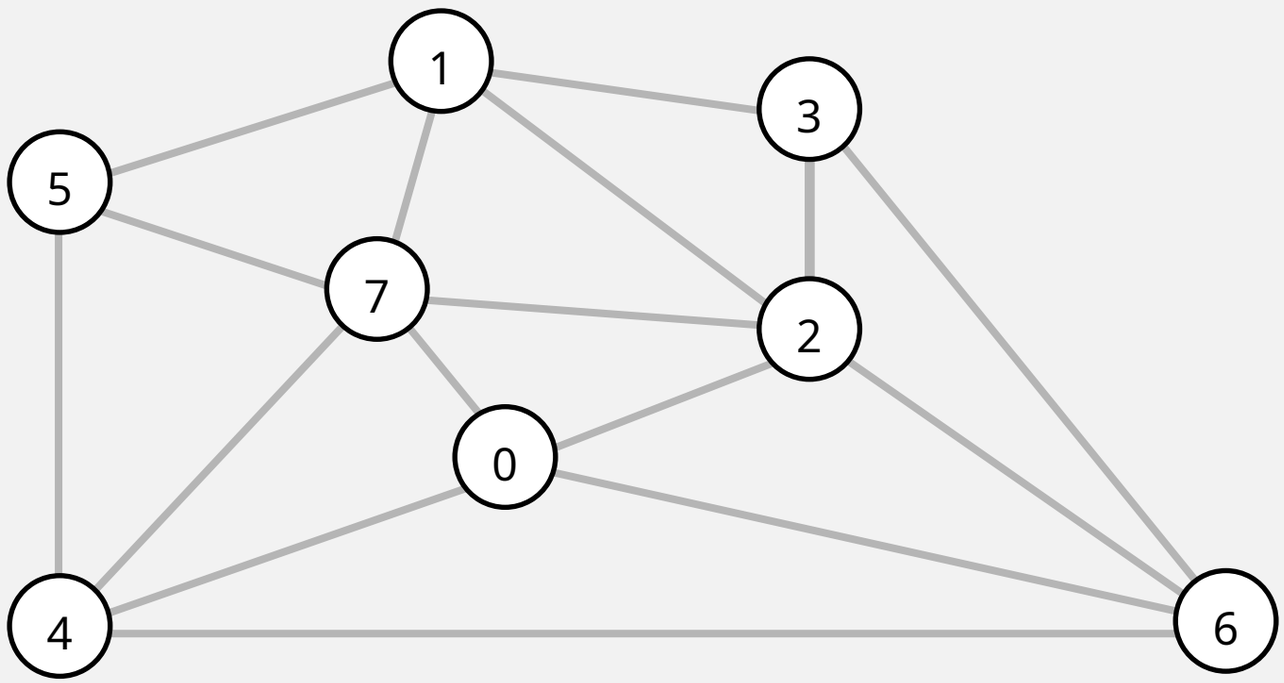
KRUSKAL'S ALGORITHM DEMO

http://algs4.cs.princeton.edu

Kruskal's algorithm demo

Consider edges in ascending order of weight.

- Add next edge to tree T unless doing so would create a cycle.



an edge-weighted graph

graph edges sorted by weight

0-7	0.16
2-3	0.17
1-7	0.19
0-2	0.26
5-7	0.28
1-3	0.29
1-5	0.32
2-7	0.34
4-5	0.35
1-2	0.36
4-7	0.37
0-4	0.38
6-2	0.40
3-6	0.52

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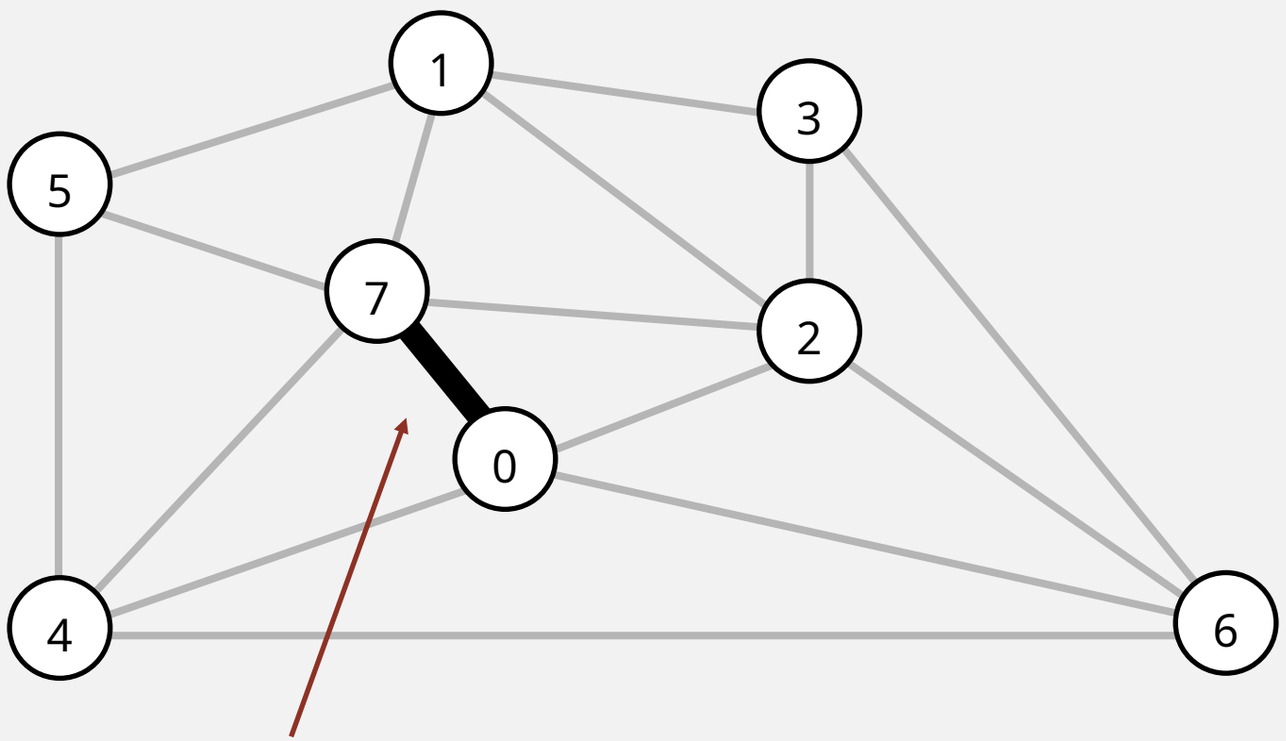

