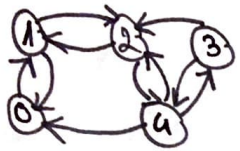
Lowest length path between s and t by using BFS from s



Nout dictionary

key	
0	-[1]
1	-[0,2]
2	-[1,4]
3	-[2,4]
4	-[0,3,3]

s=1 t=3	x	y	queue	visited	dist - dictionary	pred - dictionary
initialization			[1]	0 1 2 3 4 F T F F F false → true	0 1 2 3 4 · 0 · · ·	0 1 2 3 4 · · · · ·
iteration 1	1		[]			
iteration 1.1		0	[0]	0 1 2 3 4 T T F F F	0 1 2 3 4 1 0 · · ·	0 1 2 3 4 1 · · · ·
iteration 1.2		2	[0,2]	0 1 2 3 4 T T T F F	0 1 2 3 4 1 0 1 · ·	0 1 2 3 4 1 · 1 · ·
iteration 2	0		[2]			
iteration 2.1		1				
iteration 3	2		[]			
iteration 3.1		1		0 1 2 3 4 T T T F T	0 1 2 3 4 1 0 1 · 2	0 1 2 3 4 1 · 1 · 2
iteration 3.2		4	[4]			
iteration 4	4		[]			
iteration 4.1		0				
iteration 4.2		2		0 1 2 3 4 T T T T T	0 1 2 3 4 1 0 1 3 2	0 1 2 3 4 1 · 1 4 2
iteration 4.3		3				

y = 3 = t => STOP

The reverse path is built from pred: 0 1 2 3 4 / 1 · 1 4 2 beginning with t = 3

pred[3] = 4, pred[4] = 2, pred[2] = 1 = s => reverse path is: [3, 4, 2, 1]

path: [1, 2, 4, 3], length: dist[3] = 3

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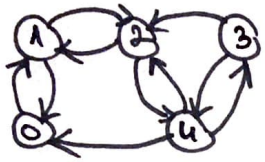

Neat dictionary

key | value
0 - [1]
1 - [0,2]
2 - [1,4]
3 - [2,4]
4 - [0,3,3]

s=0 t=4	x	y	queue	visited	dist - dictionary	pred - dictionary
iteration			[0]	0 1 2 3 4 / T F F F F (↳ true ↳ false)	0 1 2 3 4 / 0	0 1 2 3 4
iteration 1 iteration 1.1	0	1	[1]	0 1 2 3 4 / T T F F F	0 1 2 3 4 / 0 1	0 1 2 3 4 / 0
iteration 2 iteration 2.1. iteration 2.2	1	0 2	[2]	0 1 2 3 4 / T T T F F	0 1 2 3 4 / 0 1 2	0 1 2 3 4 / 0 1
iteration 3 iteration 3.1 iteration 3.2	2	1 4	[]	0 1 2 3 4 / T T T F T	0 1 2 3 4 / 0 1 2 3	0 1 2 3 4 / 0 1 2

y = 4 = t ⇒ STOP

The reverse path is built from pred : 0 1 2 3 4 / 0 1 2 beginning with t=4

pred[4] = 2 , pred[2] = 1 , pred[1] = 0 = s ⇒ reverse path is: [4, 2, 1, 0]

path : [0, 1, 2, 4] , length : dist[4] = 3

Graph 1k:

s=1, t=100

path: 1, 5, 487, 175, 699, 624, 100 , length: 6

s=100 , t=1

path: 100, 416, 354, 865, 109, 1 , length: 5

Graph 10k:

s=1, t=100

path: 1, 3300, 2607, 523, 6311, 5359, 9794, 5173, 100 , length: 8

s=100, t=1

path: 100, 2398, 3054, 5232, 8217, 2478, 7151, 1 , length: 7

Graph 100k:

s=1, t=100

path: 1, 17024, 27471, 14969, 3075, 4156, 32753, 14973, 100, length: 8

s=100, t=1

path: 100, 44340, 54527, 6606, 53263, 95930, 98655, 58288, 1, length: 8

Graph 1m:

s=1 , t=100

path: 1, 780841, 823682, 497694, 783457, 129409, 417148, 504039, 402806, 368447, 377207, 100

length: 11

s=100, t=1

path: 100, 458663, 564579, 263340, 266903, 985774, 840863, 999999, 660201, 208831, 1

length: 10