

INFIX TO PREFIX

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```
#include <stdio.h>

#define MAX 100

int stack[MAX];
int top=-1;

/* pushes item on the stack */
void push ( int data )
{
    if ( top == MAX - 1 )
        printf ( "\nStack is full" );
    else
    {
        top++ ;
        stack[ top ] = data ;
    }
}

/* pops off the items from the stack */
int pop( )
{
    int data ;

    if ( top == -1 )
    {
        printf ( "\nStack is empty" );
    }
    else
    {
        data = stack[ top ] ;
        top-- ;
        return data;
    }
}
```

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```
int priority(char s)
```

```
{
    if (s=='+'||s=='-') return 0;
    if (s=='*'||s=='/') return 1;
    if (s=='^') return 2;
}
```

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```
void main( )
```

```
{
    int data,success,length,i,anspos=0;
    char s[100],ans[100];
    strset(s,'\0');
    strset(ans,'\0');
    printf("\n\nfeed in the expression: ");
    scanf("%s",s);
    strrev(s);

    length=strlen(s);
    for(i=0;i<length;i++)
    {
        if (s[i]==' ')
        {
            push(s[i]);
        }
        else if(s[i]=='(')
        {
            do
            {
                if (top==--1)
                {
                    printf("Invalid expression");
                    exit(0);
                }
                data=pop();
                if (data==' ') break;
                ans[anspos++]=data;
            }while(1);
        }
    }
}
```

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```

else if(s[i]=='^')
{
    if(top==-1)
        push(s[i]);
    else if(stack[top]=='^')
    {
        data=pop();
        ans[anspos++]=data;
        push(s[i]);
    }
    else push(s[i]);
}
else if(s[i]=='+'||s[i]=='-'||s[i]=='*'||s[i]=='/')
{
    if(top==-1) push(s[i]);
    else
    {
        while(top!=-1 && stack[top]!='>'&&priority(stack[top])>priority(s[i]))
        {
            data=pop();
            ans[anspos++]=data;
        }
        push(s[i]);
    }
}
else ans[anspos++]=s[i];
}

while(top!=-1)
{
    data=pop();
    ans[anspos++]=data;
}
strrev(ans);
printf("Prefix string is %s\n",ans);
}

```

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