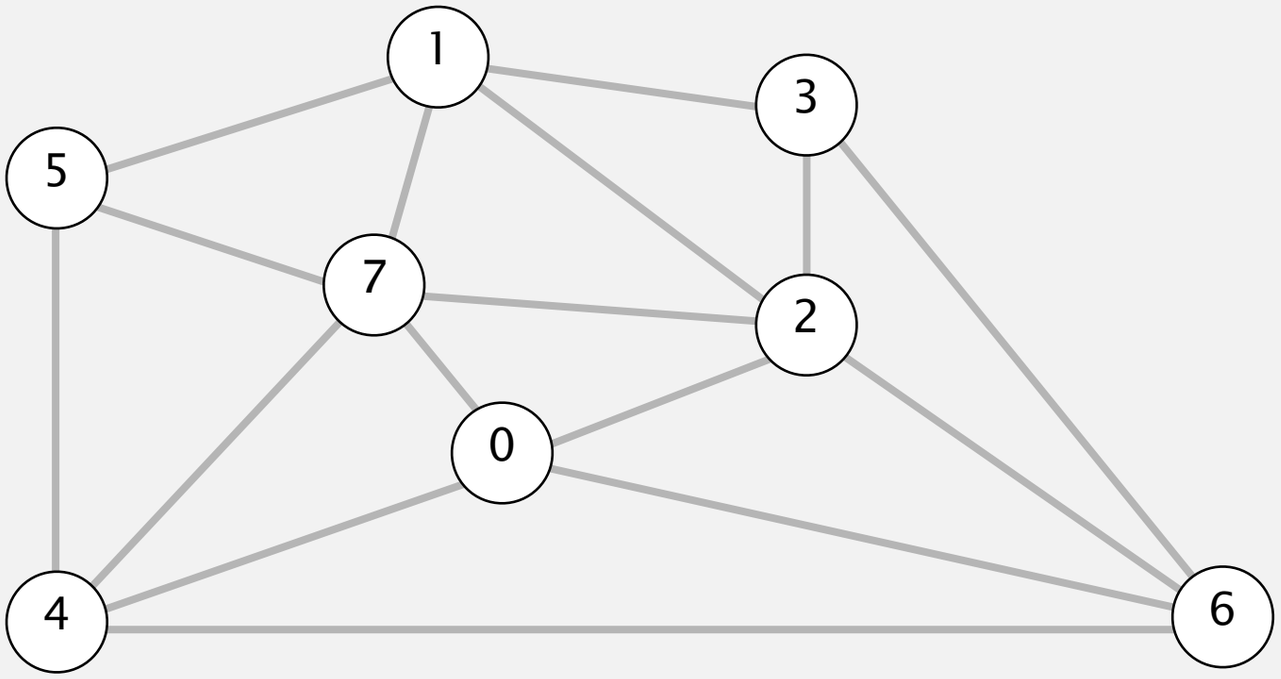
http://algs4.cs.princeton.edu

4.3 GREEDY MST DEMO

Greedy MST algorithm demo

- Start with all edges colored gray.
- Find cut with no black crossing edges; color its min-weight edge black.
- Repeat until $V - 1$ edges are colored black.



an edge-weighted graph

```
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
6-0  0.58
6-4  0.93
```

Greedy MST algorithm demo

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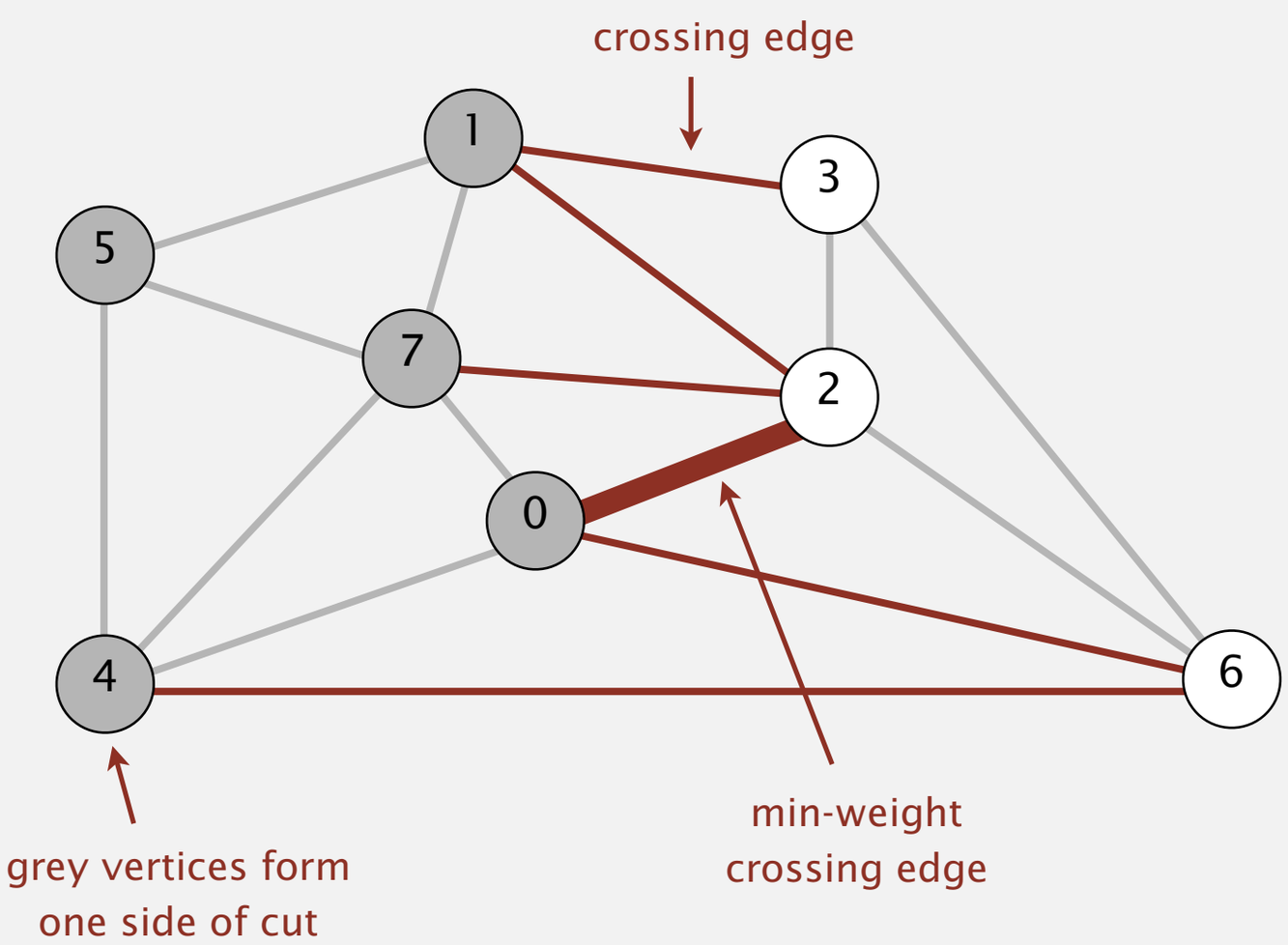

