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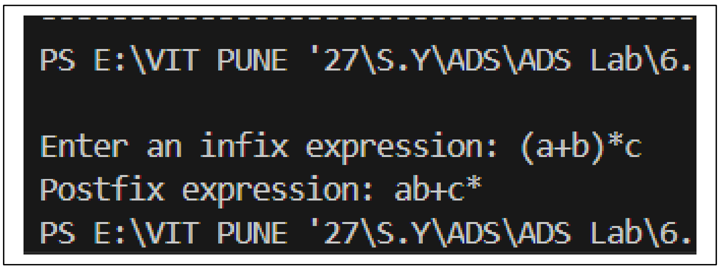
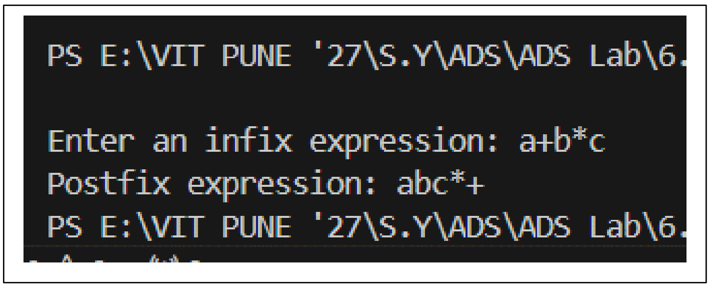
Infix to Postfix with Stack using Array

```
#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>
#define MAX 50
typedef struct {
   int top;
   char items[MAX];
} Stack;
void initStack( Stack* s){
   s -> top = -1;
}
int isEmpty(Stack* s){
   return s->top == -1;
}
void push(Stack* s, char item){
   if (s->top < MAX -1)  s->items[++s->top] = item;
   else {printf("Stack overflow\n"); }
}
char pop(Stack* s){
   if(!isEmpty(s)) return s->items[s->top--];
   else { printf("Stack underflow\n"); return '\0'; } }
char topItem(Stack* s){
   if(!isEmpty(s))  return s-> items [s->top];
   return '\0';  }
int precedence(char op){
   if (op == '^' || op == '%') return 3;
   else if (op == '*' || op == '/') return 2;
   else if (op == '+' || op == '-') return 1;
   else return 0;
}
void infixToPostfix(char* infix, char* postfix){
   Stack s;   initStack(&s);  int i = 0, j = 0;
   while (infix[i]!= '\0'){
      if (isalnum(infix[i])){  postfix [j++] = infix [i]; }
      else if (infix[i] == '('){   push (&s, infix[i]); }
      else if (infix[i] == ')'){
         while(!isEmpty(&s) && topItem(&s)!= '('){
            postfix[j++] = pop(&s);  } pop(&s);
      }
  else {
         while (!isEmpty(&s) && precedence(topItem(&s)) >=
precedence(infix[i])) {
            postfix[j++] = pop(&s);
 }
      push(&s, infix[i]);
      }
            i++;
   }
   while (!isEmpty(&s)) {
      postfix[j++] = pop(&s);
   }
   postfix[j] = '\0';
}
int main(){
   char infix[MAX], postfix[MAX];
   printf("Enter an infix expression: ");
   fgets(infix, MAX, stdin);
   infix[strcspn(infix, "\n")] = 0;
   infixToPostfix(infix, postfix);
   printf("Postfix expression: %s\n", postfix);
   return 0;
}
```



```
PS E:\VIT PUNE '27\S.Y\ADS\ADS Lab\6.

Enter an infix expression: (a+b)*c
Postfix expression: ab+c*
PS E:\VIT PUNE '27\S.Y\ADS\ADS Lab\6.
```



```
PS E:\VIT PUNE '27\S.Y\ADS\ADS Lab\6.

Enter an infix expression: a+b*c
Postfix expression: abc*+
PS E:\VIT PUNE '27\S.Y\ADS\ADS Lab\6.
```