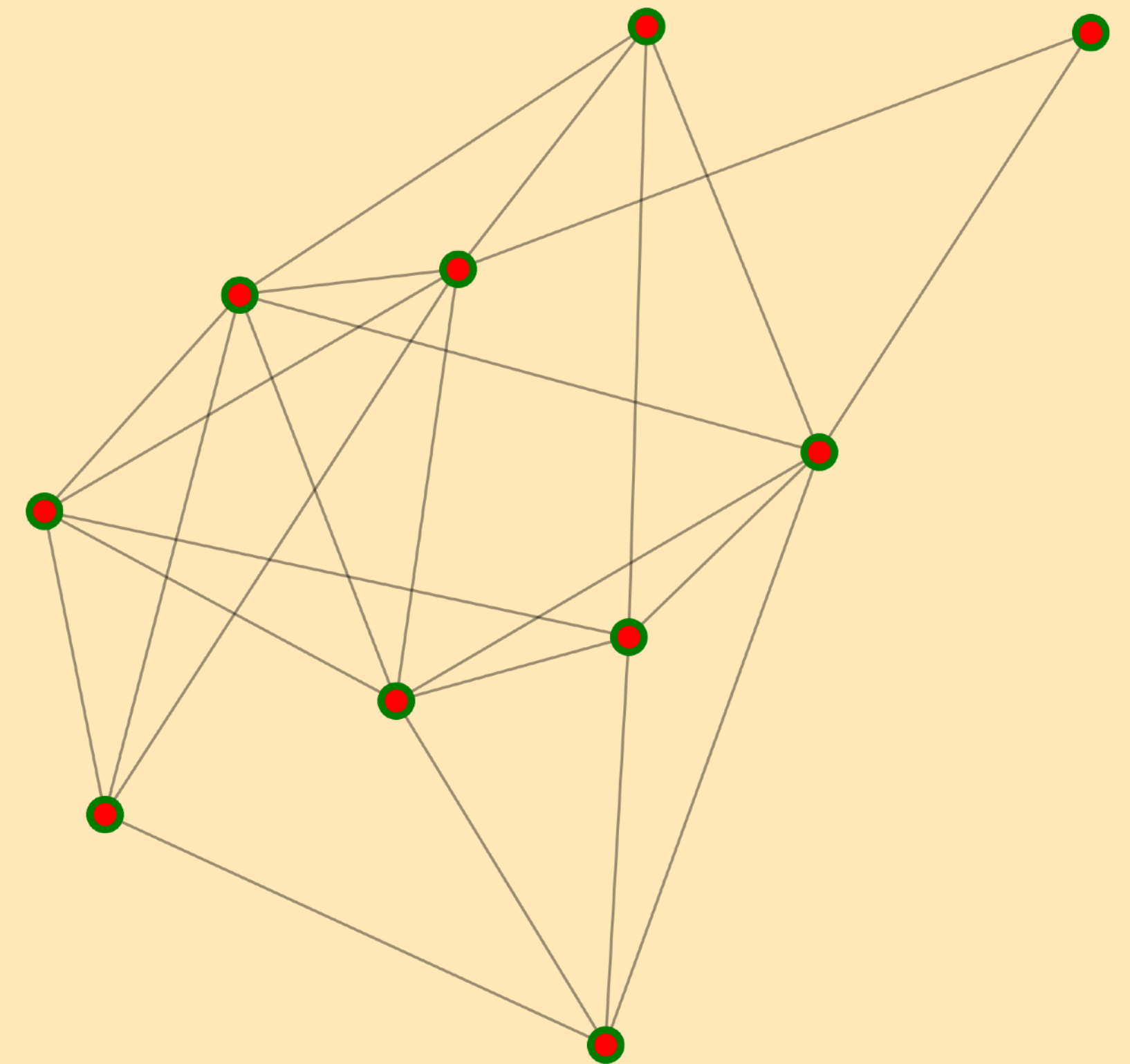# Intro to Graph Theory
Seminar 12.

