



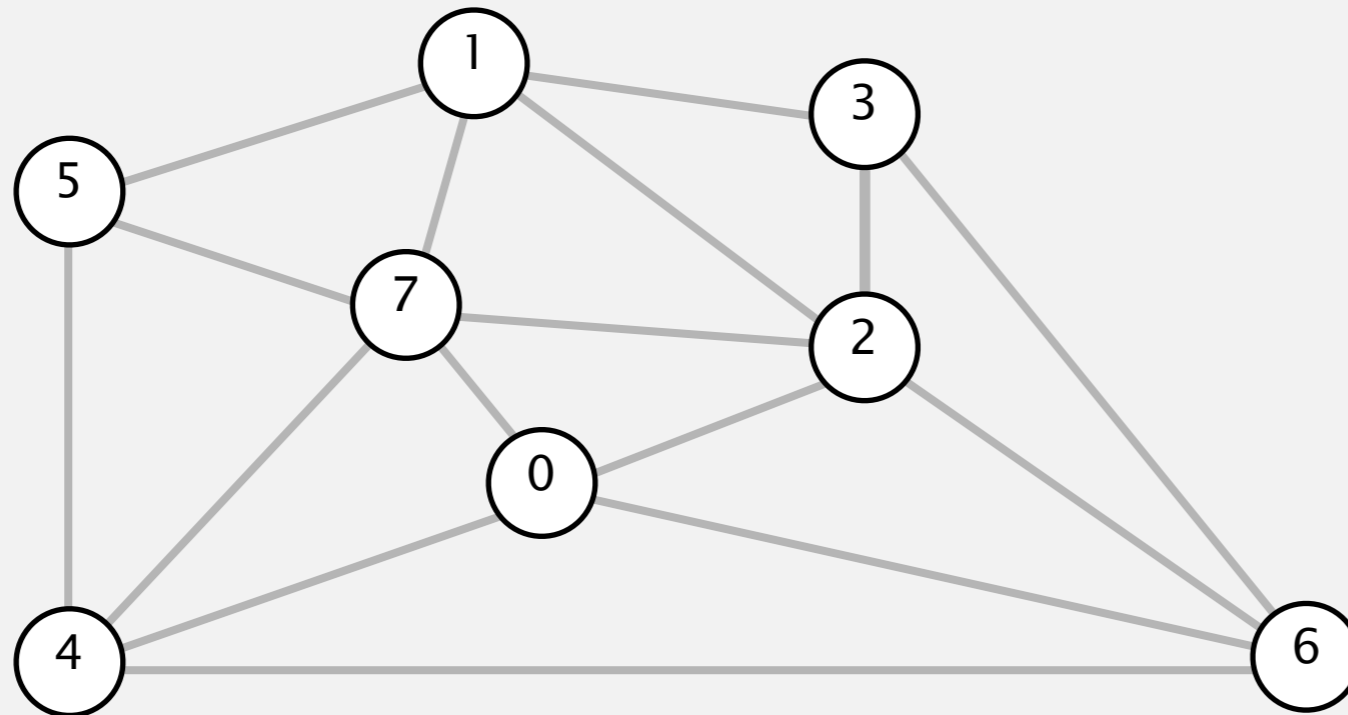
<https://algs4.cs.princeton.edu>

KRUSKAL'S ALGORITHM DEMO

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

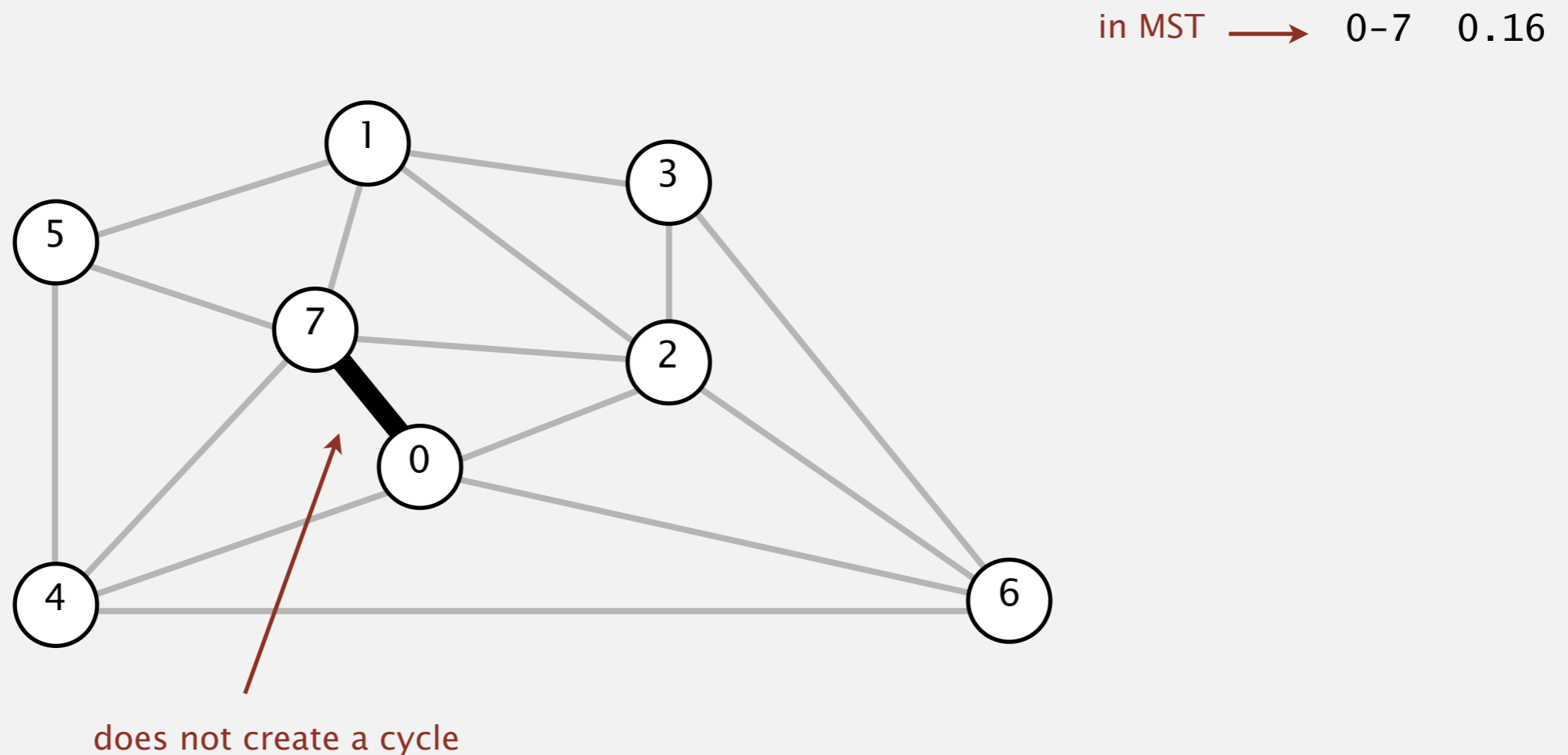


| | |
|-----|------|
| 0-7 | 0.16 |
| 2-3 | 0.17 |
| 1-7 | 0.19 |
| 0-2 | 0.26 |
| 5-7 | 0.28 |
| 1-3 | 0.29 |
| 1-5 | 0.32 |
| 2-7 | 0.34 |
| 4-5 | 0.35 |
| 1-2 | 0.36 |
| 4-7 | 0.37 |
| 0-4 | 0.38 |
| 6-2 | 0.40 |
| 3-6 | 0.52 |
| 6-0 | 0.58 |
| 6-4 | 0.93 |

Kruskal's algorithm demo

Consider edges in ascending order of weight.

