##Aim:
### Write a C program for a syntax directed definition of a "if E then S1" and "if E then S1 else S2"

###Description:

> A SYNTAX-DIRECTED DEFINITION is a context-free grammar in which each grammar symbol X is associated with two finite sets of values: the synthesized attributes of X and the inherited attributes of X, each production A -> alpha is associated with a finite set of expressions of the form

b  : =  f (c1,..., ck)

> called semantic rules where f is a function and either b is a synthesized attribute of A and the values c1,..., ck are attributes of the grammar symbols of alpha or A, or b is an inherited attribute of a grammar symbol of alpha and the values c1,..., ck are attributes of the grammar symbols of alpha or A. Each terminal symbol has no inherited attributes.

> It is usual to denote the attributes of a grammar symbol in the form X.name where name is an meaningful name for the attribute.

###Algorithm:
1. Start
2. Output the if, if-else statement to the user for reference.
3. Manipulate the input string such that the if and if-else conditions are stored separately.
4. Generate the format of the if, if-else statements and output the same.
5. End.

###Code:

```
        #include<stdio.h>
        #include<stdlib.h>
        #include<string.h>
        char input[60],stmt[3][60];
        int len,cur,i,j;
        void gen()/*used for generation of if, if-else format statements*/
        {
                        int l1=101,l2=102,l3=103;
                        printf("if %s goto %d\n",stmt[0],l1);
                        printf("goto %d\n",l2);
                        printf("%d:%s\n",l1,stmt[1]);
                        if(cur<3)/*if statement*/
                                printf("%d:STOP\n",l2);
                        else/*if-else statement*/
                        {
                                printf("goto %d\n",l3);
                                printf("%d:%s\n",l2,stmt[2]);
                                printf("%d:STOP\n",l3);
                        }
        }
        int main()
        {
                        printf("Format of if stmt\nExample\n");
                        printf("if(a<b)then(s=a);\n");
                        printf("if(a<b)then(s=a)else(s=b);\n");
                        printf("enter stmt:");
                        gets(input);
                        len=strlen(input);
                        int index=0;
                        for(i=0;i<len&&input[i]!=';';i++)
                        if(input[i]=='(')
                        {
                        index=0;
                        for(j=i;input[j-1]!=')';j++)
                                stmt[cur][index++]=input[j];
                                     cur++;
                                     i=j;
                        }
                        gen();
                        return 0;
        }
```

###Output:
*Commands for execution:-*

* Open a terminal
* Change the directory to the file location
* Use gcc *filename.c* for compilation
* Run ./a.out for execution

###Screenshots:-

![ScreenShot of Output](sdd_cd.png)