NAME: TANISHA C A
REGISTER NO.:230701390

EX-14: Implementation of Dijkstra's Algorithm

```
#include <stdio.h>
#define size 8
#define INFINITY 10000000; int
g[size][size]={ {0,2,6,0,0,0,0,0},
{2,0,0,2,6,0,0,0},
                    {6,0,0,1,0,0,4,0},
                    {0,2,1,0,0,2,0,0},
                    {0,6,0,0,0,3,0,1},
                    {0,0,0,2,3,0,2,0},
                    {0,0,0,2,0,2,0,2},
                    {0,0,0,0,1,0,2,0} };
  struct  vertex_info     {
int length;       int pred;
char state;  }v[size];   int
main() {     int i;      for
(i=0;i<size;i++)
     {
      v[i].length=INFINITY;
      v[i].pred=-1;
 v[i].state='N';
     }      int s=0;
int d=7;      v[s].length=0;
v[s].state='V';

do
     {
                  int i;      for(i=0;i<size;i++)
                       {
                       if (g[s][i]!=0 &&v[i].state=='N')
                       {
                 if(v[i].length>v[s].length+g[s][i])
                             {
                    v[i].length=g[s][i]+v[s].length;
                   v[i].pred=s;

printf("\nlength[%d]=%d\tpred[%d]=%d",i,v[i].length,i,v[i].pred);
                             }
                       }
               }
        int min=INFINITY;
      s=0;
              for(i=0;i<size;i++)
```

```
            {                       if(v[i].state=='N'&&
v[i].length<min)
                        {
                         min=v[i].length;
      s=i;
                        }
                   }
v[s].state='V';
             }while(s!=d);
i=size;     int path[size];
printf("\n\nPath=%d->",s);     do
{                   path[i--]=s;
s=v[s].pred;
printf("%d-
>",s);
    }while(s>0);
}
```