Algorithms

FOURTH EDITION

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http://algs4.cs.princeton.edu

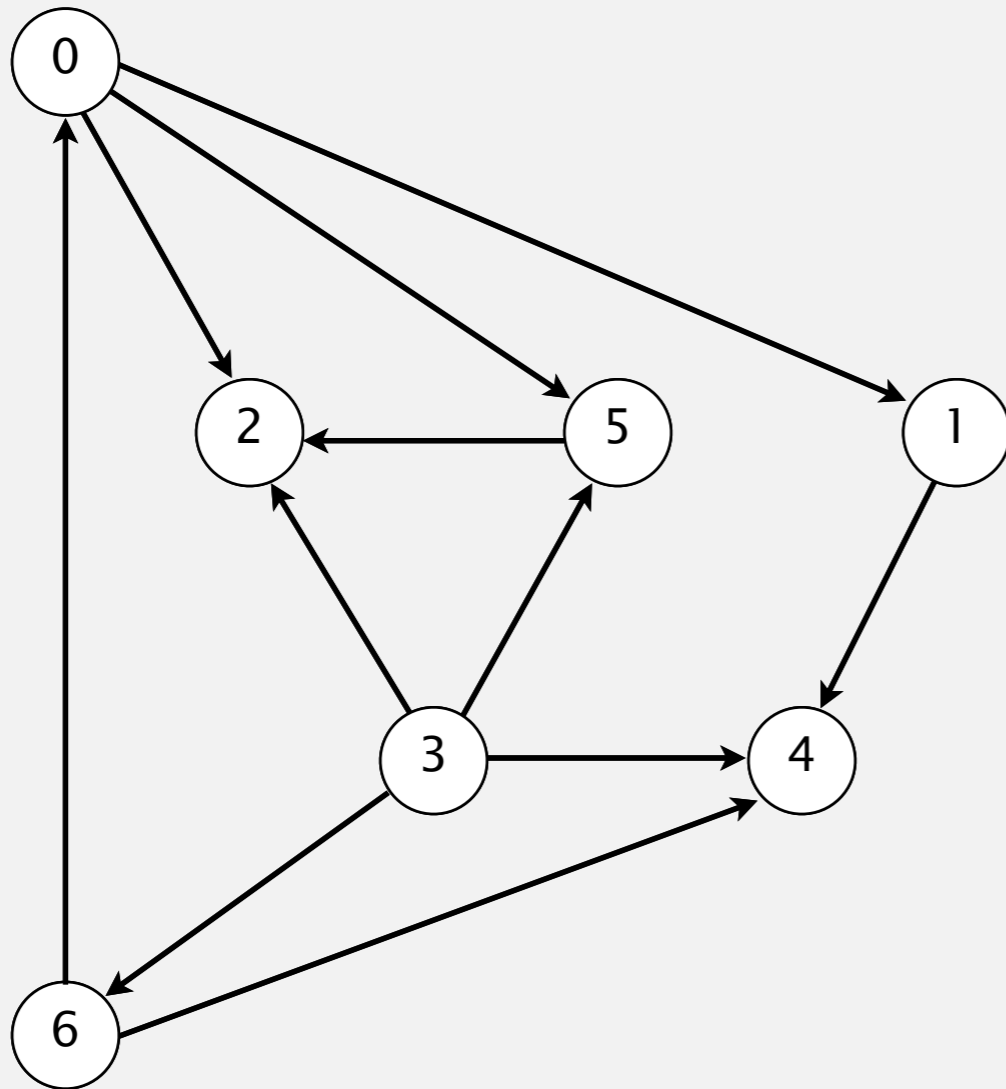# 4.2 TOPOLOGICAL SORT DEMO

Topological sort demo

- Run depth-first search.
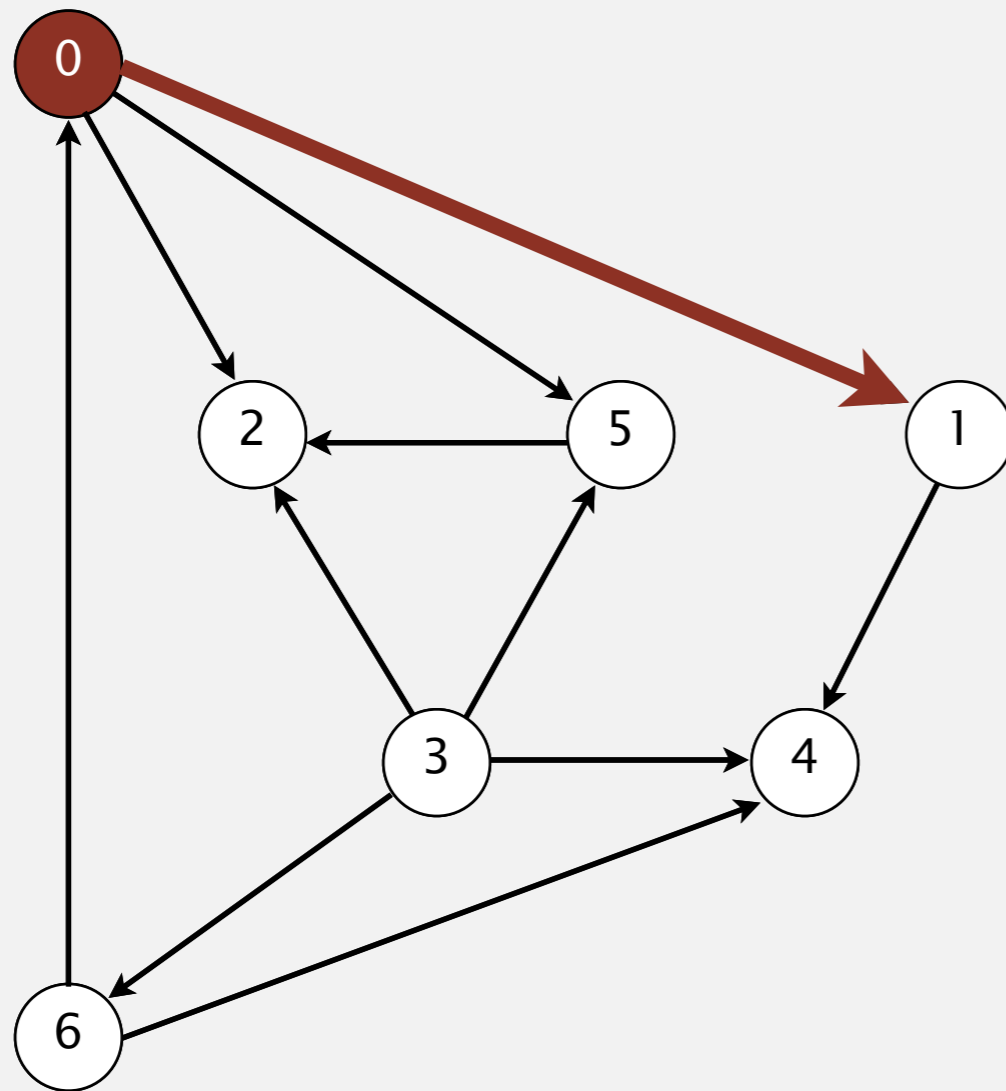- Return vertices in reverse postorder.

a directed acyclic graph

tinyDAG7.txt

```
 7
11
   0   5
   0   2
   0   1
   3   6
   3   5
   3   4
   5   2
   6   4
   6   0
   3   2
```

Topological sort demo

- Run depth-first search.
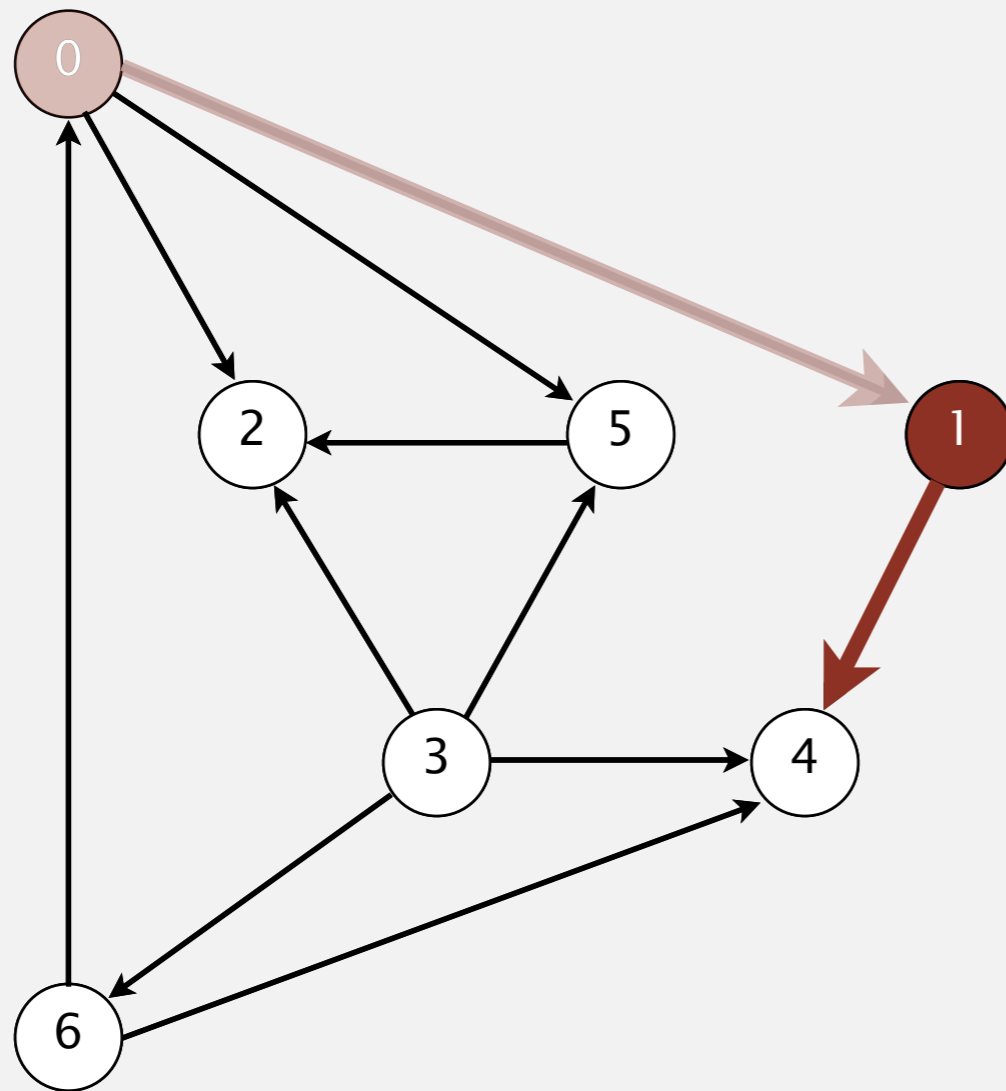- Return vertices in reverse postorder.

postorder

v	marked[]
0	T
1	F
2	F
3	F
4	F
5	F
6	F

visit 0: check 1, check 2, and check 5

Topological sort demo

- Run depth-first search.
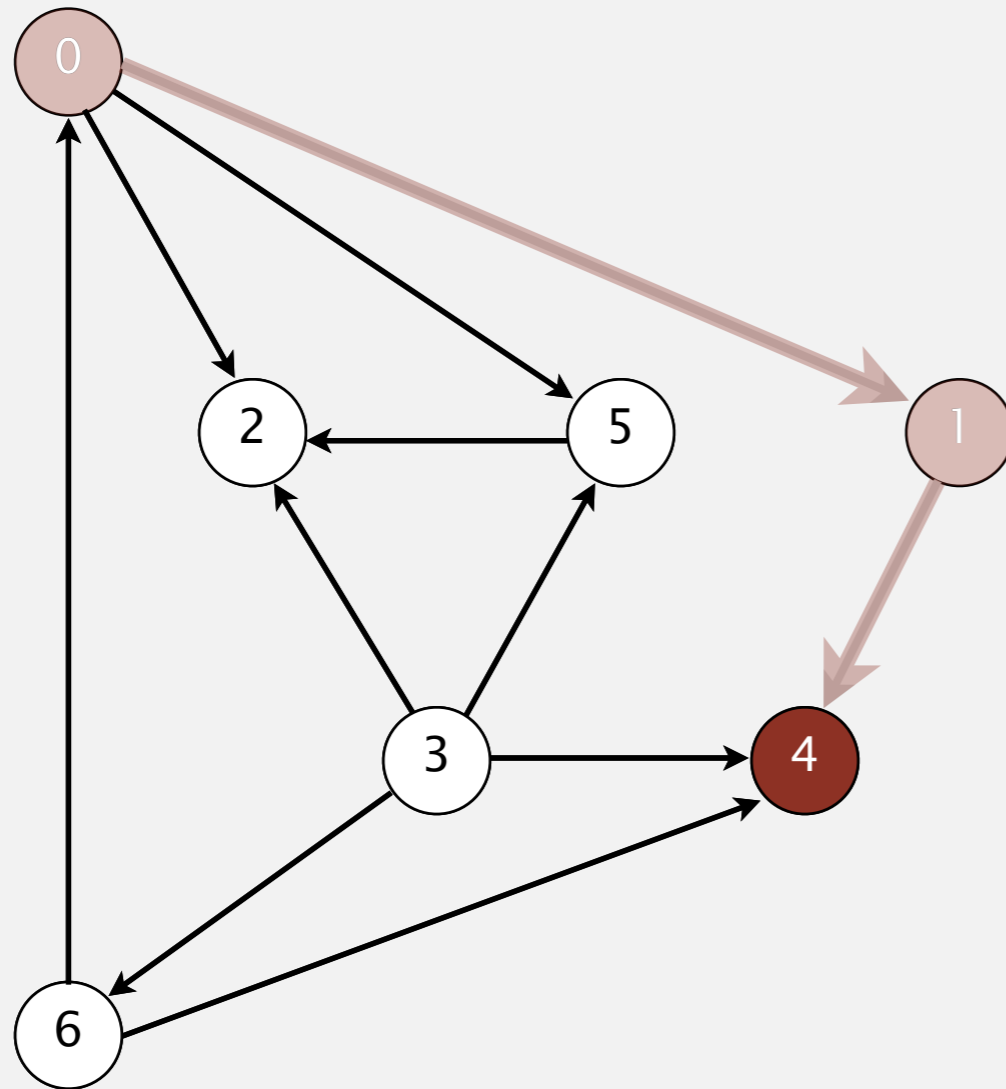- Return vertices in reverse postorder.

