Python IV – Lesson 28

Date: Dec 30, 2022

Agenda

- ► Topological Sorting (BFS)
- ► CCC questions (2012 J5)

Proverbs 7:3

- "Bind them on your fingers; write them on the tablet of your heart."
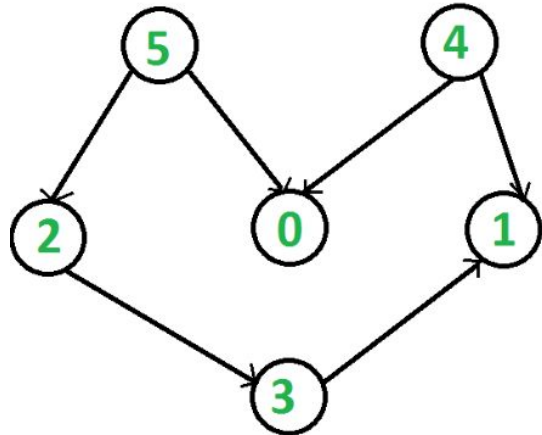
CCC questions

Introduction:

https://cemc.uwaterloo.ca/contests/computing/details.html

Past contests:

https://www.cemc.uwaterloo.ca/contests/past_contests.html

Topological Sorting

Topological sorting for Directed Acyclic Graph (DAG) is a linear ordering of vertices such that for every directed edge u v, vertex u comes before v in the ordering.
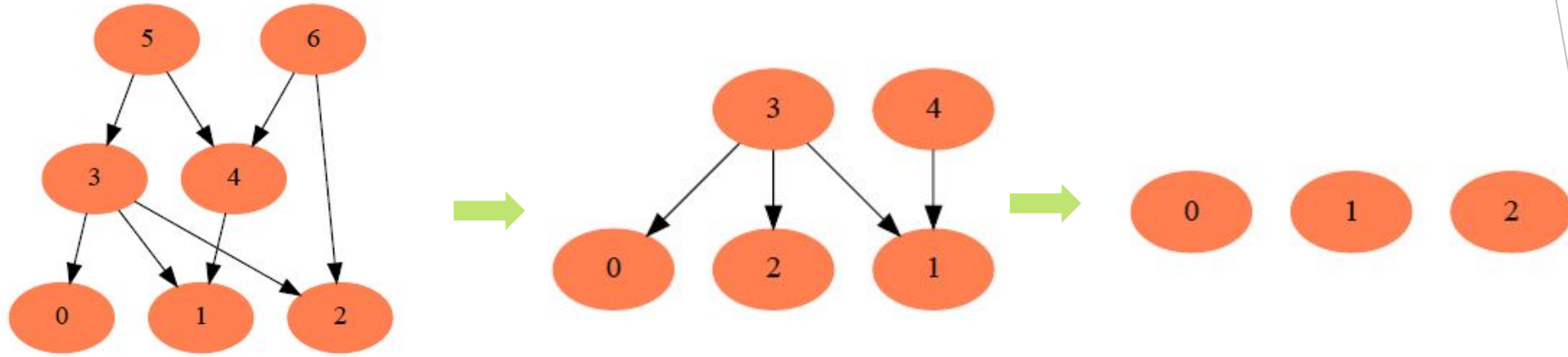
Note: Topological Sorting for a graph is not possible if the graph is not a DAG.

"5 4 2 3 1 0"

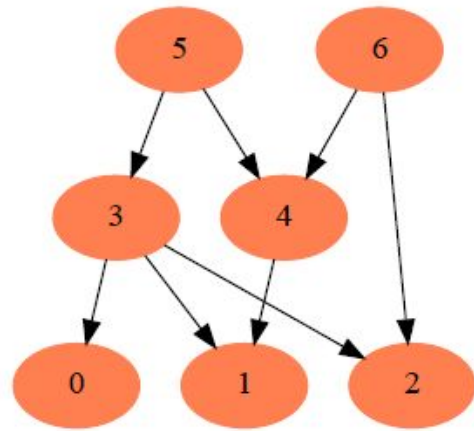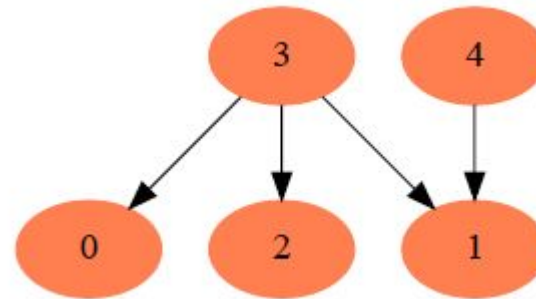"4 5 2 3 1 0"

Topological Sorting

Important concept:

Source: Any node that has no incoming edge and has only outgoing edges is called a source.

Sink: Any node that has only incoming edges and no outgoing edge is called a sink.

Topological Sorting

Sources: [5, 6]
Topological Sort: ""

Sources: [3, 4]
Topological Sort: "5, 6"

Sources: [0, 1, 2]
Topological Sort: "5, 6, 3, 4"