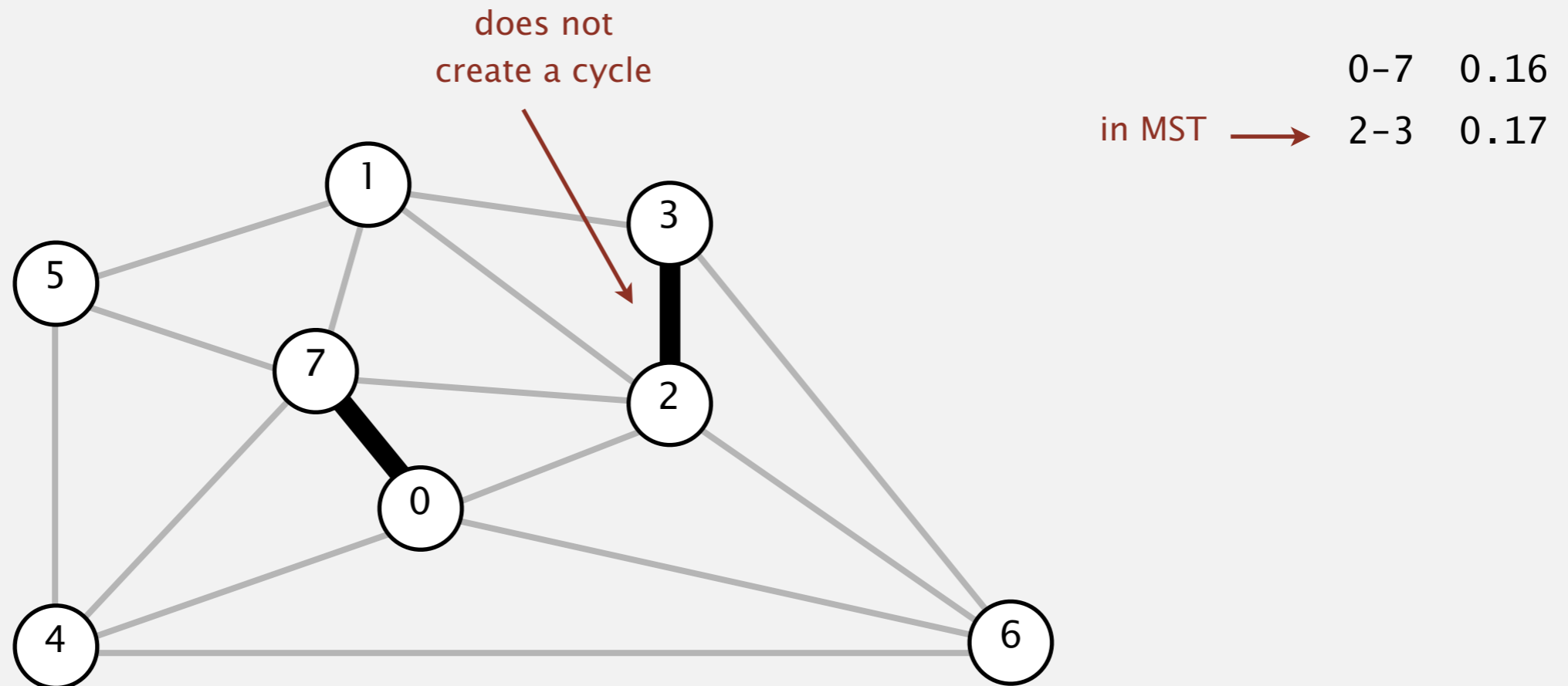
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Kruskal's algorithm demo

Consider edges in ascending order of weight.

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

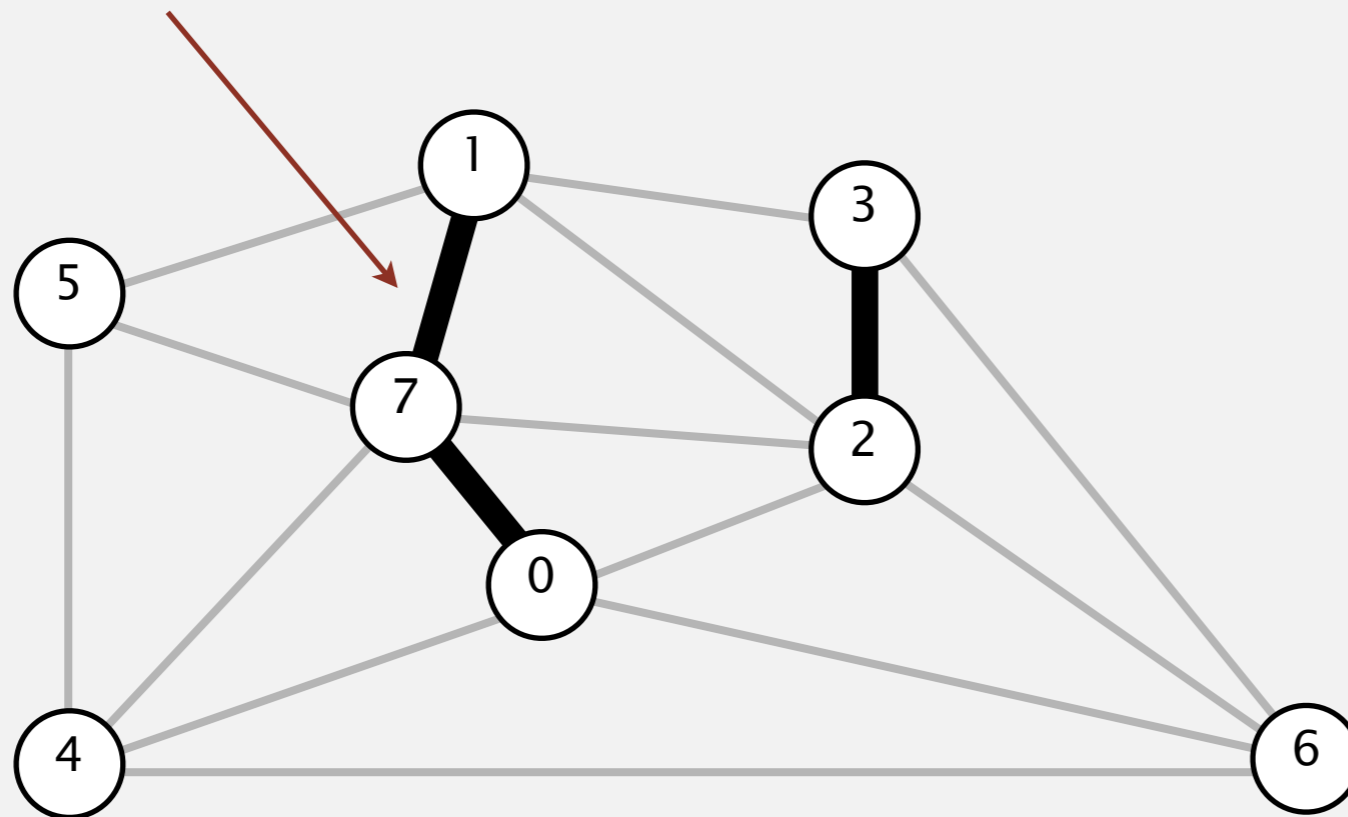


Kruskal's algorithm demo

Consider edges in ascending order of weight.

