1BM21CS255

Vibha Hugar ADA LAB

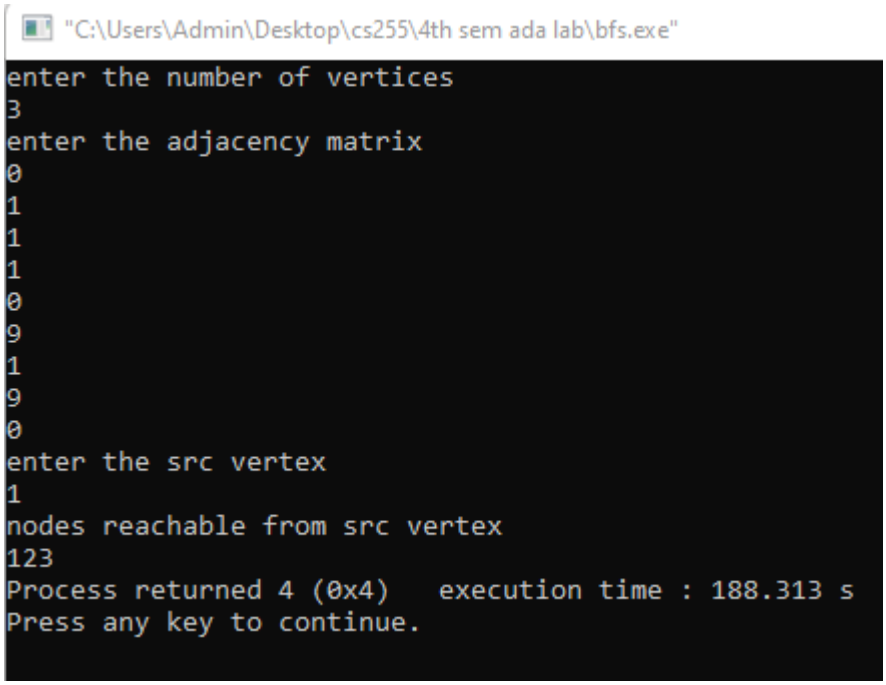
WEEK 3

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



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