EXPERIMENT 4

Write a program to compute Cyclomatic Complexity of a program,

a. That is read by the program externally.

b. By providing number of edges, nodes.

c. By providing number of independent areas.

SOURCE CODE

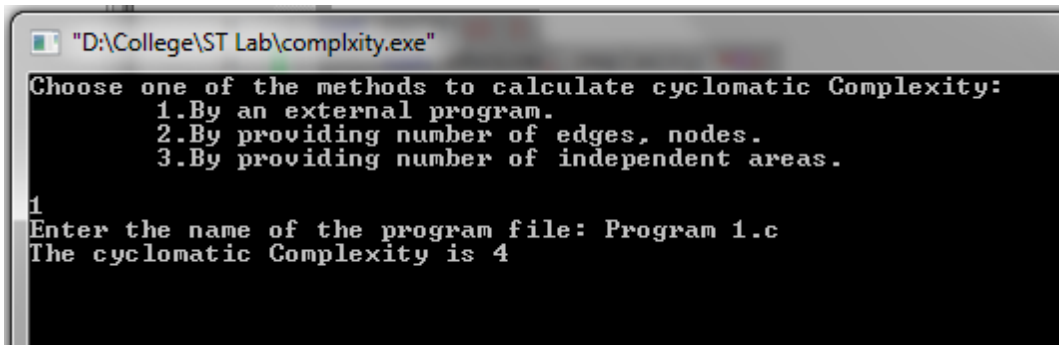
```
#include <stdio.h>
#include <conio.h>
int main () {
	int choice, cmplxity =0;
	printf("Choose one of the methods to calculate cyclomatic Complexity: \n");
	printf("\t1.By an external program.\n\t2.By providing number of edges, nodes.\n\t");
	printf("3.By providing number of independent areas.\n\n");
	scanf("%d",&choice);
	switch(choice) {
		case 1: cmplxity = external();
		break;
		case 2: cmplxity = edges_nodes();
		break;
		case 3: cmplxity = ind_areas();
		break;
		default: printf("Wrong choice!");
		break;
	}
	printf("The cyclomatic Complexity is %d",cmplxity);
	getch();
	return 0;
}
```

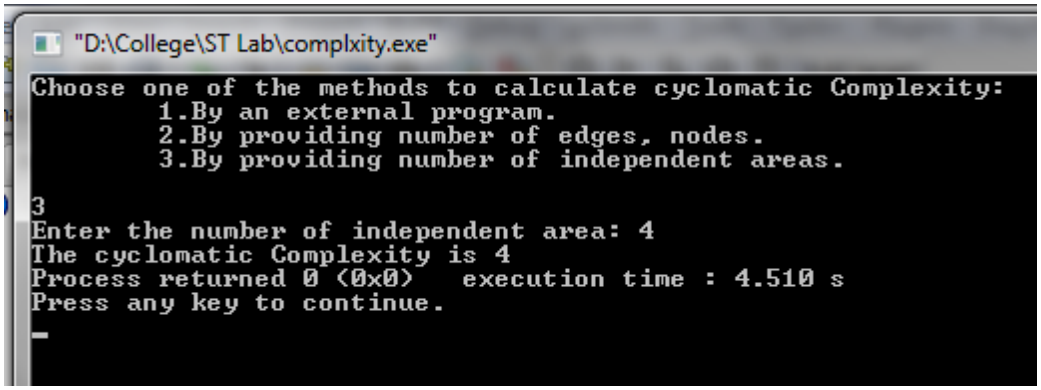
```
int external() {
	int a, sum = 0;
	char filename[50];
	printf("Enter the name of the program file: ");
	fflush(stdin);
	gets(filename);
	FILE *fp = fopen(filename,"r");
	if (fp==NULL) {
		exit(1);
	}
	a = getc(fp);
	while (a!=EOF) {
		if (a=='"') {
			while (getc(fp)!='"');
		}
		if (a=='/') {
			if(getc(fp)=='*') {
				while (getc(fp)!='/');
			}
		}
		if (a=='/') {
			if(getc(fp)=='/') {
				while ((getc(fp)!='\n')||(getc(fp)=='"'));
			}
		}
		if (a=='i') {
			if(getc(fp)=='f') {
				if (getc(fp)=='(')
```

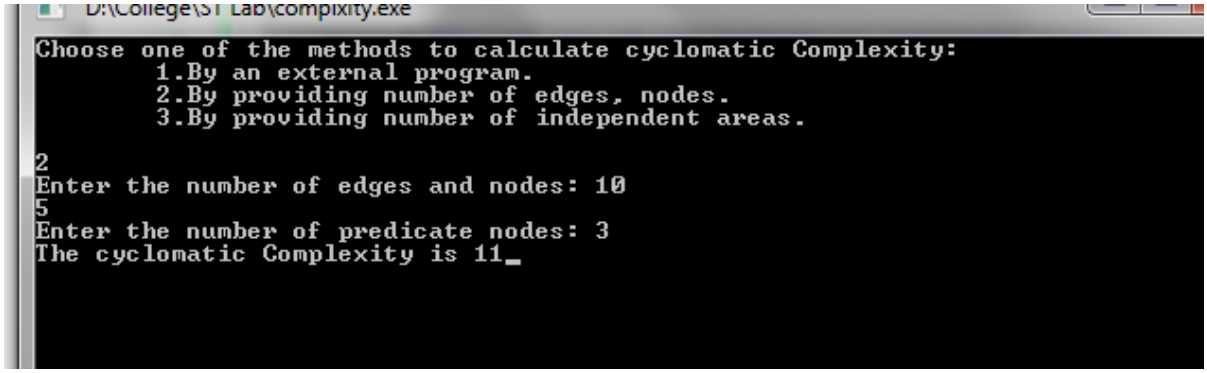
```
                    sum++;
                }
            }
            if (a=='f') {
                if(getc(fp)=='o') {
                    if (getc(fp)=='r') {
                        if (getc(fp)=='('
                            sum++;
                        }
                    }
                }
            if (a=='w') {
                if(getc(fp)=='h') {
                    if(getc(fp)=='i') {
                        if(getc(fp)=='l') {
                            if(getc(fp)=='e') {
                                if(getc(fp)=='(') {
                                    sum++;
                                }
                            }
                        }
                    }
                }
            }
            a = getc(fp);
}
fclose(fp);
return (sum+1);
```

```
}
int edges_nodes() {
        int edges = 0, nodes = 0, pNodes=0, sum = 0;
        printf("Enter the number of edges and nodes: ");
        scanf("%d %d",&edges,&nodes);
        printf("Enter the number of predicate nodes: ");
        scanf("%d",&pNodes);
        sum = edges-nodes+(2*pNodes);
        return sum;
}
int ind_areas () {
        int areas = 0;
        printf("Enter the number of independent area: ");
        scanf("%d",&areas);
        return areas;
}
```

OUTPUT:




"D:\College\ST Lab\complxity.exe"
Choose one of the methods to calculate cyclomatic Complexity:
1.By an external program.
2.By providing number of edges, nodes.
3.By providing number of independent areas.
3
Enter the number of independent area: 4
The cyclomatic Complexity is 4
Process returned 0 (0x0) execution time : 4.510 s
Press any key to continue.


D:\College\ST Lab\complxity.exe
Choose one of the methods to calculate cyclomatic Complexity:
1.By an external program.
2.By providing number of edges, nodes.
3.By providing number of independent areas.
2
Enter the number of edges and nodes: 10
5
Enter the number of predicate nodes: 3
The cyclomatic Complexity is 11