postorder

v	marked[]
0	T
1	T
2	F
3	F
4	F
5	F
6	F

visit 1: check 4

Topological sort demo

- Run depth-first search.
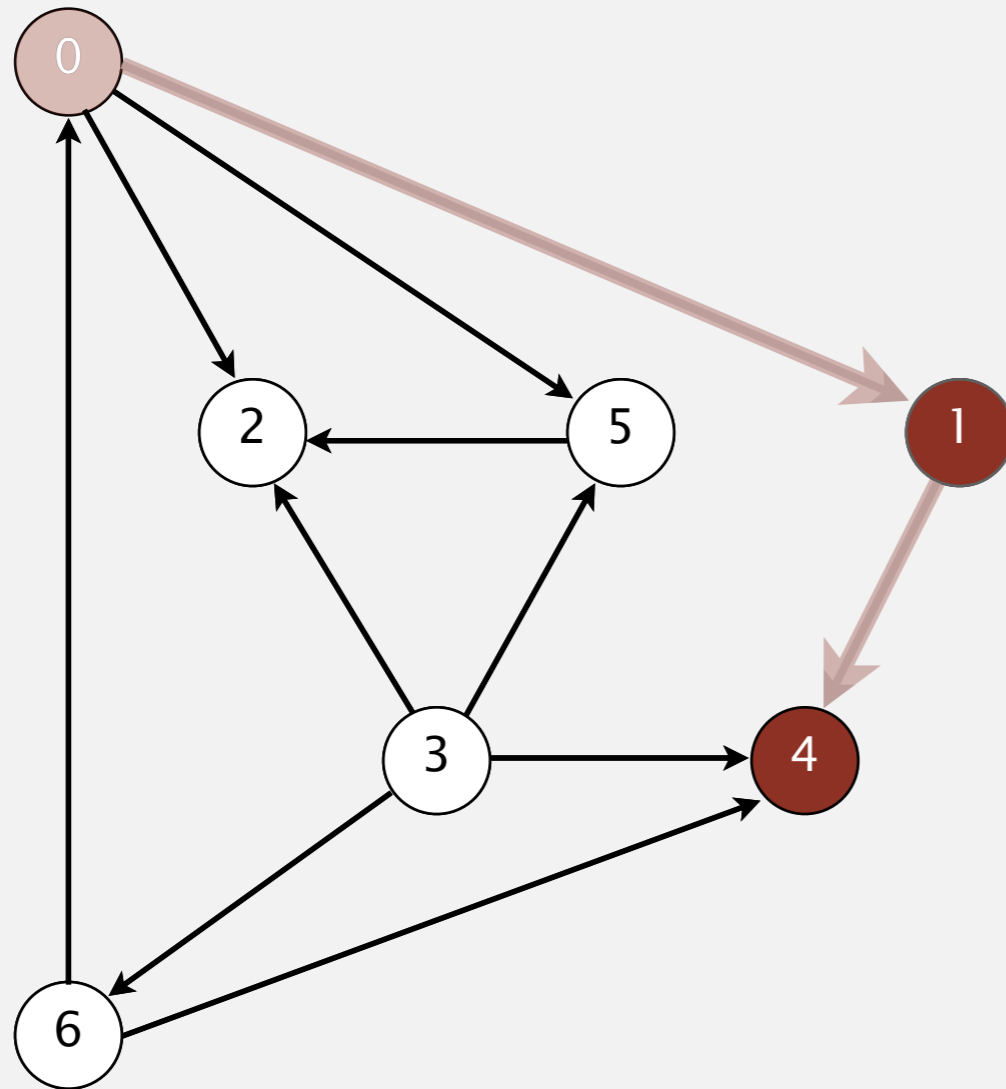- Return vertices in reverse postorder.

postorder

v	marked[]
0	T
1	T
2	F
3	F
4	T
5	F
6	F

visit 4

Topological sort demo

- Run depth-first search.
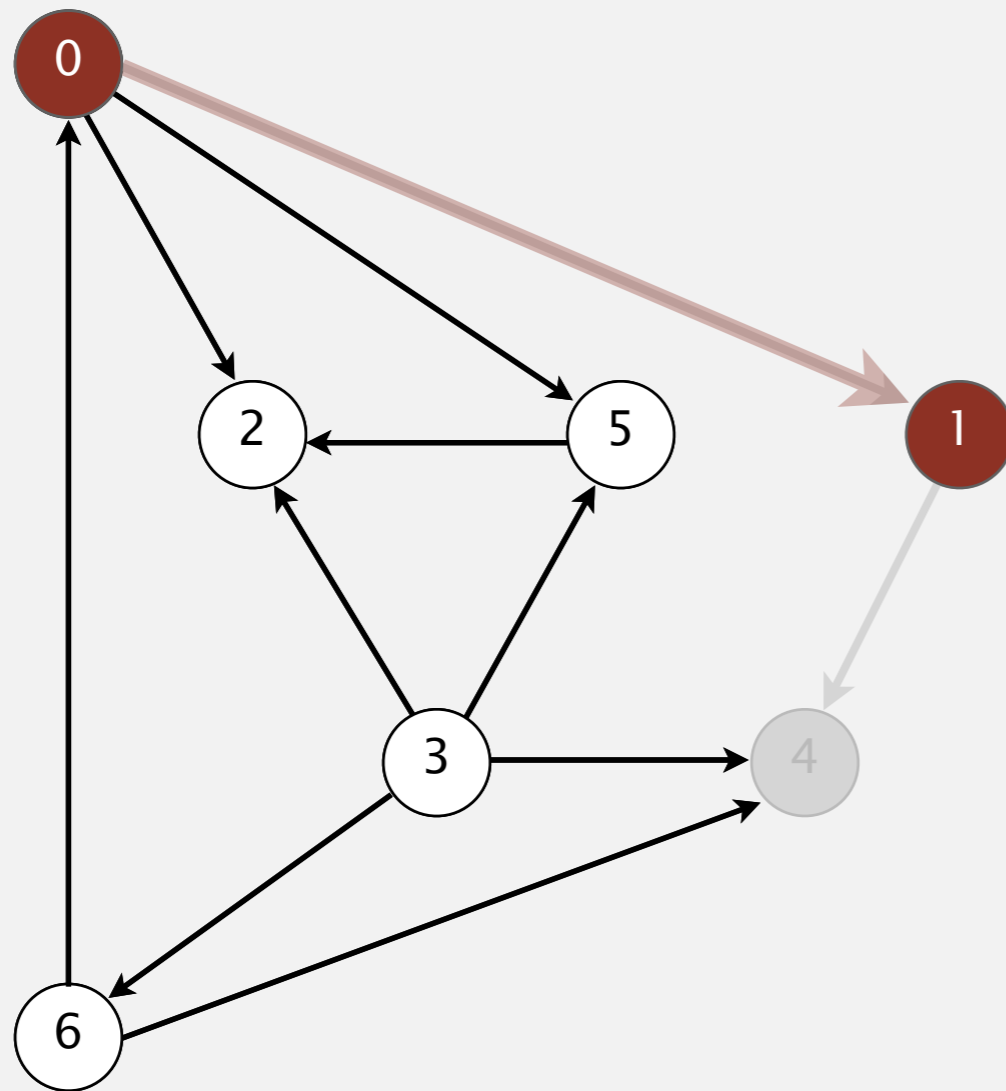- Return vertices in reverse postorder.

postorder

4

v	marked[]
0	T
1	T
2	F
3	F
4	T
5	F
6	F

4 done

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
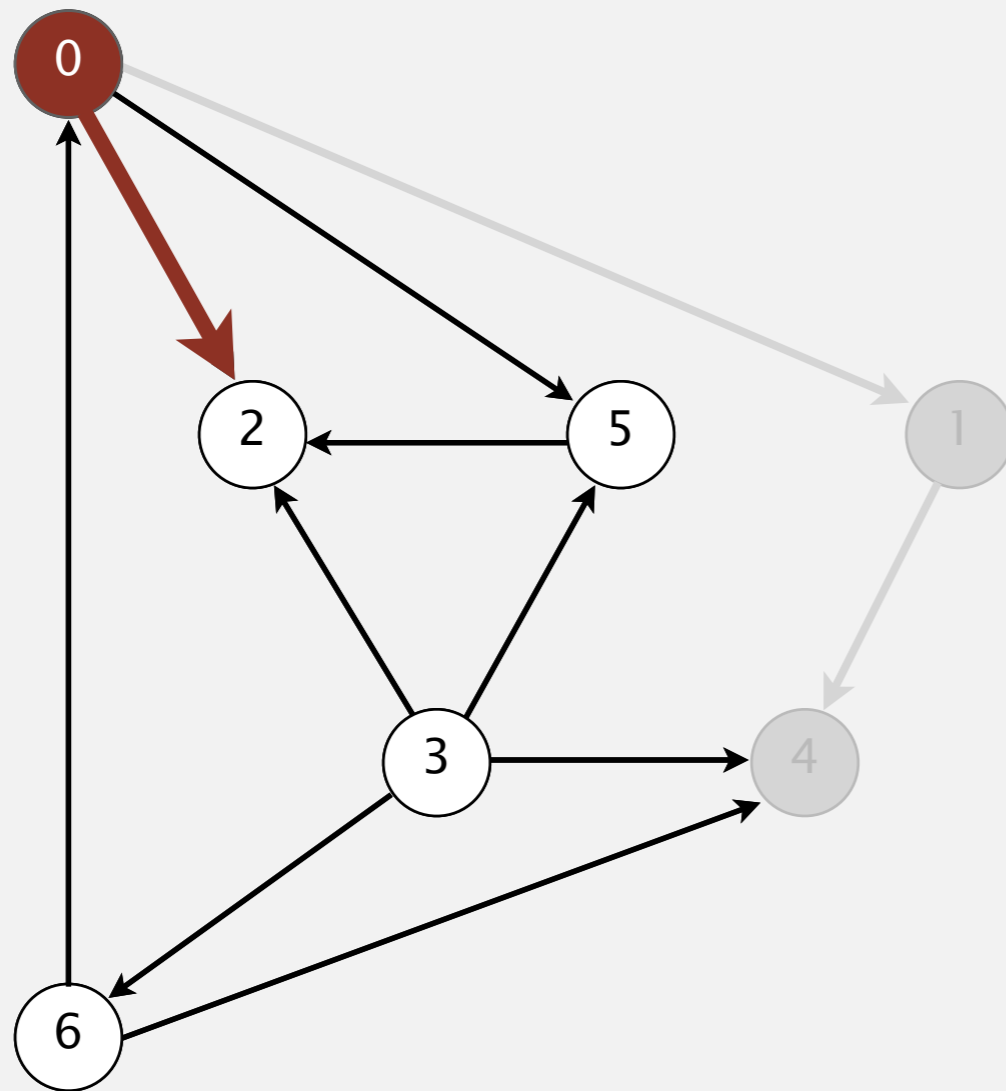

