# Most Reliable Path

You are given a directed graph $G = (V, E)$ on which each edge $(u, v) \in E$ has an associated value $r(u, v)$, which is a rational number in the range $0 \leq r(u, v) \leq 1$ that represents the probability of a communication channel from vertex $u$ to vertex $v$. We interpret $r(u, v)$ as the probability that the channel from $u$ to $v$ will not fail, and we assume that these probabilities are independent. Give an efficient algorithm to find the probability of the most reliable path between two given vertices.

**Input Format**

The first line contains two space separated integers $|V|$ and $|E|$ where $|V|$ is the number of vertices and $|E|$ is the number of edges in the graph $G$. Let the vertices of graph $G$ be labelled with $\{0, 1, \ldots, |V| - 1\}$.

Each of the following $|E|$ lines will contain three space separated integers $u, v$ and $w$ where $(u, v)$ denotes the edge and $w$ denotes $r(u, v) = 2^{-w}$. The last line will contain two space separated integers $s$ and $t$.

**Constraints**

- $1 \leq |V| \leq 2500$
- $1 \leq |E| \leq 6250000$
- $0 \leq u, v, s, t < 2500$
- $0 \leq w \leq 10000$

**Output Format**

An integer $p$ that denotes the probability of the most reliable path between $s$ and $t$ is $2^{-p}$.