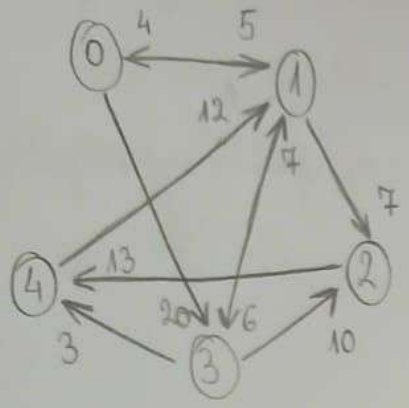
Problem 5: 963: Fodoca Rares



Source: 0

Destination: 4

	edge (x, y)	dist. vector	pred. dictionary
initialization		0 1 2 3 4 0 ∞ ∞ ∞ ∞	0 1 2 3 4 -1 -1 -1 -1 -1
iteration I	(0,1) (0,3) (1,0) (1,2) (1,3) (2,4) (3,1) (3,2) (3,4) (4,1)	0 1 2 3 4 0 5 ∞ ∞ ∞ 0 5 ∞ 20 ∞ 0 5 ∞ 20 ∞ 0 5 12 20 ∞ 0 5 12 11 ∞ 0 5 12 11 25 0 5 12 11 25 0 5 12 11 25 0 5 12 11 14 0 5 12 11 14	0 1 2 3 4 -1 0 -1 -1 -1 -1 0 -1 0 -1 -1 0 -1 0 -1 -1 0 1 0 -1 -1 0 1 1 -1 -1 0 1 1 2 -1 0 1 1 2 -1 0 1 1 2 -1 0 1 1 3 -1 0 1 1 3
iteration II	(0,1) (0,3) (1,0) (1,2) (1,3) (2,4) (3,1) (3,2) (3,4) (4,1)	0 1 2 3 4 0 5 12 11 14 0 5 12 11 14 0 5 12 11 14 0 5 12 11 14 0 5 12 11 14 0 5 12 11 14 0 5 12 11 14 0 5 12 11 14 0 5 12 11 14	0 1 2 3 4 -1 0 1 1 3 -1 0 1 1 3 -1 0 1 1 3 -1 0 1 1 3 -1 0 1 1 3 -1 0 1 1 3 -1 0 1 1 3 -1 0 1 1 3 -1 0 1 1 3
iteration III	— " —	— " —	— " —
iteration IV	— " —	— " —	— " —

⇒ stop

The minimum cost walk from source = 0 to destination = 4 has the cost = dist[4] = 14 and it is built backwards from predecessor vector:

dest = 4, pred[4] = 3; pred[3] = 1; pred[1] = 0; pred[0] = -1 => stop

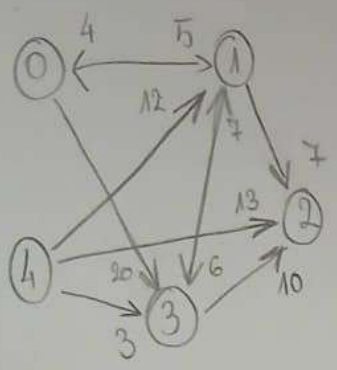
walk: $0 \xrightarrow{5} 1 \xrightarrow{6} 3 \xrightarrow{3} 4$, cost = 14

Lab 3

Federica Flores

Problem 5:

(!) No path



Source: 0

Destination: 4

	edge (x, y)	dist. vector	pred. vector
initialization		0 1 2 3 4 0 ∞ ∞ ∞ ∞	0 1 2 3 4 -1 -1 -1 -1 -1
iteration I	(0,1) (0,3) (1,0) (1,2) (1,3) (3,1) (3,2) (4,1) (4,2) (4,3)	0 1 2 3 4 0 5 ∞ ∞ ∞ 0 5 ∞ 20 ∞ 0 5 ∞ 20 ∞ 0 5 12 20 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞	0 1 2 3 4 -1 0 -1 -1 -1 -1 0 -1 0 -1 -1 0 -1 0 -1 -1 0 1 0 -1 -1 0 1 1 -1 -1 0 1 1 -1 -1 0 1 1 -1 -1 0 1 1 -1 -1 0 1 1 -1 -1 0 1 1 -1
iteration II	(0,1) (0,3) (1,0) (1,2) (1,3) (3,1) (3,2) (4,1) (4,2) (4,3)	0 1 2 3 4 0 5 12 11 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞ 0 5 12 11 ∞	0 1 2 3 4 -1 0 1 1 -1 -1 0 1 1 -1 -1 0 1 1 -1 -1 0 1 1 -1 -1 0 1 1 -1 -1 0 1 1 -1 -1 0 1 1 -1 -1 0 1 1 -1 -1 0 1 1 -1 -1 0 1 1 -1
iteration III	— " —	— " —	— " —
iteration IV	— " —	— " —	— " —

=> stop

There is no walk from source = 0 to destination = 4.

We can see this from the fact that dist[4] = ∞ and par[4] = -1.

So, there is no walk.