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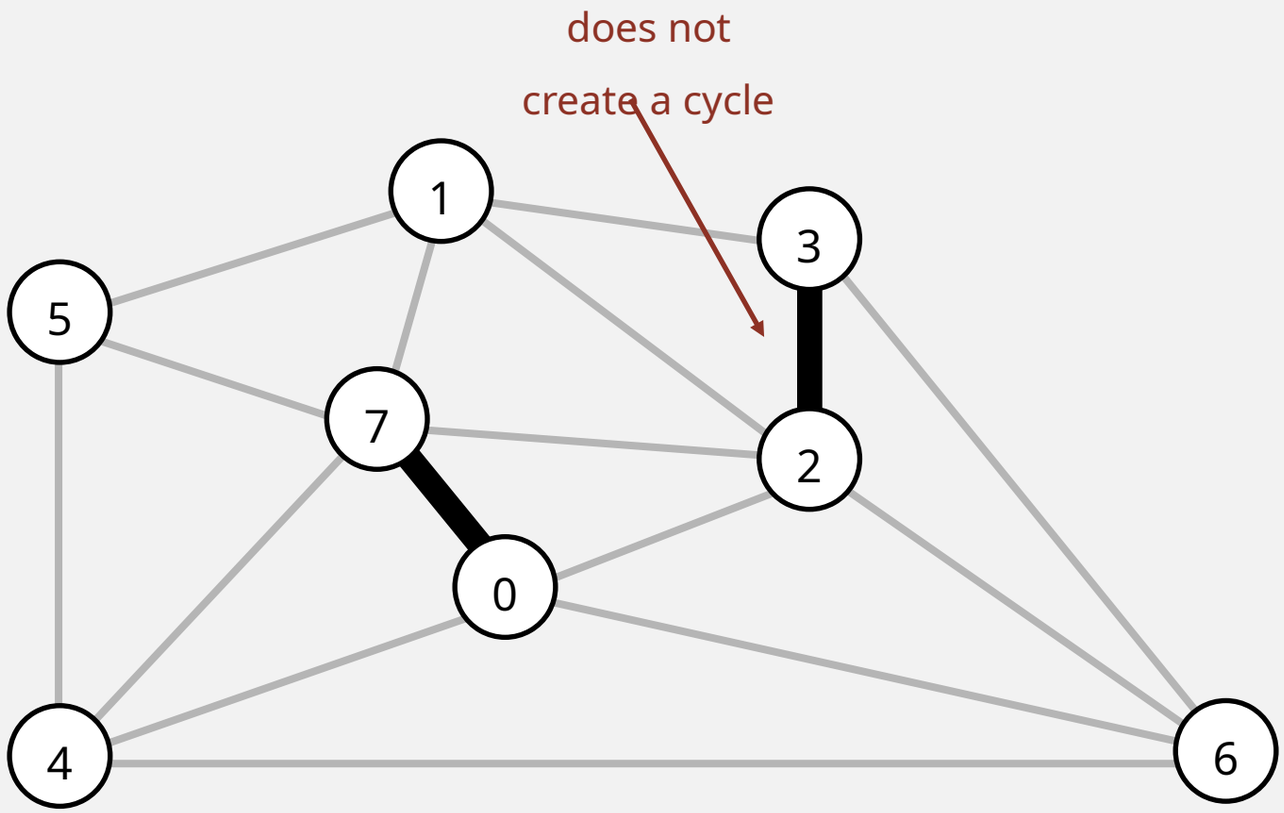

in MST

0-7 0.16

2-3 0.17

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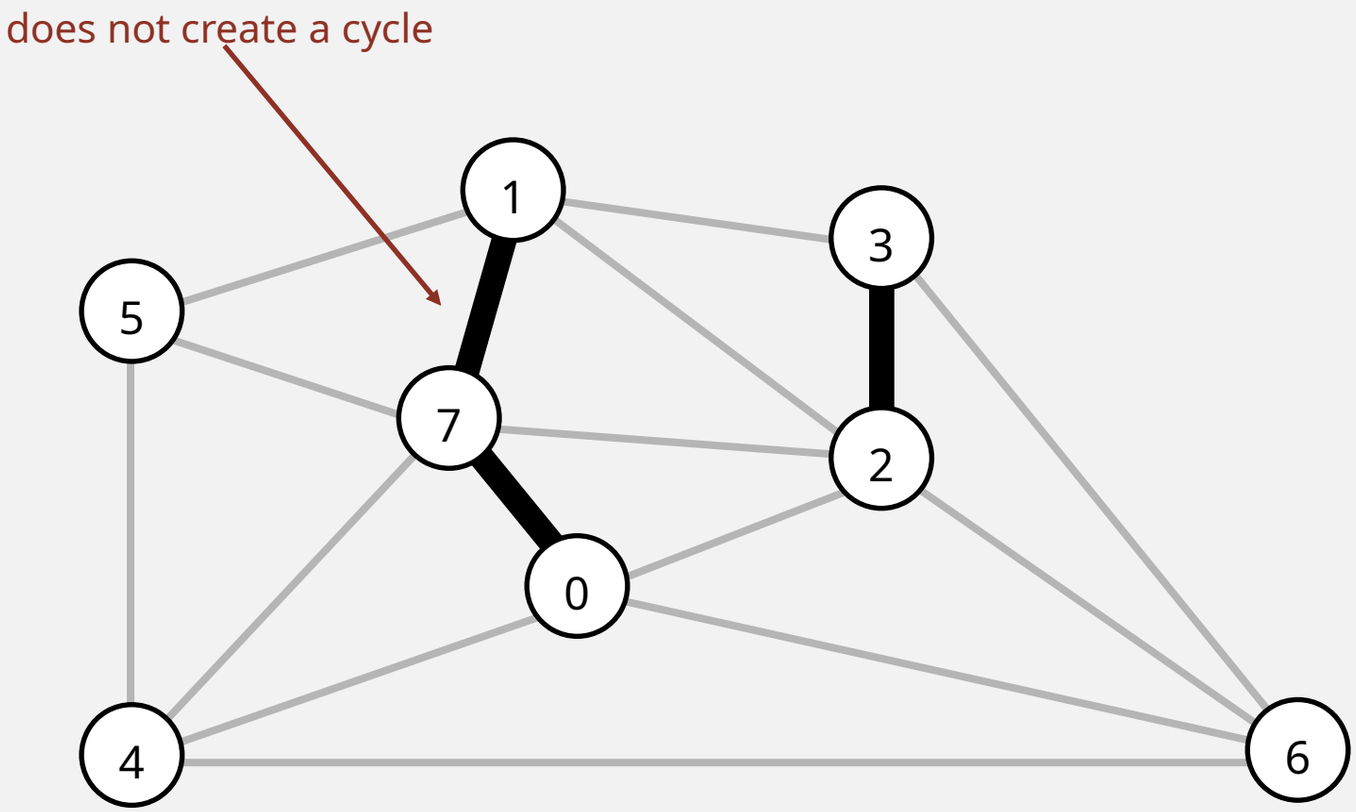

