```
#include <stdio.h>
#include <string.h>
int main()
{
	int nr,sourcertr,i,j,k,w,v,min;
	int cstmat[100][100],distance[100],last[100];
	int flag[100];
	printf("\nEnter the no of router\t:");
	scanf("%d",&nr);
	printf("\nEnter the cost matrix values:\n");
	for(i=0;i<nr;i++)
	{
		for(j=0;j<nr;j++)
		{
			scanf("%d",&cstmat[i][j]);
			if(cstmat[i][j]<0)
				cstmat[i][j]=1000;
		}
	}
	 printf("\nEnter the source router:");
	 scanf("%d",&sourcertr);
	 for(v=0;v<nr;v++)
	 {
		flag[v]=0;
		last[v]=sourcertr;
		distance[v]=cstmat[sourcertr][v];
	}
	flag[sourcertr]=1;
	for(i=0;i<nr;i++)
	{
		min=1000;
		for(w=0;w<nr;w++)
		{
			if(!flag[w])
				if(distance[w]<min)
				{
					v=w;
					min=distance[w];
				}
		}
		flag[v]=1;
		for(w=0;w<nr;w++)
		{
			if(!flag[w])
				if(min+cstmat[v][w]<distance[w])
				{
					distance[w]=min+cstmat[v][w];
					last[w]=v;
				}
		}
```

```
        }
        for(i=0;i<nr;i++)
        {
                printf("\n%d->%d:Path used:%d",sourcertr,i,last[i]);
                w=i;
                printf("\nShortest path cost taken:%d",distance[i]);
        }
        printf("\n");
}
21br14263@administrator-PowerEdge-R820:~/network$ gcc lsr.c -o lsr
22br14263@administrator-PowerEdge-R820:~/network$ ./lsr
Enter the no of router :3
Enter the cost matrix values:
0 1 2
3 0 2
2 1 0
Enter the source router:0
0->0:Path used:0
Shortest path cost taken:0
0->1:Path used:0
Shortest path cost taken:1
0->2:Path used:0
Shortest path cost taken:2
```