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EX-6: Evaluation of Arithmetic Expression

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

#define MAX_SIZE 100

int stack[MAX_SIZE];
int top = -1;

void push(int item) {
    if (top >= MAX_SIZE - 1) {
        printf("Stack Overflow\n");
    } else {
        top++;
        stack[top] = item;
    }
}

int pop() {
    if (top < 0) {
        printf("Stack Underflow\n");
        return -1;
    } else {
        return stack[top--];
    }
}

int evaluateExpression(char* exp) {
    int i, operand1, operand2, result;

    for (i = 0; exp[i] != '\0'; i++) {
        if (isdigit(exp[i])) {
            push(exp[i] - '0');
        } else {
            operand2 = pop();
            operand1 = pop();

            switch (exp[i]) {
                case '+':
                    push(operand1 + operand2);
                    break;
                case '-':
                    push(operand1 - operand2);
                    break;
                case '*':
                    push(operand1 * operand2);
                    break;
                case '/':
                    if (operand2 == 0) {
```

```

        printf("Error: Division by zero\n");
        return -1;
    }
    push(operand1 / operand2);
    break;
default:
    printf("Error: Unsupported operator %c\n", exp[i]);
    return -1;
}
}

result = pop();

if (top >= 0) {
    printf("Error: Invalid postfix expression\n");
    return -1;
}

return result;
}

int main() {
    char exp[MAX_SIZE];

    printf("Enter the arithmetic expression: ");
    scanf("%s", exp);

    int result = evaluateExpression(exp);

    if (result != -1) {
        printf("Result: %d\n", result);
    }

    return 0;
}

```

## Output

Enter the infix expression : a/b^c+d\*e-f\*g

abc^/de\*+fg\*-