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EX NO 14 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++)
```

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        {
            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);
}

```