postorder

4   1

v	marked[]
0	T
1	T
2	F
3	F
4	T
5	F
6	F

1 done

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
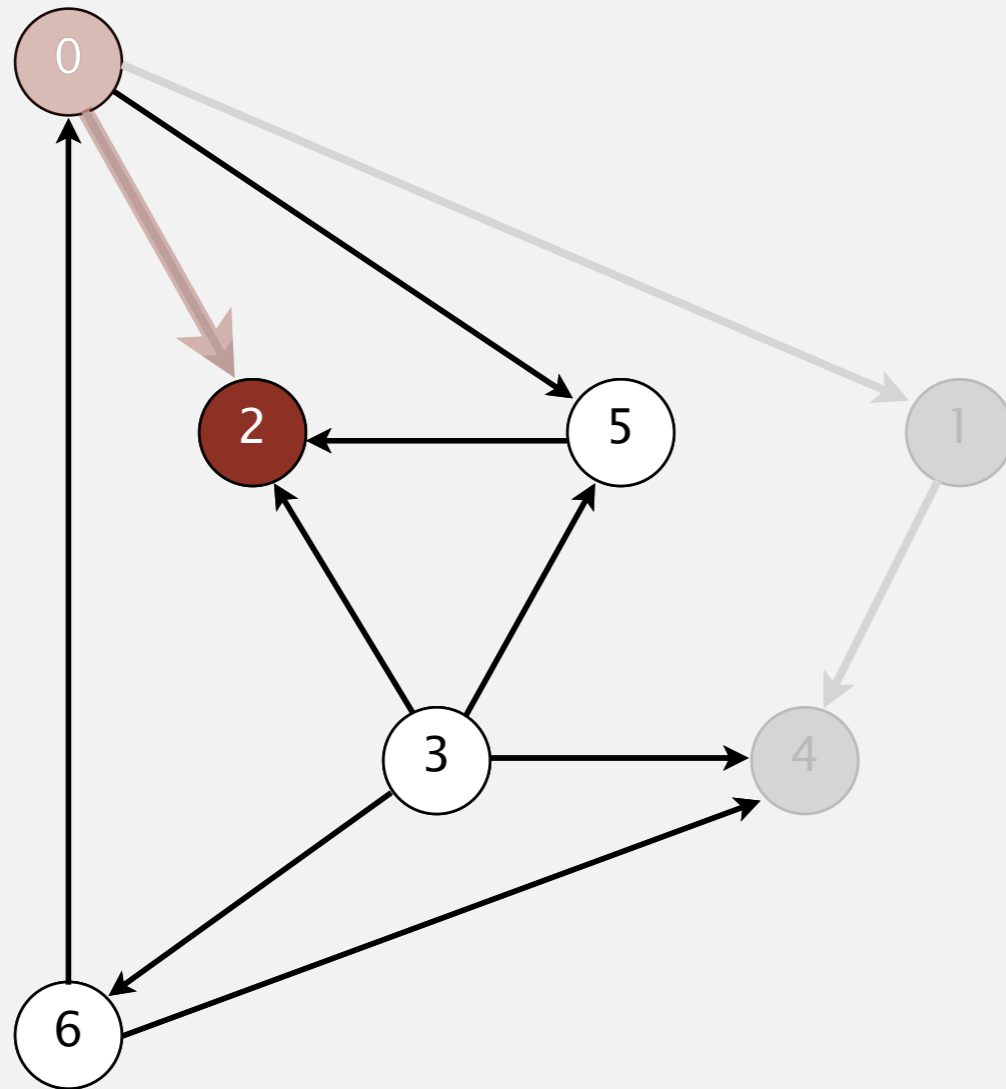

postorder

4 1

v	marked[]
0	T
1	T
2	F
3	F
4	T
5	F
6	F

visit 0: check 1, **check 2**, and check 5

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
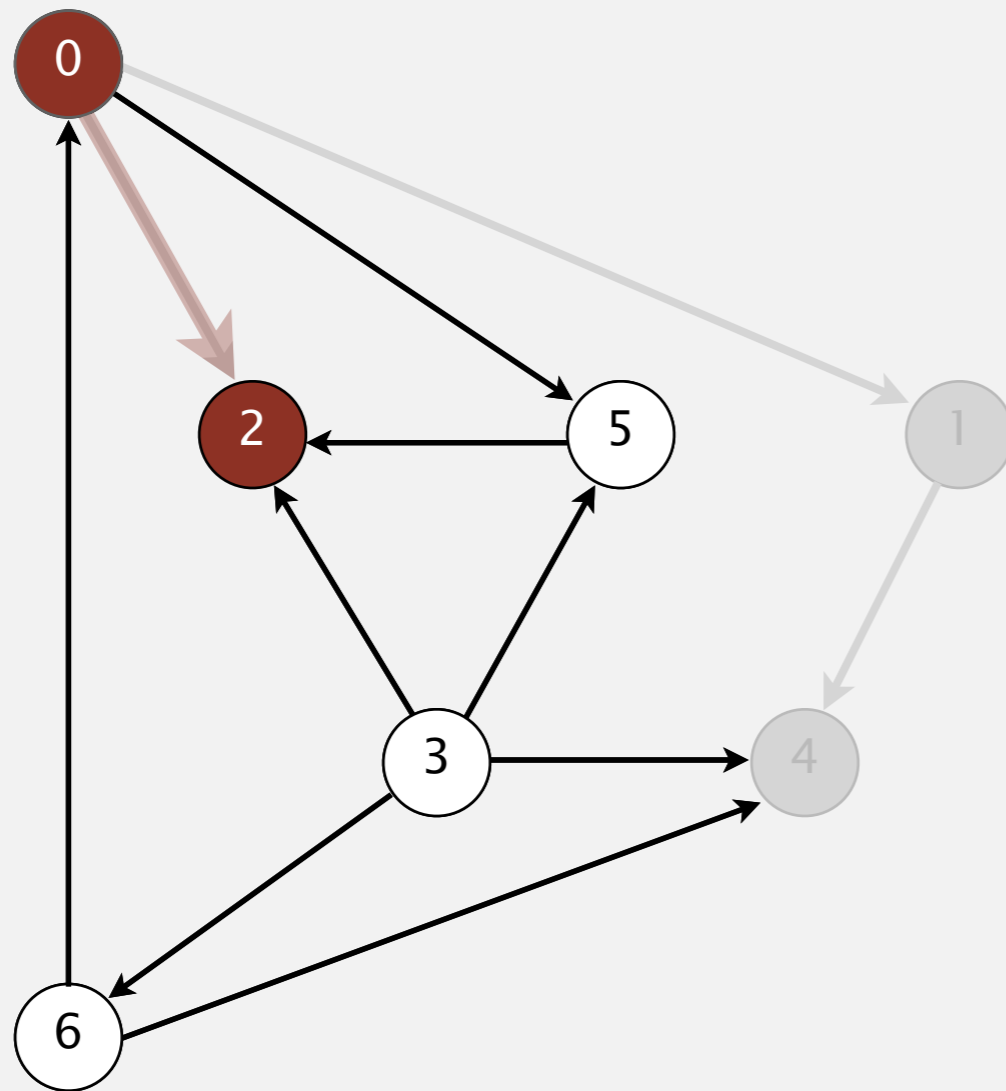
postorder

4   1

v	marked[]
0	T
1	T
2	T
3	F
4	T
5	F
6	F

visit 2

Topological sort demo

- Run depth-first search.
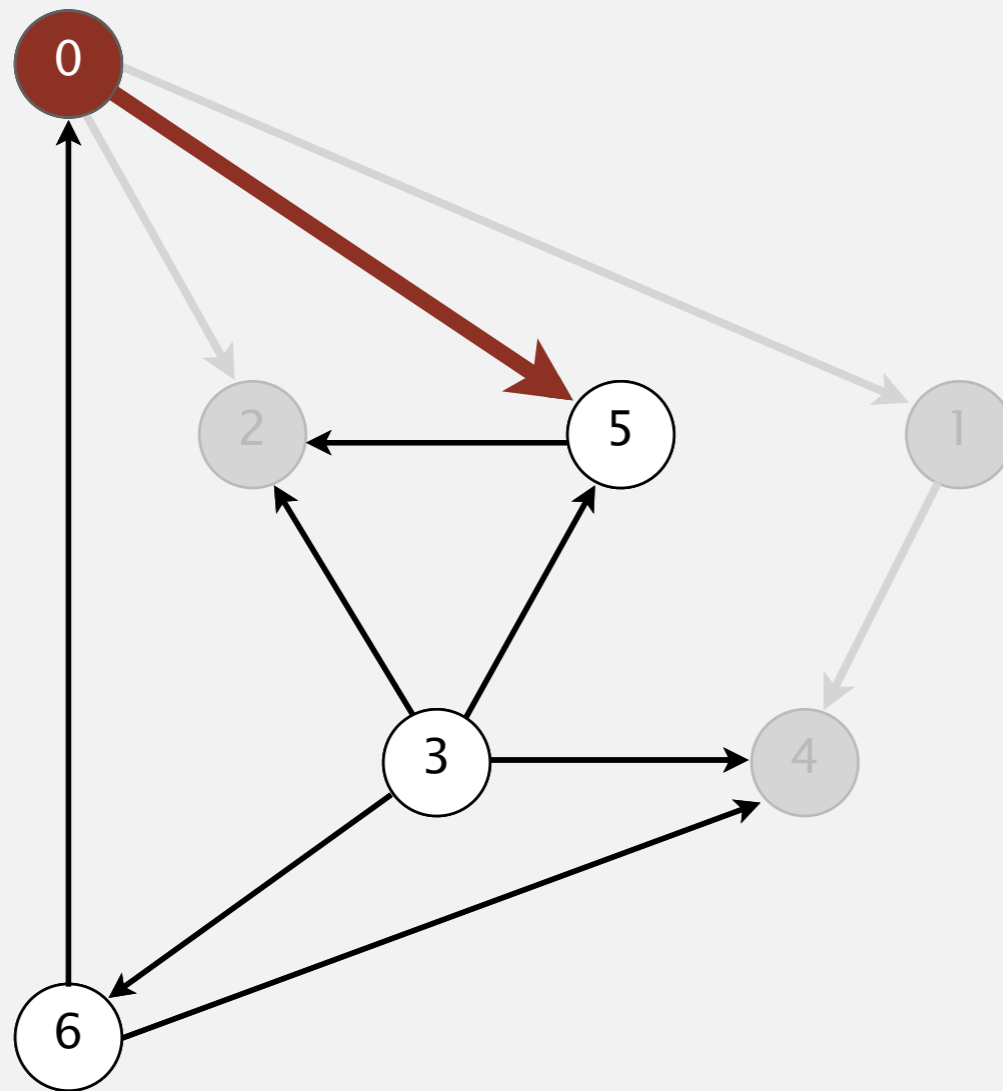- Return vertices in reverse postorder.

postorder

4   1   2

v	marked[]
0	T
1	T
2	T
3	F
4	T
5	F
6	F

2 done

- Run depth-first search.
- Return vertices in reverse postorder.

