

Program-2

WAP to convert a given valid parenthesized infix arithmetic expression to postfix expression. The expression consists of single character operands and the binary operators

+ (plus), - (minus), * (multiply) and / (divide).

SOURCE CODE:

```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
int F(char symbol){
    switch(symbol){
        case '+' :
        case '-' : return 2;
        case '*' :
        case '/' : return 4;
        case '^' :
        case '$' : return 5;
        case '(' : return 0;
        case '#' : return -1;
        default : return 8;
    }
}
int G(char symbol){
    switch(symbol){
        case '+' :
        case '-' : return 1;
        case '*' :
        case '/' : return 3;
        case '^' :
        case '$' : return 6;
        case '(' : return 9;
        case ')' : return 0;
        default : return 7;
    }
}
void infix_postfix(char infix[]){
    int top,j,i;
    char s[30],postfix[30];
    char symbol;
    top=-1;
    s[++top]='#';
    j=0;
```

```

for(i=0;i<strlen(infix);i++){
    symbol=infix[i];

    while(F(s[top])>G(symbol)){
        postfix[j]=s[top--];
        j++;
    }
    if(F(s[top])!=G(symbol)){
        s[++top]=symbol;
    }
    else
        top--;
}
while(s[top]!='#'){
    postfix[j++]=s[top--];
}
postfix[j]='\0';
printf("The postfix expression is\n");
puts(postfix);
}
int main()
{
    char exp[30];
    printf("Enter an expression:\n");
    gets(exp);
    infix_postfix(exp);
    return 0;
}

```

OUTPUT:

```

Enter an expression:
a+b*(c^d-e)^(f+g*h)-i
The postfix expression is
abcd^e-fgh*+^*+i-

```

```

Enter an expression:
(a+(b-c)*d)
The postfix expression is
abc-d*+

```

```

Process returned 0 (0x0)   execution time : 26.269 s
Press any key to continue.

```