crossing edges
(sorted by weight)

in MST →	0-2	0.26
	1-3	0.29
	2-7	0.34
	1-2	0.36
	6-0	0.58
	6-4	0.93

Greedy MST algorithm demo

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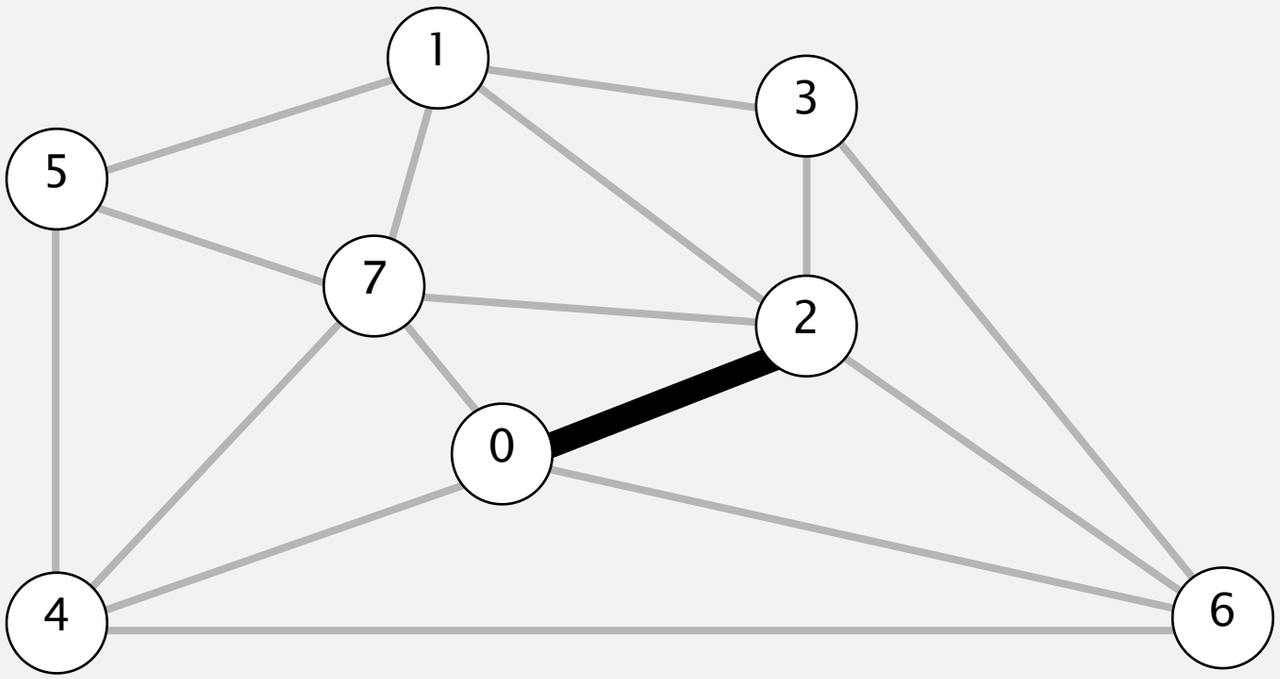

MST edges

0-2

Greedy MST algorithm demo

- Start with all edges colored gray.
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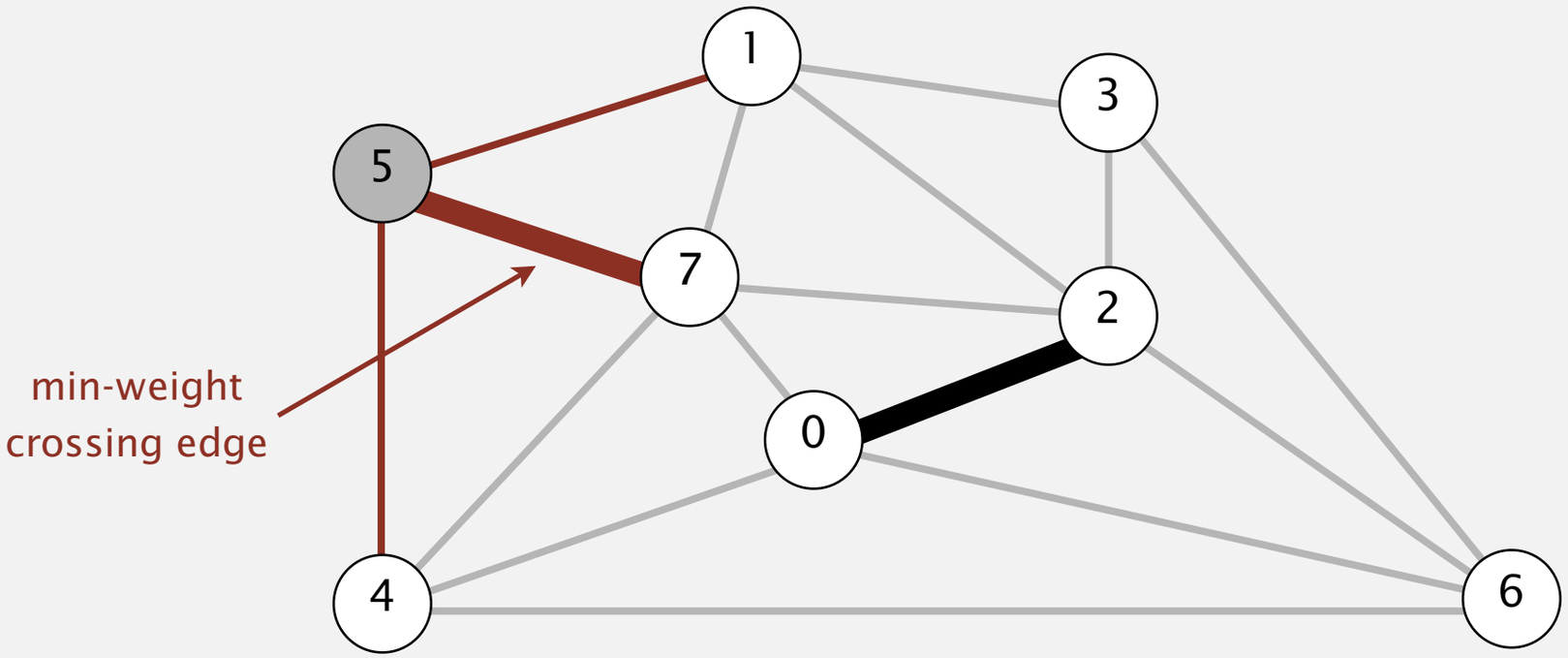