postorder
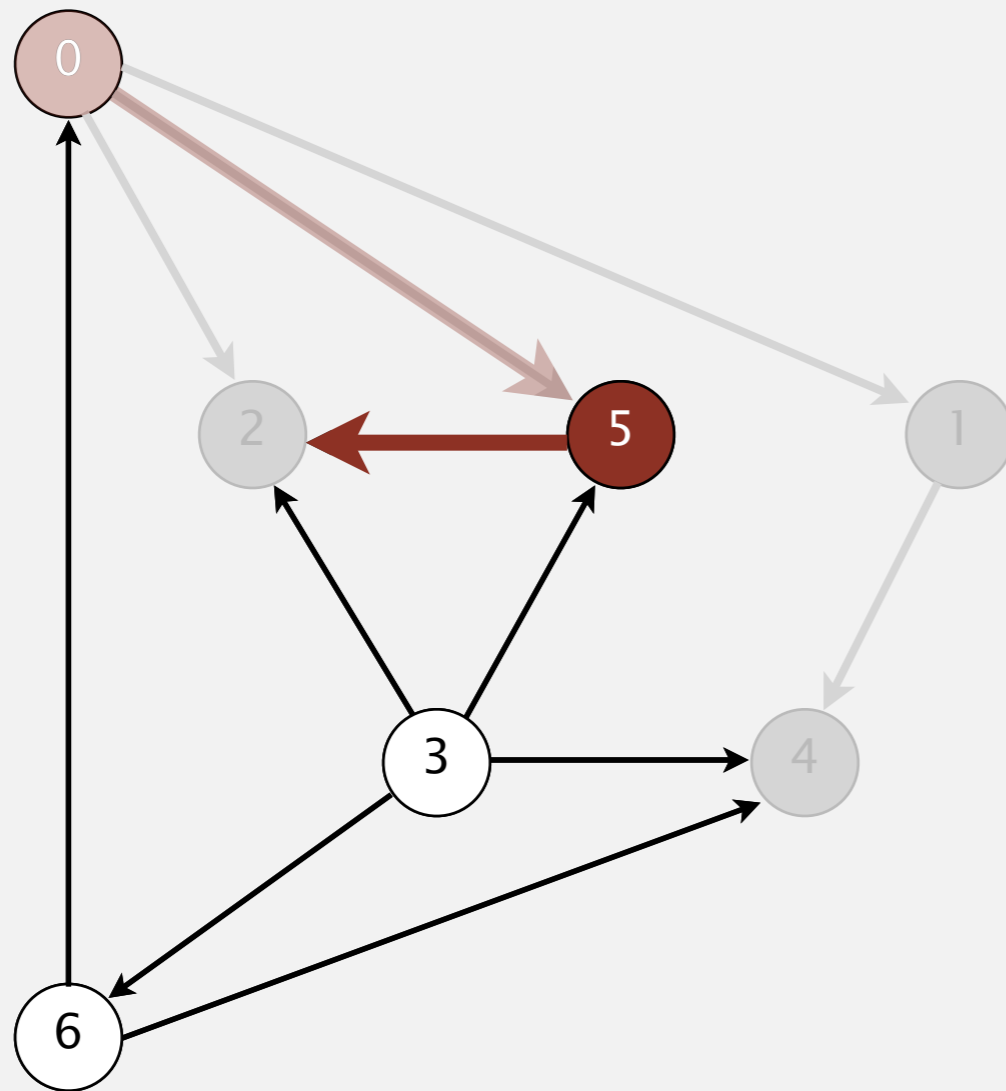
4   1   2

v	marked[]
0	T
1	T
2	T
3	F
4	T
5	F
6	F

visit 0: check 1, check 2, and **check 5**

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
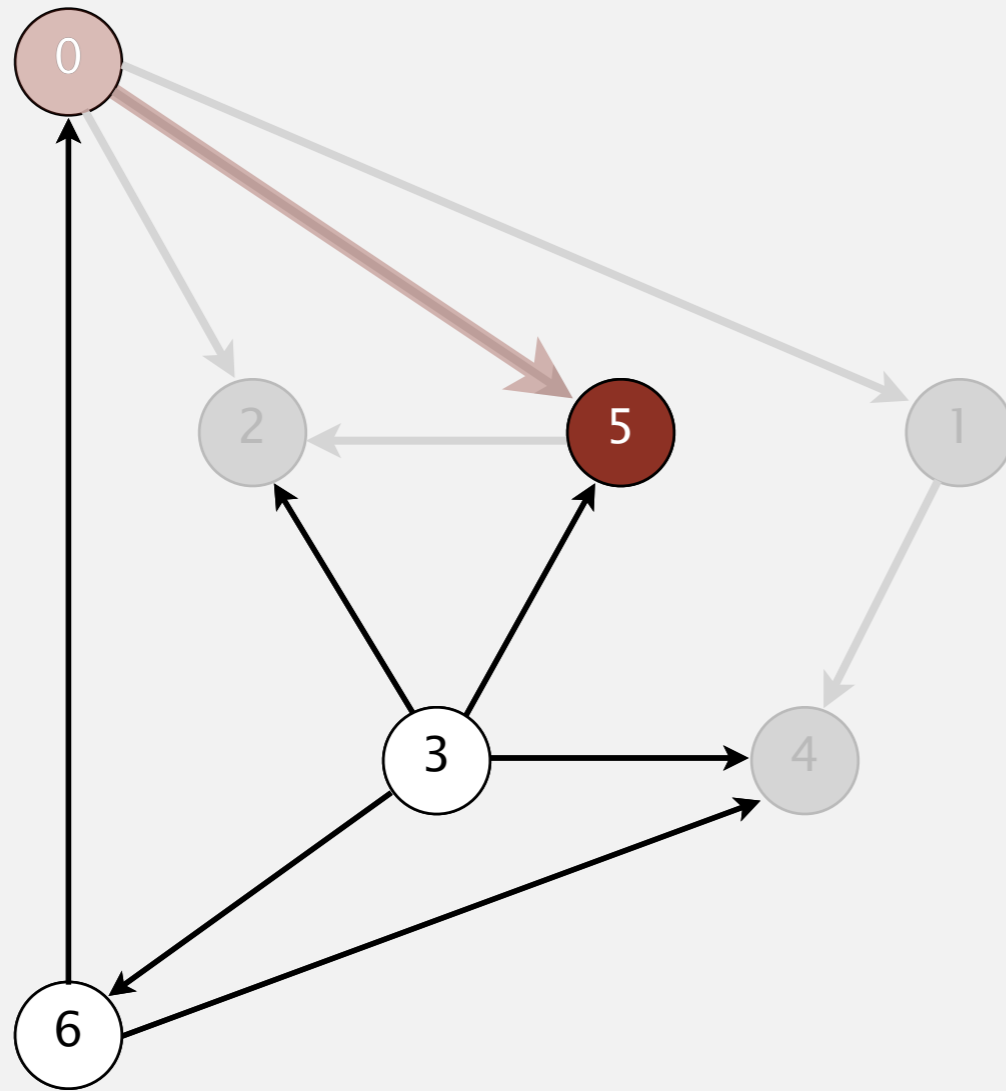
postorder

4 1 2

v	marked[]
0	T
1	T
2	T
3	F
4	T
5	T
6	F

visit 5: check 2

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
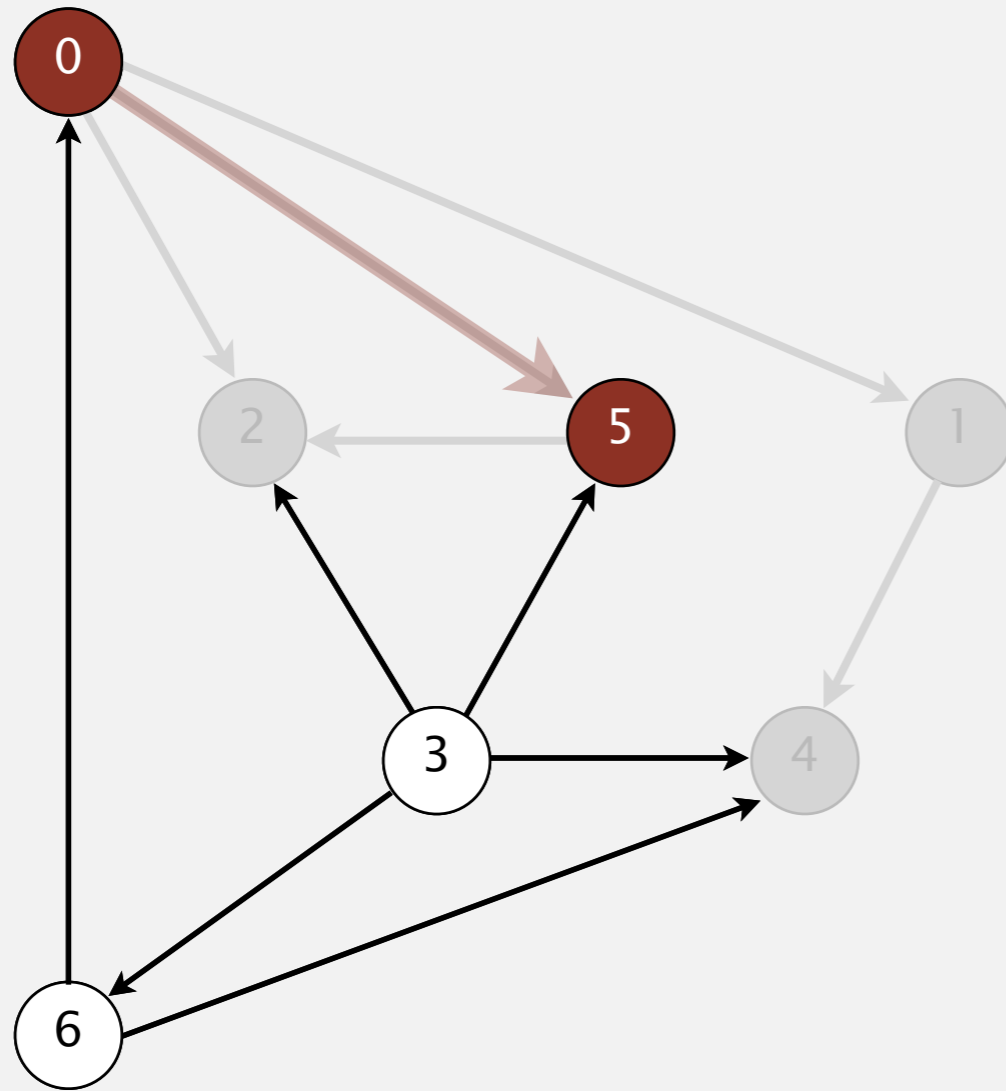

postorder

4   1   2

v	marked[]
0	T
1	T
2	T
3	F
4	T
5	T
6	F

visit 5

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
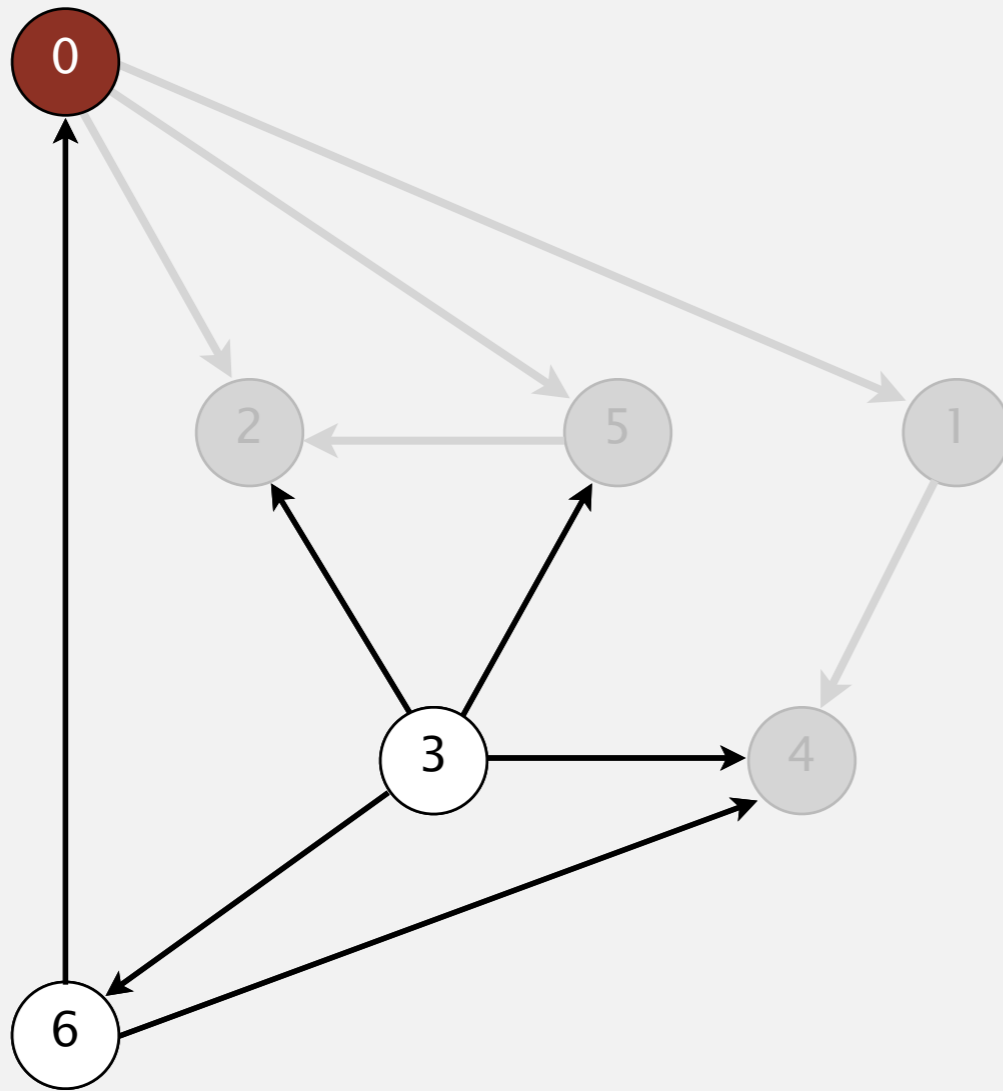

