4.2 Topological Sort demo

click to begin demo
Topological sort algorithm

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

![Directed acyclic graph](image)

```
0 \rightarrow 5
0 \rightarrow 2
0 \rightarrow 1
3 \rightarrow 6
3 \rightarrow 5
3 \rightarrow 4
5 \rightarrow 4
6 \rightarrow 4
6 \rightarrow 0
3 \rightarrow 2
1 \rightarrow 4
```
Topological sort algorithm

- Run depth-first search.
- Return vertices in reverse postorder.
Topological sort algorithm

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![Diagram of a directed graph with nodes labeled 0 to 6 and arrows indicating edges. The graph shows a topological order where nodes are visited in reverse postorder.]
Topological sort algorithm

- Run depth-first search.
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Topological sort algorithm

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```
visit 1
```

```
postorder
4
```
Topological sort algorithm

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1 done
Topological sort algorithm

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![Graph Diagram]

Visit 0

Postorder: 4 1
Topological sort algorithm

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

Visit 2

postorder
4 1
Topological sort algorithm

- Run depth-first search.
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Diagram of a directed graph with vertices labeled 0 to 6 and edges indicating the direction of the graph. The postorder traversal is shown as 4 1 2. The text indicates that 2 done.
Topological sort algorithm

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Visit 0

postorder
4 1 2
**Topological sort algorithm**

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![Diagram of a directed graph with labeled vertices and edges indicating the postorder traversal. Vertex 5 is emphasized at the stage of being visited.](image)

**postorder:** 4 1 2

**visit 5**
Topological sort algorithm

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

![Graph](image)

Visit 5

Postorder: 4 1 2
Topological sort algorithm

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

```
0
\downarrow
2
\downarrow
3
5
\downarrow
1
\downarrow
4
\downarrow
6

postorder: 4 1 2 5
```

5 done
Topological sort algorithm

• Run depth-first search.
• Return vertices in reverse postorder.
Topological sort algorithm

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```
0

0 done
```
Topological sort algorithm

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check 1

postorder
4 1 2 5 0
Topological sort algorithm

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

postorder
4 1 2 5 0

check 2
Topological sort algorithm

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

Visit 3

postorder
4 1 2 5 0
Topological sort algorithm

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

Visit 3

postorder
4 1 2 5 0
Topological sort algorithm

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

postorder: 4 1 2 5 0

visit 3
Topological sort algorithm

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

postorder

4 1 2 5 0

visit 3
Topological sort algorithm

- Run depth-first search.
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Topological sort algorithm

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

Visit 6

Postorder: 4 1 2 5 0
Topological sort algorithm

- Run depth-first search.
- Return vertices in reverse postorder.
Topological sort algorithm

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

postorder
4 1 2 5 0 6

visit 3
Topological sort algorithm

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

postorder
4 1 2 5 0 6 3

3 done
Topological sort algorithm

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

Postorder: 4 1 2 5 0 6 3
Topological sort algorithm

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

postorder
4 1 2 5 0 6 3

check 5
Topological sort algorithm

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

postorder
4 1 2 5 0 6 3

check 6
Topological sort algorithm

- 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