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

does not create a cycle

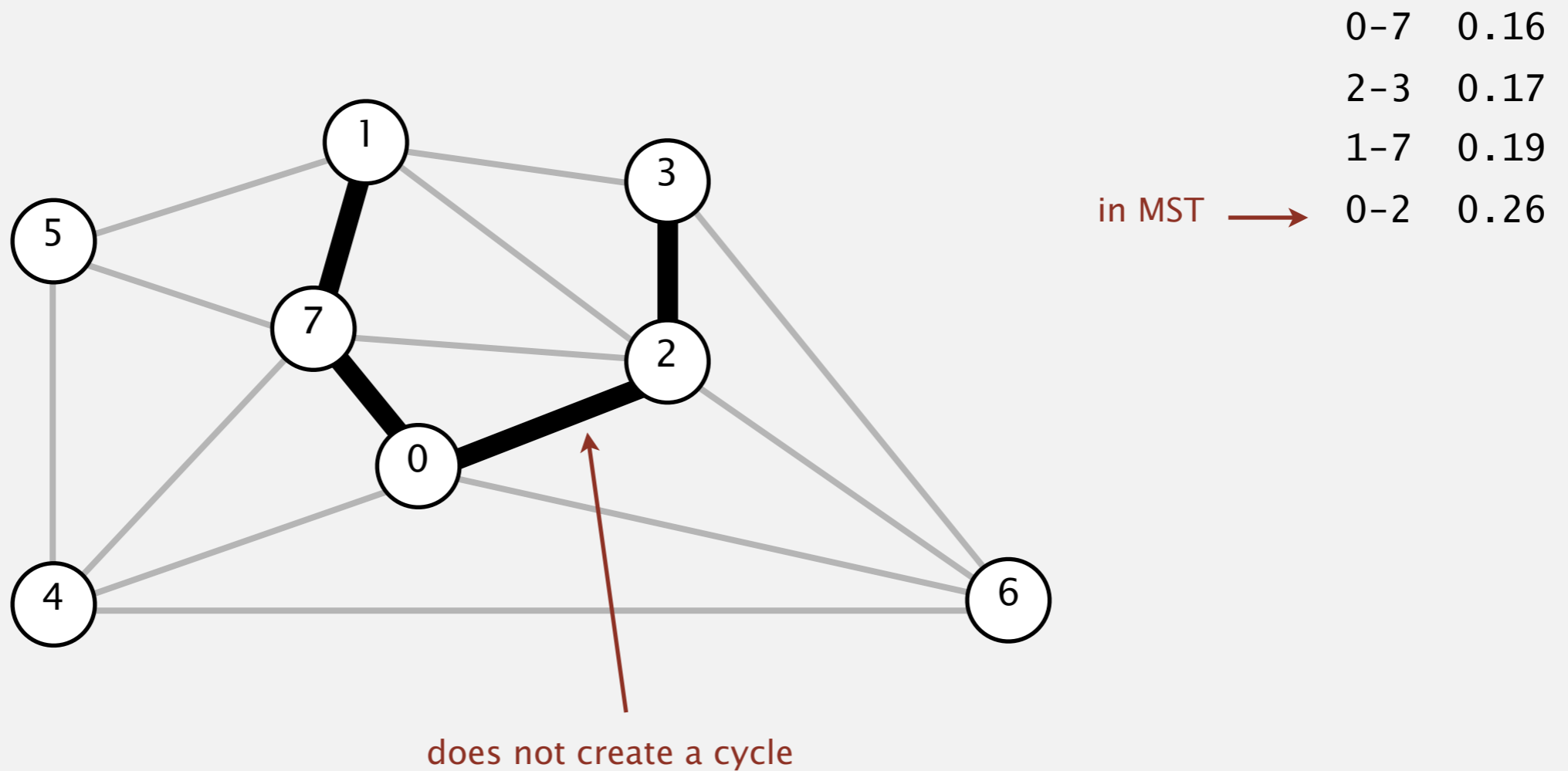


| | | |
|----------|-----|------|
| | 0-7 | 0.16 |
| | 2-3 | 0.17 |
| in MST → | 1-7 | 0.19 |

Kruskal's algorithm demo

Consider edges in ascending order of weight.

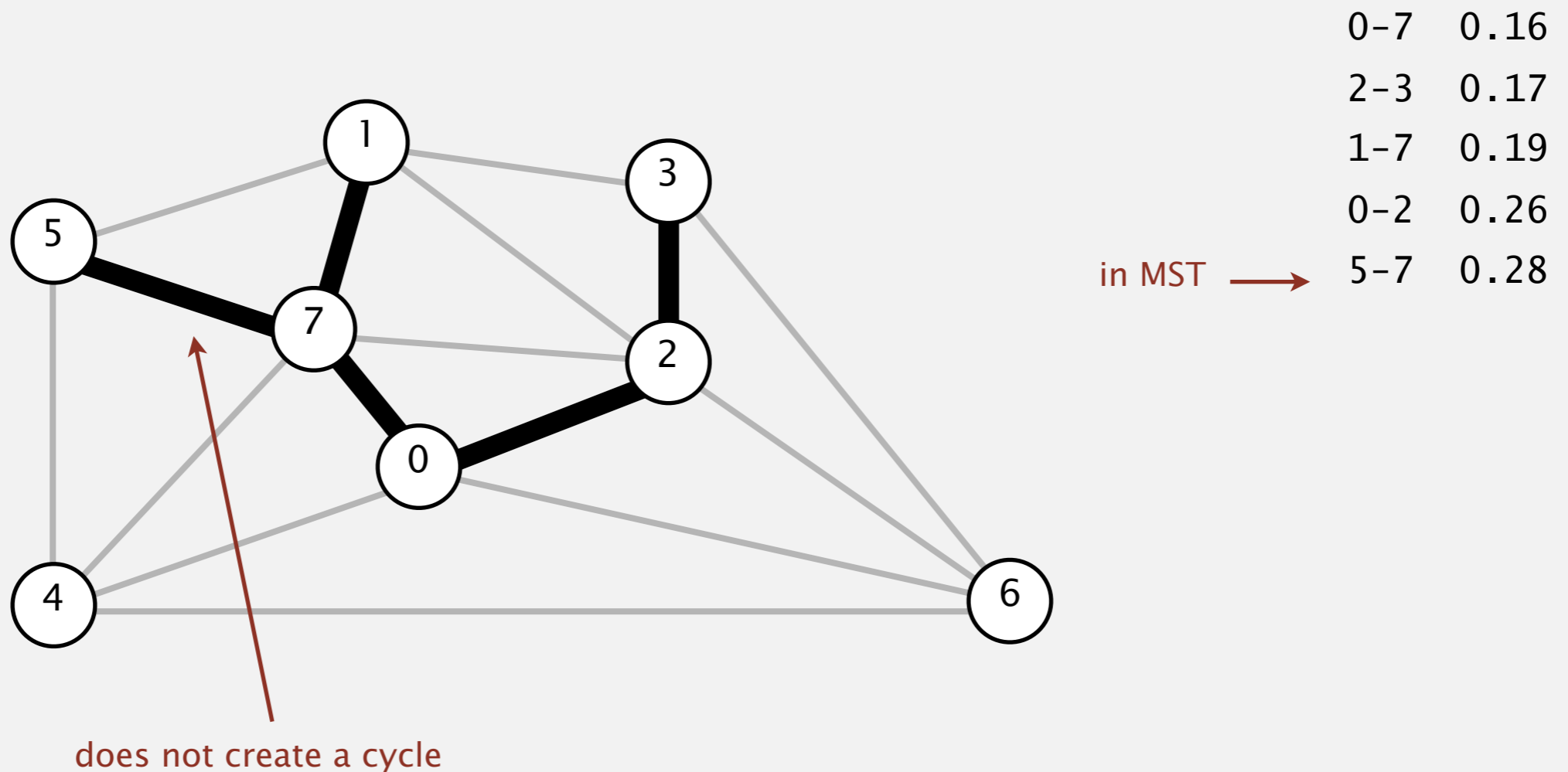
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Kruskal's algorithm demo

Consider edges in ascending order of weight.

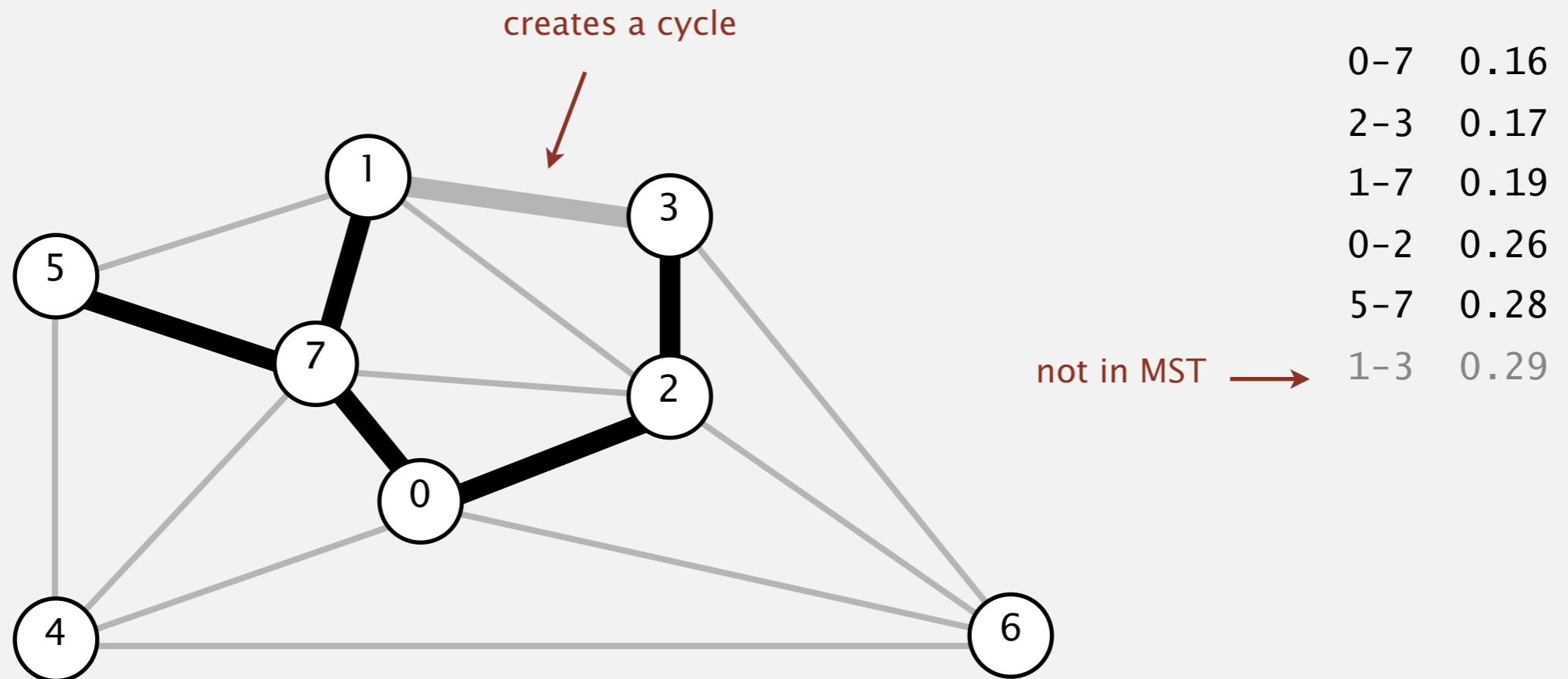
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Kruskal's algorithm demo