postorder

4   1   2   5

v	marked[]
0	T
1	T
2	T
3	F
4	T
5	T
6	F

5 done

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
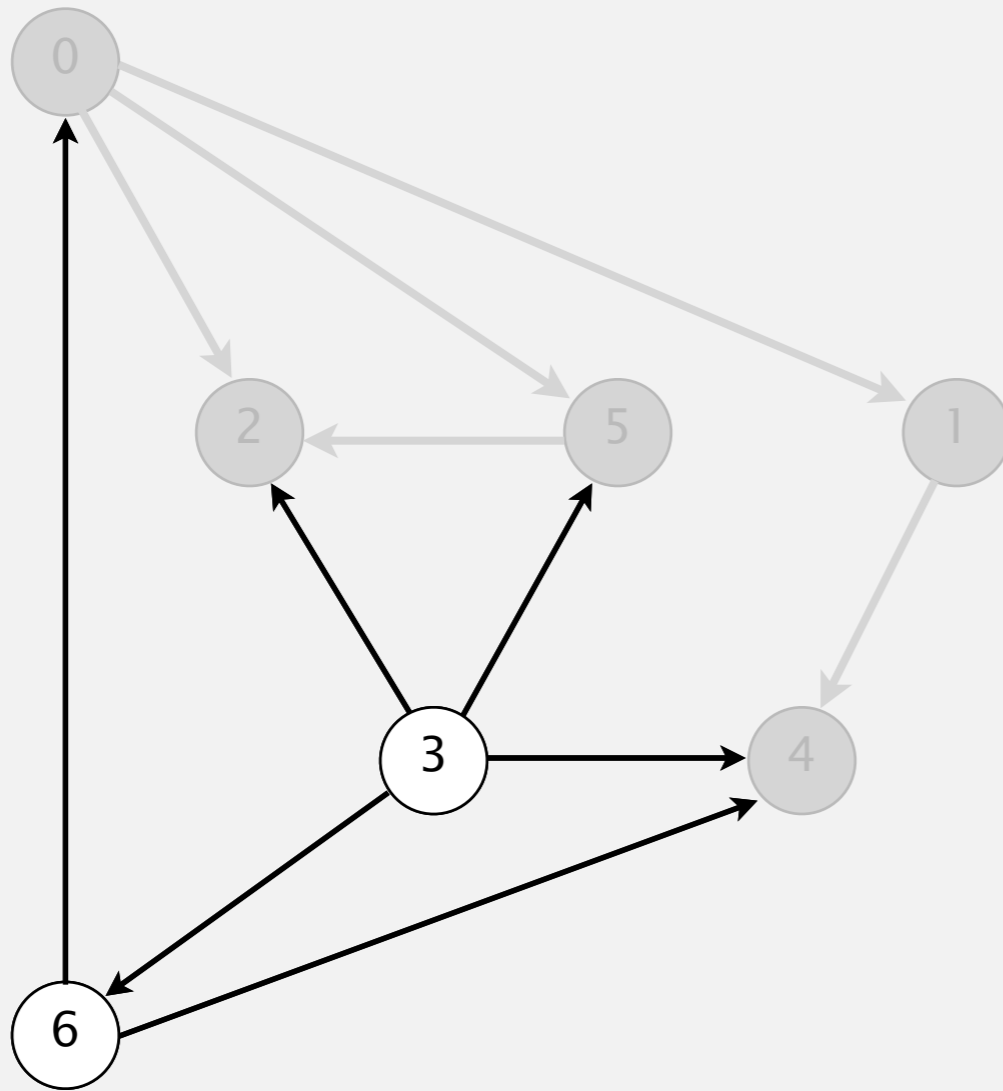

postorder

4 1 2 5 0

v	marked[]
0	T
1	T
2	T
3	F
4	T
5	T
6	F

0 done

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
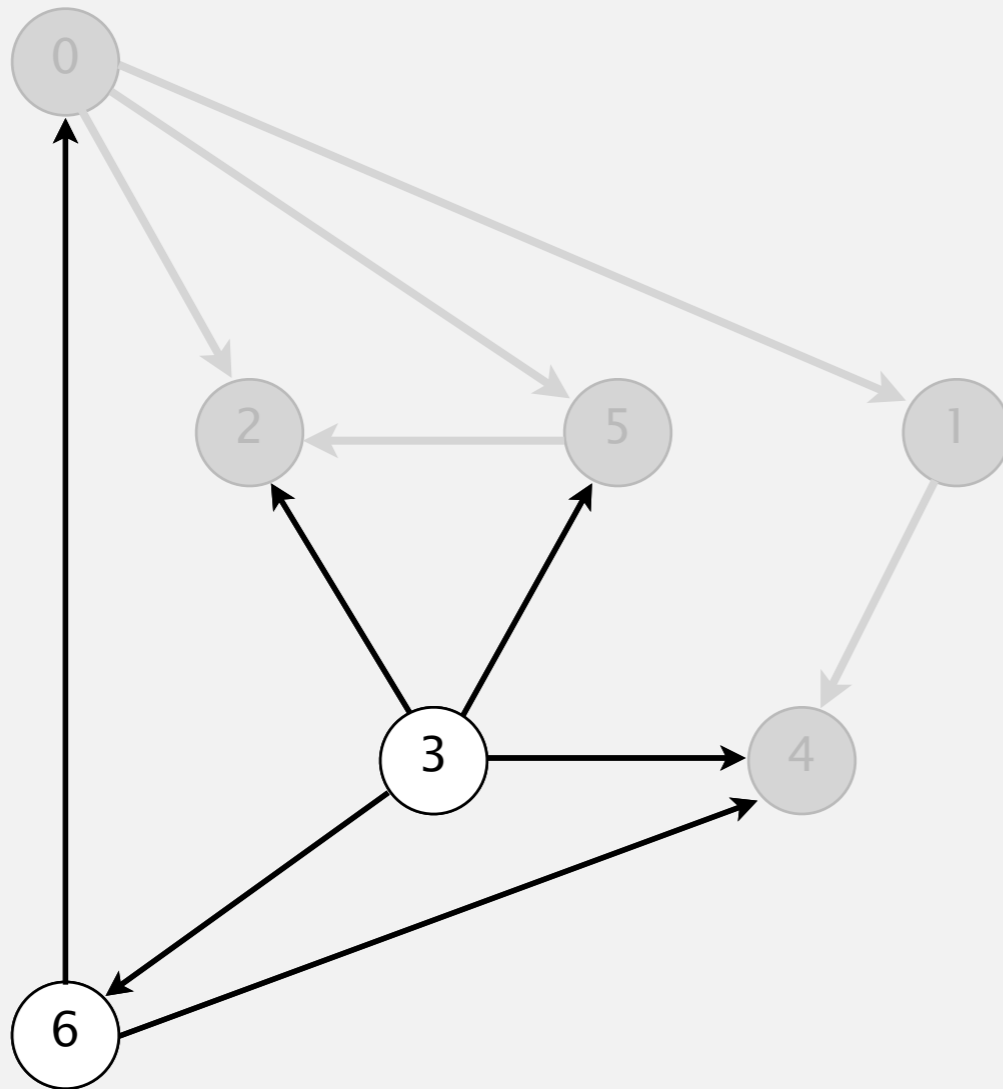

postorder

4   1   2   5   0

v	marked[]
0	T
1	T
2	T
3	F
4	T
5	T
6	F

check 1

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
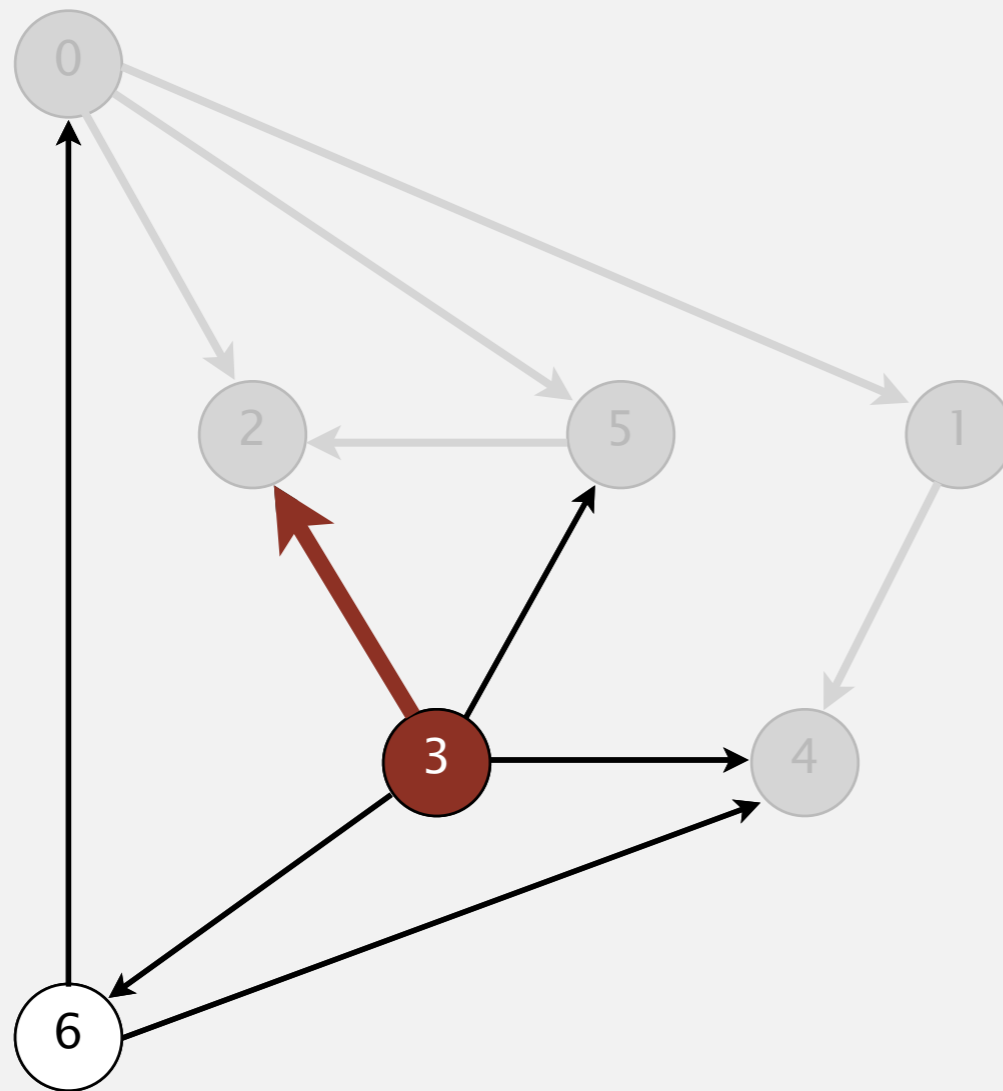

postorder

4   1   2   5   0

v	marked[]
0	T
1	T
2	T
3	F
4	T
5	T
6	F

check 2

Topological sort demo

- Run depth-first search.
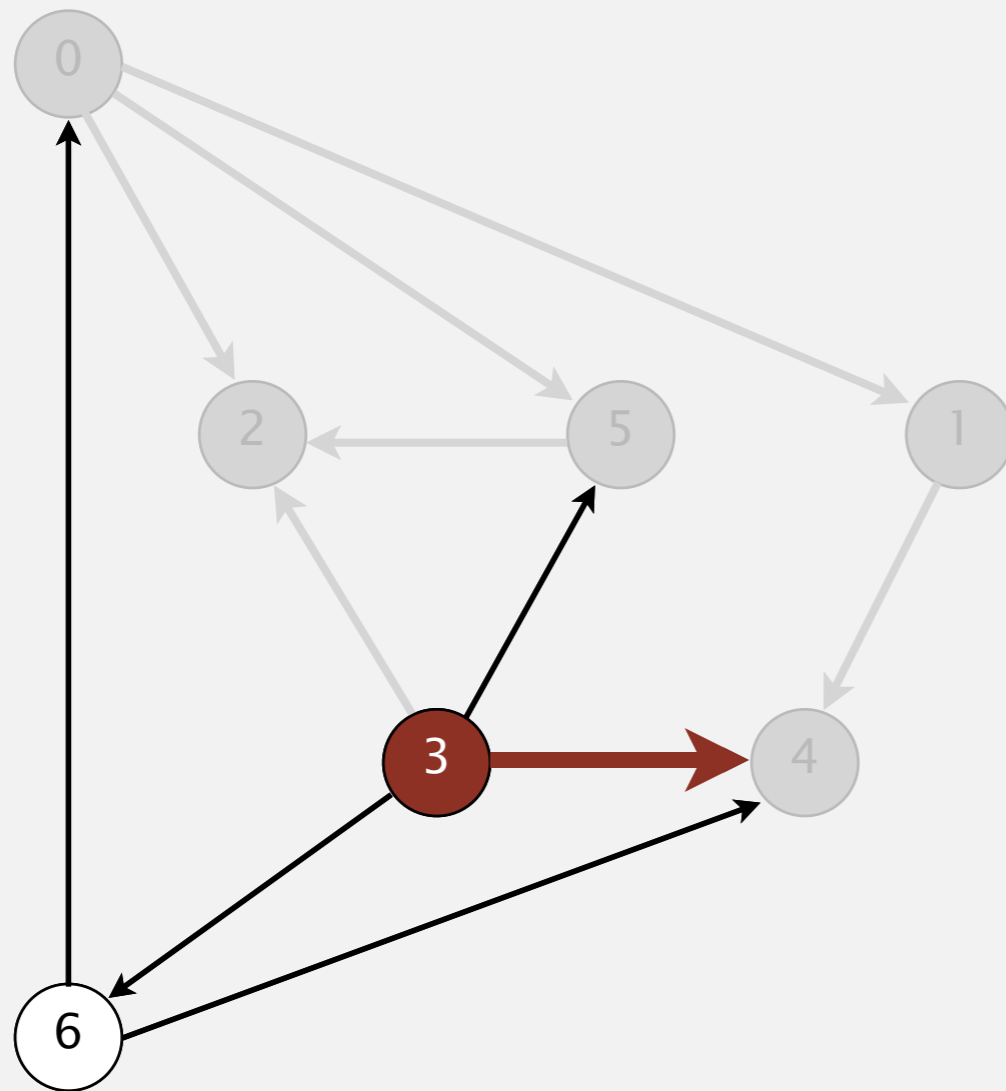- Return vertices in reverse postorder.