Basic Definitions

- ***Graph***: pair of (V, E)

- ***Degree***: how many edges does vertex contain

- ***Complete***: all vertices are adjacent

- ***Component***: fully path-connected subgraph

Basic Definitions
Adjacency matrix

- square **matrix** of N x N size where N is the number of nodes in the graph

- it is used to represent the connections between the edges of a graph

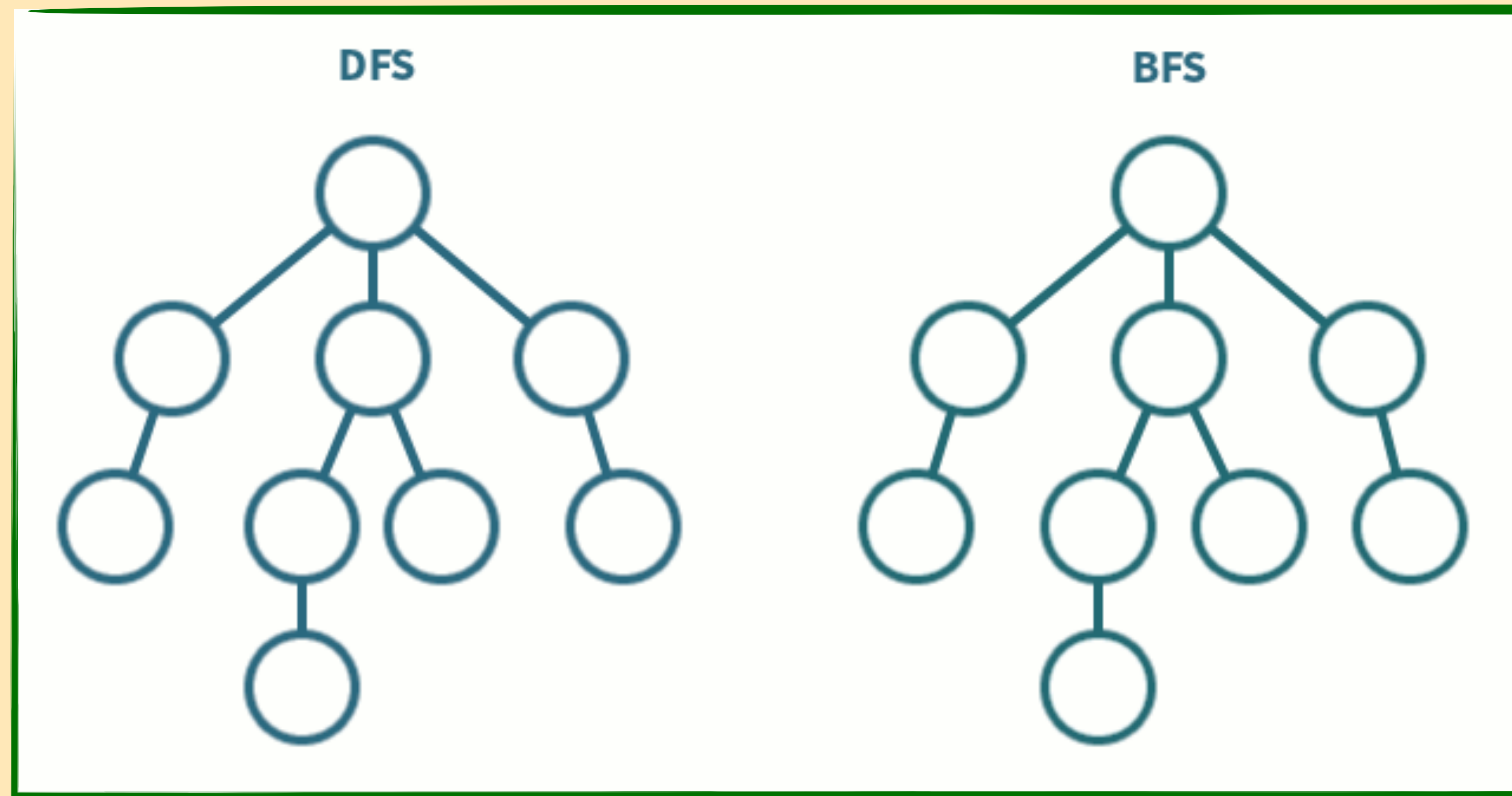|	0	1	2	3	4
0	0	1	1	0	0
1	0	0	1	0	1
2	0	0	0	1	0
3	0	0	0	0	1
4	0	0	0	0	0

