#include <iostream>

#include <climits>

using namespace std;

int main()

{

int n, i, j, v, k, min, u;

double clk;

clock\_t starttime,endtime;

cout << "Enter the number of vertices\n";

cin >> n;

int a[10][10], s[10], d[10];

cout << "Enter the cost matrix \nEnter 999 if no edge between vertices \n";

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

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

cin >> a[i][j];

cout << "Enter the source vertex \n";

cin >> v;

starttime=clock();

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

{

s[i] = 0;

d[i] = a[v][i];

}

d[v] = 0;

s[v] = 1;

for (k = 2; k <= n; k++)

{

min = 999;

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

if (s[i] == 0 && d[i] < min)

{

min = d[i];

u = i;

}

s[u] = 1;

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

if (s[i] == 0)

if (d[i] > (d[u] + a[u][i]))

d[i] = d[u] + a[u][i];

}

endtime=clock();

cout << "The shortest distance from " << v << " is \n";

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

cout << v << "-->" << i << "=" << d[i] << endl;

clk=(double)(endtime-starttime)/CLOCKS\_PER\_SEC;

printf("\nThe time taken is %f\n",clk);

return 0;

}