in MST →

0-7 0.16

2-3 0.17

1-7 0.19

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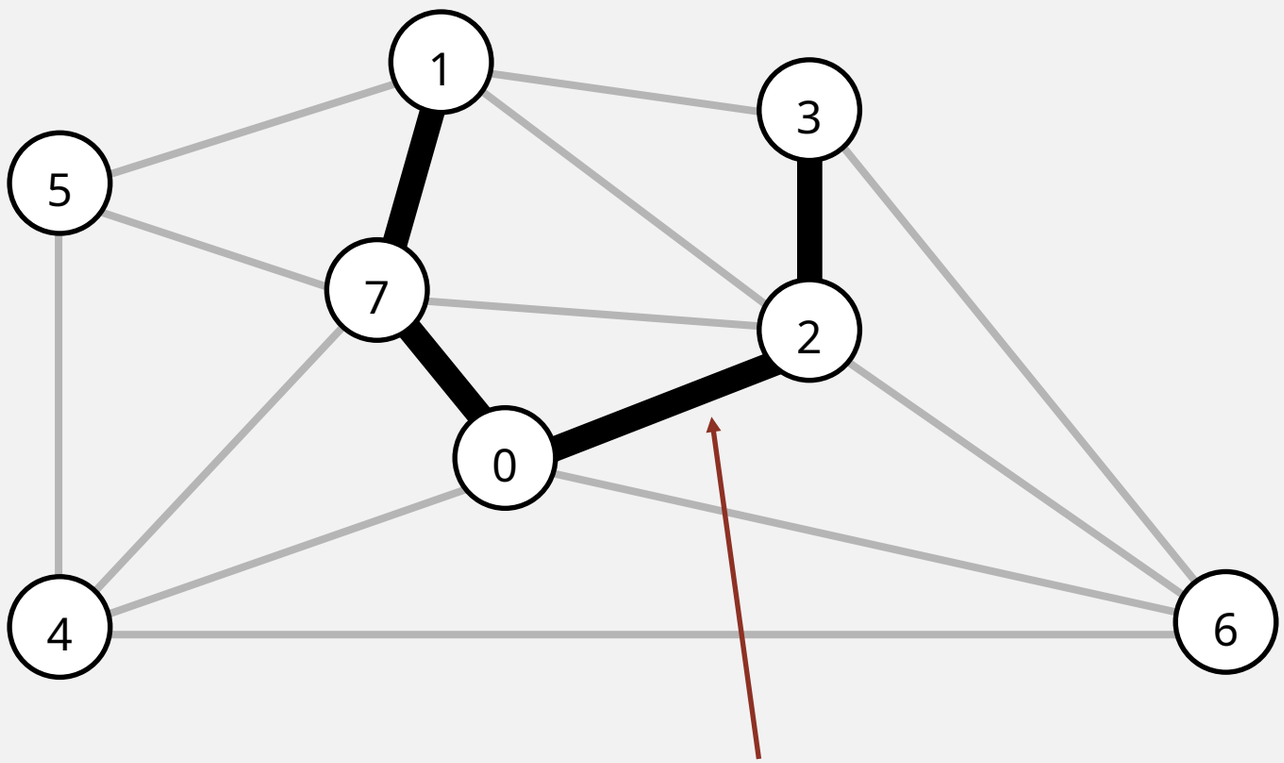

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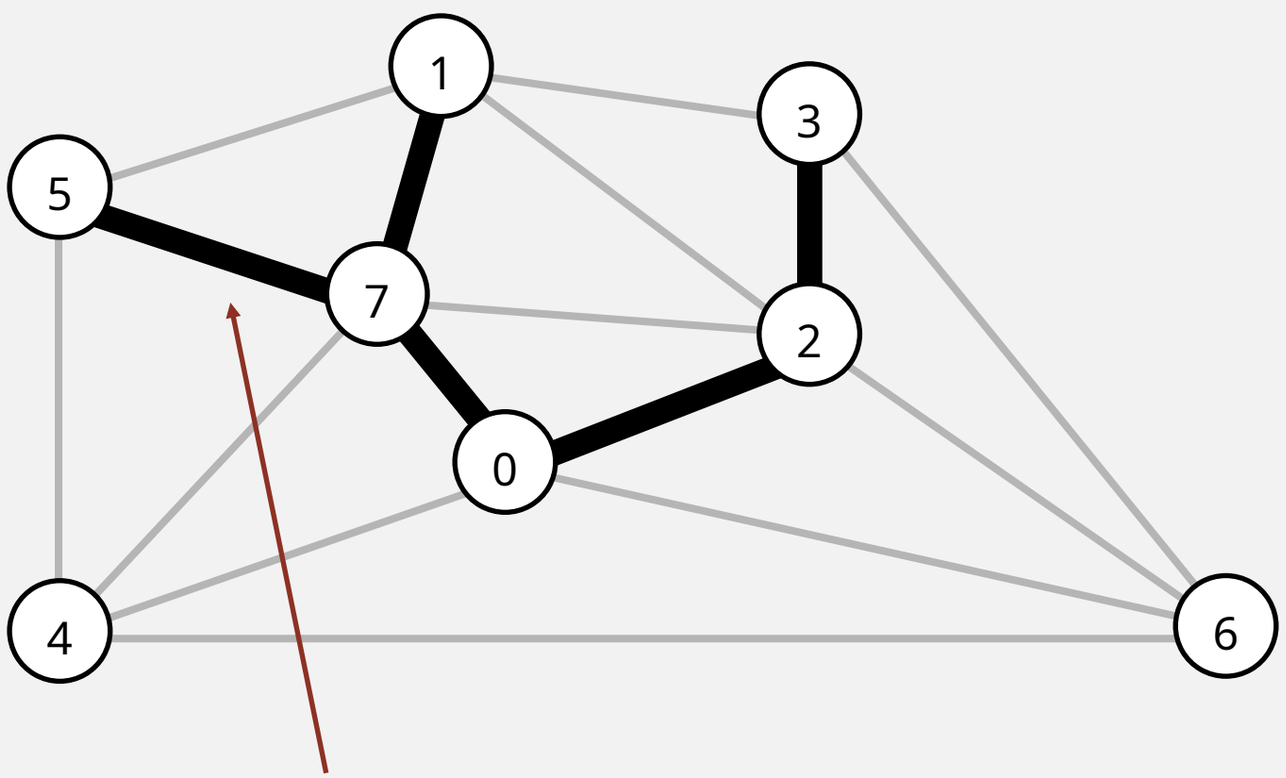

0-7 0.16

2-3 0.17

1-7 0.19

in MST → 0-2 0.26

5-7 0.28

does not create a cycle

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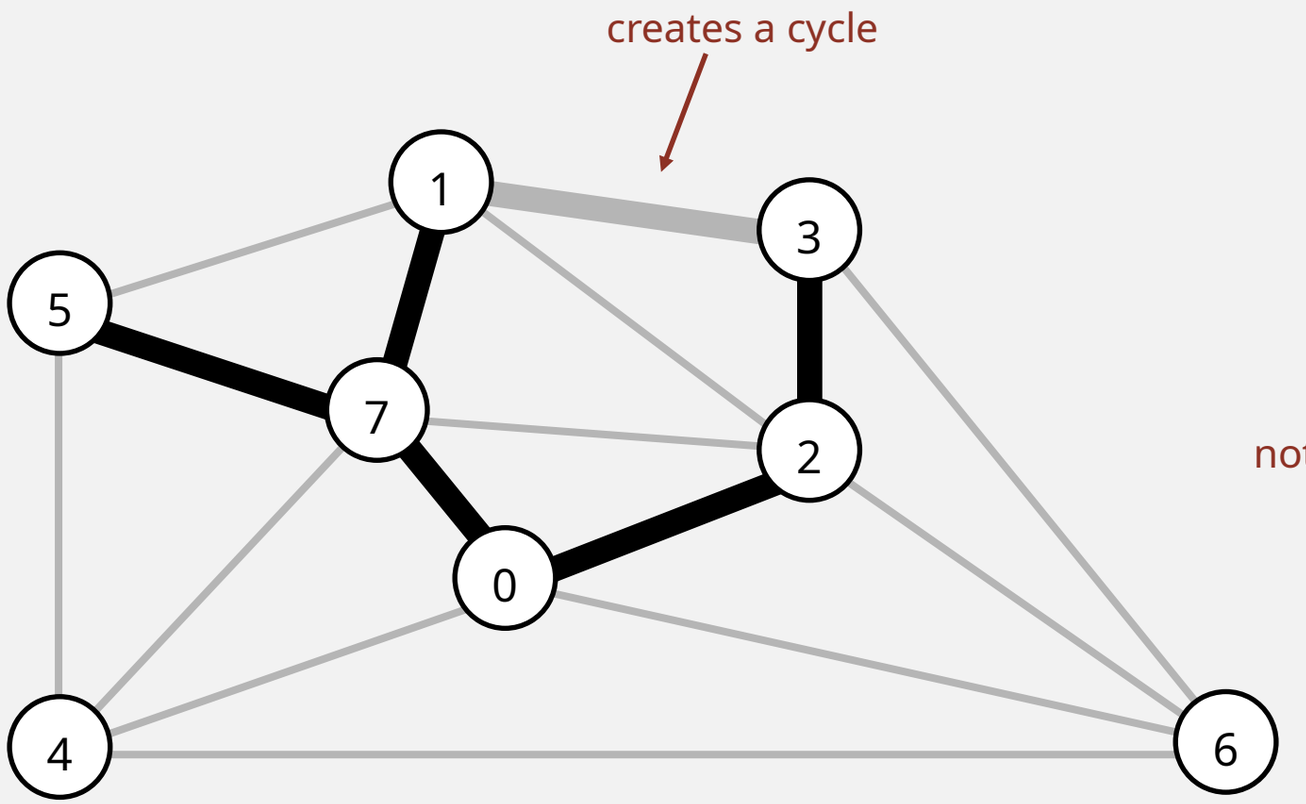

0-7 0.16

2-3 0.17

1-7 0.19

0-2 0.26

not in MST → 5-7 0.28

1-3 0.29

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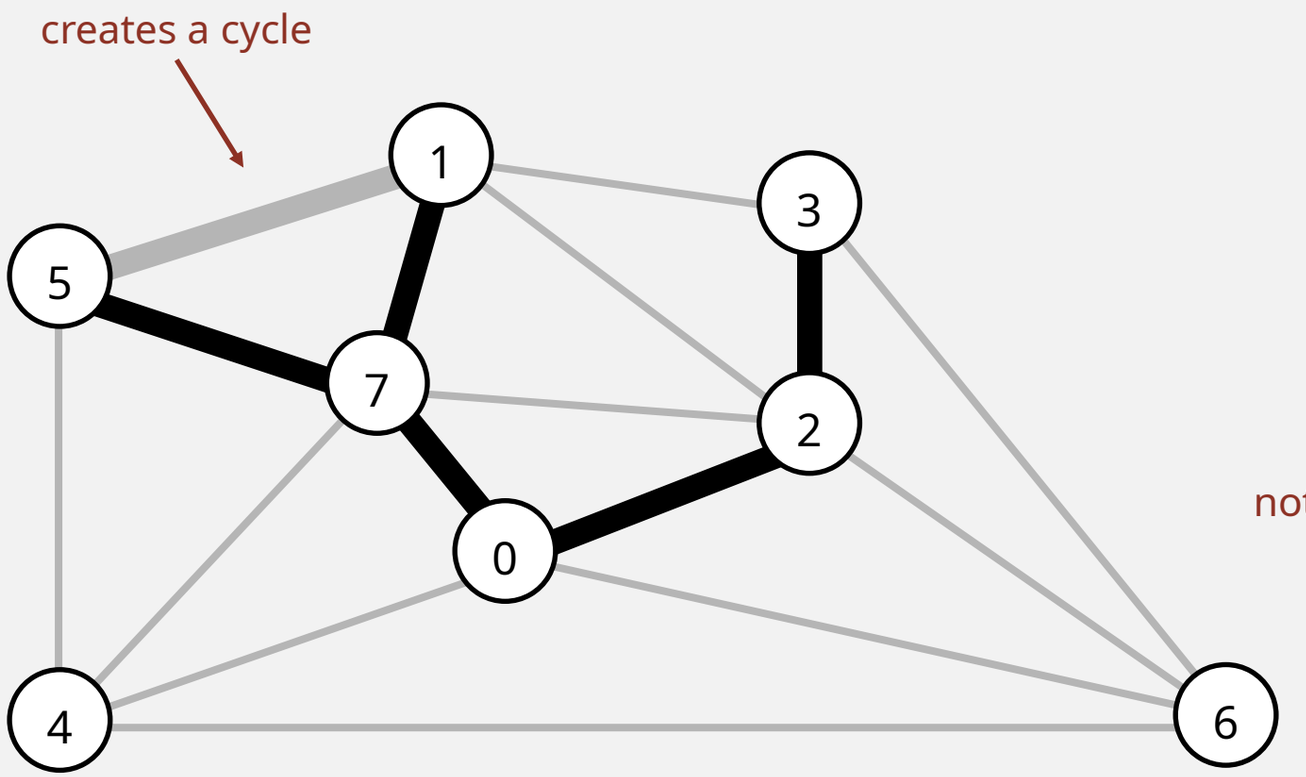

0-7 0.16

2-3 0.17

1-7 0.19

0-2 0.26

5-7 0.28

not in MST

1-3 0.29

1-5 0.32

Kruskal's algorithm demo

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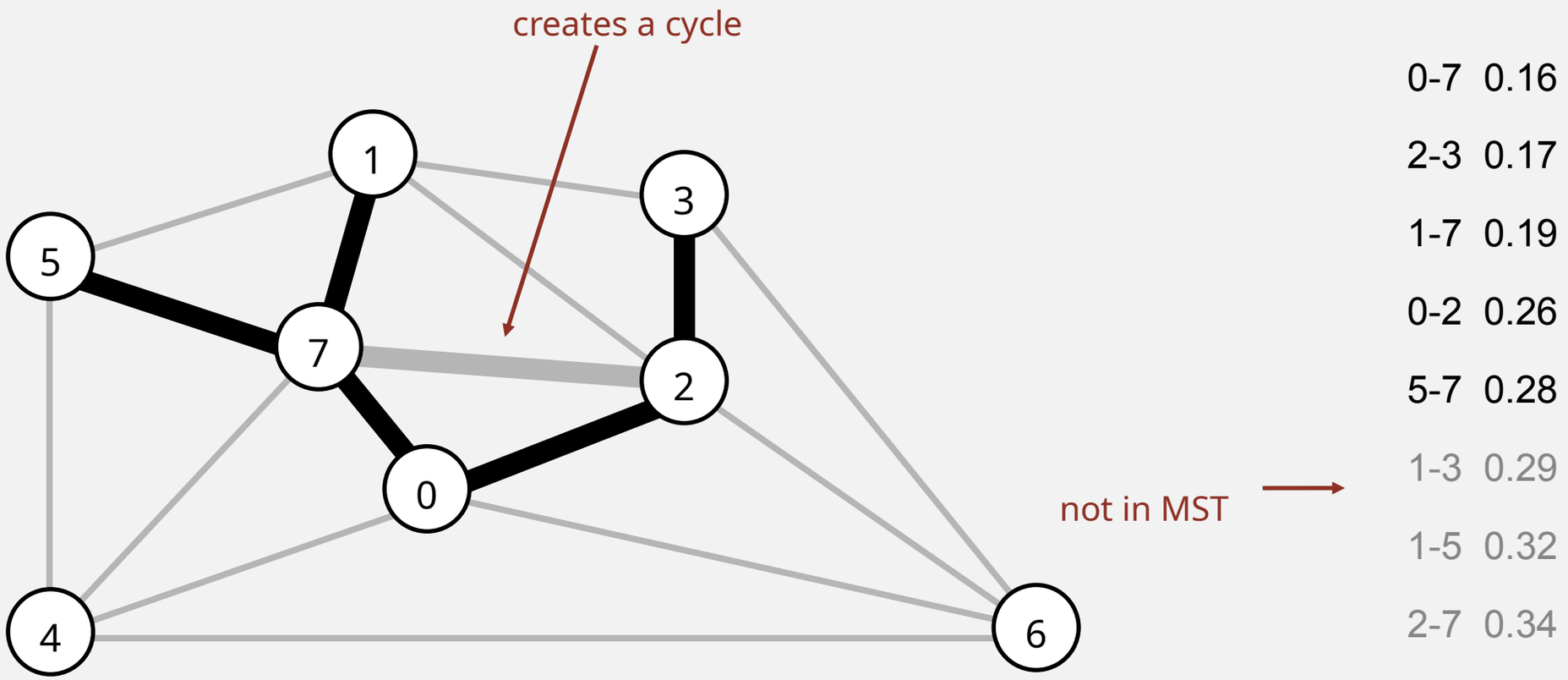

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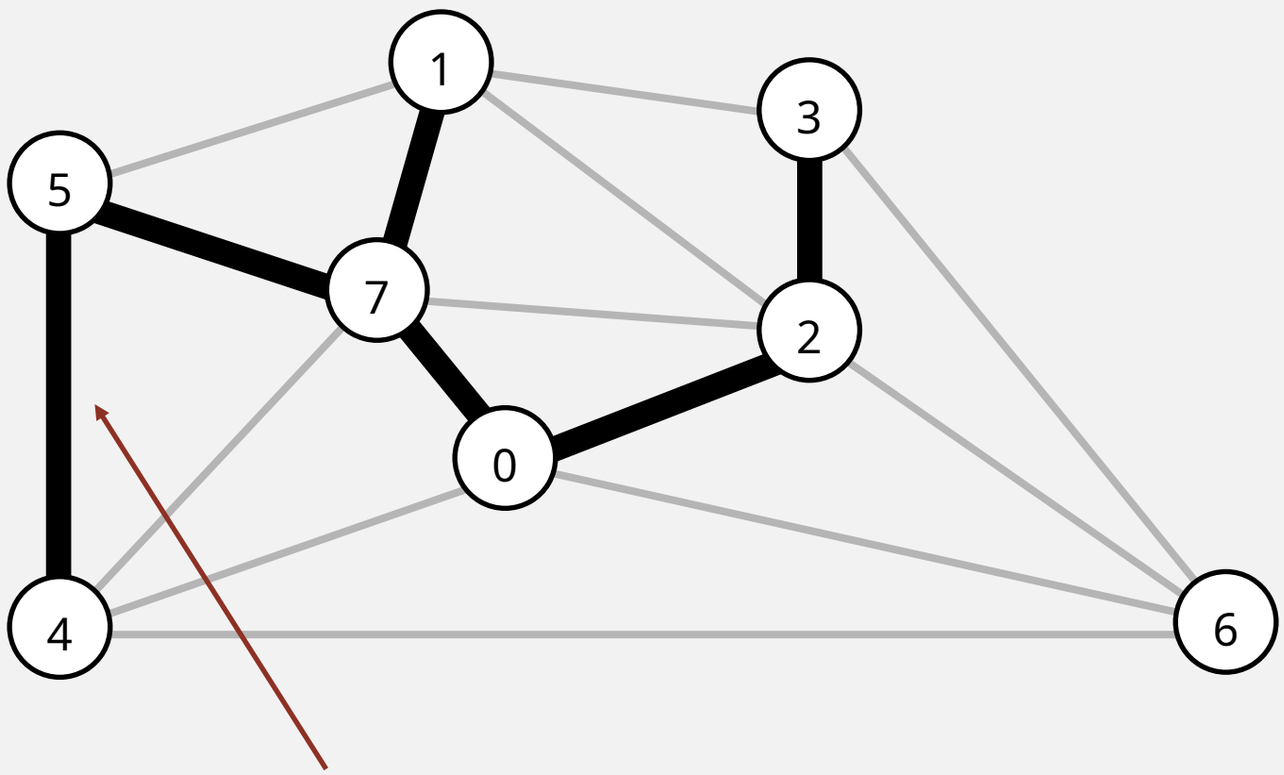

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5-7 0.28

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4-5 0.35

in MST

Kruskal's algorithm demo

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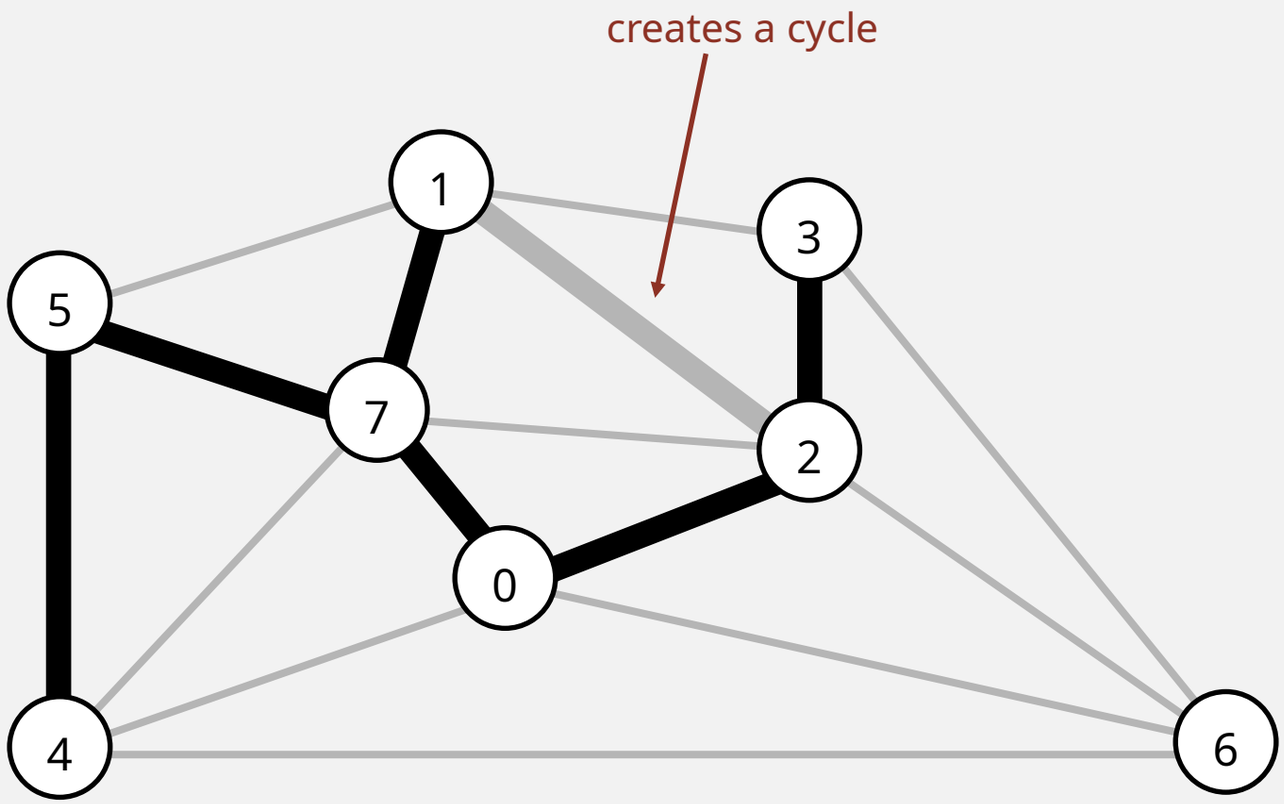

not in MST →

0-7 0.16
2-3 0.17
1-7 0.19
0-2 0.26
5-7 0.28
1-3 0.29
1-5 0.32
2-7 0.34
4-5 0.35
1-2 0.36

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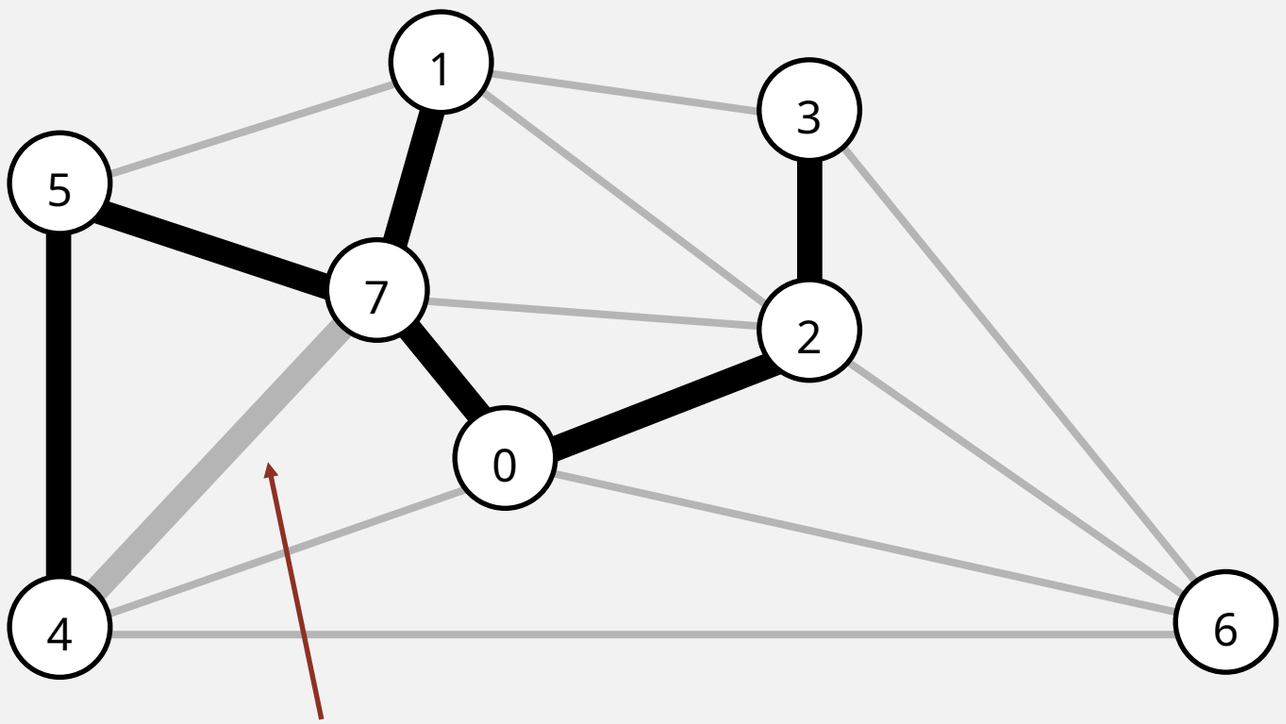

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2-3 0.17

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0-2 0.26

5-7 0.28

1-3 0.29

1-5 0.32

2-7 0.34

not in MST → 4-5 0.35

1-2 0.36

4-7 0.37

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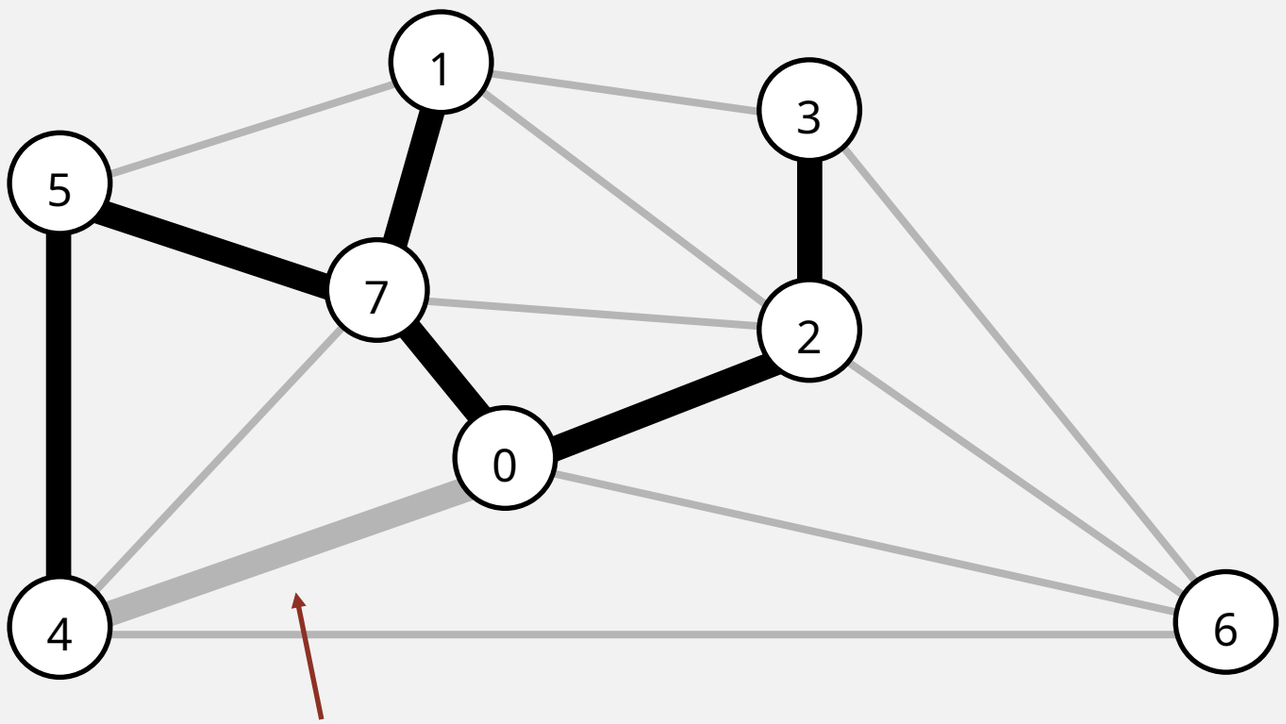

creates a cycle

0-7	0.16
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1-3	0.29
1-5	0.32
2-7	0.34
4-5	0.35
1-2	0.36
4-7	0.37
0-4	0.38

not in MST

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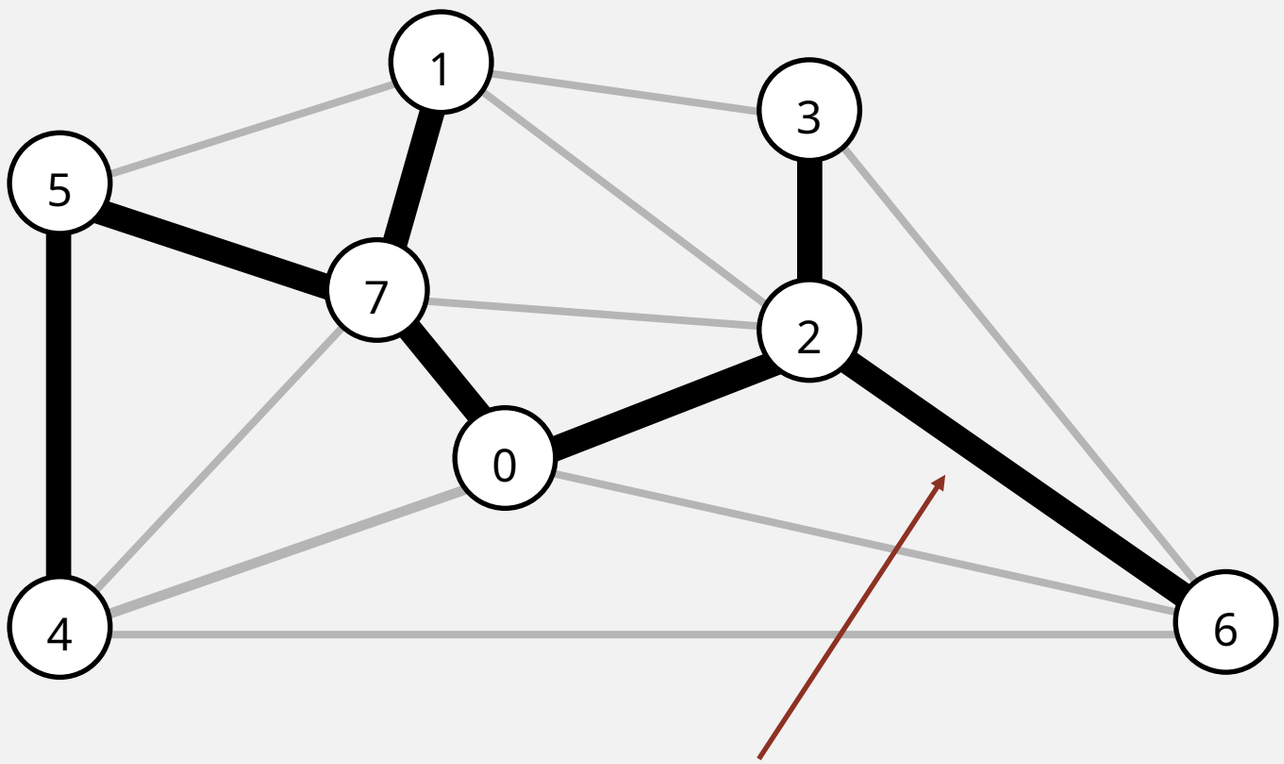

does not create a cycle

in MST

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2-3	0.17
1-7	0.19
0-2	0.26
5-7	0.28
1-3	0.29
1-5	0.32
2-7	0.34
4-5	0.35
1-2	0.36
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0-4	0.38
6-2	0.40

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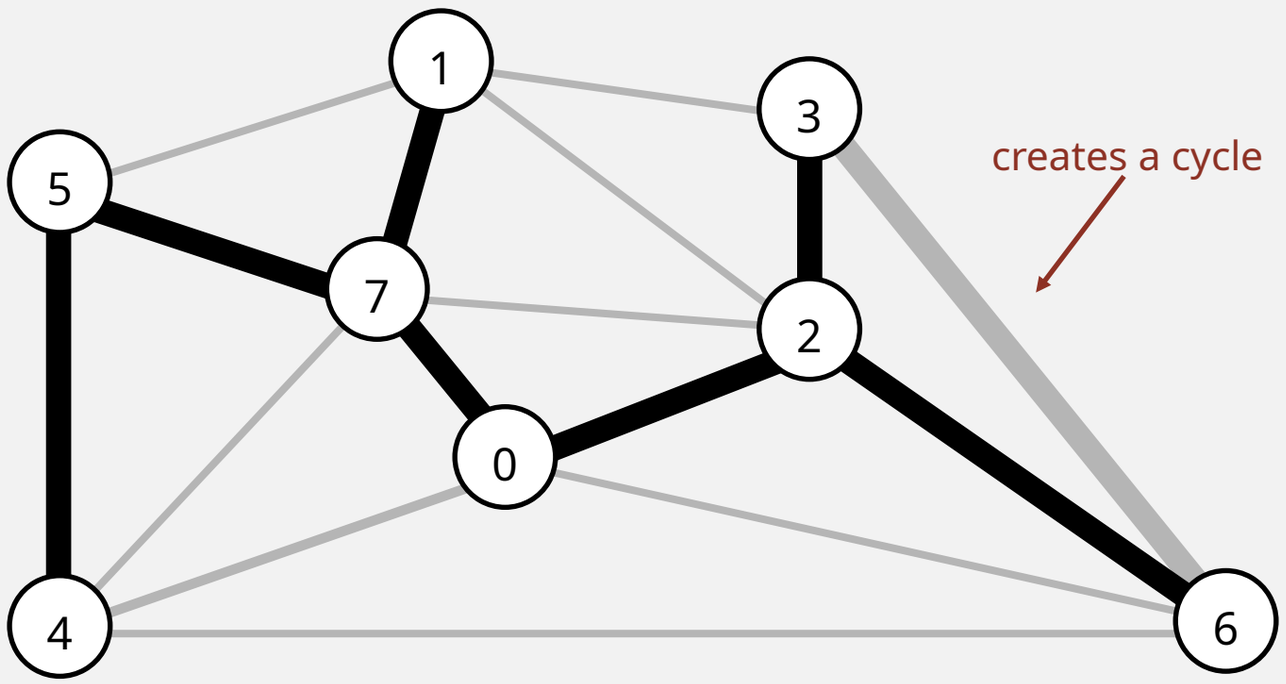

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not in MST → 4-7 0.37

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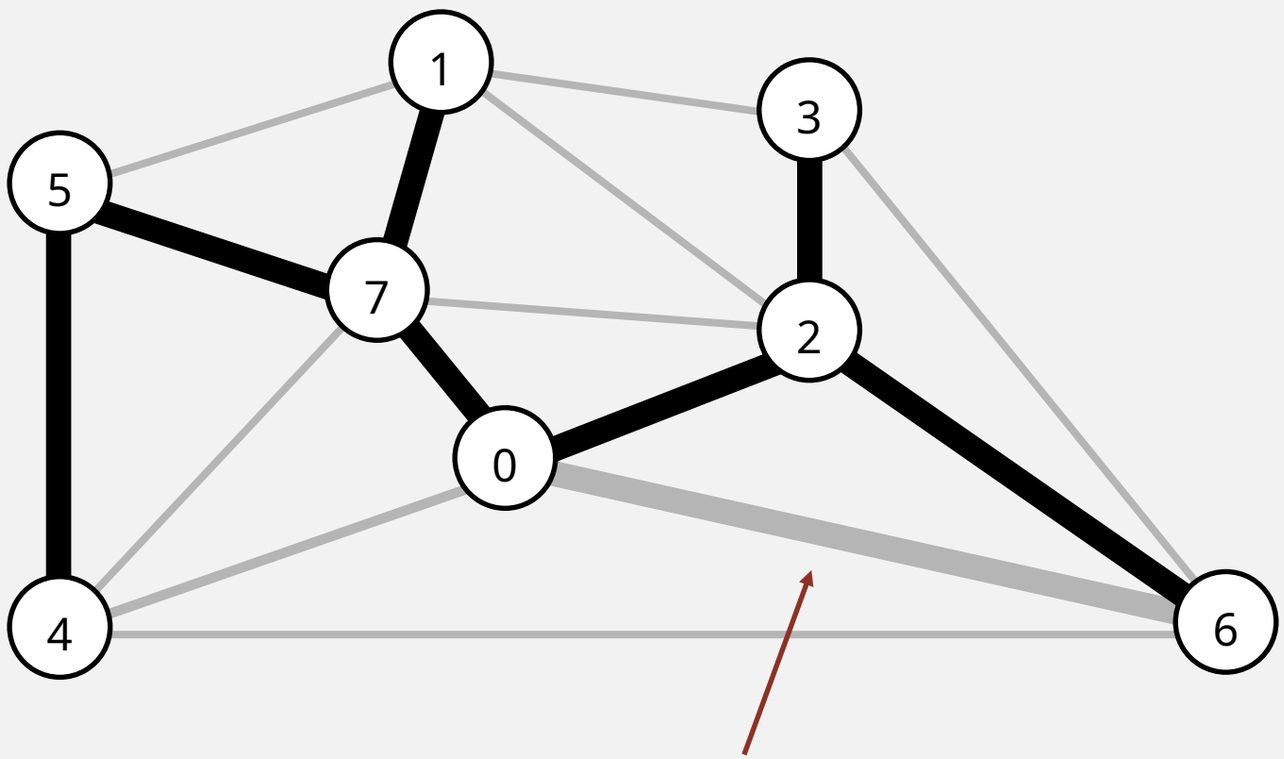