Basic Definitions
Strong Components

- ***Strong connection***: equivalence relation between nodes

- ***Strongly connected component***: every vertex is reachable from every other
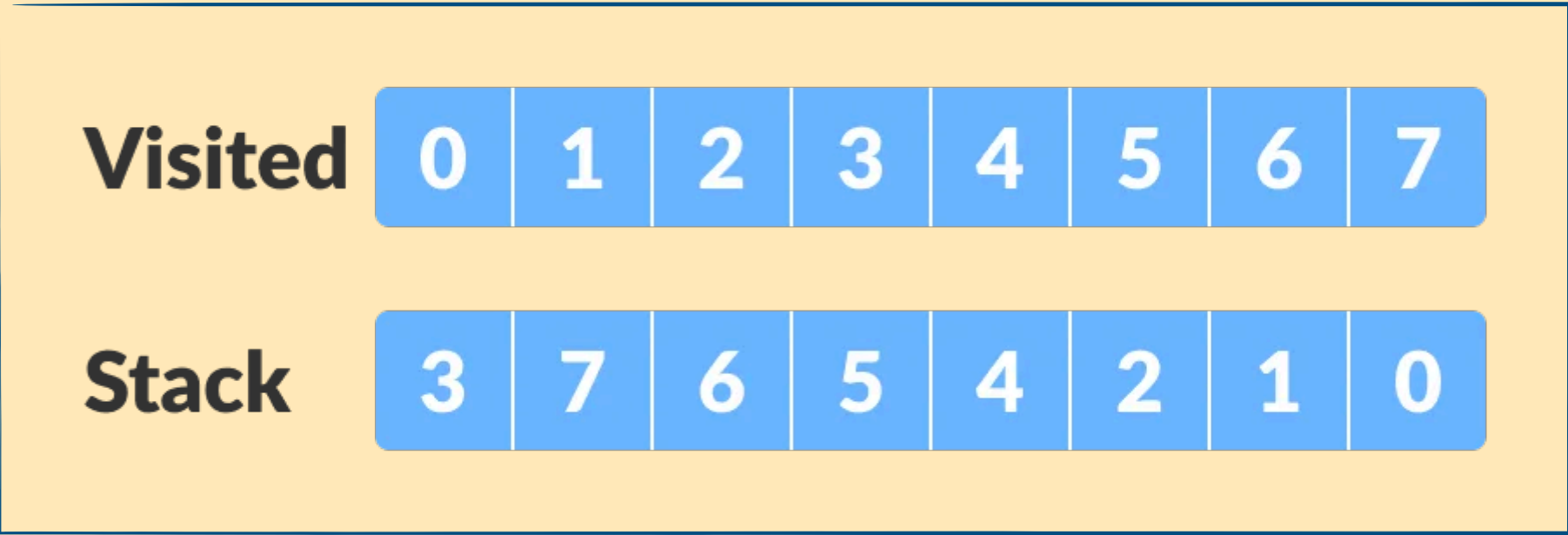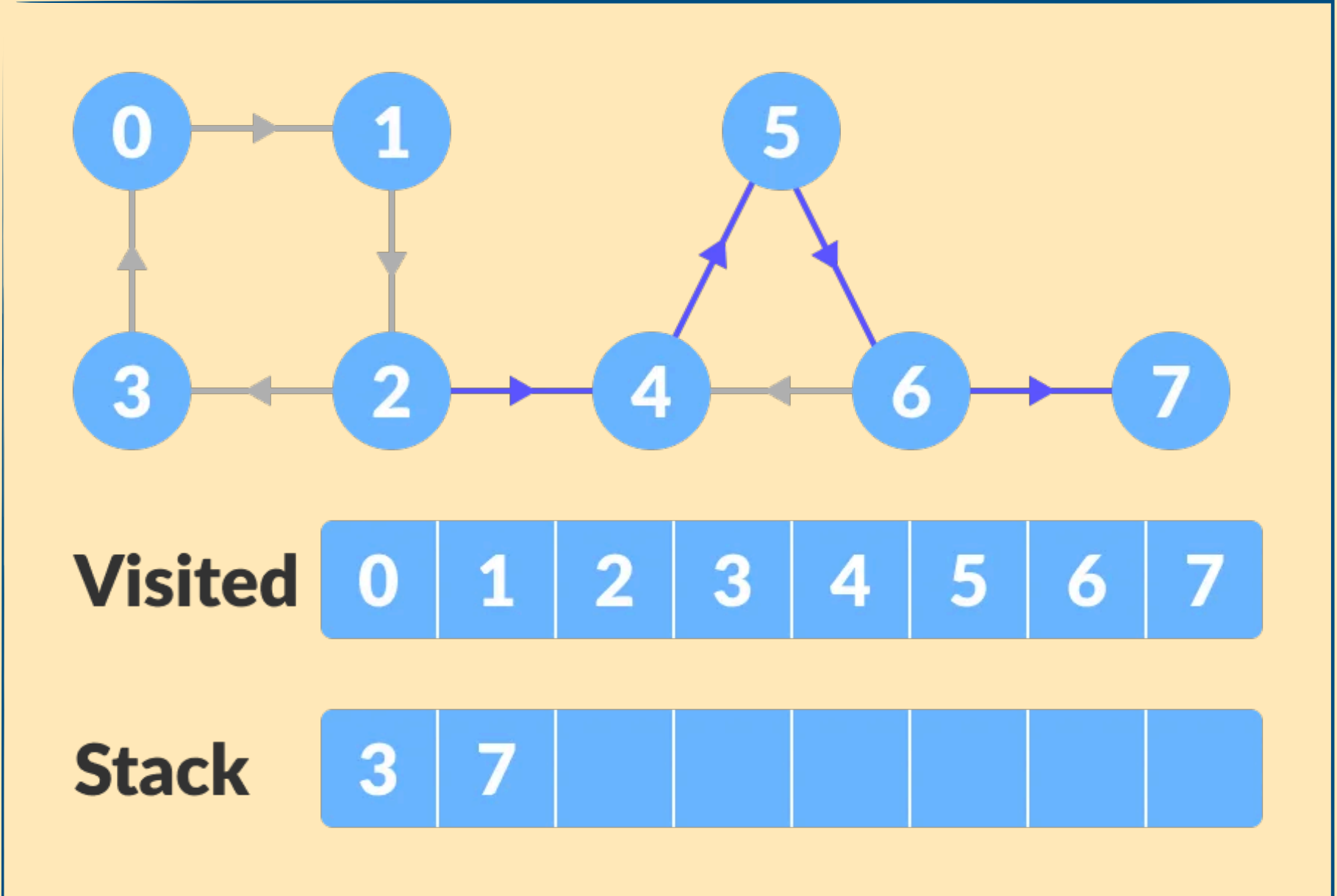