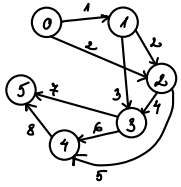


Topological sorting using DFS algorithm :

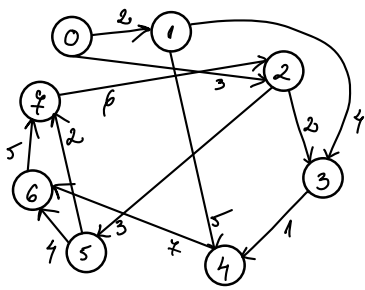
(2)



calls	x, y	inProcess	fullyProcessed	sorted	ok
initialization		{}	{}	[]	
TopoSortDFS(0, 0, [], {}, {})	$x=0$	{}	{}	[]	
		{0}	{0}	[0]	true
TopoSortDFS(0, 1, [0], {}, {})	$x=1$ $y=0$	{}	{0}	[0]	
		{1}	{0, 1}	[0, 1]	true
TopoSortDFS(0, 2, [0, 1], {}, {})	$x=2$ $y=1$	{}	{0, 1}	[0, 1]	
		{2}	{0, 1, 2}	[0, 1, 2]	true
TopoSortDFS(0, 3, [0, 1, 2], {}, {})	$x=3$ $y=2$	{}	{0, 1, 2}	[0, 1, 2]	
		{3}	{0, 1, 2, 3}	[0, 1, 2, 3]	true
TopoSortDFS(0, 4, [0, 1, 2, 3], {}, {})	$x=4$ $y=3$	{}	{0, 1, 2, 3}	[0, 1, 2, 3]	
		{4}	{0, 1, 2, 3, 4}	[0, 1, 2, 3, 4]	true
TopoSortDFS(0, 5, [0, 1, 2, 3, 4], {}, {})	$x=5$ $y=4$	{}	{0, 1, 2, 3, 4}	[0, 1, 2, 3, 4]	
		{5}	{0, 1, 2, 3, 4, 5}	[0, 1, 2, 3, 4, 5]	true
					↓ topological order

Other topological orders: [0, 2, 1, 3, 4, 5]
 [0, 2, 1, 4, 3, 5]
 [0, 2, 3, 1, 4, 5]
 [0, 2, 3, 4, 1, 5]
 [0, 2, 3, 4, 5, 1]

Highest cost path : from 0 to 4 is [0, 1, 2, 3, 4] with cost 13
 from 1 to 5 is [1, 2, 3, 4, 5] with cost 20



8	12	
0	1	2
0	2	3
1	3	4
1	4	5
2	3	2
2	5	3
3	4	1
4	6	4
5	6	4
5	7	2
6	7	5
7	2	6

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calls	x, y	inProcess	fullyProcessed	sorted	ok
initialization		{}	{}	[]	
TopoSortDFS(0, 0, [], {}, {})	x=0	{}	{}	[]	
		{0}	{0}	[0]	true
TopoSortDFS(0, 1, [0], {}, {})	x=1	{}	{0}	[0]	
	y=0	{1}	{0, 1}	[0, 1]	true
TopoSortDFS(0, 2, [0, 1], {}, {})	x=2	{}	{0, 1}	[0, 1]	
	y=1	{2}	{0, 1, 2}	[0, 1, 2]	true
TopoSortDFS(0, 5, [0, 1, 2], {}, {})	x=5	{}	{0, 1, 2}	[0, 1, 2]	
	y=2	{5}	{0, 1, 2, 5}	[0, 1, 2, 5]	true
TopoSortDFS(0, 3, [0, 1, 2, 5], {}, {})	x=3	{}	{0, 1, 2, 5}	[0, 1, 2, 5]	
	y=5	{3}	{0, 1, 2, 5, 3}	[0, 1, 2, 5, 3]	true
TopoSortDFS(0, 4, [0, 1, 2, 5, 3], {}, {})	x=4	{}	{0, 1, 2, 5, 3}	[0, 1, 2, 5, 3]	
	y=3	{4}	{0, 1, 2, 5, 3, 4}	[0, 1, 2, 5, 3, 4]	true
TopoSortDFS(0, 6, [0, 1, 2, 5, 3, 4], {}, {})	x=6	{}	{0, 1, 2, 5, 3, 4}	[0, 1, 2, 5, 3, 4]	
	y=4	{6}	{0, 1, 2, 5, 3, 4, 6}	[0, 1, 2, 5, 3, 4, 6]	true
TopoSortDFS(0, 7, [0, 1, 2, 5, 3, 4, 6], {}, {})	x=7	{}	{0, 1, 2, 5, 3, 4, 6}	[0, 1, 2, 5, 3, 4, 6]	
	y=6	{7}	{0, 1, 2, 5, 3, 4, 6, 7}	[0, 1, 2, 5, 3, 4, 6, 7]	true
					↓
					topological order

Topological order ≠ empty ⇒ Graph is a DAG

Finding highest cost path

$$s = 0 \quad t = 6$$

highest cost path is $\{0, 2, 5, 6\}$ with cost 10

topological order: $\{0, 1, 2, 5, 3, 4, 6, 7\}$

v edges max-costs = { }

		0	1	2	3	4	5	6	7
0	$(0, 1)$ $(0, 2)$	0	2	3					

1	$(1, 3)$ $(1, 4)$	0	2	3	6	7			
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2	$(2, 5)$ $(2, 7)$	0	2	3	5	7	6		
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5	$(5, 6)$ $(5, 7)$	0	2	3	6	7	6	10	8
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3	$(3, 4)$	0	2	3	6	8	6	10	8
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6	$(4, 6)$	0	2	3	6	8	6	15	8
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7	$(6, 7)$	0	2	3	6	8	6	15	15
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