

Oct 28

Shortest Path Problem

Input: Directed graph $G = (V, E)$

$$s \in V$$

"lengths" $l_e \forall e \in E$

≥ 0
↑ integers

Output: $\forall t \in V$, output a shortest $s-t$ path

$$l(P) = \sum_{e \in P} l_e$$

"distance" of t from s

↑ with respect to length of a path

Simpler version: Output $d(t) \forall t \in V$

↑ length of a shortest $s-t$ path.

Special case: $l_e = 1 \forall e \in E \equiv Q3$ on HW 3

Q: What if $l_e = L$ (for some $L \geq 1$)

A: Ignore L & set $l_e = 1. \Rightarrow$