Program Code

```
#include<stdio.h>
#include<string.h>

int k=0,z=0,i=0,j=0,c=0;
char a[16],ac[20],stk[15],act[10];

void check()
{
     strcpy(ac,"REDUCE TO E");
     for(z=0; z<c; z++)
     {
       if(stk[z]=='i' && stk[z+1]=='d')
        {
           stk[z]='E';
           stk[z+1]='\0';
           printf("\n$%s\t%s$\t%s",stk,a,ac);
           j++;
        }
      }
     for(z=0; z<c; z++)
     {
       if(stk[z]=='(' && stk[z+1]=='E' && stk[z+2]==')')
       {
           stk[z]='E';
           stk[z+1]='\0';
           stk[z+1]='\0';
           printf("\n$%s\t%s$\t%s",stk,a,ac);
           i=i-2;
        }
    }
     for(z=0; z<c; z++)
     {
       if(stk[z]=='E' && stk[z+1]=='*' && stk[z+2]=='E')
        {
           stk[z]='E';
           stk[z+1]='\0';
           stk[z+1]='\0';
           printf("\n$%s\t%s$\t%s",stk,a,ac);
           i=i-2;
       }
     }
     for(z=0; z<c; z++)
     {
       if(stk[z]=='E' && stk[z+1]=='+' && stk[z+2]=='E')
        {
           stk[z]='E';
           stk[z+1]='\0';
           stk[z+2]='\0';
           printf("\n$%s\t%s$\t%s",stk,a,ac);
           i=i-2;
        }
     }

 }


void main()
{
```

```
        puts("GRAMMAR is\n E->E+E \n E->E*E \n E->(E) \n E->id");
        puts("enter input string ");
        scanf("%s",a);
        c=strlen(a);
        char temp[50];
        strcpy(temp,a);
        strcpy(act,"SHIFT->");
        puts("stack \t input \t action");
        for(k=0,i=0; j<c; k++,i++,j++)
        {
           if(a[j]=='i' && a[j+1]=='d')
             {
                stk[i]=a[j];
                stk[i+1]=a[j+1];
                stk[i+2]='\0';
                a[j]=' ';
                a[j+1]=' ';
                printf("\n$%s\t%s$\t%sid",stk,a,act);
             }
           else
             {
                stk[i]=a[j];
                stk[i+1]='\0';
                a[j]=' ';
                printf("\n$%s\t%s$\t%ssymbols",stk,a,act);
             }
             check();
         }

          printf("\n");
           if(strlen(stk)!=1)
           {
            printf("\n%s not accepted.\n",temp);
           }
           else
           {
            printf("\n%s accepted.\n",temp);
           }
}
```

Output

```
students@pgcse-HP-280-G1-MT:~/Desktop/R7_66/R7_66/3/8$ ./sr
GRAMMAR is
 E->E+E
 E->E*E
 E->(E)
 E->id
enter input string
id+(id*id)+id
stack    input   action

$id       +(id*id)+id$  SHIFT->id
$E        +(id*id)+id$  REDUCE TO E
$E+        (id*id)+id$  SHIFT->symbols
$E+(        id*id)+id$  SHIFT->symbols
$E+(id        *id)+id$  SHIFT->id
$E+(E         *id)+id$  REDUCE TO E
$E+(E*         id)+id$  SHIFT->symbols
$E+(E*id                )+id$  SHIFT->id
$E+(E*E           )+id$  REDUCE TO E
$E+(E             )+id$  REDUCE TO E
$E+(E)             +id$  SHIFT->symbols
$E+E               +id$  REDUCE TO E
$E                 +id$  REDUCE TO E
$E+                 id$  SHIFT->symbols
$E+id                 $  SHIFT->id
$E+E                  $  REDUCE TO E
$E                    $  REDUCE TO E

id+(id*id)+id accepted.
```