crossing edges
(sorted by weight)

in MST →	5-7	0.28
	1-5	0.32
	4-5	0.35

MST edges

0-2

Greedy MST algorithm demo

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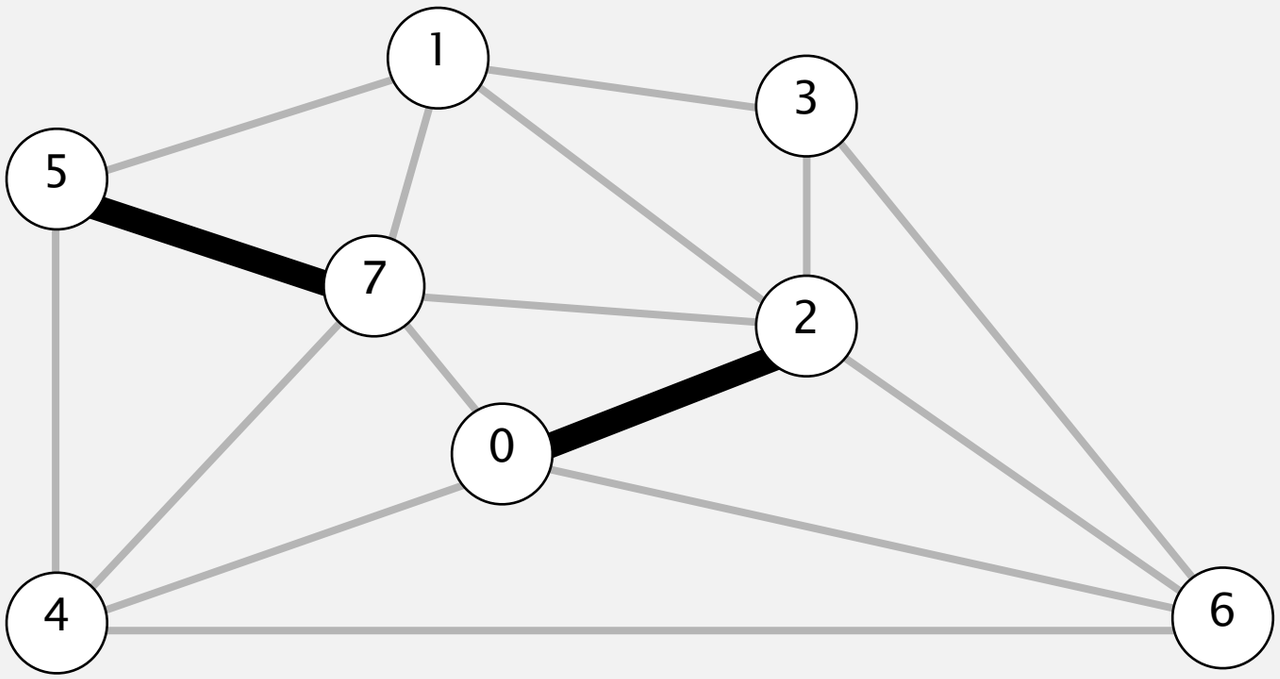
- Find cut with no black crossing edges; color its min-weight edge black.
- Repeat until $V - 1$ edges are colored black.

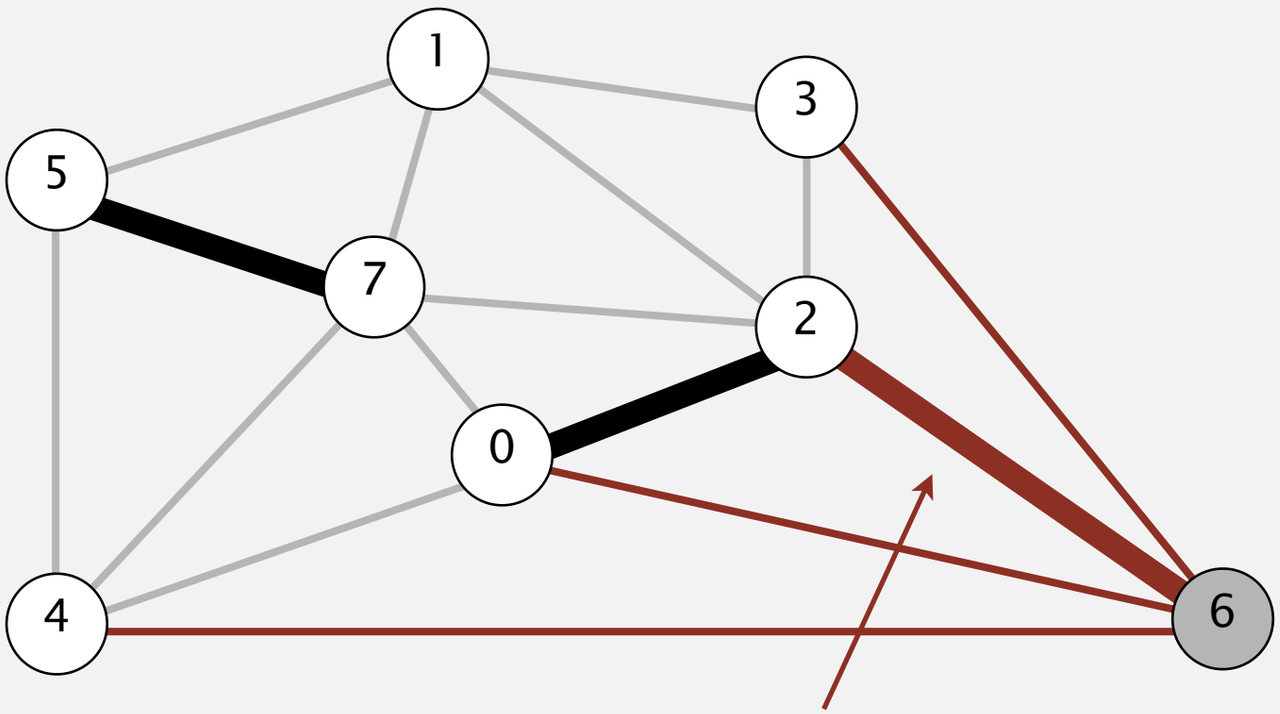


MST edges

0-2 5-7

Greedy MST algorithm demo

- Start with all edges colored gray.
- Find cut with no black crossing edges; color its min-weight edge black.
- Repeat until $V - 1$ edges are colored black.



crossing edges
(sorted by weight)

in MST →	6-2	0.40
	3-6	0.52
	6-0	0.58
	6-4	0.93

MST edges

0-2 5-7

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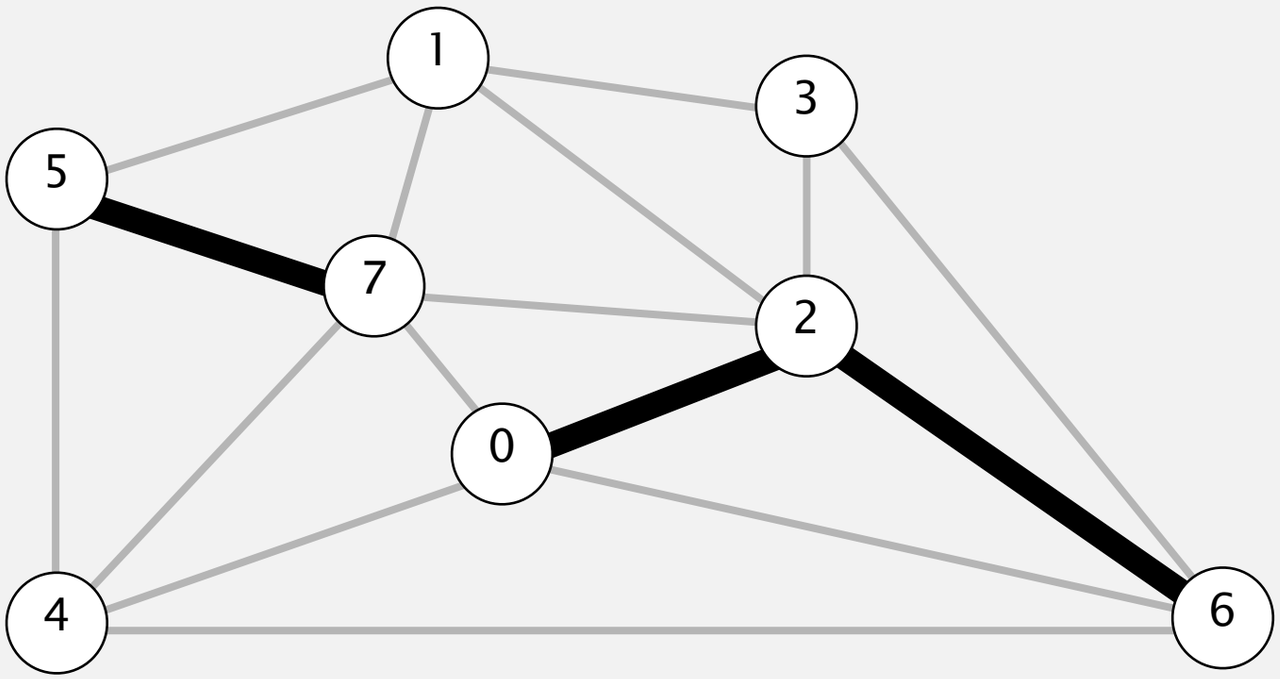

MST edges

0-2 5-7 6-2

Greedy MST algorithm demo

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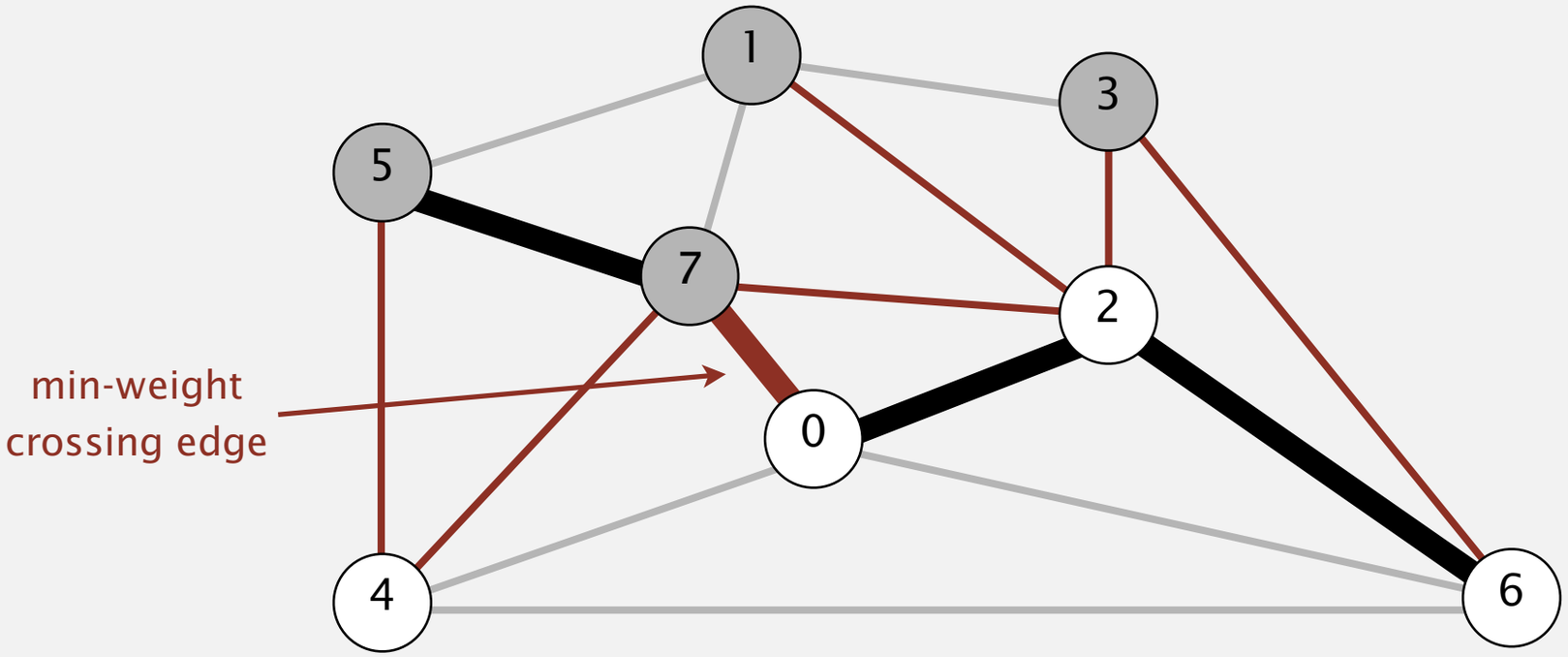
- Repeat until $V - 1$ edges are colored black.



crossing edges
(sorted by weight)

in MST →

0-7	0.16
2-3	0.17
2-7	0.34
4-5	0.35
1-2	0.36
4-7	0.37
3-6	0.52

MST edges

0-2 5-7 6-2

Greedy MST algorithm demo

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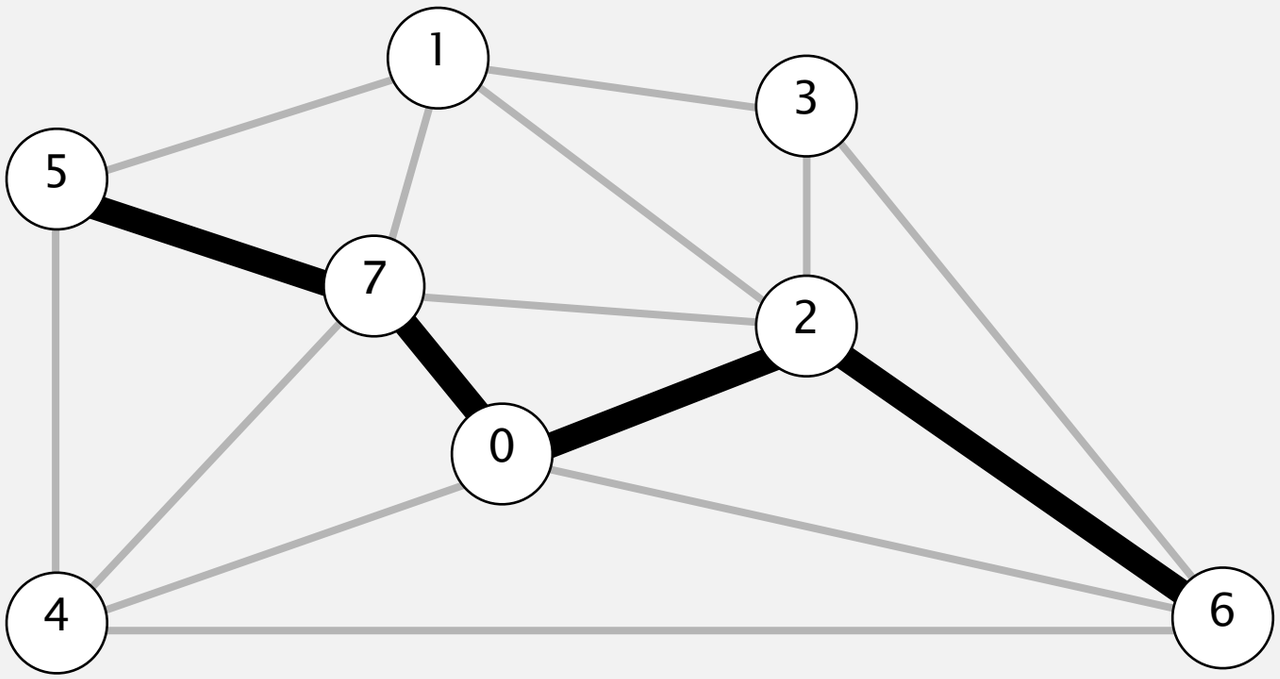

MST edges

0-2 5-7 6-2 0-7

Greedy MST algorithm demo

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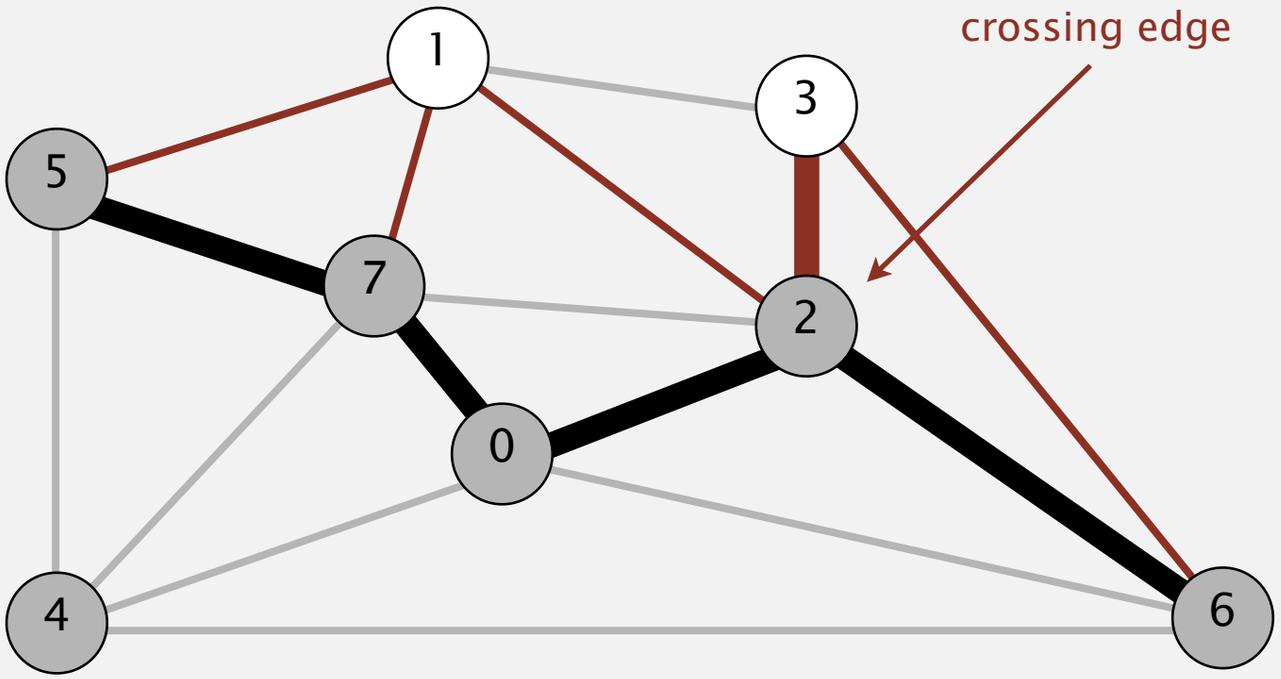
- Find cut with no black crossing edges; color its min-weight edge black.
- Repeat until $V - 1$ edges are colored black.



min-weight
crossing edge

crossing edges
(sorted by weight)

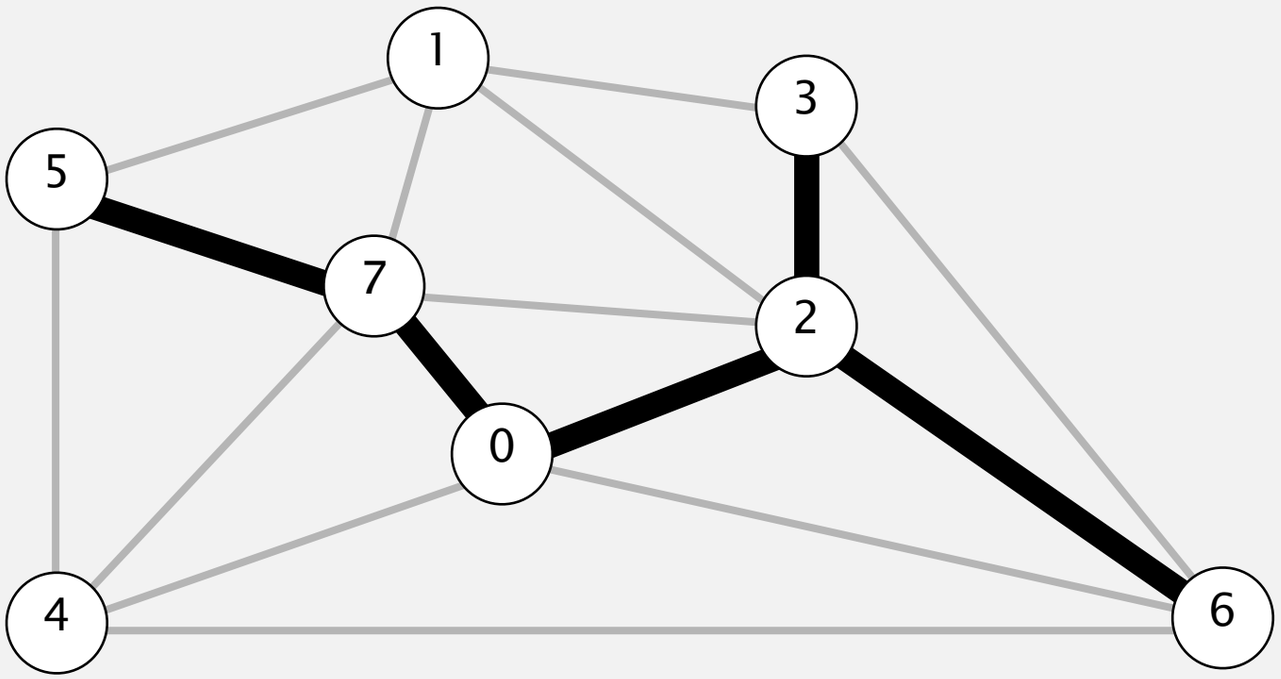
in MST →	2-3	0.17
	1-7	0.19
	1-5	0.32
	1-2	0.36

MST edges

0-2 5-7 6-2 0-7

Greedy MST algorithm demo

- Start with all edges colored gray.
- Find cut with no black crossing edges; color its min-weight edge black.
- Repeat until $V - 1$ edges are colored black.



MST edges

0-2 5-7 6-2 0-7 2-3

Greedy MST algorithm demo

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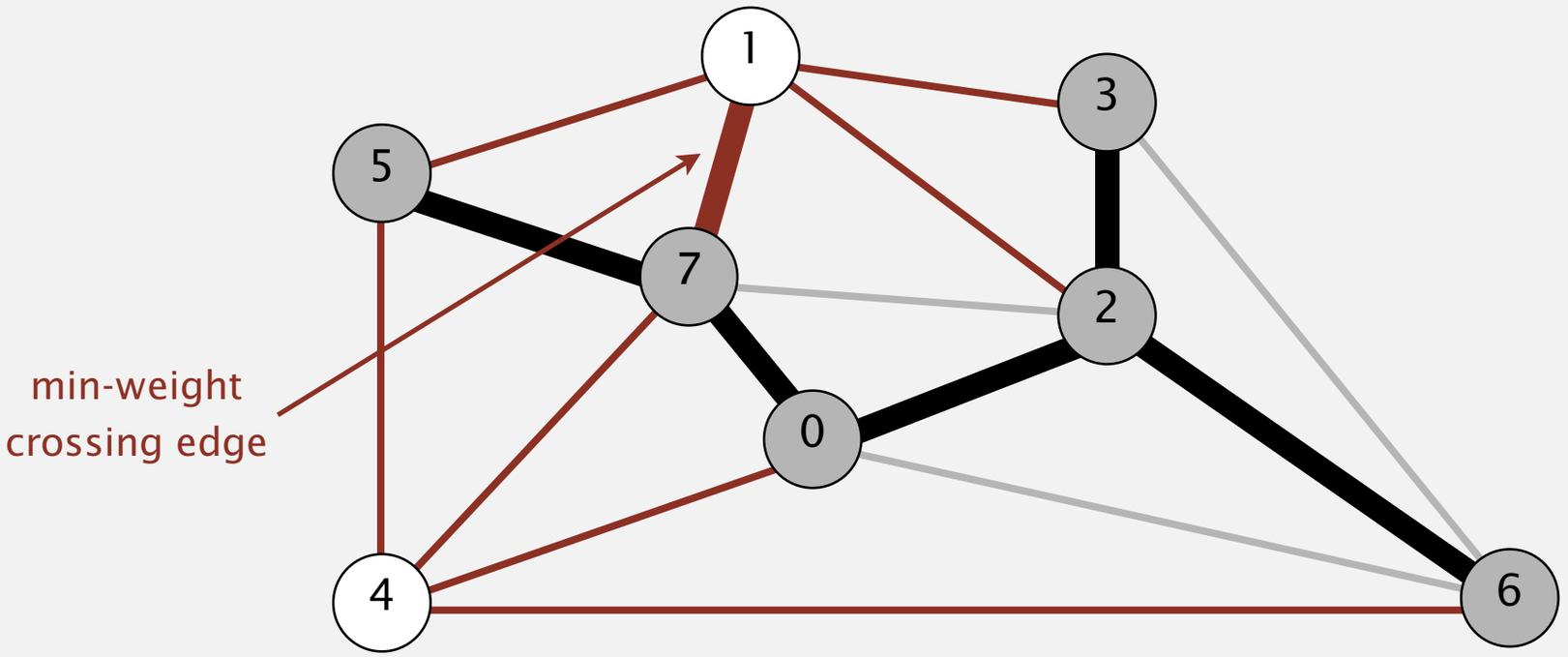
- Find cut with no black crossing edges; color its min-weight edge black.
- Repeat until $V - 1$ edges are colored black.



crossing edges
(sorted by weight)

in MST →	1-7	0.19
	1-3	0.29
	1-5	0.32
	4-5	0.35
	1-2	0.36
	4-7	0.37
	0-4	0.38
	6-4	0.93

MST edges

0-2 5-7 6-2 0-7 2-3

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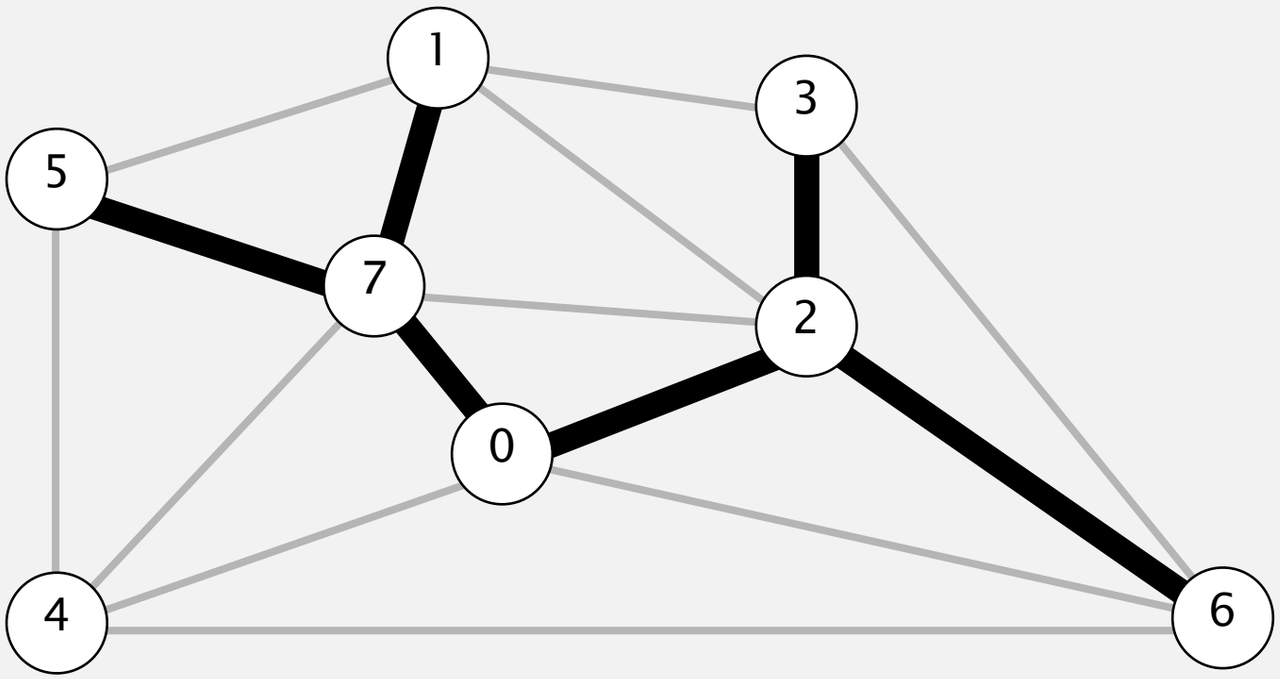
- Find cut with no black crossing edges; color its min-weight edge black.
- Repeat until $V - 1$ edges are colored black.



