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SY-IT

Code:
dfs:

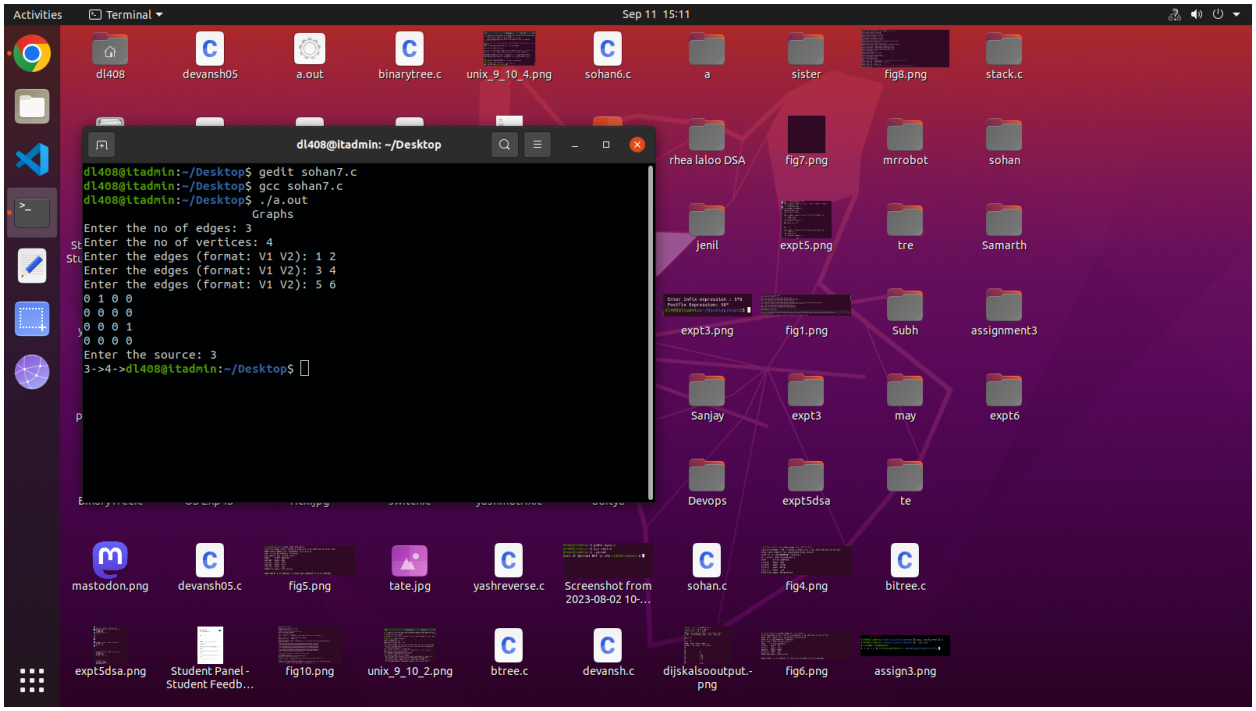
```
#include <stdio.h>
#include <stdlib.h>

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\tGraphs\n");
printf("Enter the no of edges: ");
scanf("%d", &E);
printf("Enter the no 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 (format: 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;
}
```

Output:



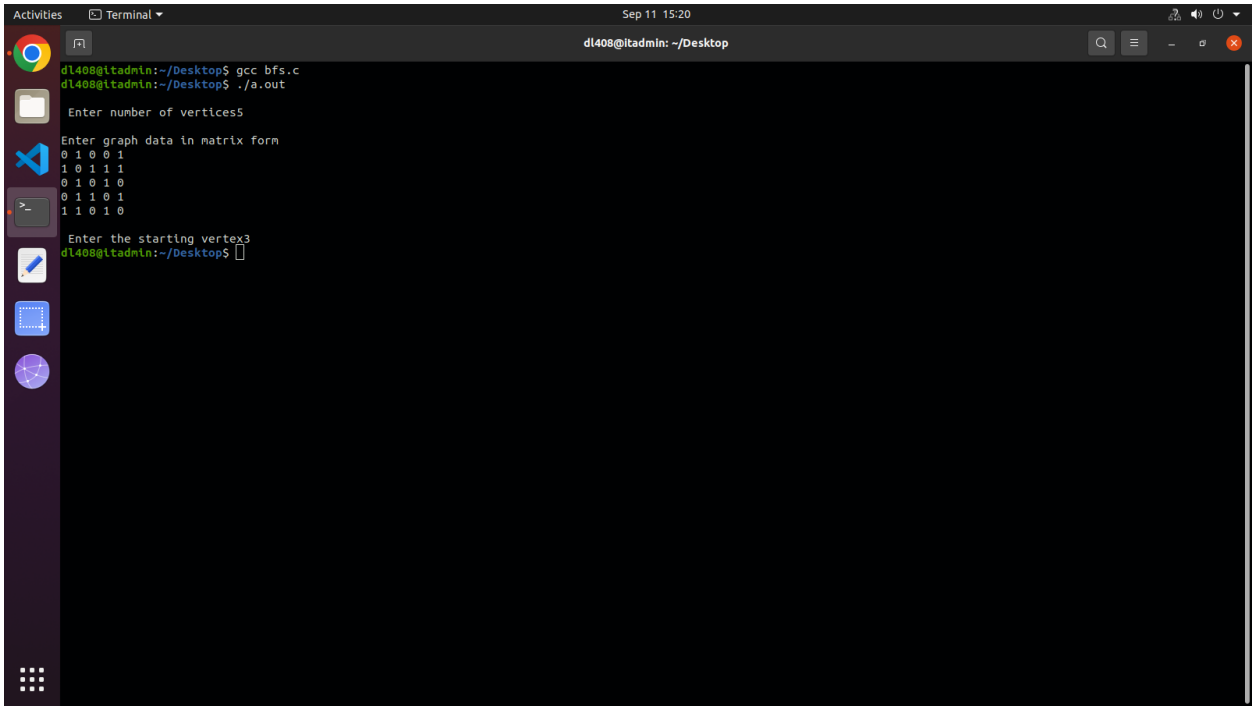
Bfs:

```
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("\n Enter number of vertices");
    scanf("%d", &n);
    for (i = 0; i < n; i++) {
        visited[i] = 0;
    }
    printf("\nEnter graph data in matrix form\n");
    for (i = 0; i < n; i++) {
        for (j = 0; j < n; j++) {
            scanf("%d", &a[i][j]);
        }
    }
    printf("\n Enter 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\n");
    }
    return 0;
}
```

Output:


Activities
Terminal
Sep 11 15:20
dl408@itadmin: ~/Desktop
dl408@itadmin:~/Desktop$ gcc bfs.c
dl408@itadmin:~/Desktop$ ./a.out
Enter number of vertices5
Enter graph data in matrix form
0 1 0 0 1
1 0 1 1 1
0 1 0 1 0
0 1 1 0 1
1 1 0 1 0
Enter the starting vertex3
dl408@itadmin:~/Desktop$