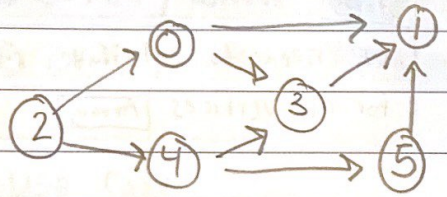
Kahn's Algorithm

Directed Acyclic graphs

1) are directed
2) don't make cycles.

Kahn's Algo

- is to repeatedly remove nodes without any dependencies from the graph and add them to the topological ordering
- As nodes without dependencies (and their outgoing edges) are removed from the graph, new nodes without dependencies should become free
- We repeat removing nodes without dependencies from the graph until all nodes are processed.



Notes

1) Start by looking at Node 2 Since its the only one without dependencies
2) Then we would remove from graph
3) Then we can choose either Node 0 or 4 Since neither have dependencies

Topological ordering: 2 0 4 3 5 1

4) Add Node 0 to the topological ordering and remove it from the graph

5) Now do Node 4 since it has NO dependecies.

6) Add Node 4 to the Topolgical ordering and remove from graph

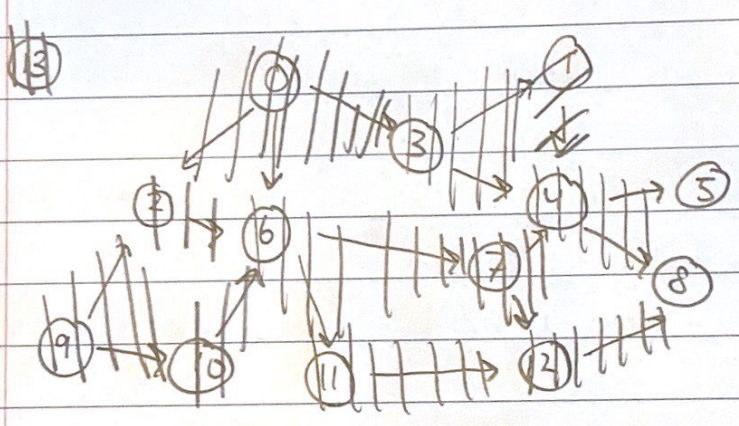
7) Then Do Node 3 or 5

8) Add Node 3 to the ordering, remove from graph

9) Add Node 5 to the ordering, remove from graph

10) Finally, only Node 2 remains!

Example:



Node	0	1	2	3	4	5	6	7	8	9	10	11	12	13
In # of Deg.	0	1	2	1	3	1	3	1	2	0	1	1	2	0

Topological ordering: 0, 9, 13, 2, 10, 3, 6, 1, 11, 7, 12, 4, 5, 8