

C:\Users\Admin\OneDrive\Desktop\4th sem\ADA lab\ADA lab programs\DFS\DFStraversal.cpp - [Executing] - Dev-C++ 5.11

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TDM-GCC 4.9.2 64-bit Release

(globals)

DFStraversal.cpp

```
1 #include<stdio.h>
2 #include<stdlib.h>
3 #include<time.h>
4 int G[10][10],v[10],n,a[1][10];
5 void dfs(int i)
6 {
7     int j;
8     printf("\n%d",i);
9     v[i]=1;
10    for(j=0;j<n;j++){
11        if(!v[j]&&G[i][j]==1)
12            dfs(j);
13    }
14 }
15 void dfs_c(int n,int G[10][10],int m,int s[])
16 {
17     int y;
18     s[m]=1;
19     for(y=0;y<n;y++){
20         if((G[m][y]==1)&&(!s[y]))
21             dfs_c(n,G,y,s);
22     }
23 }
24 int main()
25 {
26     int i,j,con,s[10],flag;
27     printf("Enter number of vertices : ");
28     scanf("%d",&n);
29     printf("\nEnter adjacency matrix of the graph :\n");
30     for(i=0;i<n;i++){
31         {
32             printf("Enter row %d : -\n",i+1);
33             for(j=0;j<n;j++){
34                 scanf("%d",&G[i][j]);
35             }
36         }
37         for(i=0;i<n;i++){
38             v[i]=0;
39             printf("DFS Traversal order :-\n");
40             double dfs_time=0.0;
41             clock_t begin=clock();
42             dfs(0);
43             con=0;
44             for(j=0;j<n;j++){
45                 for(i=0;i<n;i++){
46                     s[i]=0;
47                     dfs_c(n,G,j,s);
48                     flag=0;
```

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```
17     int y;  
18     s[m]=1;  
19     for (y=0; y<n; y++){  
20         if ((G[m][y]==1) && (!s[y]))  
21             dfs_c(n, G, y, s);  
22     }  
23 }  
24 int main()  
25 {  
26     int i, j, con, s[10], flag;  
27     printf("Enter number of vertices : ");  
28     scanf("%d", &n);  
29     printf("\nEnter adjacency matrix of the graph :\n");  
30     for (i=0; i<n; i++)  
31     {  
32         printf("Enter row %d : -\n", i+1);  
33         for (j=0; j<n; j++)  
34             scanf("%d", &G[i][j]);  
35     }  
36     for (i=0; i<n; i++)  
37         v[i]=0;  
38     printf("DFS Traversal order :-\n");  
39     double dfs_time=0.0;  
40     clock_t begin=clock();  
41     dfs(0);  
42     con=0;  
43     for (j=0; j<n; j++){  
44         for (i=0; i<n; i++){  
45             s[i]=0;  
46             dfs_c(n, G, j, s);  
47             flag=0;  
48             for (i=0; i<n; i++){  
49                 if (s[i]==0)  
50                     flag=1;  
51             }  
52             if (flag==0)  
53                 con=1;  
54         }  
55     }  
56     if (con==1)  
57         printf("\nGraph is connected\n");  
58     else  
59         printf("\nGraph is not connected\n");  
60     clock_t end=clock();  
61     dfs_time+=(double)(end-begin)/CLOCKS_PER_SEC;  
62     printf("\nn=%d\tTime: %f\n", n, dfs_time);  
63     return 0;  
}
```

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```
0
0
Enter row 2 : -
0
1
0
Enter row 3 : -
0
0
1
Enter row 4 : -
1
0
0
0
DFS Traversal order :-
0
1
2
3
Graph is connected
n=4      Time:0.000000
-----
Process exited after 43.54 seconds with return value 0
Press any key to continue . . .
```

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