#include<bits/stdc++.h>

using namespace std;

vector<vector<pair<int,int> > > graph;

int main(){

int n,m;

cin>>n>>m;

graph.resize(n);

while(m--){

int x,y,w;

cin>>x>>y>>w;

graph[x].push\_back({y,w});

}

int src;

cin>>src;

vector<int> dist(n,10000);

dist[src] = 0;

for(int i=0;i<n-1;i++){

for(int j=0;j<n;j++){

for(auto x: graph[j]){

int u = j;

int v = x.first;

int wt = x.second;

if(dist[u] + wt < dist[v]){

dist[v] = dist[u] + wt;

}

}

}

}

int flag = 0;

for(int j=0;j<n;j++){

for(auto x: graph[j]){

int u = j;

int v = x.first;

int wt = x.second;

if(dist[u]+wt<dist[v]){

flag = 1;

break;

}

}

}

if(flag==1){

cout<<"Negative cycle"<<endl;

}

else{

for(int i=0;i<n;i++){

int x = dist[i];

if(x!=10000){

cout<<"0"<<"->"<<i<<" "<<x<<endl;

}

}

}

}