We are given a graph $G = (V, E)$ where $V$ represents a set of locations and $E$ represents a communications channel between two points. We are also given locations $s, t \in V$, and a reliability function $r : V \times V \to [0, 1]$. You need to give an efficient algorithm which will output the reliability of the most reliable path from $s$ to $t$ in $G$. (It is enough to modify Dijkstra’s algorithm.)

For any points $u, v \in V$, $r(u, v)$ is the probability that the communication link $(u, v)$ will not fail: $0 \leq r(u, v) \leq 1$. Note that if there is a path with two edges, for example, from $u$ to $v$ to $w$, then the reliability of that path is $r(u, v) \cdot r(v, w)$. 