

1BM21CS255

Vibha Hugar ADA LAB

WEEK 3

CODE FOR BFS

```
#include<stdio.h>

void bfs(int);

int a[10][10],vis[10],n;

void main()
{
    int i,j,src;

    printf("enter the number of vertices\n");
    scanf("%d",&n);
    printf("enter the adjacency matrix\n");
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=n;j++)
        {
            scanf("%d",&a[i][j]);

        }

        vis[i]=0;
    }

    printf("enter the src vertex\n");
```

```
scanf("%d",&src);  
printf("nodes reachable from src vertex\n");  
bfs(src);  
  
}
```

```
void bfs(int v)  
{  
    int q[10],f=1,r=1,u,i;  
    q[r]=v;  
    vis[v]=1;  
    while(f<=r)  
    {  
        u=q[f];  
        printf("%d",u);  
        for(i=1;i<=n;i++)  
        {  
            if(a[v][i]==1 && vis[i]==0)  
            {  
                vis[i]=1;  
                r=r+1;  
                q[r]=i;  
            }  
        }  
        f=f+1;  
    }  
}
```

OUTPUT FOR BFS

```
"C:\Users\Admin\Desktop\cs255\4th sem ada lab\bfs.exe"  
enter the number of vertices  
3  
enter the adjacency matrix  
0  
1  
1  
1  
0  
9  
1  
9  
0  
enter the src vertex  
1  
nodes reachable from src vertex  
123  
Process returned 4 (0x4)   execution time : 188.313 s  
Press any key to continue.
```

CODE FOR TOPOLOGICAL SORT

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

```
#include<conio.h>
```

```
void dfs(int);
```

```
int a[10][10],vis[10],exp[10],n,j,m;
```

```
void main()
```

```
{
```

```
    int i,x,y;
```

```
    printf("enter the number of vertices\n");
```

```
    scanf("%d",&n);
```

```
    for(i=1;i<=n;i++)
```

```
    {
```

```
        for(j=1;j<=n;j++)
```

```
        {
```

```
            a[i][j]=0;
```

```
        }
```

```
        vis[i]=0;
```

```
    }
```

```
    printf("enter the number of edges\n");
```

```
    scanf("%d",&m);
```

```
    for(i=1;i<=m;i++)
```

```
    {
```

```
        printf("enter an edge\n");
```

```
        scanf("%d %d",&x,&y);
```

```
        a[x][y]=1;
```

```
    }
```

```
    j=0;
```

```

for(i=1;i<=n;i++)
{
    if(vis[i]==0)
        dfs(i);
}
printf("topological sort\n");
for(i=n-1;i>=0;i--)
{
    printf("%d",exp[i]);
}
getch();
}

```

```

void dfs(int v)
{
    int i;
    vis[v]=1;
    for(i=1;i<=n;i++)
    {
        if(a[v][i]==1 && vis[i]==0)
            dfs(i);
    }
    exp[j++]=v;
}

```

OUTPUT FOR TOPOLOGICAL SORT

 "C:\Users\Admin\Desktop\cs255\4th sem ada lab\topologicalsort.exe"

```
enter the number of vertices
```

```
3
```

```
enter the number of edges
```

```
2
```

```
enter an edge
```

```
1 2
```

```
enter an edge
```

```
2 3
```

```
topological sort
```

```
123
```