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CS 146

Implement Topological Sort using Kahn's algorithm, BFS and DFS

Topological Sort: Kahn's algorithm

Approach:

1. Store the number of in-degrees in an array
2. Create a queue and add node to queue once the number of in degrees hits zero
3. While the queue is not empty Add the first node in queue to result
4. For the node being added to the queue, if the nodes it's pointing to is the last in degree then also add it to the queue

Topological Sort: BFS

Approach: very similar to Kahn's algorithm

1. Store the number of in-degrees in an array
2. Create a queue and add node to queue once the number of in degrees hits zero
3. While the queue is not empty Add the first node in queue to result
4. For the node being added to the queue, if the nodes it's pointing to is the last in degree then also add it to the queue

Topological Sort: DFS

Approach:

1. Create a stack
2. If the node has not been visited then call on the helper function
3. The helper function marks the current node as visited, and pushes it to the stack
4. The helper function recursively calls itself until it has traversed through the entire graph