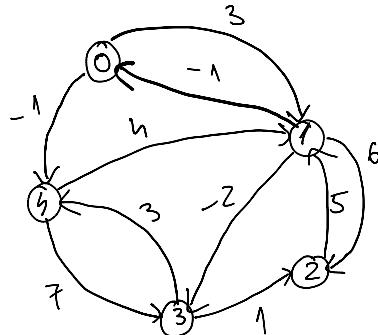


Bellman Ford's Algorithm execution1

Thursday, 8 April 2021 15:48



$s: 0$

$d: 3$

	changed	edge (x, y)	dist list	prev list
initialization	true		0 1 2 3 4 0 ∞ ∞ ∞ ∞	0 1 2 3 4 1 1 1 1 1
iteration 1	false		0 1 2 3 4 0 3 ∞ ∞ ∞	0 1 2 3 4 1 0
	true	(0,1)	0 1 2 3 4 0 3 ∞ ∞ -1	0 1 2 3 4 1 0 0
	true	(0,4)	0 1 2 3 4 0 3 ∞ ∞ -1	0 1 2 3 4 1 0 0
	false		0 1 2 3 4 0 3 ∞ ∞ -1	0 1 2 3 4 1 0 0
	true	(1,0)	0 1 2 3 4 0 3 3 ∞ -1	0 1 2 3 4 1 0 1 0
	true	(1,2)	0 1 2 3 4 0 3 3 1 -1	0 1 2 3 4 1 0 1 1 0
	true	(1,3)	0 1 2 3 4 0 3 3 1 -1	0 1 2 3 4 1 0 1 1 0
	true	(2,1)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	true	(2,3)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	true	(3,1)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	true	(3,4)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	true	(4,1)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	true	(4,3)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
iteration 2	false		0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	false	(0,1)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	false	(0,4)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	false	(1,0)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	false	(1,2)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	false	(1,3)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	false	(2,1)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	false	(3,2)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	false	(3,4)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	false	(4,1)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0
	false	(4,3)	0 1 2 3 4 0 3 2 1 -1	0 1 2 3 4 1 0 3 1 0

$\Rightarrow \text{stop}$

The minimum distance from $s=0$ to $d=2$ has the cost = $\text{dist}[2]=2$ and it is built backwards from the list prev:

$d=2$ $\text{prev}[2] = 3$, $\text{prev}[3] = 1$, $\text{prev}[1] = \underline{0} = \lambda$.

walk: $0 \xrightarrow{3} 1 \xrightarrow{-2} 3 \xrightarrow{1} 2$.