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

PROGRAM CODE:

```c
#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]=='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);
            check();
        }
        else
```

```c
	{
		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;
```
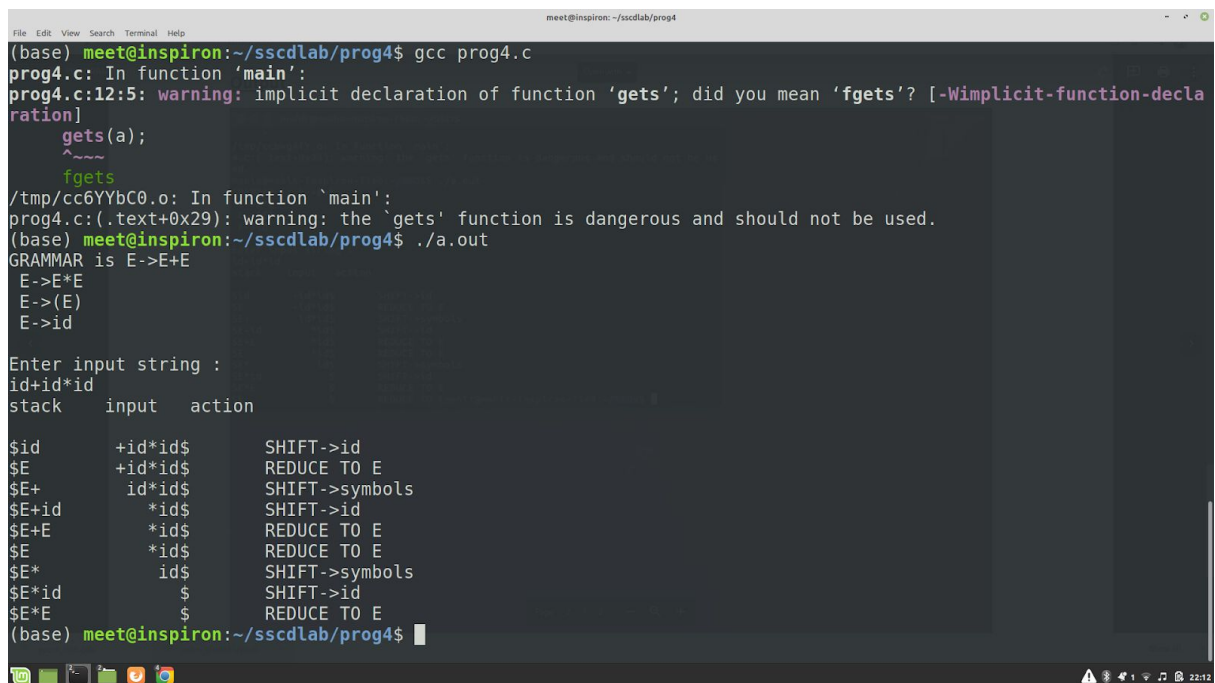
```
    }
  for(z=0; z<c; z++)
      if(stk[z]=='(' && stk[z+1]=='E' && stk[z+2]==')')
      {
          stk[z]='E';
          stk[z+1]='\0';
          stk[z+1]='\0';
          printf("\n$%s\t%s$\t%s",stk,a,ac);
          i=i-2;
      }
}
```

OUTPUT: