

```

#include<stdio.h>
struct node
{
    unsigned dist[20];
    unsigned from[20];
}rt[10];
int main()
{
    int costmatrix[20][20];
    int nodes,i,j,k,count=0;
    printf("--Enter the number of nodes--: ");
    scanf("%d",&nodes);
    printf("Enter the cost matrix: ");
    for(i=0;i<nodes;i++)
    {
        for(j=0;j<nodes;j++)
        {
            scanf("%d",&costmatrix[i][j]);
            costmatrix[i][i]=0;
            rt[i].dist[j]=costmatrix[i][j];
            rt[i].from[j]=j;
        }
    }
    do
    {
        count=0;
        for(i=0;i<nodes;i++)
            for(j=0;j<nodes;j++)
                for(k=0;k<nodes;k++)
                {
                    if(rt[i].dist[j]>costmatrix[i][k]+rt[k].dist[j])
                    {
                        rt[i].dist[j]=rt[i].dist[k]+rt[k].dist[j];
                        rt[i].from[j]=k;
                        count ++;
                    }
                }
    }while(count!=0);
    for(i=0;i<nodes;i++)
    {
        printf("\nFor router %d \n",i+1);
        for(j=0;j<nodes;j++)
        {
            printf("\tnode %d via %d Distance %d ",j+1,rt[i].from[j]+1,rt[i].dist[j]);
        }
    }
    printf("\n");
}

```

```
21br14263@administrator-PowerEdge-R820:~/network$ gcc dvr.c
```

```
21br14263@administrator-PowerEdge-R820:~/network$ ./dvr
```

```
Enter the number of nodes: 3
```

```
Enter the cost matrix: 0
```

```
2
```

```
7
```

```
2
```

```
0
```

```
1
```

```
7
```

```
1
```

```
8
```

```
For router 1
```

```
node 1 via 1 Distance 0
```

```
node 2 via 2 Distance 2
```

```
node 3 via 2 Distance 3
```

```
For router 2
```

```
node 1 via 1 Distance 2
```

```
node 2 via 2 Distance 0
```

```
node 3 via 3 Distance 1
```

```
For router 3
```

```
node 1 via 2 Distance 3
```

```
node 2 via 2 Distance 1
```

```
node 3 via 3 Distance 0
```