Consider edges in ascending order of weight.

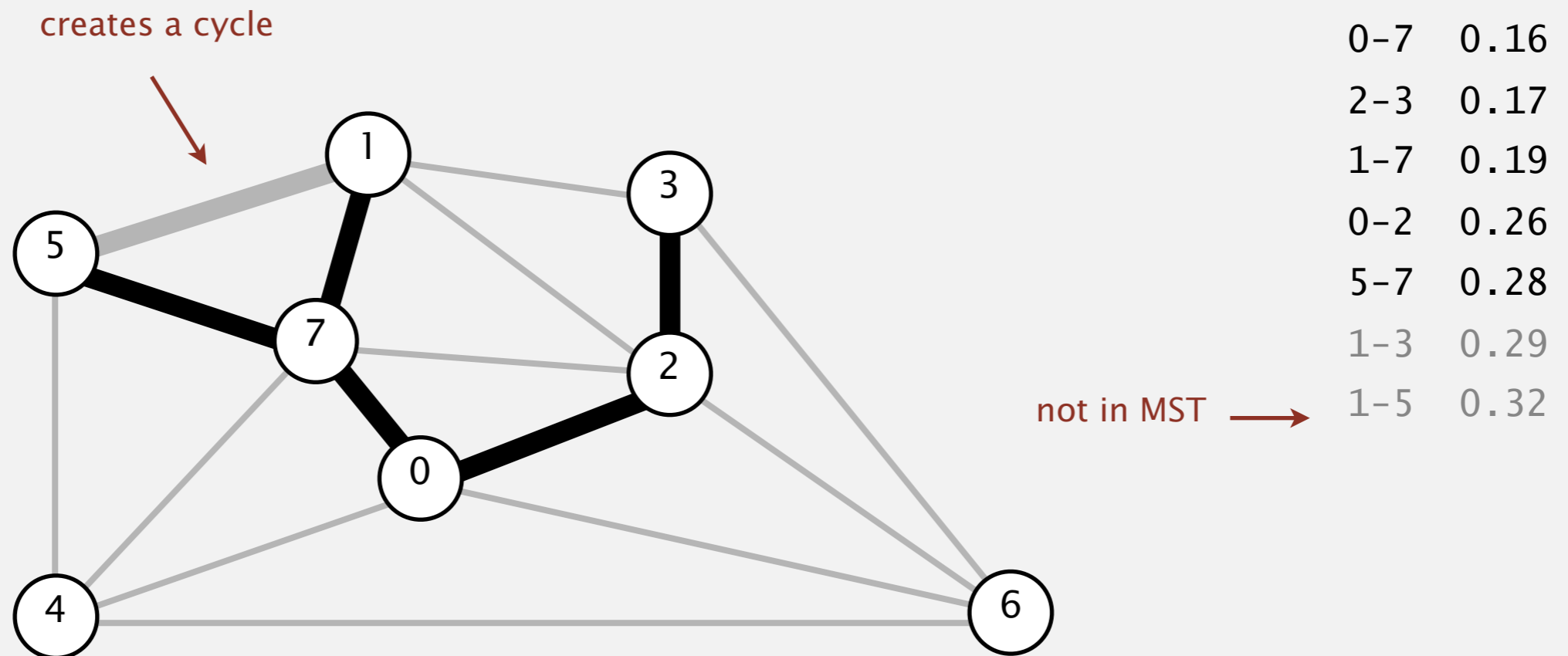
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Kruskal's algorithm demo

Consider edges in ascending order of weight.

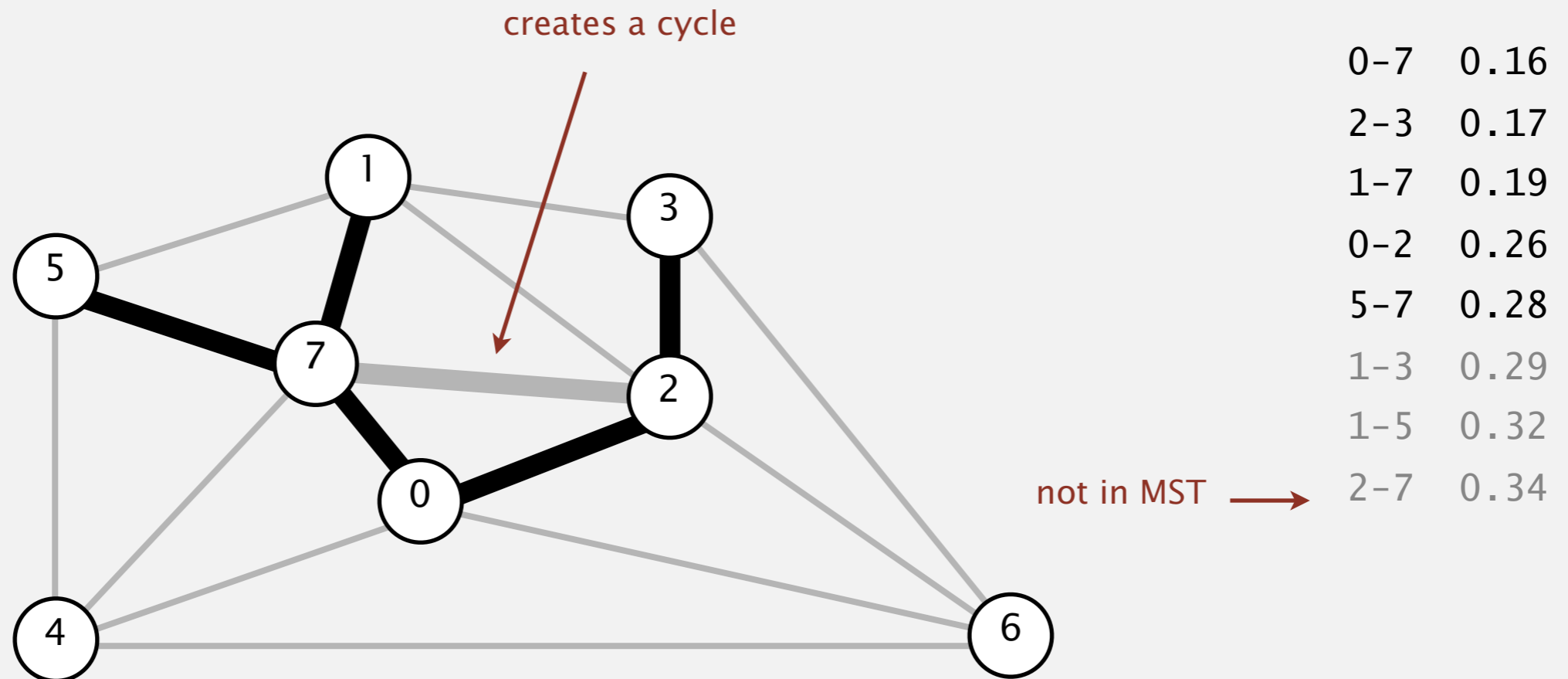
- Add next edge to tree T unless doing so would create a cycle.



