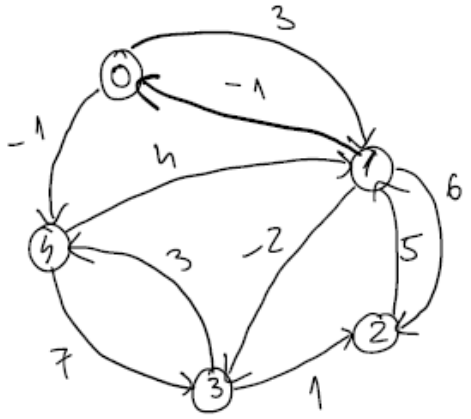
Bellman Ford's Algorithm execution1

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
iteration 1	false true true true true true true true true true true	(0,1) (0,4) (1,0) (1,2) (1,3) (2,1) (3,2) (3,4) (4,1) (4,3)	0 1 2 3 4 0 3 ∞ ∞ ∞ 0 3 ∞ ∞ -1 0 3 ∞ ∞ -1 0 3 9 ∞ -1 0 3 9 1 -1 0 3 9 1 -1 0 3 2 1 -1 0 3 2 1 -1 0 3 2 1 -1 0 3 2 1 -1	0 1 2 3 4 0 0 0 0 0 0 1 0 0 1 1 0 0 1 1 0 0 3 1 0 0 3 1 0 0 3 1 0 0 3 1 0

iteration 2	false false false false false false false false false false false false	(0,1) (0,4) (1,0) (1,2) (1,3) (2,1) (3,2) (3,4) (4,1) (4,3)	0 1 2 3 4 0 3 2 1 -1 0 3 2 1 -1 0 3 2 1 -1 0 3 2 1 -1 0 3 2 1 -1 0 3 2 1 -1 0 3 2 1 -1 0 3 2 1 -1 0 3 2 1 -1 0 3 2 1 -1	0 1 2 3 4 0 3 1 0 0 3 1 0 0 3 1 0 0 3 1 0 0 3 1 0 0 3 1 0 0 3 1 0 0 3 1 0 0 3 1 0 0 3 1 0

=> stop

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

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d = 2 prev[2] = 3, prev[3] = 1, prev[1] = 0 = s.

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