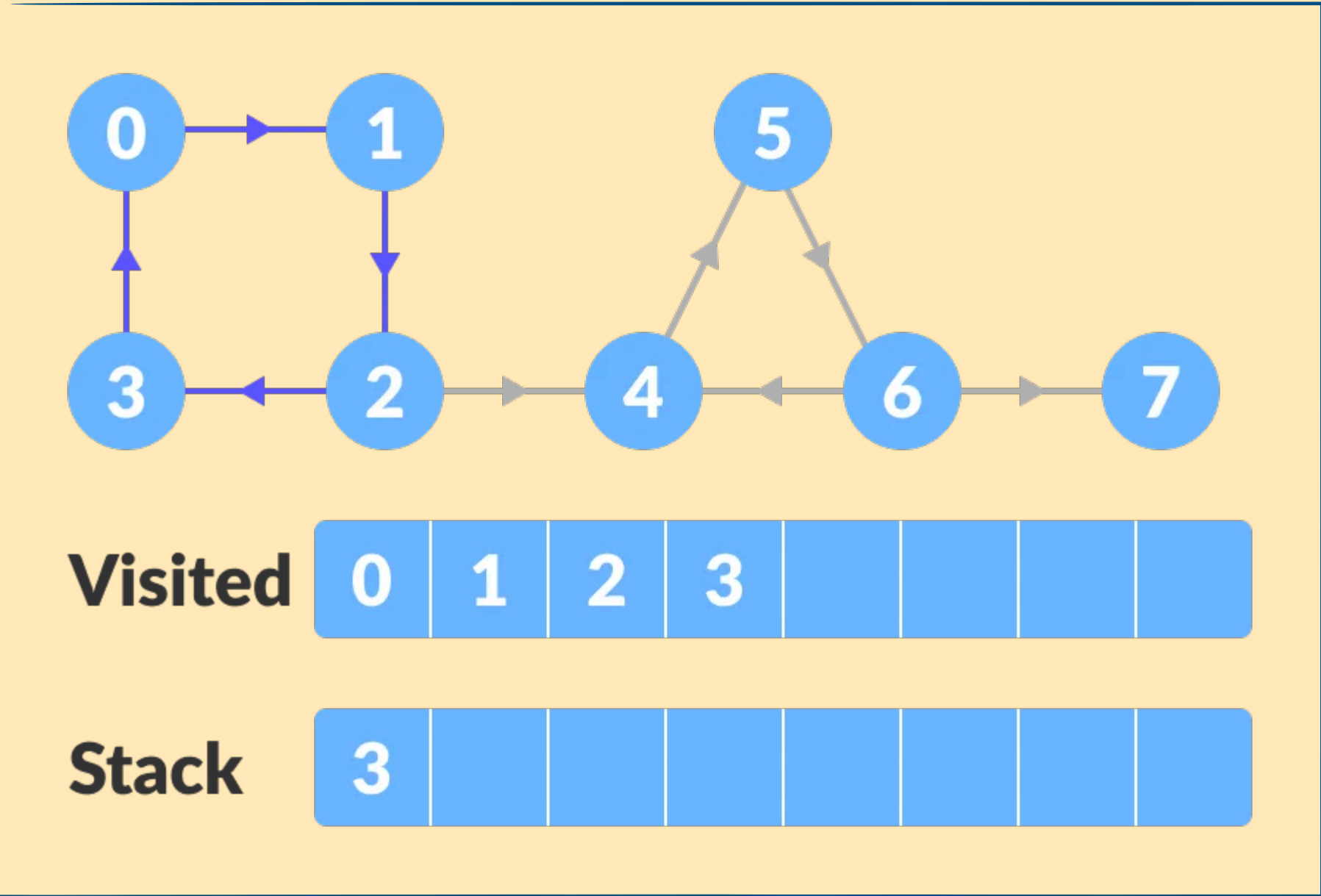
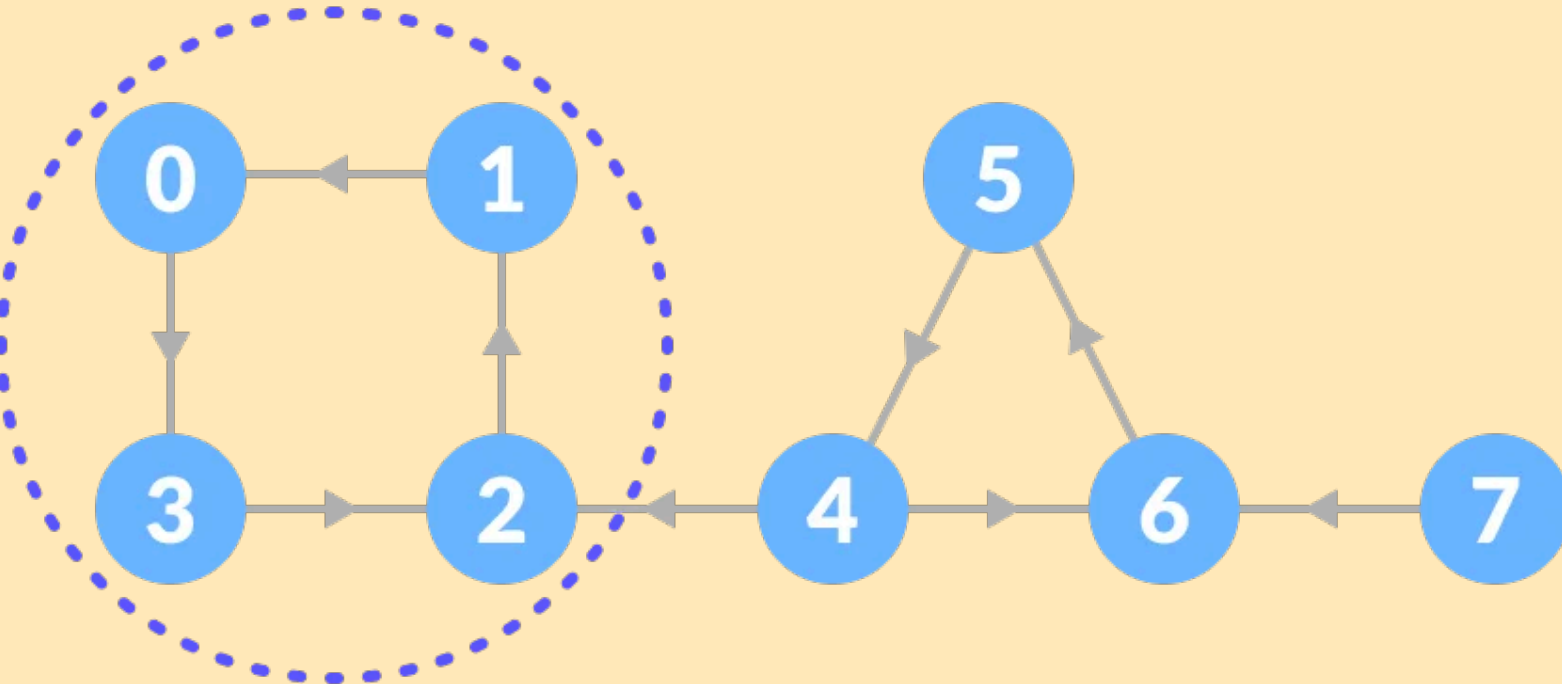- directed graphs only!