Kruskal's algorithm demo

Consider edges in ascending order of weight.

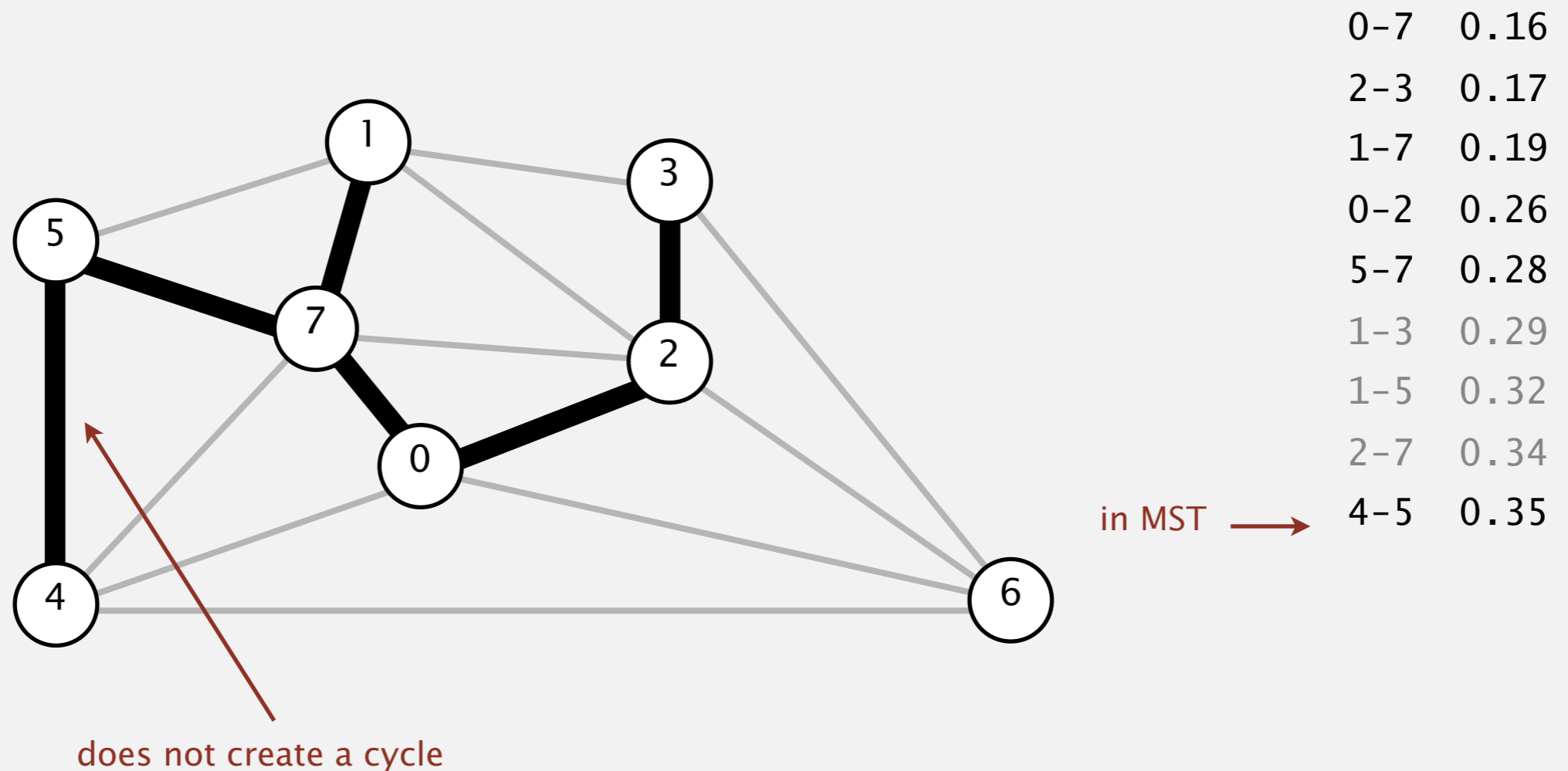
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Kruskal's algorithm demo

Consider edges in ascending order of weight.

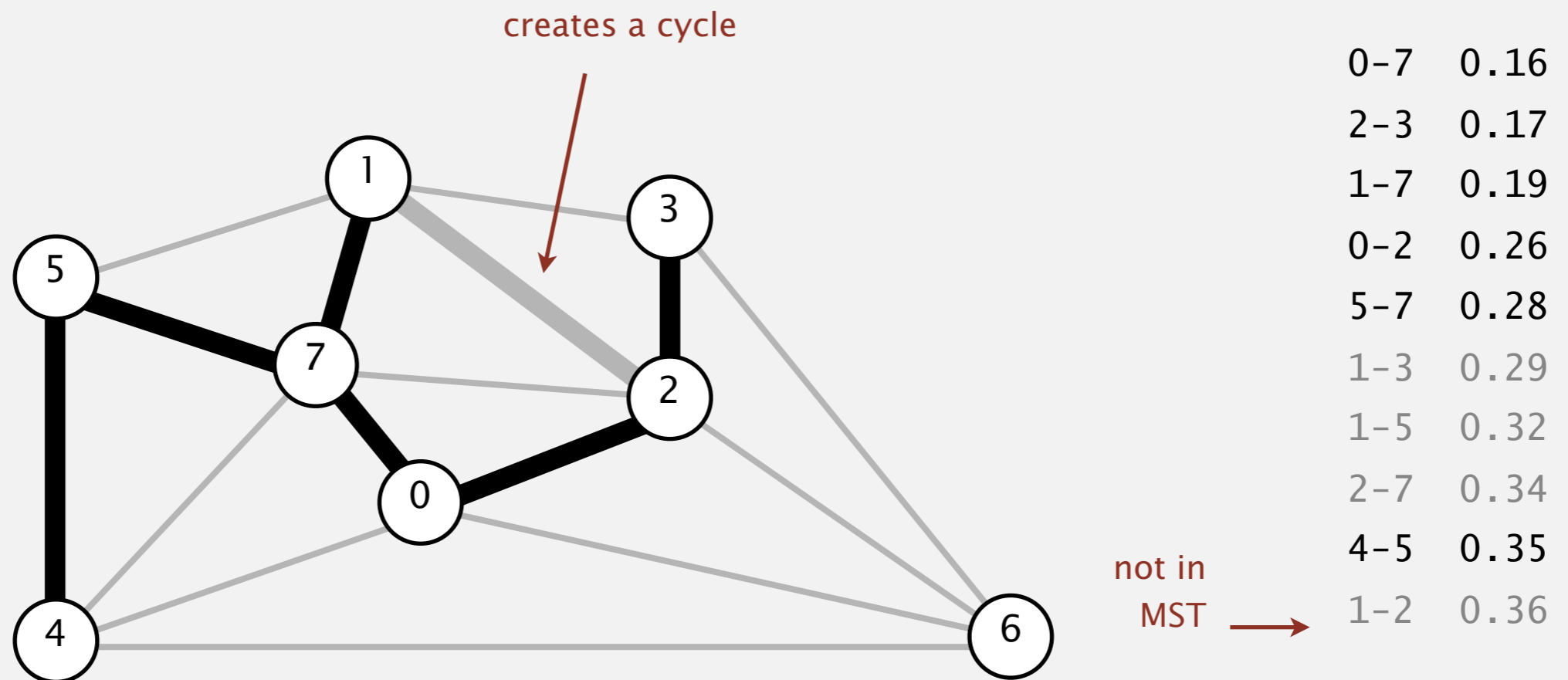
- Add next edge to tree T unless doing so would create a cycle.



Kruskal's algorithm demo

Consider edges in ascending order of weight.

