#include <stdio.h>

#include <stdlib.h>

void dijkstra(int n,int cost[10][10],int s,int dist[10])

{

int i,v,count=1,min,visited[10];

for(i=1; i<=n; i++)

{

visited[i]=0;

dist[i]=cost[s][i];

}

visited[s]=1;

dist[s]=0;

while(count<=n)

{

min=999;

for(i=1; i<=n; i++)

if(dist[i]<min && visited[i]==0)

{

min=dist[i];

v=i;

}

visited[v]=1;

count++;

for(i=1; i<=n; i++)

if(dist[i]>dist[v]+cost[v][i])

dist[i]=dist[v]+cost[v][i];

}

}

int main()

{

int i,j,n,s,cost[10][10],dist[10];

printf("\n Enter no. of nodes");

scanf("%d",&n);

printf("\n Enter the matrix");

for(i=1; i<=n; i++)

{

for(j=1; j<=n; j++)

{

scanf("%d",&cost[i][j]);

if(cost[i][j]==0)

cost[i][j]=999;

}

}

printf("\n Enter the source vertex:");

scanf("%d ",&s);

dijkstra(n,cost,s,dist);

printf("shortest path from %d is ",s);

for(i=1; i<=n; i++)

if(s!=i)

printf("%d -> %d = %d, ",s,i,dist[i]);

return 0;

}