MST edges

0-2 5-7 6-2 0-7 2-3 1-7

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- Find cut with no black crossing edges; color its min-weight edge black.
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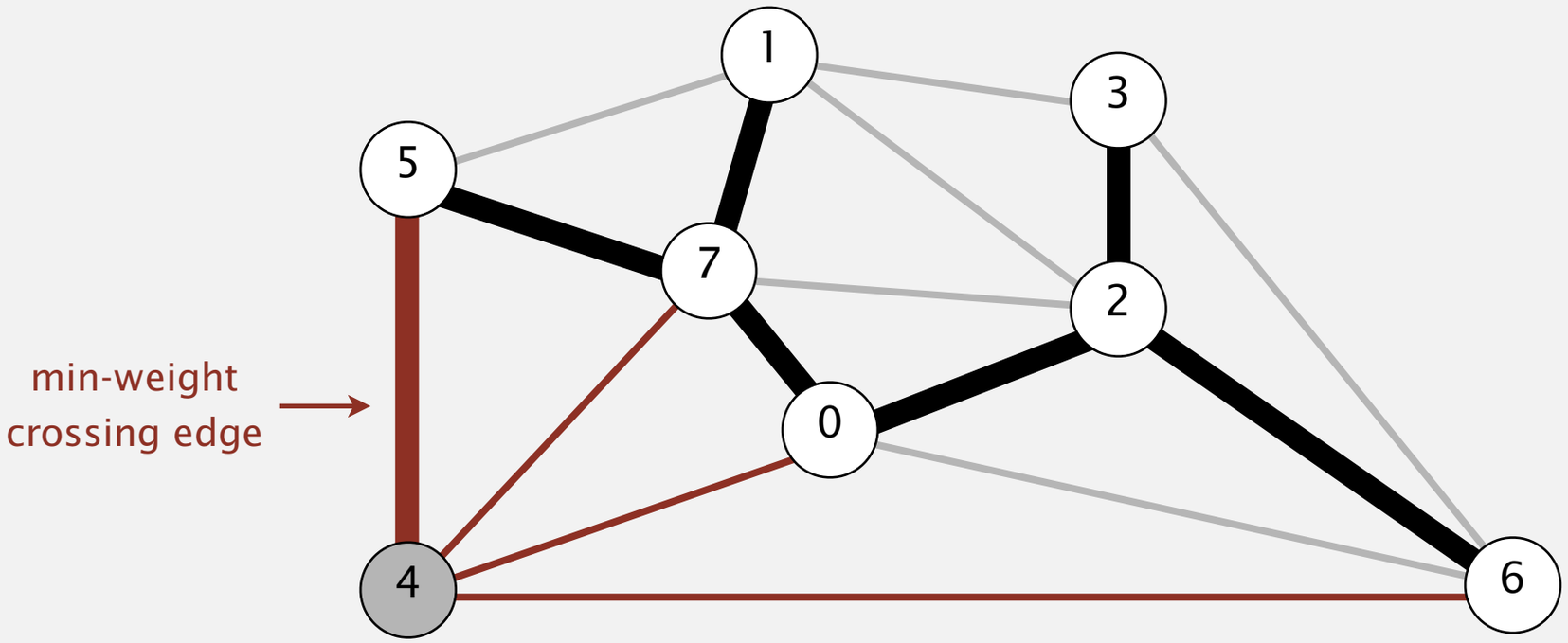

crossing edges
(sorted by weight)

in MST →	4-5	0.35
	4-7	0.37
	0-4	0.38
	6-4	0.93

MST edges

0-2 5-7 6-2 0-7 2-3 1-7

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- Start with all edges colored gray.
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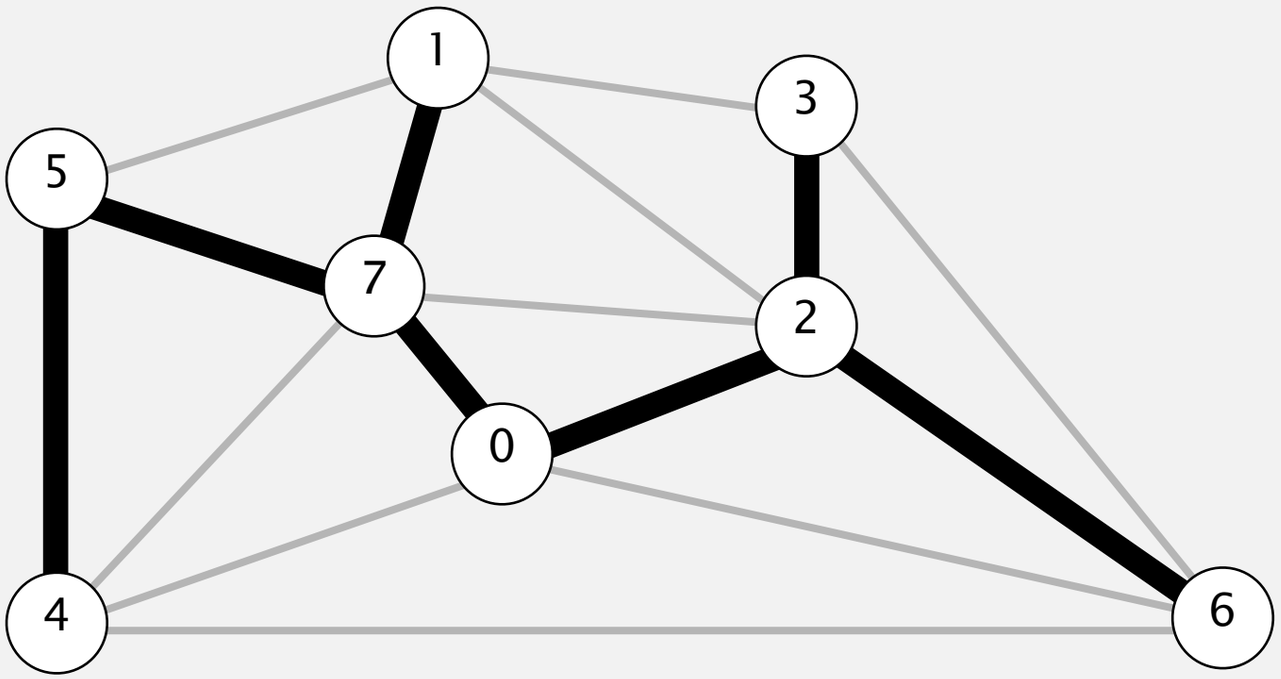

MST edges

0-2 5-7 6-2 0-7 2-3 1-7 4-5