**6. Operator Precedence Parser**

#include<stdio.h>

#include<stdlib.h>

void main()

{

char stack[20],ip[20],opt[10][10][1],ter[]={"i\*+$"};

int i,j,k,n=4,top=0,col,row;

for(i=0;i<n;i++)

{

stack[i]=NULL; ip[i]=NULL;

for(j=0;j<n;j++)

{

if(ter[i]=='i'&&ter[j]=='i')

{

opt[i][j][0]='e';

}

else if(ter[i]=='i')

opt[i][j][0]='>';

else if(ter[j]=='i')

opt[i][j][0]='<';

else if(ter[i]=='\*')

opt[i][j][0]='>';

else if(ter[j]=='\*')

opt[i][j][0]='<';

else if(ter[i]=='$')

opt[i][j][0]='< ';

else if(ter[i]=='$'&&ter[j]=='$')

opt[i][j][0]='a';

else if(ter[j]=='$')

opt[i][j][0]='>';

}

}

printf("\n\*\*\*\* OPERATOR PRECEDENCE TABLE \*\*\*\*\n");

for(i=0;i<n;i++)

{

printf("\t%c",ter[i]);

}

printf("\n");

for(i=0;i<n;i++)

{

printf("\n%c",ter[i]);

for(j=0;j<n;j++)

{

printf("\t%c",opt[i][j][0]);

}

}

stack[top]='$';

printf("\nEnter the input string: ");

scanf("%s",ip);

i=0;

printf("\nSTACK\t\t\tINPUT STRING\t\t\tAction\n");

printf("\n%s\t\t\t%s\t\t\t",stack,ip);

while(i<=strlen(ip)){

for(k=0;k<n;k++)

{

if(stack[top]==ter[k])

col=k;

if(ip[i]==ter[k])

row=k;

}

if((stack[top]=='$')&&(ip[i]=='$')){

printf("String is Accepted\n");

break;

}

else if((opt[col][row][0]=='<')||(opt[col][row][0]=='='))

{

stack[++top]=opt[col][row][0];

stack[++top]=ip[i];

printf("Shift %c",ip[i]);

i++;

}

else{

if(opt[col][row][0]=='>'){

while(stack[top]!='<'){

--top;

}

top=top-1;

printf("Reduce");

}

else{

printf("\nString is not accepted");

break;

}

}

printf("\n");

for(k=0;k<=top;k++){

printf("%c",stack[k]);

}

printf("\t\t\t");

for(k=i;k<strlen(ip);k++){

printf("%c",ip[k]);

}

printf("\t\t\t");

}

}

**OUTPUT:**

\*\*\*\* OPERATOR PRECEDENCE TABLE \*\*\*\*

i \* + $

i e > > >

\* < > > >

+ < < >

$ < <

Enter the input string: i\*i$

STACK INPUT STRING Action

$ i\*i$ Shift i

$<i \*i$ Reduce

$ \*i$ Shift \*

$<\* i$ Shift i

$<\*<i $ Reduce

$<\* $ Reduce

$ $ String is Accepted

Process returned 0 (0x0) execution time : 10.612 s

Press any key to continue.