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Class: SY-IT

Batch: S3

Roll no: 47

EXPERIMENT 07

Program-1:

```
#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("GRAPHS\n");
  printf("Enter the number of the edges:");
  scanf("%d",&E);
  printf("Enter the number of the 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:

Program-2:

```
#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;
    }
  }
}
```

```

Activities Terminal
Sep 11 15:28
did418@did418: ~$ gedit graph.c
did418@did418: ~$ gcc graph.c
did418@did418: ~$ ./a.out
GRAPH5
Enter the number of the edges:8
Enter the number of the 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
010101000
000000000
000000000
000000000
000000000
000000000
000000010
010010000
001000000
000000000
Enter the source:7
7->2->5->did418@did418: ~$ gedit graph.c
did418@did418: ~$ gcc graph.c
did418@did418: ~$ ./a.out
GRAPH5
Enter the number of the edges:8
Enter the number of the 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

```

```

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"); printf("\n");
    return 0;
}

```

Output:

Enter number of vertices:5

Enter graph data in matrix form

0
1
0
0
0
1
1
1
0
1
1
1
1
0
1
0
0
1
0
0
1
1
0
1
1
1
1
0
1
1
1
0
1
1
0
1
0
0

Enter the starting vertex3

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BFS not possible