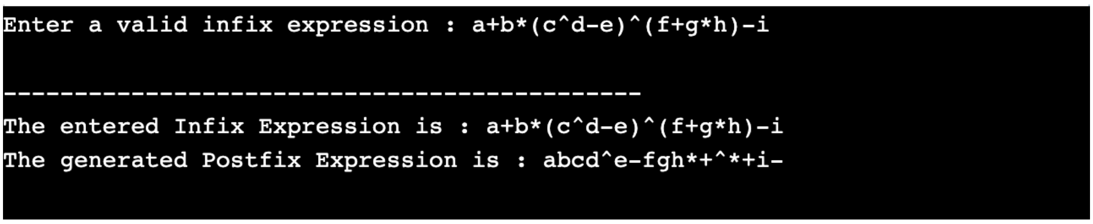
```
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#define SIZE 100


char stack[SIZE];
int top=-1;

void push(char ch)
{
if (top==SIZE-1)
printf("STACK OVERFLOW!! Stack is full!!\n");
else
{
top++;
stack[top]=ch;
}
}

char pop()
{
char item;
if (top==-1)
printf("\nSTACK UNDERFLOW!! Stack is empty!!");
else
{
item=stack[top];
top--;
return item;
}
}

int stackempty()
```

```
{
if(top==-1)
return 1;
else
return 0;
}

char stacktop()
{
if( top==-1)
printf("\nSTACK UNDERFLOW!! Stack is empty!!");
else
return stack[top];
}

int priority(char ch)
{
switch(ch)
{
case '+':
case '-':return (1);
case '*':
case '/': return (2);
case '^': return (3);
default : return (0);
}
}

int main(int argc, char **argv)
{
char infix[100];
int i, item;
printf("Enter a valid infix expression : ");
scanf("%s",infix);
printf("\n----------------------------------------------\n");
```

```
for (int i = 0; i < strlen(infix); ++i)
{
if((infix[i]=='*' || infix[i]=='+' || infix[i]=='/' ||
infix[i]=='-' || infix[i]=='^' || infix[i]=='(') &&
(infix[i+1]=='*' || infix[i+1]=='+' || infix[i+1]=='/' ||
infix[i+1]=='-' || infix[i+1]=='^' || infix[i+1]==')'))
{
printf("INVALID EXPRESSION");
exit(1);
}
}
printf("The entered Infix Expression is : %s",infix);
printf("\nThe generated Postfix Expression is : ");
i=0;
while (infix[i]!='\0')
{
switch (infix[i])
{
case '(': push(infix[i]);
break;
case ')': while(( item=pop())!='(')
printf("%c",item);
break;
case '+':
case '-':
case '*':
case '/':
case '^':
while(!stackempty() && priority(infix[i])<=priority(stacktop()))
{
item=pop();
printf("%c", item);
}

push(infix[i]);
break;
default : printf("%c", infix[i]);
break;
}
i++;
}

while(!stackempty())
{
char item;
item=pop();
printf("%c", item);

}
printf("\n");
return 0;
}
```



```
Enter a valid infix expression : a+b*(c^d-e)^(f+g*h)-i

---------------------------------------------
The entered Infix Expression is : a+b*(c^d-e)^(f+g*h)-i
The generated Postfix Expression is : abcd^e-fgh*+^*+i-
```