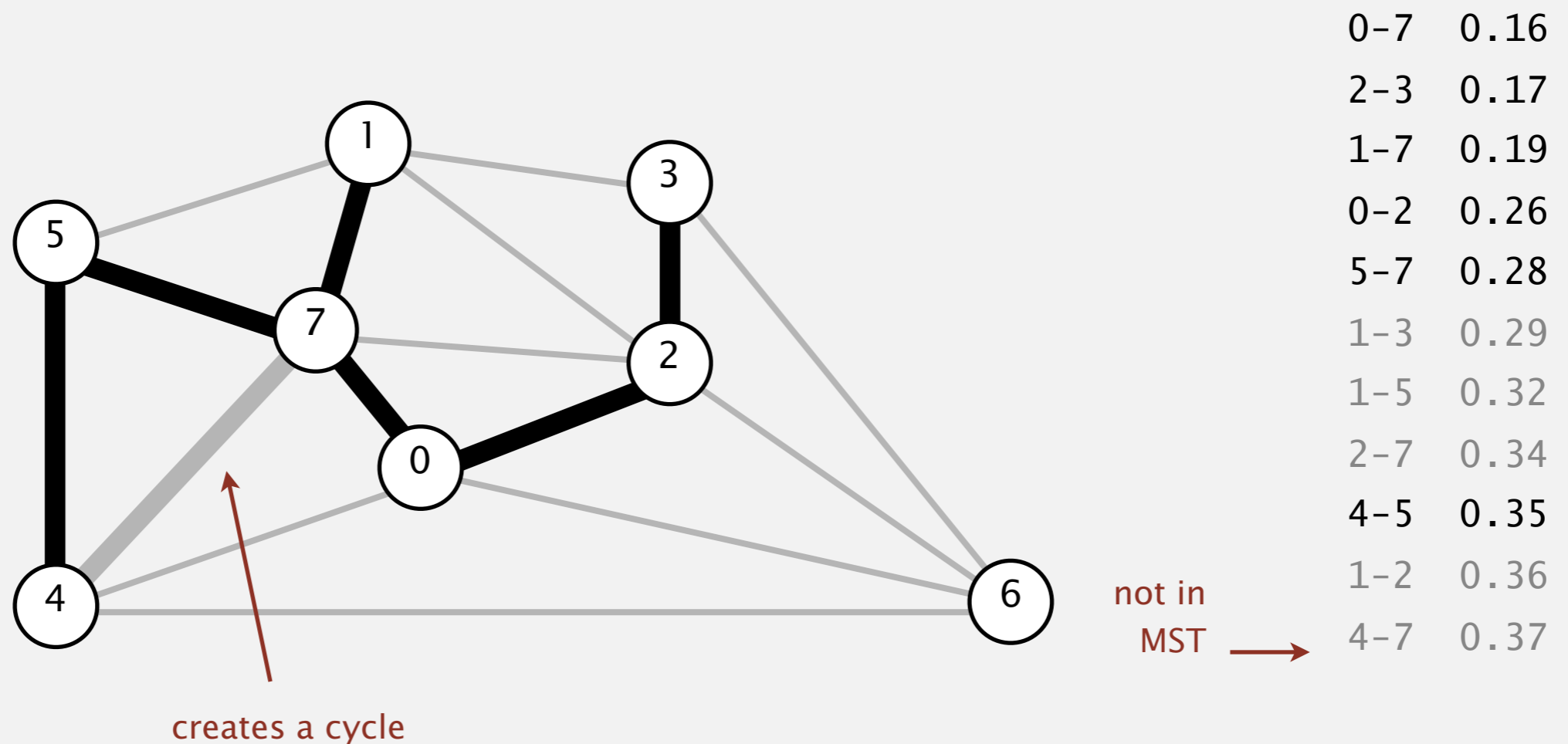
- Add next edge to tree T unless doing so would create a cycle.



Kruskal's algorithm demo

Consider edges in ascending order of weight.

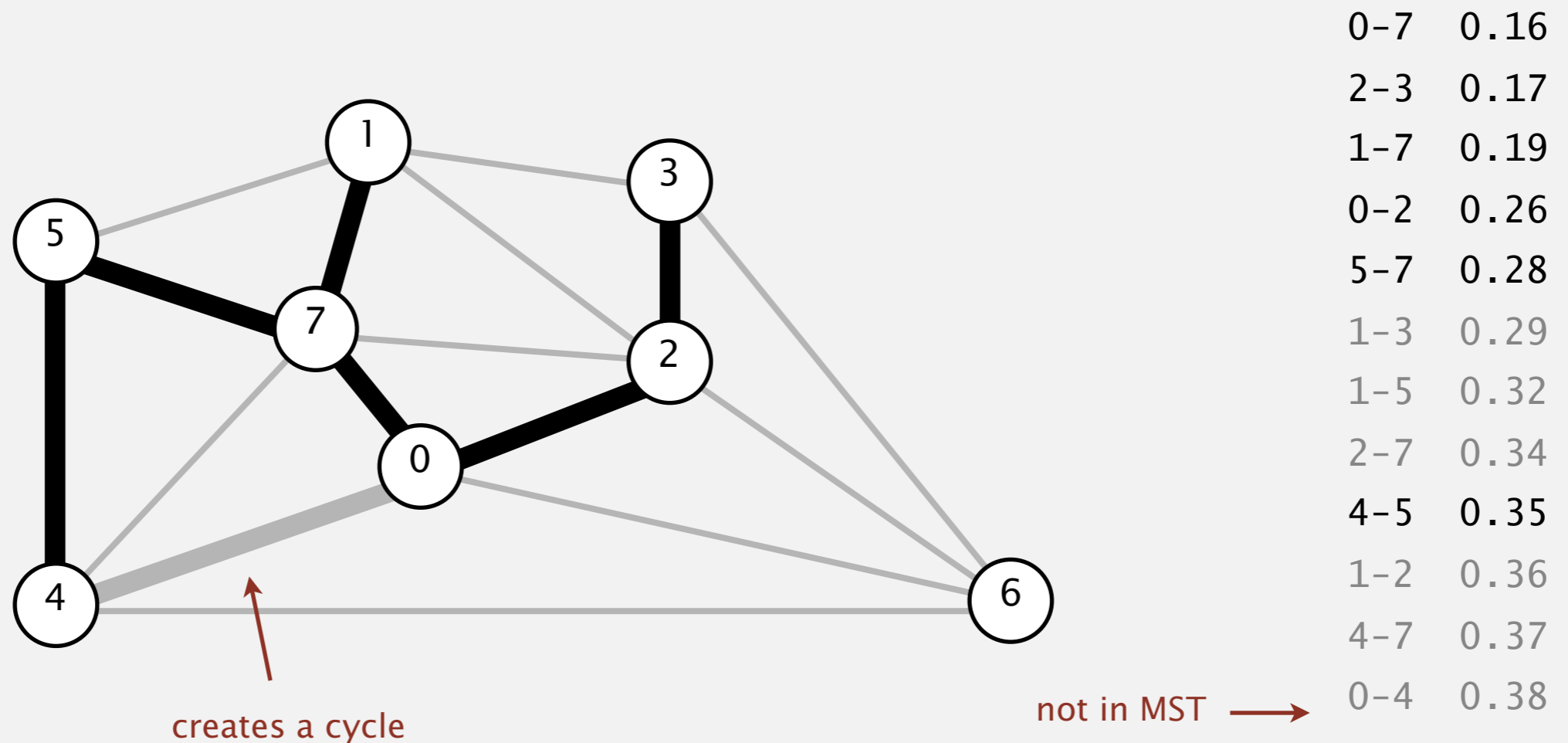
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Kruskal's algorithm demo

Consider edges in ascending order of weight.