creates a cycle

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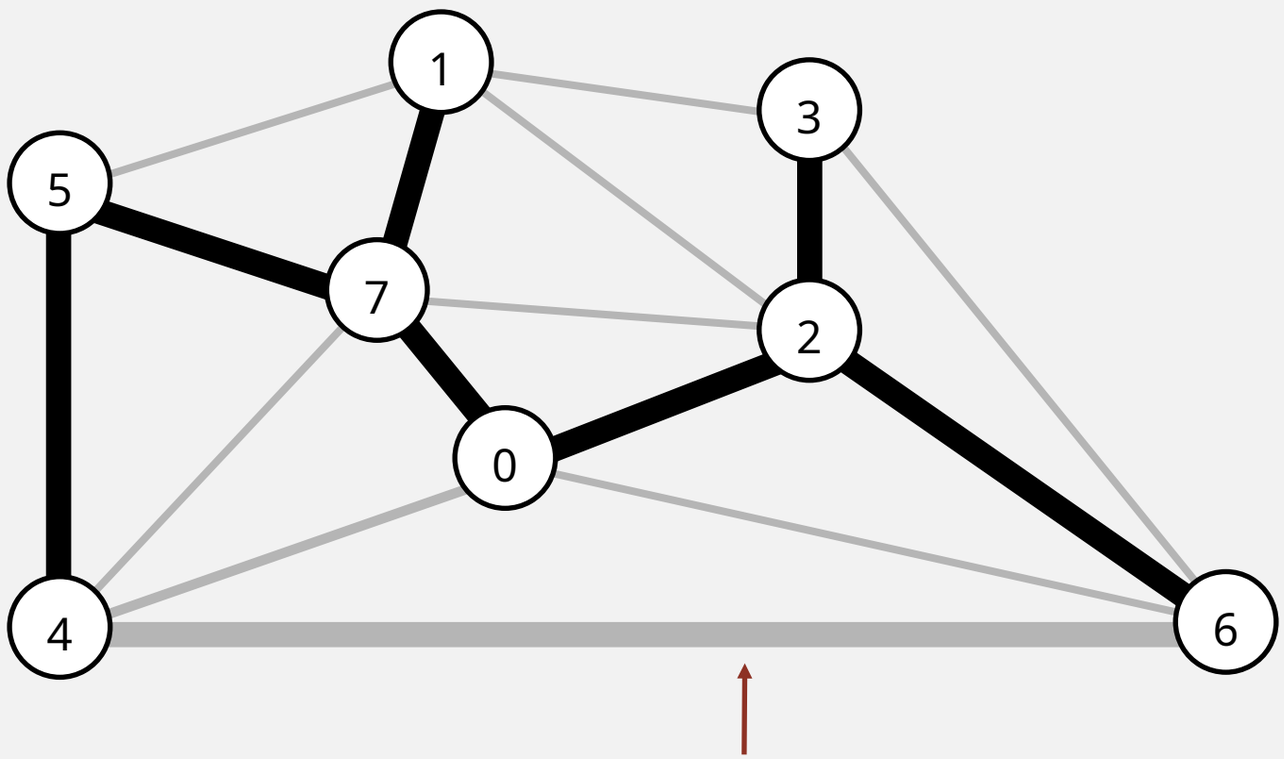

creates a cycle

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not in MST → 6-2 0.40

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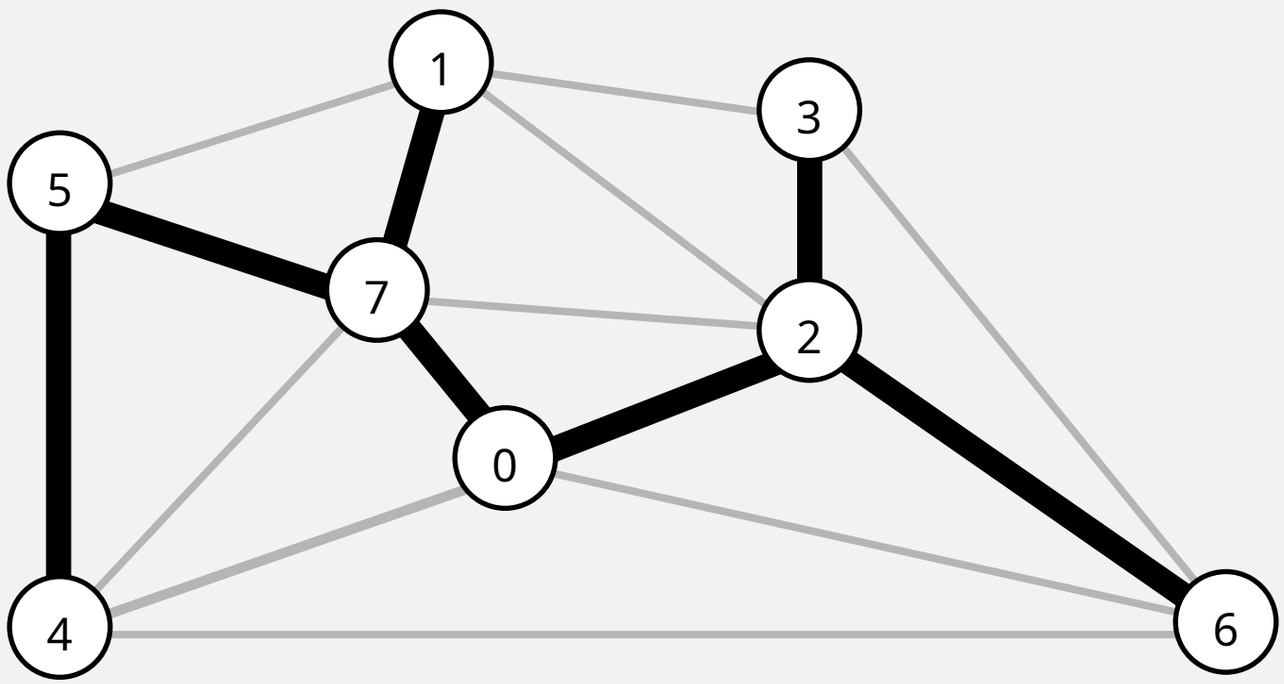

a minimum spanning tree

0-7 0.16

2-3 0.17

1-7 0.19

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5-7 0.28

1-3 0.29

1-5 0.32

2-7 0.34

4-5 0.35

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0-4 0.38

6-2 0.40

3-6 0.52