CPE745-PARALLEL COMPUTING

Topological Sort Algorithm

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With:

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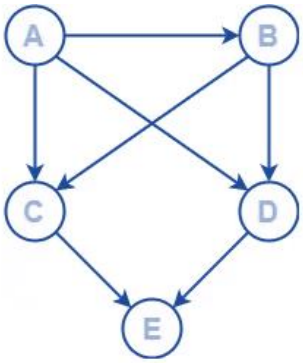
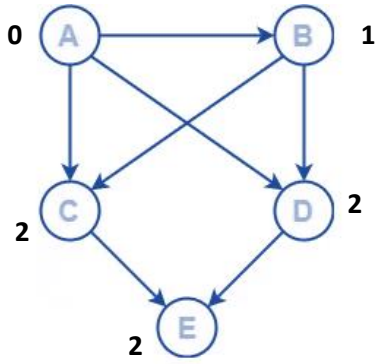
Topological Sort is a linear ordering of the vertices in such a way that if there is an edge in the DAG going from vertex ‘u’ to vertex ‘v’, then ‘u’ comes before ‘v’ in the ordering.

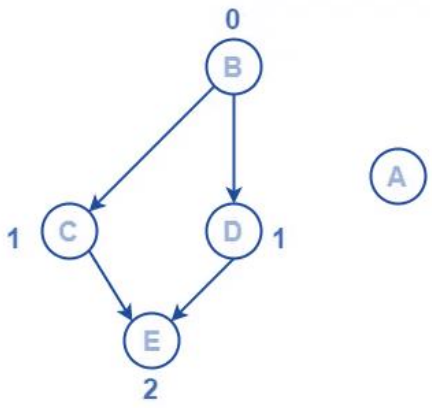
Notes:

- Topological Sorting is possible if and only if the graph is a **Directed Acyclic Graph**.
- There may exist multiple different topological orderings for a given directed acyclic graph.



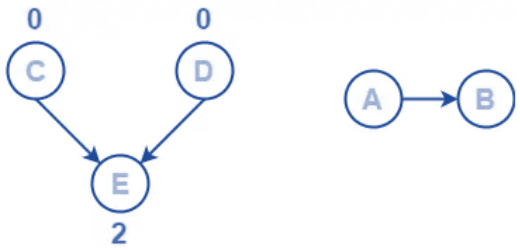


Write in-degree of the vertex.



Vertex-A has the least in-degree. Remove vertex-A and its associated edges. Then, update the in-degree of other vertices.

Vertex-B has the least in-degree. Remove vertex-B and its associated edges. Then, update the in-degree of other vertices.



In case-01:

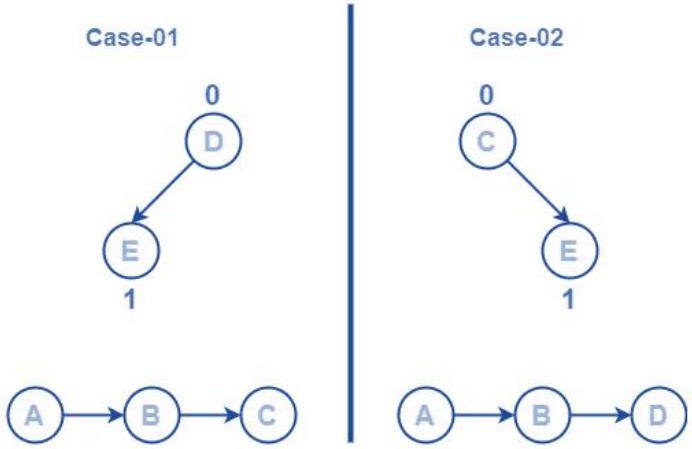
Remove vertex-C and its associated edges.

Then, update the in-degree of other vertices.

In case-02:

Remove vertex-D and its associated edges.

Then, update the in-degree of other vertices.



In case-01:

Remove vertex-D since it has the least in-degree.

Then, remove the remaining vertex-E.

In case-02:

Remove vertex-C since it has the least in-degree.

Then, remove the remaining vertex-E.