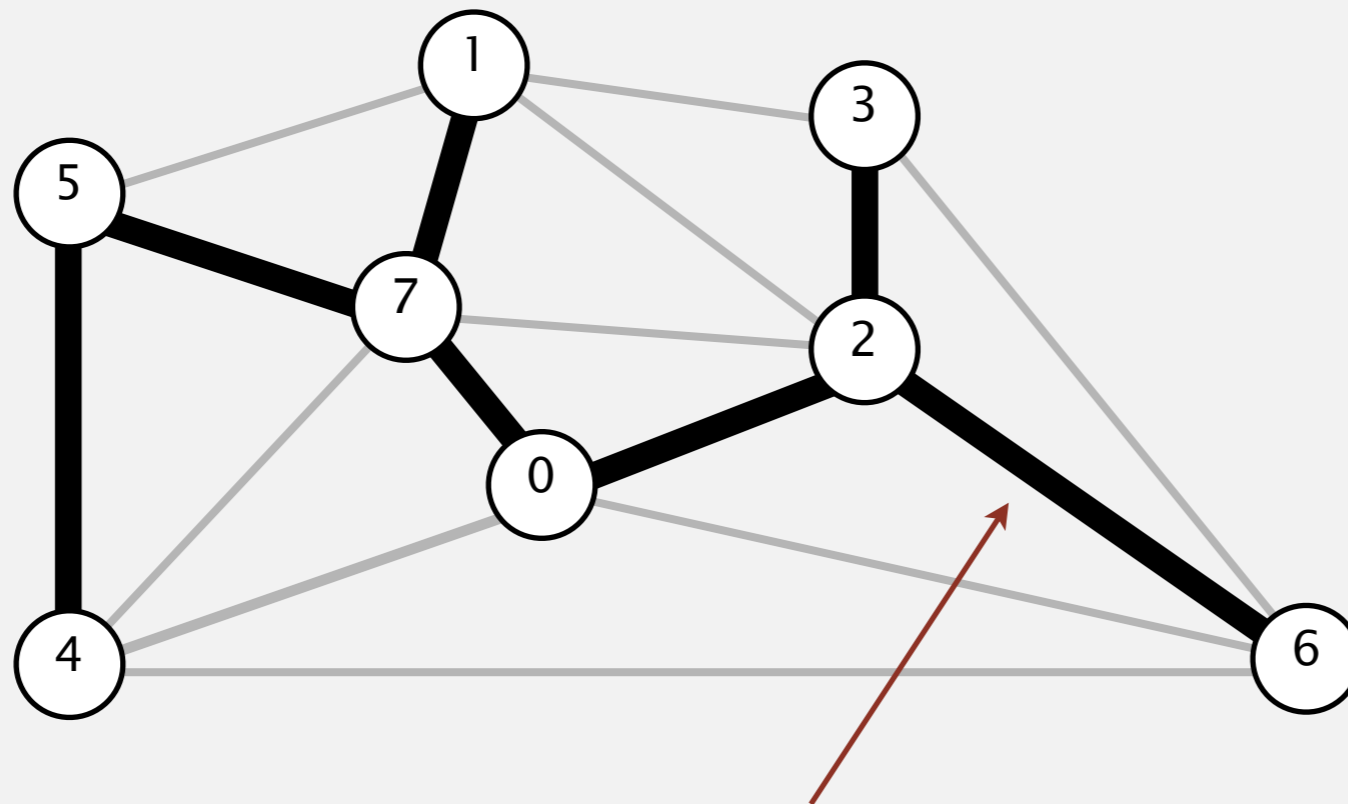
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Kruskal's algorithm demo

Consider edges in ascending order of weight.

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



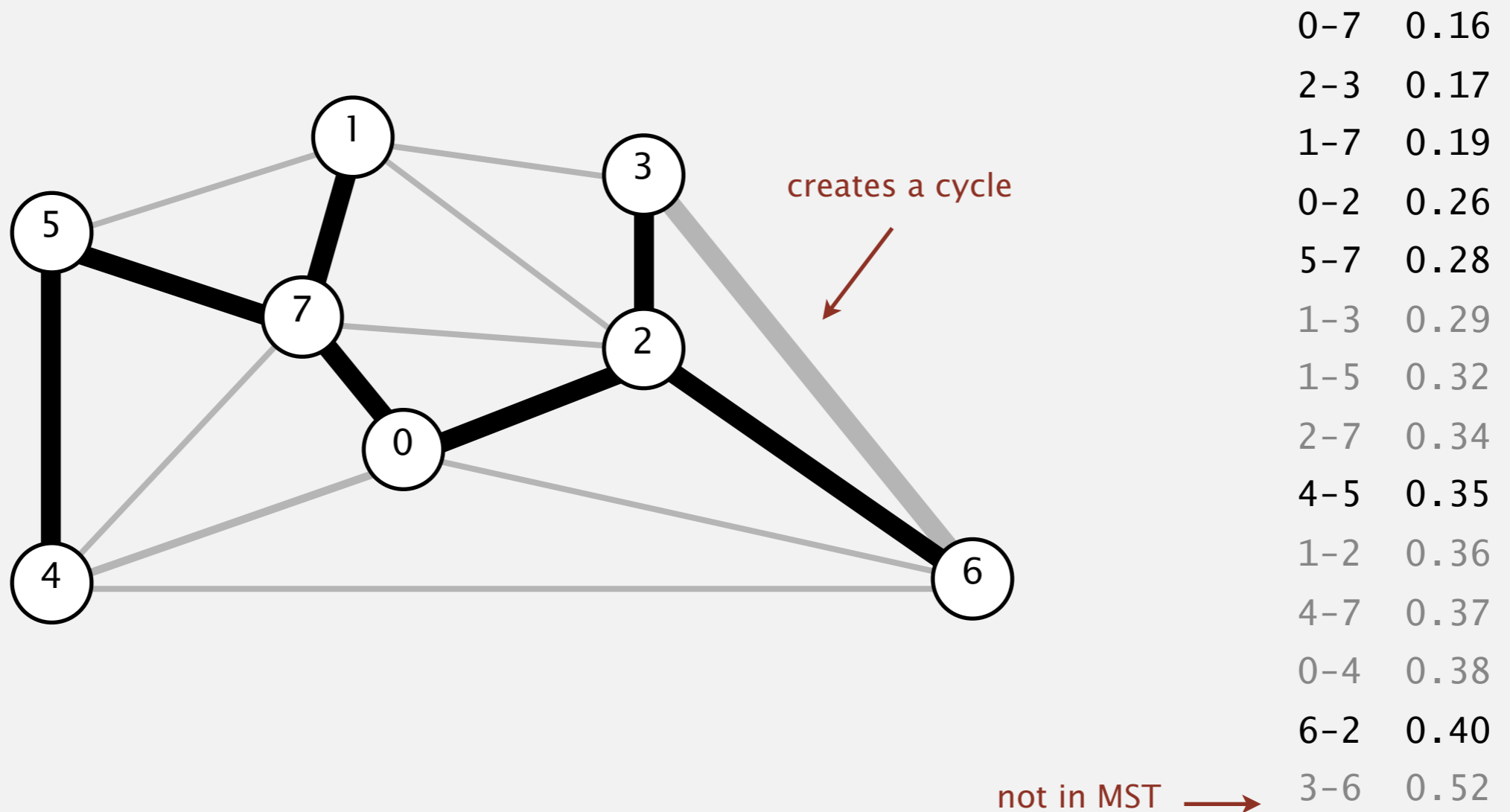
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| 6-2 | 0.40 |

in MST →

Kruskal's algorithm demo

Consider edges in ascending order of weight.

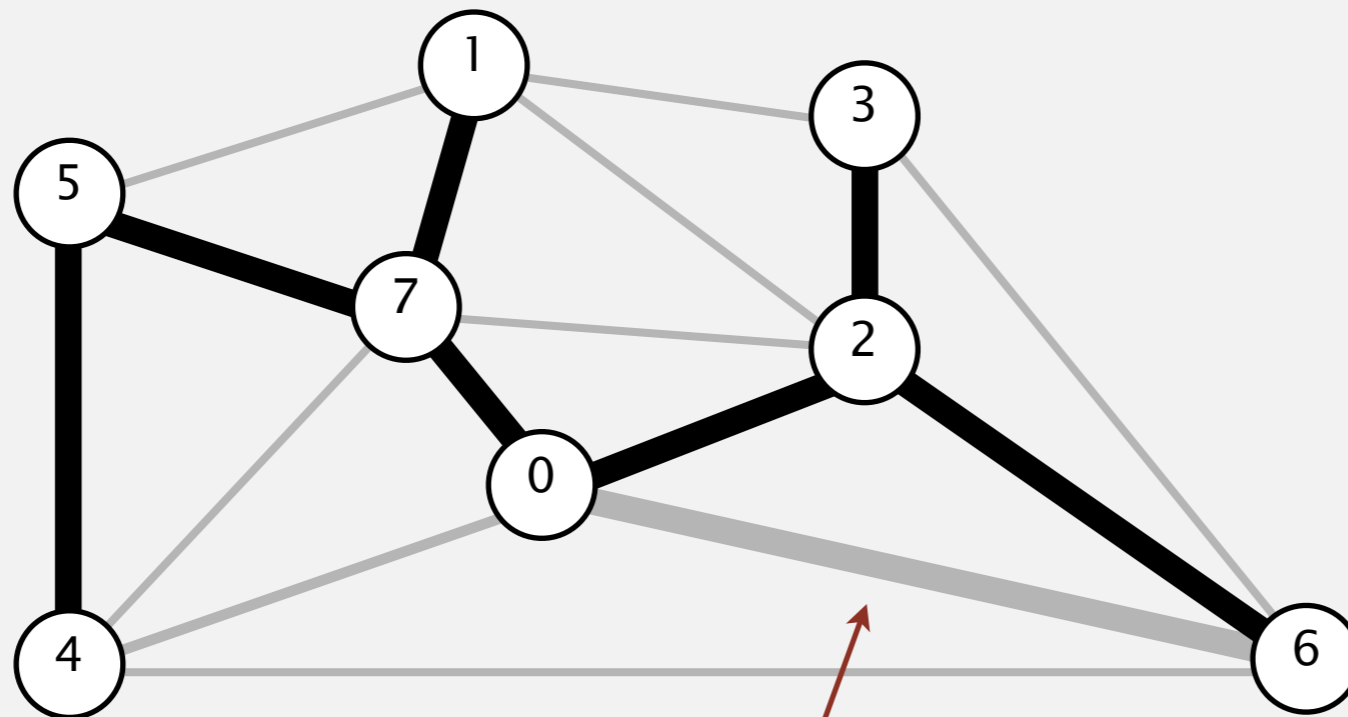
- Add next edge to tree T unless doing so would create a cycle.



