**CD Practical 11:**

**Write a C program for constructing recursive descent parsing**

#include <stdio.h>

#include <conio.h>

char input[100];

char prod[100][100];

intpos=-1,l,st=-1;

charid,num;

void E();

void T();

void F();

void advance();

void Td();

void Ed();

void advance()

{

pos++;

if(pos<l)

{

if(input[pos]>='0'&& input[pos]<='9')

{

num=input[pos];

id='\0';

}

if((input[pos]>='a' || input[pos]>='A')&&(input[pos]<='z' || input[pos]<='Z'))

{

id=input[pos];

num='\0';

} } }

void E()

{

strcpy(prod[++st],"E->TE'");

T();

Ed();

}

void Ed()

{

int p=1;

if(input[pos]=='+')

{

p=0;

strcpy(prod[++st],"E'->+TE'");

advance();

T();

Ed();

}

if(input[pos]=='-')

{

p=0;

strcpy(prod[++st],"E'->-TE'");

advance();

T();

Ed();

}

// Recursive Descent Parser

if(p==1)

strcpy(prod[++st],"E'->null");

}

void T()

{

strcpy(prod[++st],"T->FT'");

F();

Td();

}

void Td()

{

int p=1;

if(input[pos]=='\*')

{

p=0;

strcpy(prod[++st],"T'->\*FT'");

advance();

F();

Td();

}

if(input[pos]=='/')

{

p=0;

strcpy(prod[++st],"T'->/FT'");

advance();

F();

Td();

}

if(p==1)

strcpy(prod[++st],"T'->null");

}

void F()

{

if(input[pos]==id)

{

strcpy(prod[++st],"F->id");

advance();

}

if(input[pos]=='(')

{

strcpy(prod[++st],"F->(E)");

advance();

E();

if(input[pos]==')')

{

//strcpy(prod[++st],"F->(E)");

advance();

} }

if(input[pos]==num)

{

strcpy(prod[++st],"F->num");

advance();

} }

int main()

{

int i;

printf("Enter Input String ");

scanf("%s",input);

l=strlen(input);

input[l]='$';

advance();

E();

if(pos==l)

{

printf("String Accepted\n");

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

{

printf("%s\n",prod[i]);

} }

else

{

printf("String rejected\n");

}

getch();

return 0; }

**Program output:**

