("Division by zero\n");
                    exit(1);
                }
                push(&stack, operand1 / operand2);
                break;
            default:
                printf("Invalid operator: %c\n", expression[i]);
                exit(1);
        }
    }
}

if (isEmpty(&stack)) {
    printf("Invalid expression\n");
    exit(1);
}

return pop(&stack);
}

int main() {
    char expression[MAX_SIZE];
    printf("Enter a postfix expression: ");
    scanf("%s", expression);
    int result = evaluatePostfix(expression);
    printf("Result: %d\n", result);
    return 0;
}
```

Output:



```
Enter a postfix expression: 52+63-7*84/+

Result: 23
```