

Aim:

Write a C program to convert a Postfix expression to Prefix expression.

Source Code:

postfixToPrefix.c

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
#include<stdlib.h>
# define MAX 20
char *strrev(char *str)
{
    char c, *front, *back;
    if(!str || !*str)
        return str;

    for(front=str,back=str+strlen(str)-1;front < back;front++,back--)
    {
        c=*front;
        *front=*back;
        *back=c;
    }
    return str;
}
char str[MAX],stack[MAX];
int top=-1;
void push(char c)
{
    stack[++top]=c;
}
char pop()
{
    return stack[top--];
}
void post_pre()
{
    int n,i,j=0; char c[20];
    char a,b,op;
    printf("Enter the postfix expression:");
    scanf("%s", str);
    n=strlen(str);
    for(i=0;i<MAX;i++)
        stack[i]='\0';
    printf("Prefix expression is:");
    for(i=n-1;i>=0;i--)
    {
        if(str[i]=='+' || str[i]=='-' || str[i]=='*' || str[i]=='/')
        {
            push(str[i]);
        }
        else
```

```

        {
            c[j++]=str[i];
            while((top!=-1)&&(stack[top]=='@'))
            {
                a=pop(); c[j++]=pop();
            }
            push('@');
        }
    }
    c[j]='\0';
    strrev(c);
    printf("%s\n",c);
}
void main()
{
    post_pre();
}

```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Enter the postfix expression: AB+
Prefix expression is: +AB

Test Case - 2
User Output
Enter the postfix expression: ABC*+D+
Prefix expression is: ++A*BCD