

Experiment -13

Write a C program to implement either Top-Down parsing technique or Bottom-Up Parsing technique to check whether the given input string is satisfying the grammar or not.

Program:

```

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

int main() {
    char string[50];
    int flag,count=0;
    printf("The grammar is: S->aS, S->Sb, S->ab\n");
    printf("Enter the string to be checked:\n");
    gets(string);
    if(string[0]=='a') {
        flag=0;
        for (count=1;string[count-1]!='\0';count++) {
            if(string[count]=='b') {
                flag=1;
                continue;
            } else if((flag==1)&&(string[count]=='a')) {
                printf("The string does not belong to the specified grammar");
                break;
            } else if(string[count]=='a')
                continue; else if((flag==1)&&(string[count]=='\0')) {
                    printf("String not accepted.....!!!!");
                    break;
                } else {
                    printf("String accepted");}}}
}

```

Output:

The screenshot shows the Dev-C++ IDE interface. On the left, the code editor displays a C program named 'ex-13 cd.cpp'. The code implements a parser for a grammar where $S \rightarrow aS$, $S \rightarrow Sb$, and $S \rightarrow ab$. It prompts the user to enter a string and checks if it matches the grammar rules. The terminal window on the right shows the execution of the program, including the grammar definition, the input string 'abb', the acceptance message 'String accepted', and the exit message.

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
int main() {
    char string[50];
    int flag, count=0;
    printf("The grammar is: S->aS, S->Sb, S->ab\n");
    printf("Enter the string to be checked:\n");
    gets(string);
    if(string[0]=='a') {
        flag=0;
        for (count=1; string[count-1]!='\0'; count++) {
            if(string[count]=='b') {
                flag=1;
                continue;
            } else if((flag==1)&&(string[count]=='a')) {
                printf("The string does not belong to the s
break;
            } else if(string[count]=='a')
continue; else if((flag==1)&&(string[count]=='\0'))
printf("String not accepted...!!!!");
            break;
        } else {
            printf("String accepted");
    }
}
```

The grammar is: S->aS, S->Sb, S->ab
Enter the string to be checked:
abb
String accepted
Process exited after 13.91 seconds with return value 0
Press any key to continue . . .