import java.util.\*;

import java.io.\*;

class Main{

static int n,u;

static float cost[][]=new float[100][100];

static float dist[]=new float[100];

static int v;

public static void shortestpath(int v)

{

int s[]=new int[100];

float min;

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

{

s[i]=0;

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

}

s[v]=1;

dist[v]=0;

for(int num=2;num<n;num++)

{

min=9999;

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

{

if((s[i]!=1)&& (min>dist[i]) && (dist[i]!=-1) )

{

u=i;

min=dist[i];

}

}

s[u]=1;

for(int w=1;w<=n;w++)

{

if((s[w]==0)&& (dist[w]>dist[u]+cost[u][w]))

dist[w]=dist[u]+cost[u][w];

}

}

}

public static void main(String args[])

{

int a,b;

Scanner sc=new Scanner(System.in);

System.out.println("enter the no.of vertices");

n=sc.nextInt();

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

{

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

{

cost[i][j]=9999;

cost[i][i]=0;

}

}

System.out.println("enter the total no.of edges");

int e=sc.nextInt();

for(int i=1;i<=e;i++)

{

a=sc.nextInt();

b=sc.nextInt();

System.out.println("enter cost");

cost[a][b]=sc.nextInt();

}

System.out.println("enter the source vertex");

v=sc.nextInt();

shortestpath(v) ;

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

System.out.println("the length shortest is from" + v +"to" + i + "is" + dist[i]);

}

}