postorder

4 1 2 5 0

v	marked[]
0	T
1	T
2	T
3	T
4	T
5	T
6	F

visit 3: check 2, check 4, check 5, and check 6

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
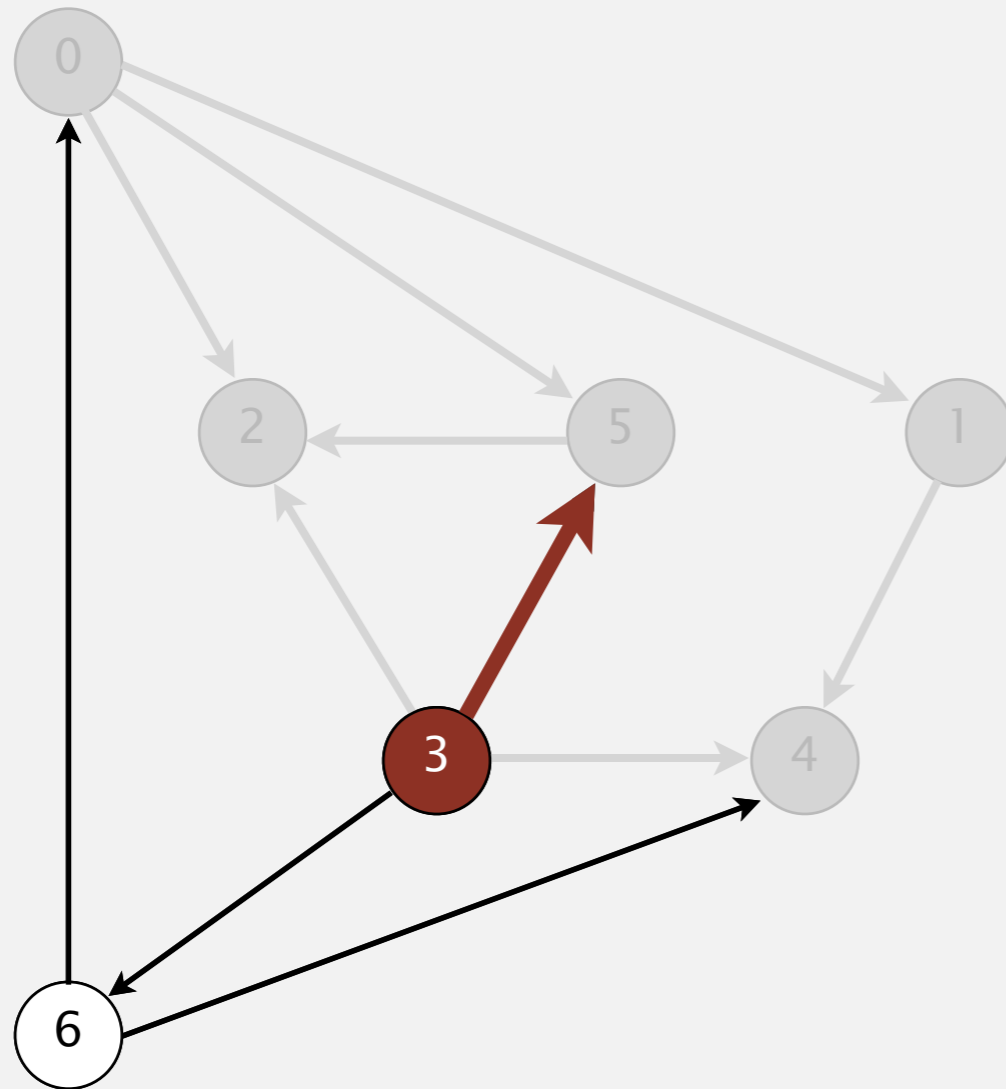
postorder

4 1 2 5 0

v	marked[]
0	T
1	T
2	T
3	T
4	T
5	T
6	F

visit 3: check 2, **check 4**, check 5, and check 6

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
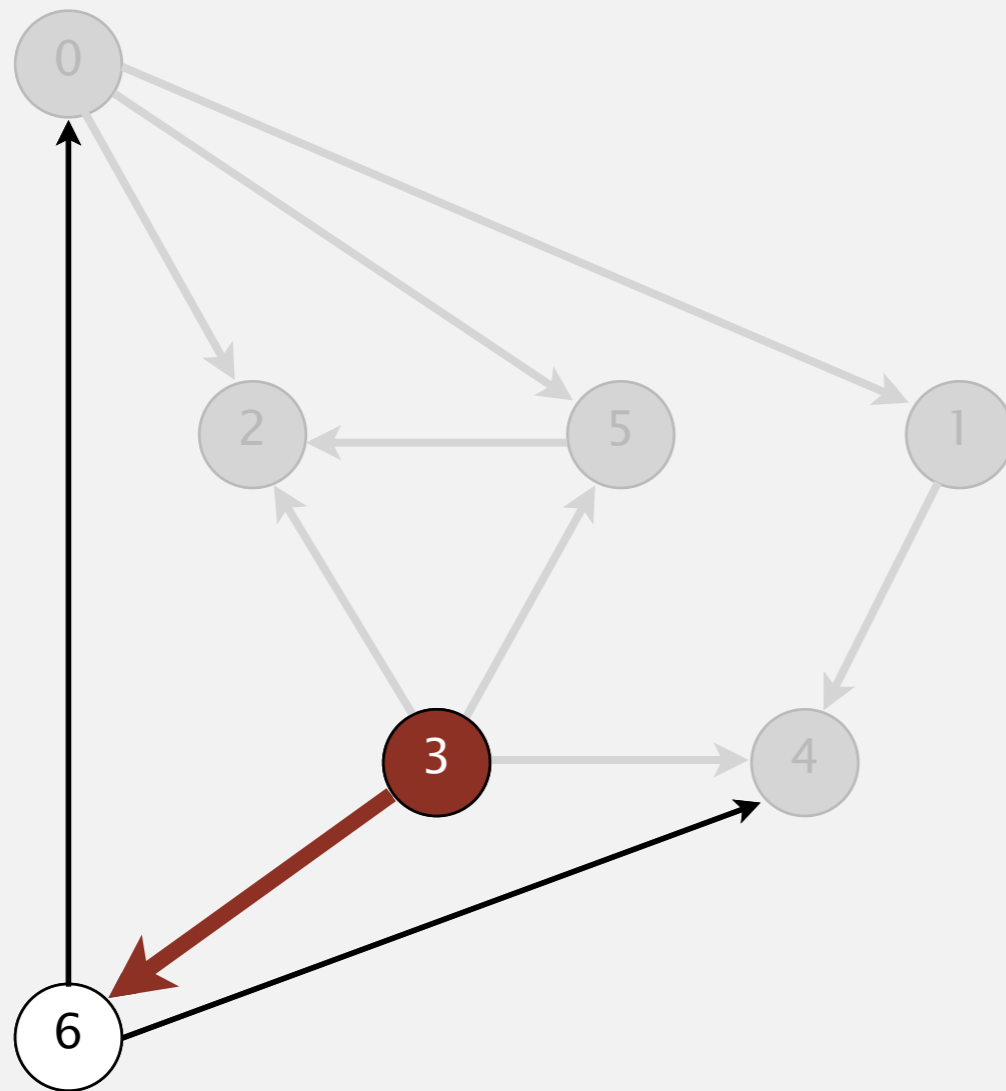
postorder

4 1 2 5 0

v	marked[]
0	T
1	T
2	T
3	T
4	T
5	T
6	F

visit 3: check 2, check 4, **check 5**, and check 6

- Run depth-first search.
- Return vertices in reverse postorder.
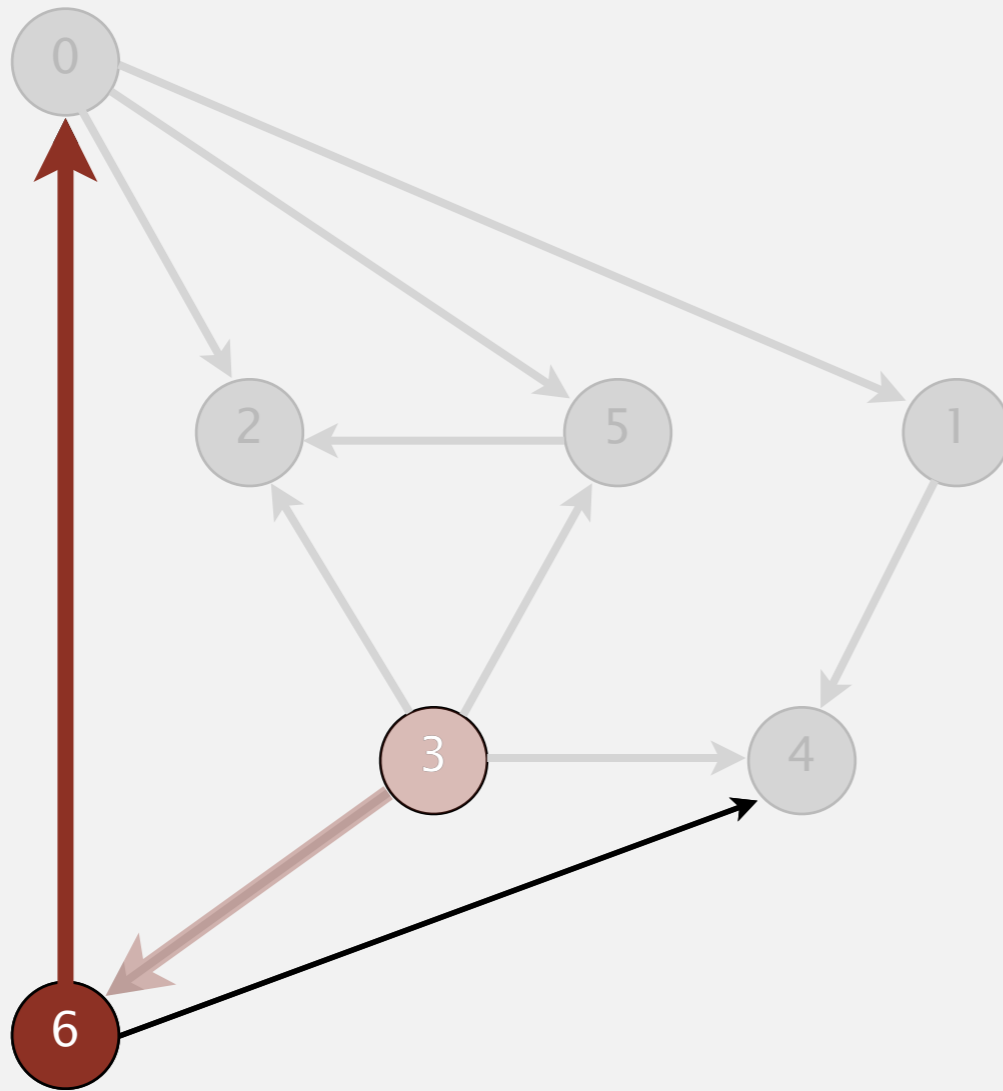

postorder

4 1 2 5 0

v	marked[]
0	T
1	T
2	T
3	T
4	T
5	T
6	F

visit 3: check 2, check 4, check 5, and **check 6**

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Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.

