

C for Beginners

Wednesday, 4 September 2013

Infix to Postfix Conversion using stack in C

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```
#define SIZE 50 /* Size of Stack */
#include<string.h>
#include <ctype.h>
#include<stdio.h>
char s[SIZE]; int top=-1; /* Global declarations */
push(char elem)
{ /* Function for PUSH operation */
s[++top]=elem;
}
char pop()
{ /* Function for POP operation */
return(s[top--]);
}
int pr(char elem)
{ /* Function for precedence */
switch(elem)
{
case '#': return 0;
case ')': return 1;
case '+':
case '-': return 2;
case '*':
case '/':return 3;
}
}
main()
{ /* Main Program */
char infix[50],prfx[50],ch,elem;
int i=0,k=0;
printf("\n\nRead the Infix Expression ? ");
scanf("%s",infix);
push('#');

while( (ch=infix[i++]) != '\0')
{
if( ch == ')')
push(ch);
else if(isalnum(ch))
prfx[k++]=ch;
else if( ch == '(')
{
while( s[top] != ')')
prfx[k++]=pop();
elem=pop(); /* Remove ) */
}
else
{ /* Operator */
while( pr(s[top]) >= pr(ch) )
prfx[k++]=pop(); push(ch);
}
}
while( s[top] != '#' ) /* Pop from stack till empty */
prfx[k++]=pop();
prfx[k]='\0'; /* Make prfx as valid string */

printf("\n\nGiven Infix Expn: %s \nPrefix Expn: %s\n",infix,prfx);
}
```

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