Kruskal's algorithm demo

Consider edges in ascending order of weight.

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



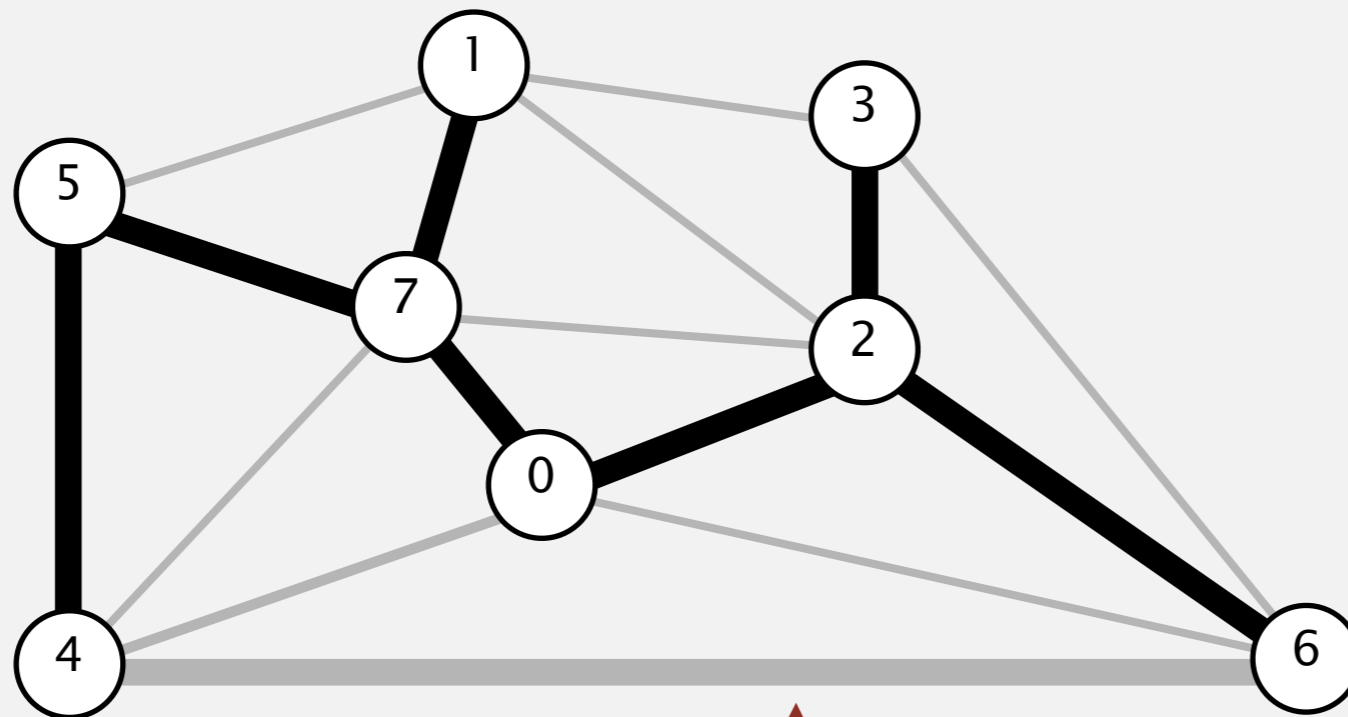
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| 0-4 | 0.38 |
| 6-2 | 0.40 |
| 3-6 | 0.52 |
| 6-0 | 0.58 |

not in MST →

Kruskal's algorithm demo

Consider edges in ascending order of weight.

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



creates a cycle

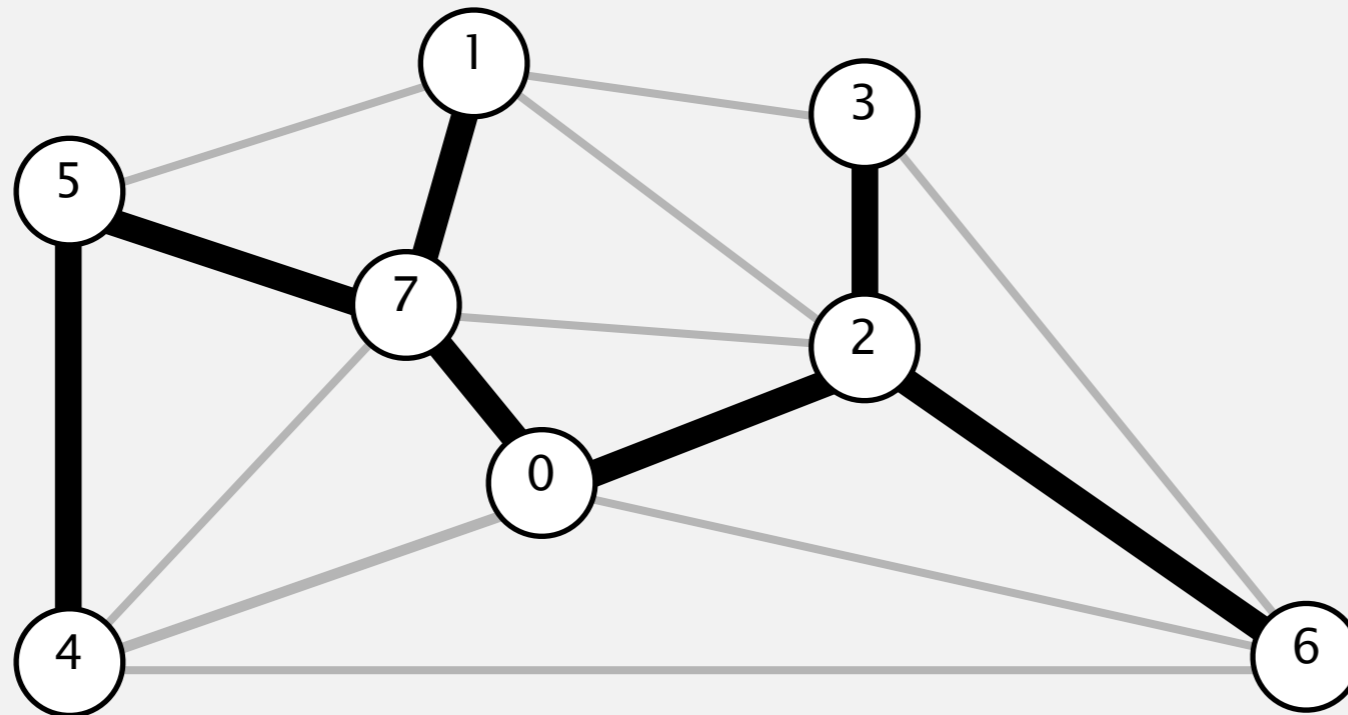
not in MST →

| | |
|-----|------|
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| 2-3 | 0.17 |
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| 6-0 | 0.58 |
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Kruskal's algorithm demo

Consider edges in ascending order of weight.

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



a minimum spanning tree

| | |
|-----|------|
| 0-7 | 0.16 |
| 2-3 | 0.17 |
| 1-7 | 0.19 |
| 0-2 | 0.26 |
| 5-7 | 0.28 |
| 1-3 | 0.29 |
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