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1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <ctype.h>
4 #include <string.h>
5
6 struct Stack {
7     int top;
8     unsigned capacity;
9     int* array;
10 };
11
12 struct Stack* createStack(unsigned capacity) {
13     struct Stack* stack = (struct Stack*)malloc(sizeof(struct Stack));
14     stack->capacity = capacity;
15     stack->top = -1;
16     stack->array = (int*)malloc(stack->capacity * sizeof(int));
17     return stack;
18 }
19
20 int isFull(struct Stack* stack) {
21     return stack->top == stack->capacity - 1;
22 }
23
24 int isEmpty(struct Stack* stack) {
25     return stack->top == -1;
26 }
27
28 void push(struct Stack* stack, int item) {
29     if (isFull(stack)) return;
30     stack->array[++stack->top] = item;
31 }
32
33 int pop(struct Stack* stack) {
34     if (isEmpty(stack)) return -1;
35     return stack->array[stack->top--];
36 }
37
38 int precedence(char op) {
39     switch (op) {
40         case '+':
41         case '-':
42             return 1;
43         case '*':
44         case '/':
45             return 2;
46         case '^':
47             return 3;
48     }
49     return -1;
50 }
51
52 char* infixToPostfix(char* expression) {
53     struct Stack* stack = createStack(strlen(expression));
54     int i, k;
55     for (i = 0, k = -1; expression[i]; ++i) {
56         if (isdigit(expression[i])) {
57             expression[++k] = expression[i];
58         } else if (expression[i] == '(') {
59             push(stack, expression[i]);
60         } else if (expression[i] == ')') {
61             while (!isEmpty(stack) && stack->array[stack->top] != '(') {
62                 expression[++k] = pop(stack);
63             }
64             pop(stack);
65         } else {
66             while (!isEmpty(stack) && precedence(expression[i]) <= precedence(stack->array[stack->top])) {
67                 expression[++k] = pop(stack);
68             }
69             push(stack, expression[i]);
70         }
71     }
72 }

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72     while (!isEmpty(stack)) {
73         expression[++k] = pop(stack);
74     }
75     expression[++k] = '\0';
76     return expression;
77 }
78
79 void displayPostfix(char* expression) {
80     printf("Postfix expression: %s\n", expression);
81 }
82
83 int main() {
84     char expression[100];
85     printf("Enter the infix expression: ");
86     fgets(expression, sizeof(expression), stdin);
87     printf("\n");
88
89     char* postfixExpression = infixToPostfix(expression);
90     displayPostfix(postfixExpression);
91     return 0;
92 }

```

```

< Enter the infix expression: (a/b)-((c+d)*e)
Postfix expression: (/ab((-+cd*e

```