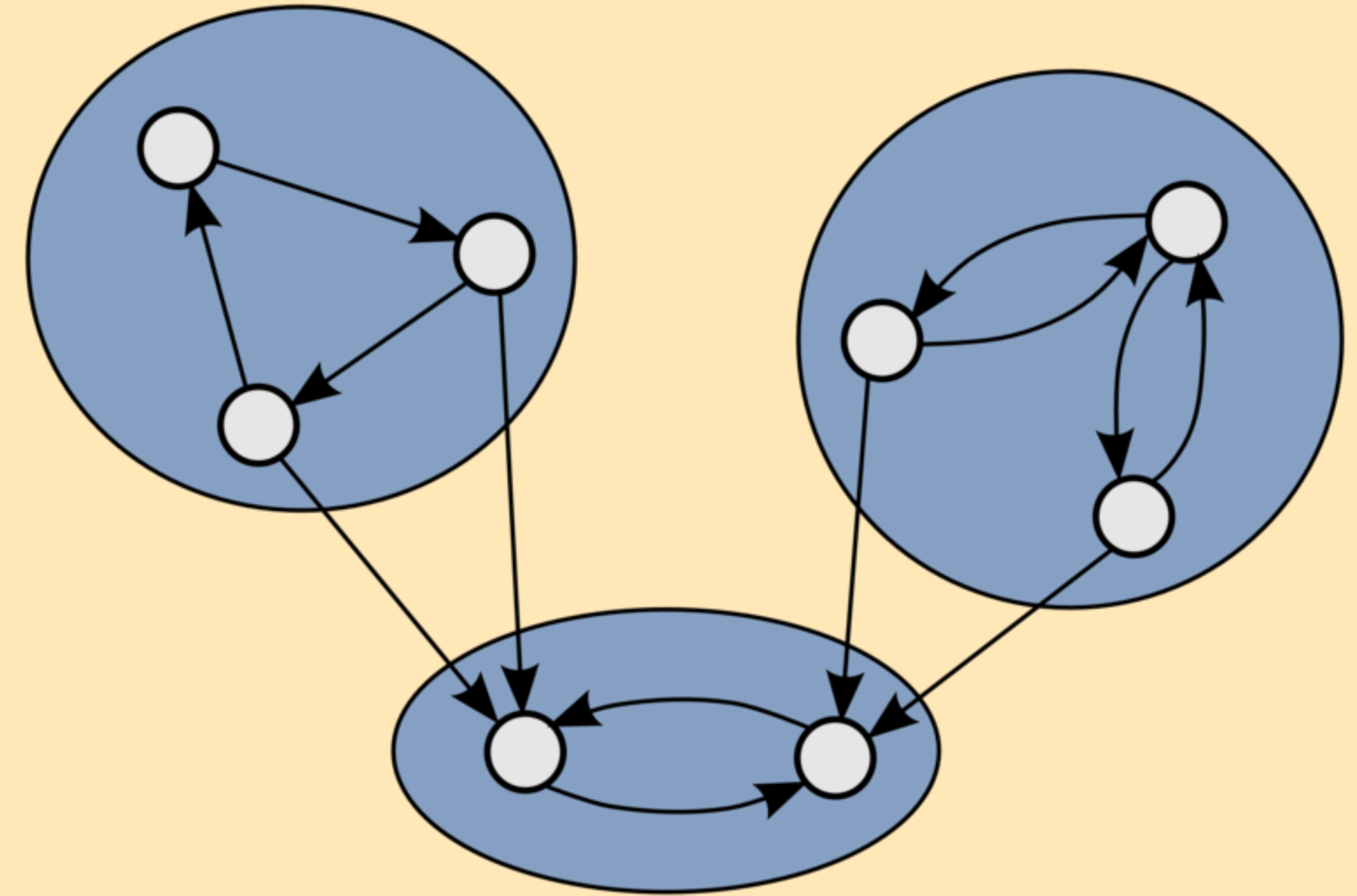
Graph Search algorithms
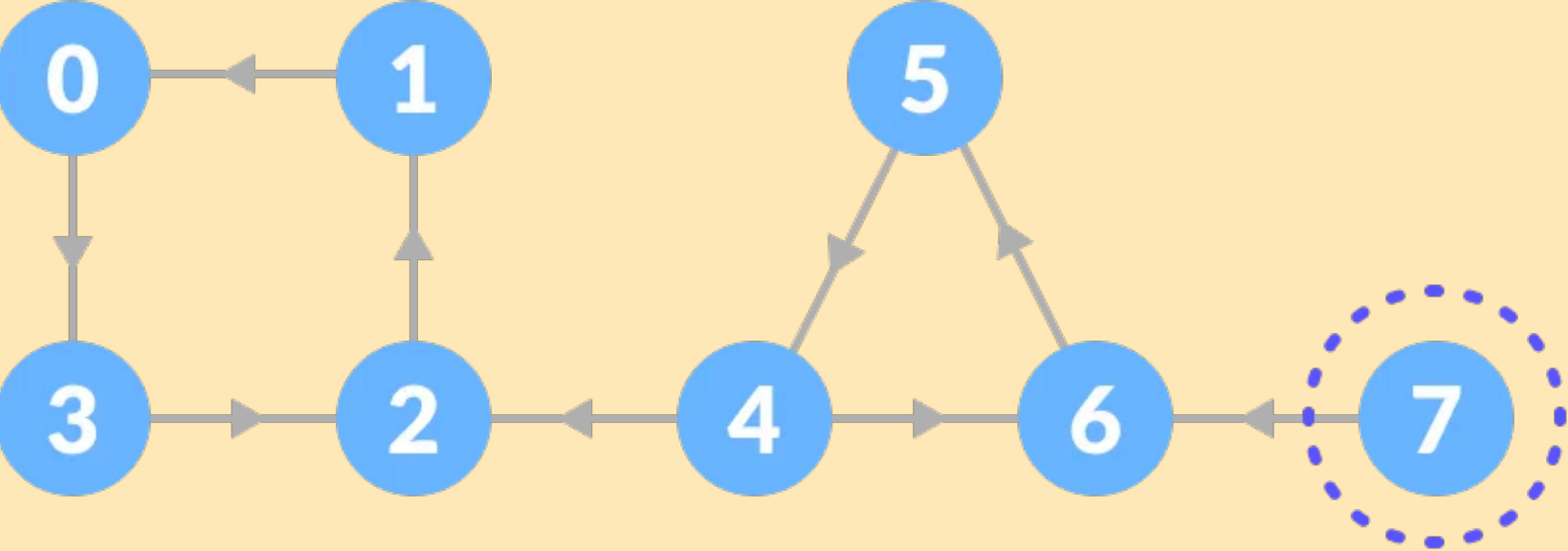
Graph Search algorithms
Kosaraju's algorithm

Graph Search algorithms
Kosaraju's algorithm

Graph Search algorithms
Dijkstra algorithm