postorder
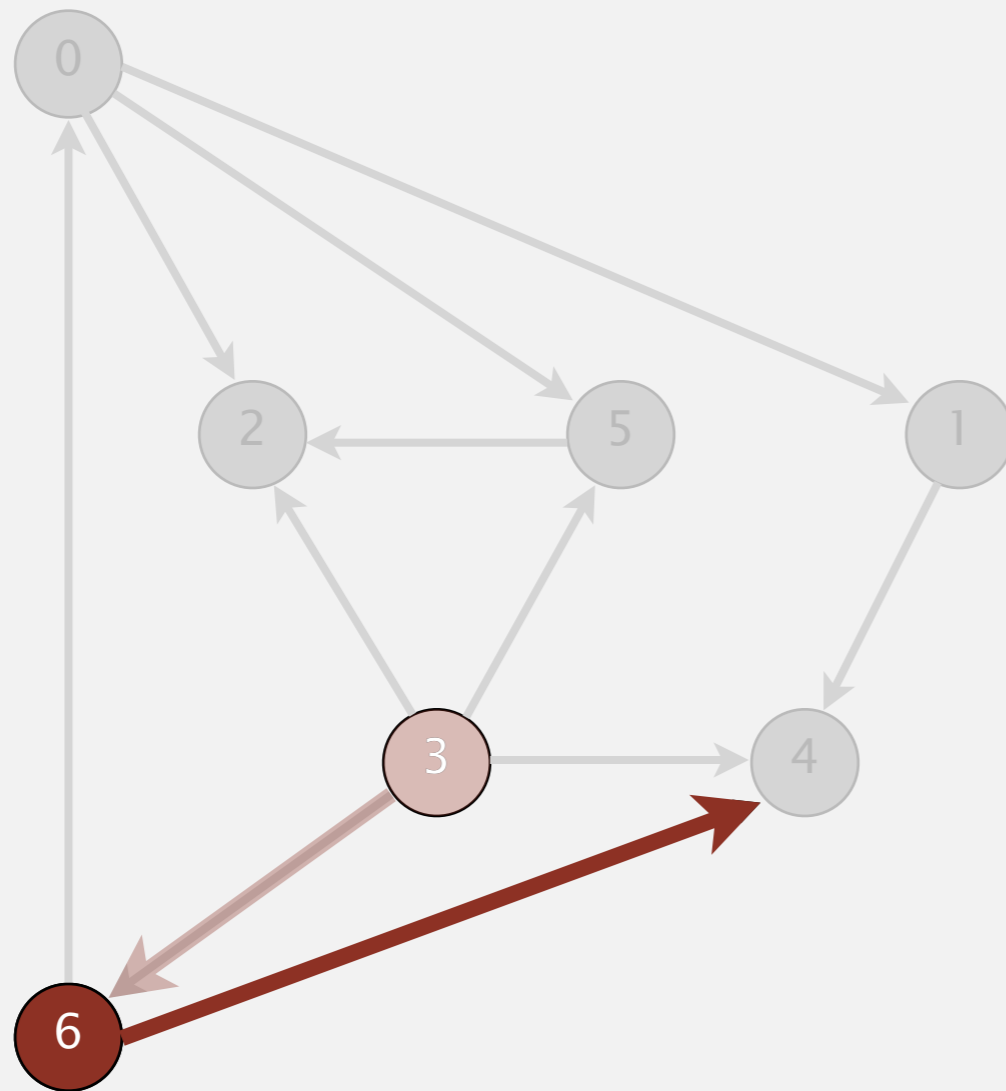
4 1 2 5 0

v	marked[]
0	T
1	T
2	T
3	T
4	T
5	T
6	T

visit 6: check 0 and check 4

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
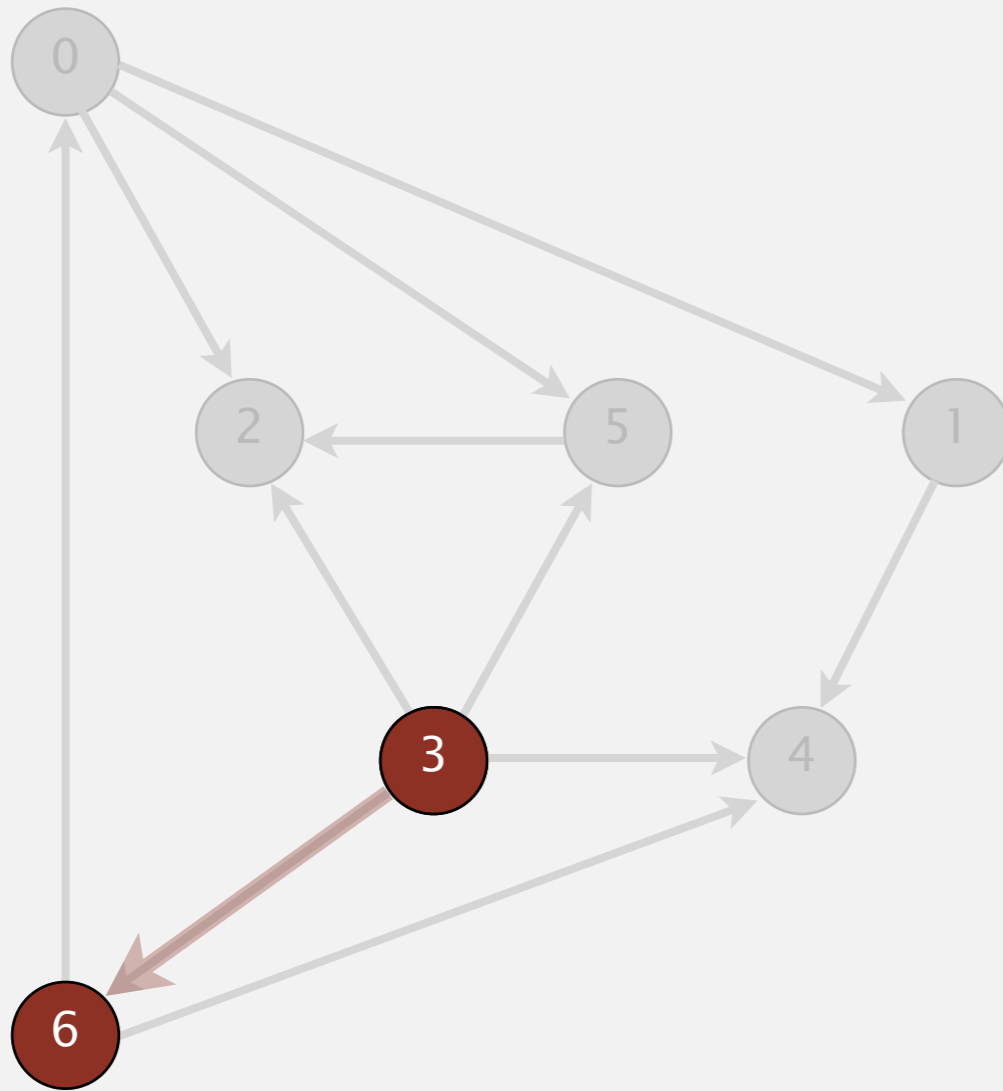
postorder

4 1 2 5 0

v	marked[]
0	T
1	T
2	T
3	T
4	T
5	T
6	T

visit 6: check 0 and **check 4**

Topological sort demo

- Run depth-first search.
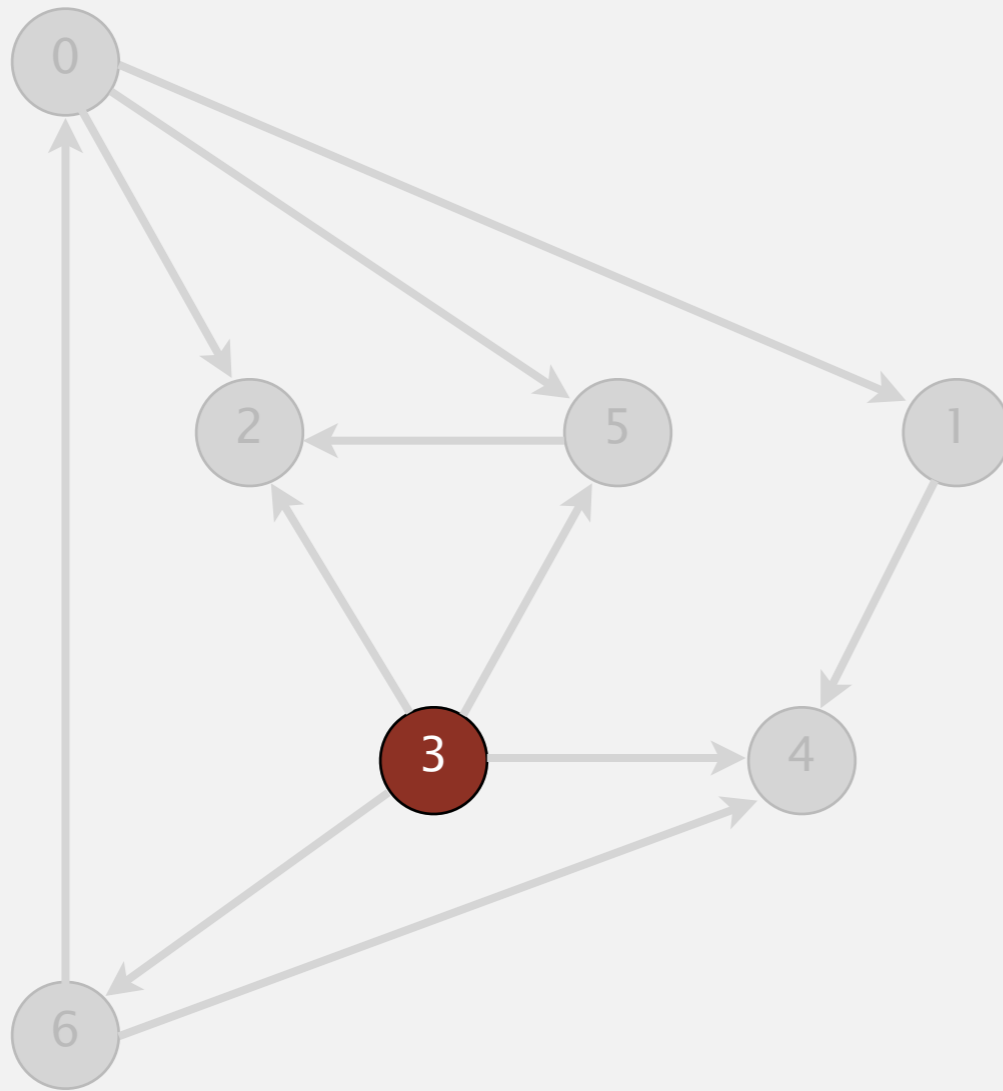- Return vertices in reverse postorder.

postorder

4 1 2 5 0 6

v	marked[]
0	T
1	T
2	T
3	T
4	T
5	T
6	T

6 done

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.
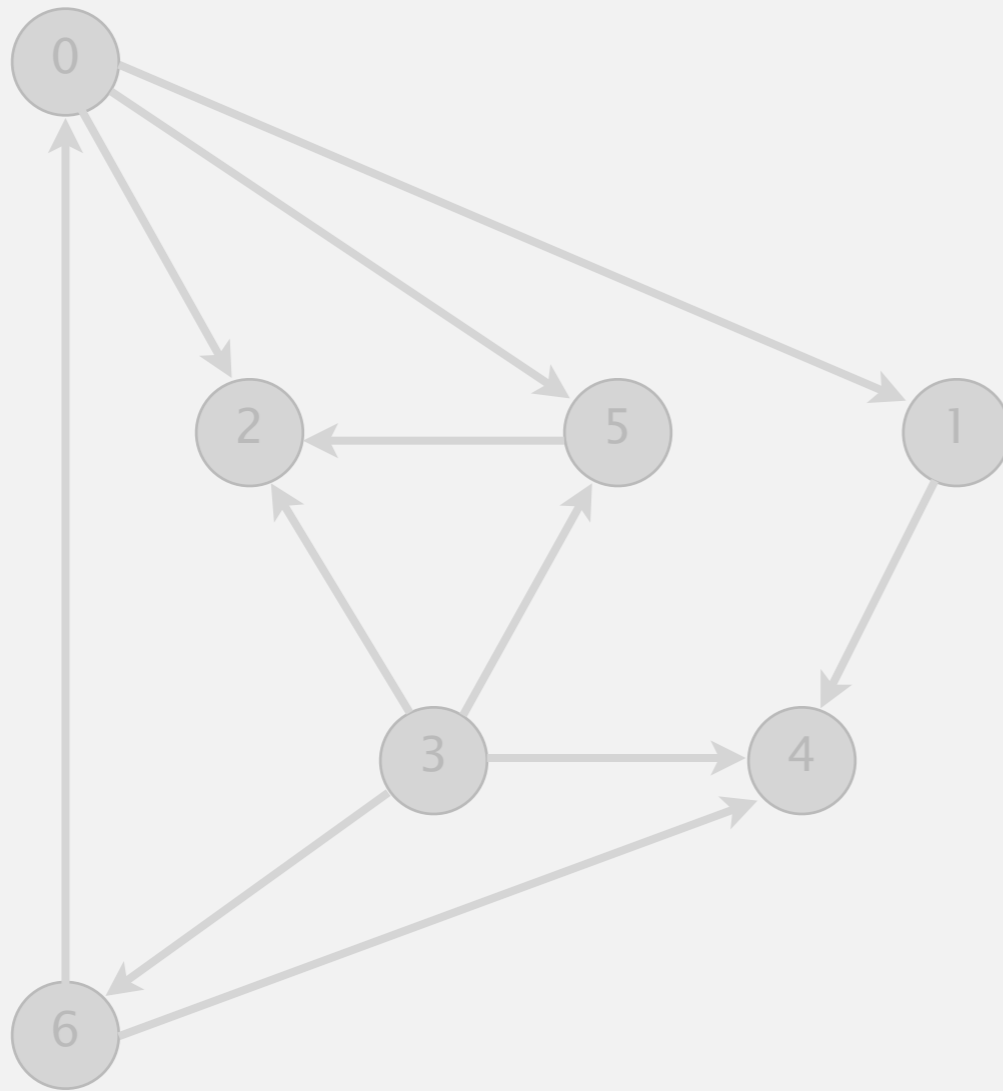
postorder

