

EXPERIMENT NO.7

BFS

INPUT:

```
1 #include<stdio.h>
2 int a[20][20],q[20],visited[20],n,f=-1,r=-1;
3 void BFS(int v)
4 {
5     int i;
6     for(i=0;i<n;i++)
7     {
8         if(a[v][i]!=0 && visited[i]==0)
9         {
10             r=r+1;
11             q[r]=i;
12             visited[i]=1;
13             printf("%d",i);
14         }
15     }
16     f=f+1;
17     if(f<=r)
18         BFS(q[f]);
19 }
20 int main()
21 {
22     int v,i,j;
23     printf("\n Enter the number of Vertices \n");
24     scanf("%d",&n);
25     for(i=0;i<n;i++)
26     {
27         visited[i]=0;
28     }
29     printf("\n Enter the Graph elements in Matrix form \n");
30     for(i=0;i<n;i++)
31     for(j=0;j<n;j++)
32         scanf("%d",&a[i][j]);
33     printf("\n Enter the Starting Vertex \n");
34     scanf("%d",&v);
35     f=r=0;
36     q[r]=v;
37     visited[v]=1;
38     printf("%d",v);
39     BFS(v);
40     if(r!=n-1)
41         printf("\n BFS Not Possible \n");
42     printf("\n");
43     return 0;
44 }
```

OUTPUT:

```
(base) dl406@itadmin:~$ cd
(base) dl406@itadmin:~$ gedit BFS.c
(base) dl406@itadmin:~$ gcc BFS.c
(base) dl406@itadmin:~$ ./a.out

Enter the number of Vertices
5

Enter the Graph elements 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 Vertex
3
31240
```

DFS

INPUT:

```
1 #include<stdio.h>
2 #include<stdlib.h>
3 int source,V,E,time,visited[20],G[20][20];
4 void DFS(int i)
5 {
6     int j;
7     visited[i]=1;
8     printf(" %d->",i+1);
9     for(j=0;j<V;j++)
10 {
11     if(G[i][j]==1 && visited[j]==0)
12     {
13         DFS(j);
14     }
15 }
16 }
17
18 int main()
19 {
20     int i,j,v1,v2;
21     printf("\t\t\tGraphs\n");
22     printf("Enter the no. of Edges : ");
23     scanf("%d",&E);
24     printf("Enter the no. of vertices : ");
25     scanf("%d",&V);
26     for(i=0;i<V;i++)
27     {
28         for(j=0;j<V;j++)
29         {
30             G[i][j]=0;
31         }
32     }
33
34     /* Creating Edges:P */
35     for(i=0;i<E;i++)
36     {
37         printf("Enter the Edges (format: V1 V2) : ");
38         scanf("%d%d",&v1,&v2);
39         G[v1-1][v2-1]=1;
40     }
```

```

42  for(i=0;i<V;i++)
43  {
44      for(j=0;j<V;j++)
45      {
46          printf(" %d\t",G[i][j]);
47      }
48      printf("\n");
49  }
50  }
51  printf("Enter the Source : ");
52  scanf("%d",&source);
53  DFS(source-1);
54  return 0;
55 }

```

OUTPUT:

```

(base) dl406@itadmin:~$ gedit DFS.c
(base) dl406@itadmin:~$ gcc DFS.c
(base) dl406@itadmin:~$ ./a.out
      Graphs
Enter the no. of Edges : 8
Enter the no. of vertices : 9
Enter the Edges (format: V1 V2) : 1 2
Enter the Edges (format: V1 V2) : 8 3
Enter the Edges (format: V1 V2) : 7 5
Enter the Edges (format: V1 V2) : 1 4
Enter the Edges (format: V1 V2) : 6 8
Enter the Edges (format: V1 V2) : 1 6
Enter the Edges (format: V1 V2) : 7 2
Enter the Edges (format: V1 V2) : 1 0
  0      1      0      1      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      0      0      0
  0      0      0      0      0      0      0      1      0
  0      1      0      0      1      0      0      0      0
  0      0      1      0      0      0      0      0      0
  0      0      0      0      0      0      0      0      0
Enter the Source : 7
7-> 2-> 5->(base) dl406@itadmin:~$ 

```