

NAME: MEET SHAH

USN: 1PE17CS084

Design, develop and implement YACC/C program to demonstrate Shift Reduce Parsing technique for the grammar rules: $E \rightarrow E+T \mid T$, $T \rightarrow T * F \mid F$, $F \rightarrow (E) \mid id$ and parse the sentence: $id + id * id$.

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();

int main()
{
    puts("GRAMMAR is E->E+E \n E->E*E \n E->(E) \n E->id");
    puts("\nEnter input string :");
    gets(a);
    c=strlen(a);
    strcpy(act,"SHIFT->");
    puts("stack \t input \t action");
    for(k=0,i=0; j<c; k++,i++,j++)
    {
        if(a[j]=='(' && 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);
            check();
        }
        else
```

USN: 1PE17CS084

```
{
    stk[i]=a[j];
    stk[i+1]='\0';
    a[j]=' ';
    printf("\n$%s\t%s$\t%ssymbols",stk,a,act); check();
}
}
```

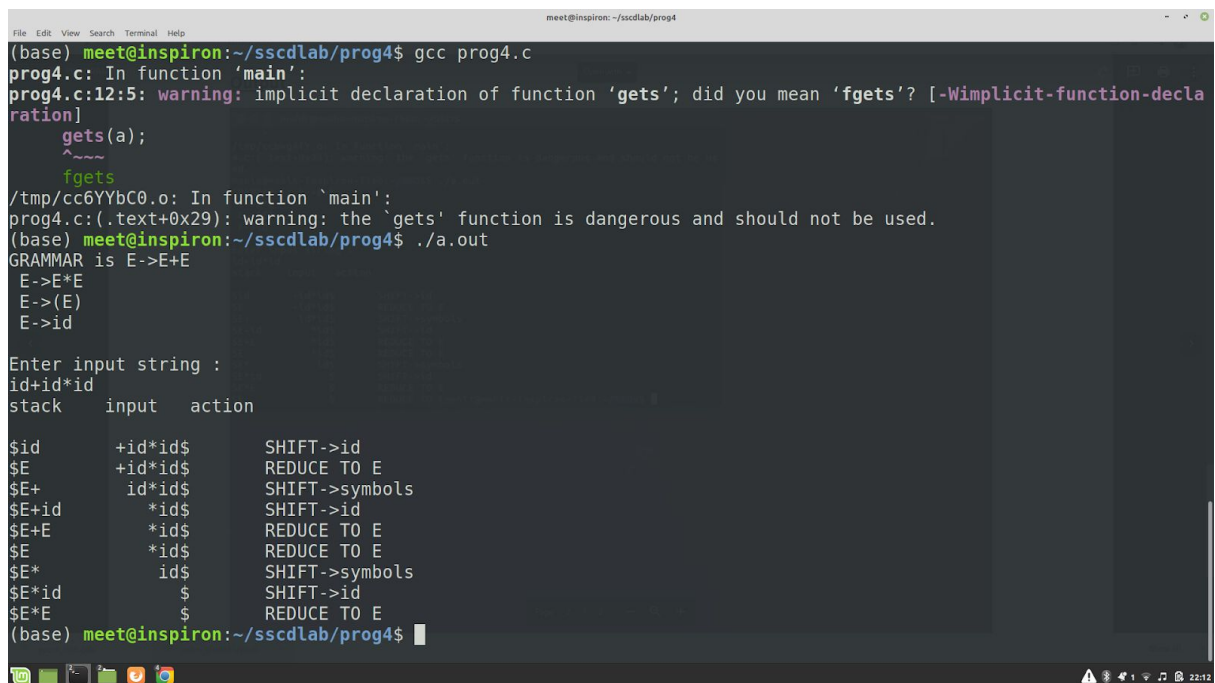
void check()

```
{
    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]=='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;
        }
    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;
        }
}
```

USN: 1PE17CS084

```
}
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+2]='\0';
        printf("\n%s\t%s\t%s",stk,a,ac);
        i=i-2;
    }
}
```

OUTPUT:



```
(base) meet@inspiron:~/sscdlab/prog4$ gcc prog4.c
prog4.c: In function 'main':
prog4.c:12:5: warning: implicit declaration of function 'gets'; did you mean 'fgets'? [-Wimplicit-function-decl
ration]
    gets(a);
    ^~~~
    fgets
/tmp/cc6YYbC0.o: In function 'main':
prog4.c:(.text+0x29): warning: the 'gets' function is dangerous and should not be used.
(base) meet@inspiron:~/sscdlab/prog4$ ./a.out
GRAMMAR is E->E+E
E->E+E
E->(E)
E->id

Enter input string :
id+id*id
stack  input  action

$id      +id*id$    SHIFT->id
$E       +id*id$    REDUCE TO E
$E+      id*id$     SHIFT->symbols
$E+id    *id$       SHIFT->id
$E+E     *id$       REDUCE TO E
$E       *id$       REDUCE TO E
$E*      id$        SHIFT->symbols
$E*id    $          SHIFT->id
$E*E     $          REDUCE TO E
(base) meet@inspiron:~/sscdlab/prog4$
```