4 1 2 5 0 6 3

v	marked[]
0	T
1	T
2	T
3	T
4	T
5	T
6	T

3 done

Topological sort demo

- Run depth-first search.
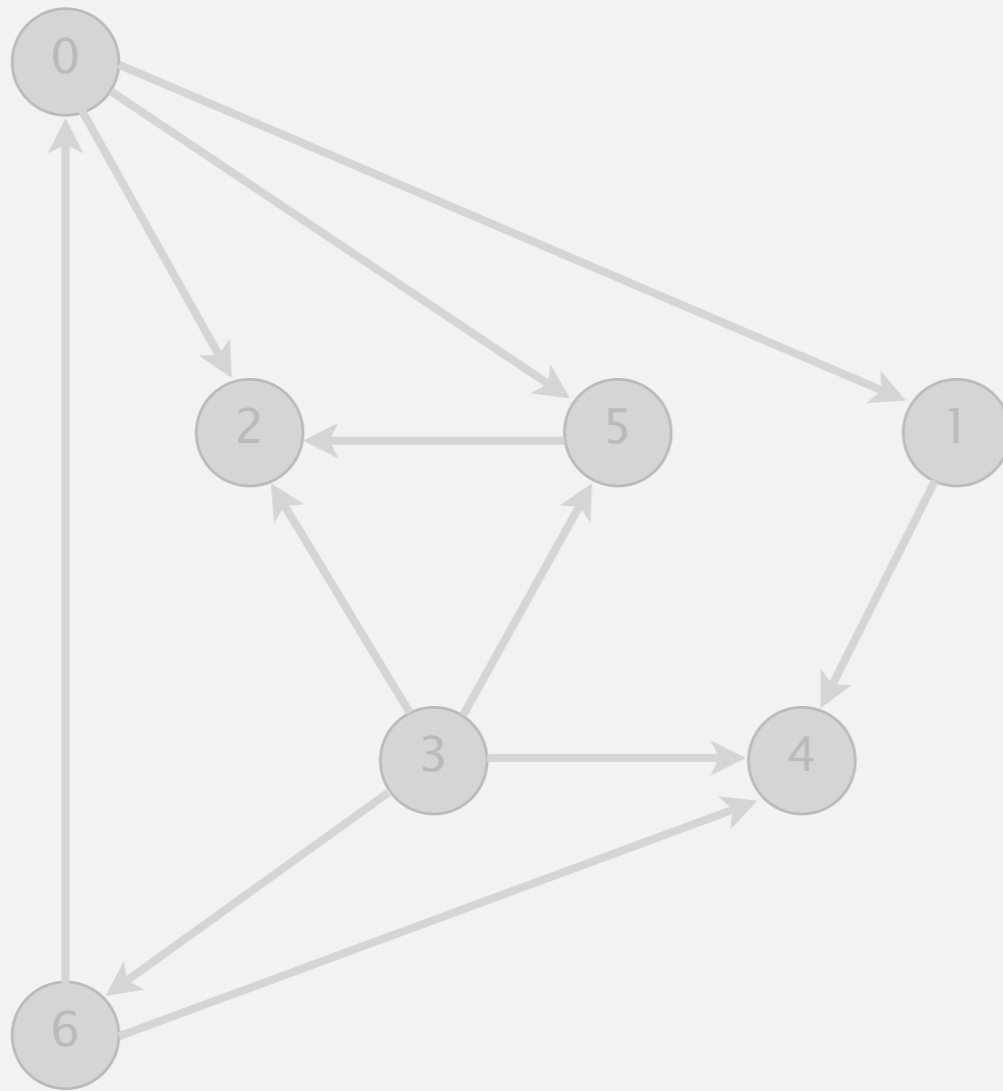- Return vertices in reverse postorder.

postorder

4   1   2   5   0   6   3

v	marked[]
0	T
1	T
2	T
3	T
4	T
5	T
6	T

check 4

Topological sort demo

- Run depth-first search.
- Return vertices in reverse postorder.

postorder

4 1 2 5 0 6 3

v	marked[]
0	T
1	T
2	T
3	T
4	T
5	T
6	T

check 5

Topological sort demo

- Run depth-first search.
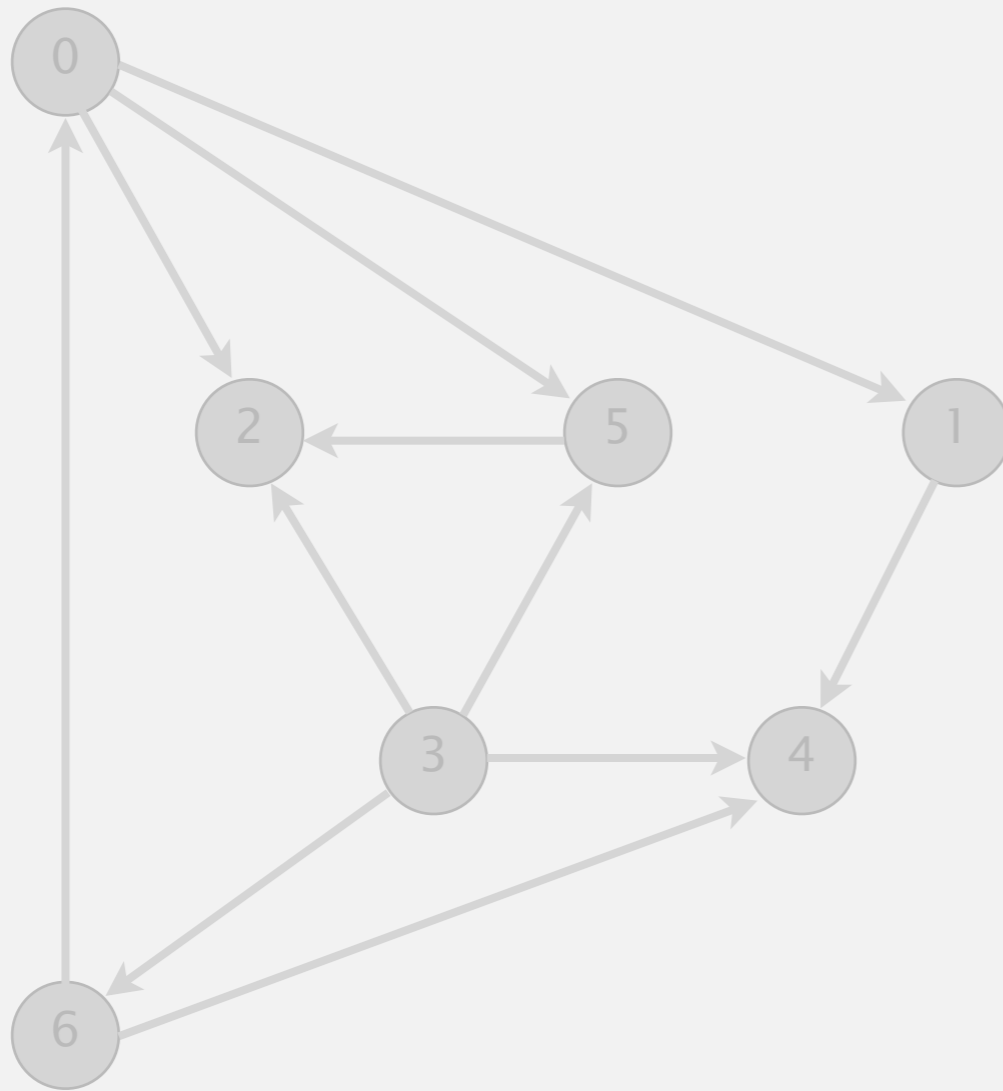- Return vertices in reverse postorder.

postorder

4 1 2 5 0 6 3

v	marked[]
0	T
1	T
2	T
3	T
4	T
5	T
6	T

check 6

Topological sort demo

- Run depth-first search.
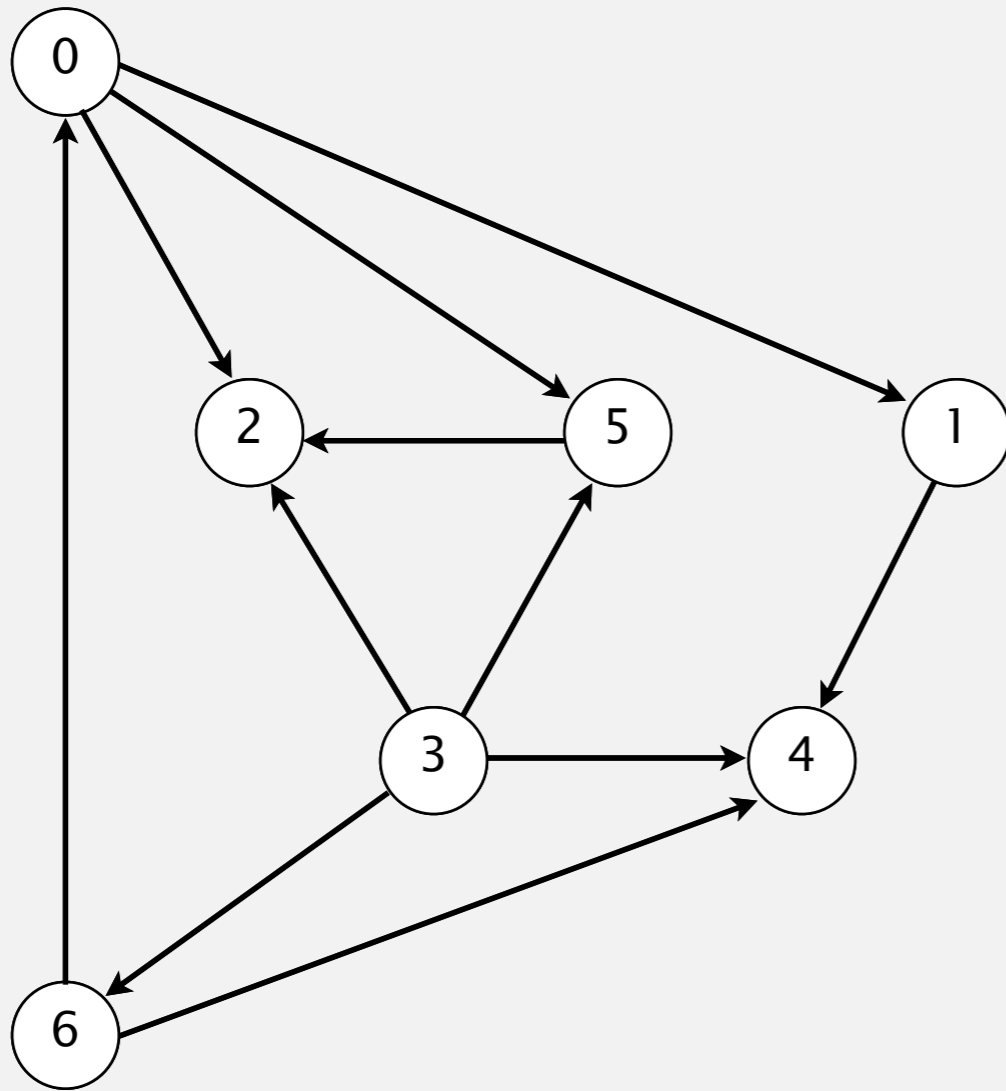- Return vertices in reverse postorder.

postorder

4 1 2 5 0 6 3

topological order

3 6 0 5 2 1 4

done