



Why

1

Definition

Let $((V, E), w : E \rightarrow \mathbf{R})$ be a weighted directed graph. Let v be a source and w be a sink. Let \mathcal{X} denote the set of (directed) paths from v to w . Let $f : \mathcal{X} \rightarrow \mathbf{R}$ be so that if $x \in \mathcal{X}$ is a path from v to w , then $f(x)$ is the weight of the path. In other words, $f(x)$ is the sum of weights on the edges. Then we call the problem (\mathcal{X}, f) a *directed shortest path problem*.

Examples

2

¹Future editions will include. For now this is an example of a discrete optimization problem.

²Future editions will include the numerous examples.

