

MANALI IT 02

SY IT:

```
#include<stdio.h>
```

```
int source,V,E,time,visited[20],G[20][20];
```

```
void DFS(int i)
```

```
{
    int j;
    visited[i]=1;
    printf("%d->",i+1);
    for(j=0;j<V;j++)
    {
        if(G[i][j]==1&&visited[j]==0){
            DFS(j);
        }
    }
}
```

```
int main()
```

```
{
    int i,j,v1,v2;
    printf("\t\t\t\t\tGRAPHS\n");
    printf("Enter number of edges:");
    scanf("%d",&E);
    printf("Enter number of vertices:");
    scanf("%d",&V);
    for(i=0;i<V;i++)
    {
        for(j=0;j<V;j++)
            G[i][j]=0;
    }
    for(i=0;i<E;i++)
    {
        printf("Enter the edges(v1 v2): ");
        scanf("%d%d",&v1,&v2);
        G[v1-1][v2-1]=1;
    }
    for(i=0;i<V;i++)
    {
        for(j=0;j<V;j++)
            printf(" %d ",G[i][j]);
        printf("\n");
    }
    printf("enter the source:");
    scanf("%d",&source);
    DFS(source-1);
    return 0;
}
```

```

dl408@itadmin:~/Desktop/DSA_02$ gcc expt7.c
dl408@itadmin:~/Desktop/DSA_02$ ./a.out
          GRAPHS
Enter number of edges:7
Enter number of vertices:11
Enter the edges(v1 v2): 2      3
Enter the edges(v1 v2): 4      5
Enter the edges(v1 v2): 5      5
Enter the edges(v1 v2): 4      4
Enter the edges(v1 v2): 3      3
Enter the edges(v1 v2): 7      7
Enter the edges(v1 v2): 8      8
0 0 0 0 0 0 0 0 0 0 0
0 0 1 0 0 0 0 0 0 0 0
0 0 1 0 0 0 0 0 0 0 0
0 0 0 1 1 0 0 0 0 0 0
0 0 0 0 1 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0 0 0 0
0 0 0 0 0 0 0 1 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0

```

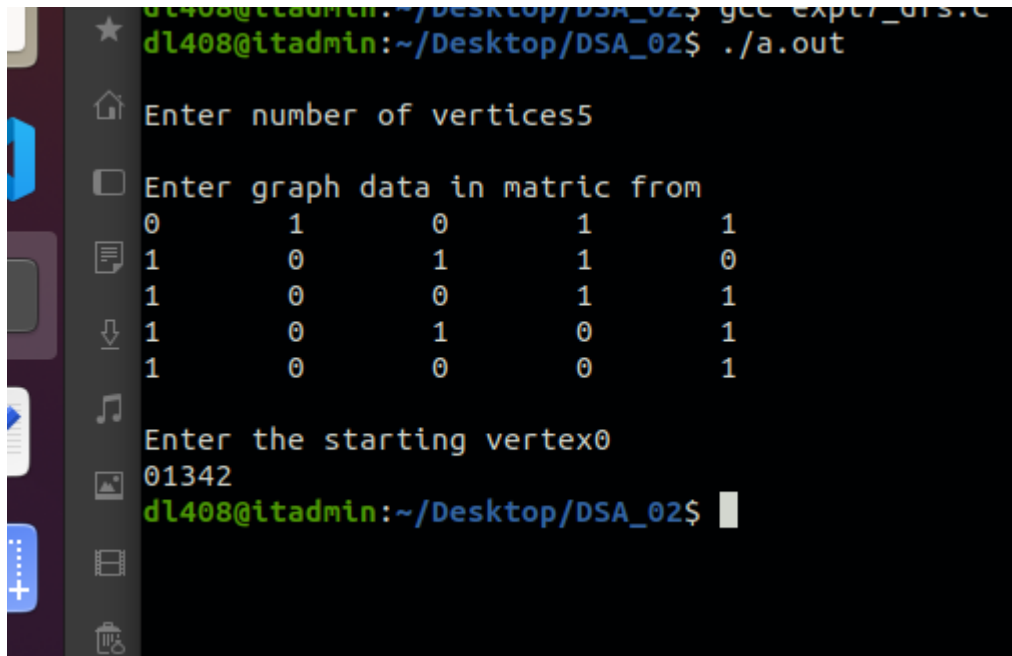
#include<stdio.h>

```

int a[20][20],q[20],visited[20],n,f=-1,r=-1;
void bfs(int v)
{
    int i;
    for(i=0;i<n;i++)
    {
        if(a[v][i] !=0 && visited[i]==0)
        {
            r=r+1;
            q[r]=i;
            visited[i]=1;
            printf("%d",i);
        }
    }
    f=f+1;
    if(f<=r)
        bfs(q[f]);
}
int main()
{
    int v,i,j;
    printf("\nEnter number of vertices");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        visited[i]=0;}
    printf("\nEnter graph data in matric from\n");
    for(i=0;i<n;i++)
        for(j=0;j<n;j++)
            scanf("%d",&a[i][j]);
    printf("\nEnter the starting vertex");
    scanf("%d",&v);
    f=r=0;
    q[r]=v;

```

```
visited[v]=1;
printf("%d",v);
bfs(v);
if(r!=n-1)
printf("\nBFS not possible");
printf("\n");
return 0;
}
```

A terminal window with a dark background and a sidebar on the left containing icons for home, documents, downloads, music, images, and applications. The terminal shows the execution of a BFS program. The user enters 5 for the number of vertices, followed by a 5x5 adjacency matrix. Then, the user enters 0 as the starting vertex. The program outputs the sequence of vertices visited: 01342.

```
dl408@itadmin:~/Desktop/DSA_02$ gcc exp7_bfs.c
dl408@itadmin:~/Desktop/DSA_02$ ./a.out
Enter number of vertices5
Enter graph data in matrix from
0      1      0      1      1
1      0      1      1      0
1      0      0      1      1
1      0      1      0      1
1      0      0      0      1
Enter the starting vertex0
01342
dl408@itadmin:~/Desktop/DSA_02$
```