

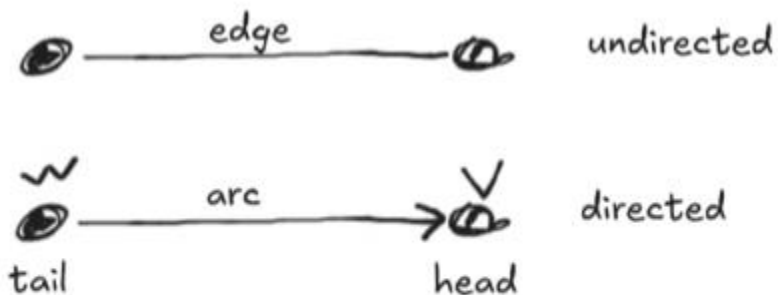
Vertices/nodes – finite set of edges

Complete graph – every pair of nodes is joined by an edge ($(n-1) * n / 2$)

Connected graph – where every pair of vertices is connected by a path

Directed graph – has direction (with arrow), **Arc**

Undirected graph – no direction, it joins a **pair of vertices**, **Edge**

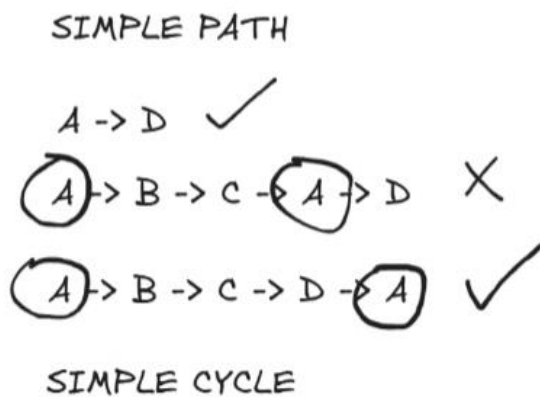


W is adjacent to V

Path – sequence of vertices

Length – number of arcs, if path is 6 then length is 5

Simple path – if all vertices in a path are distinct

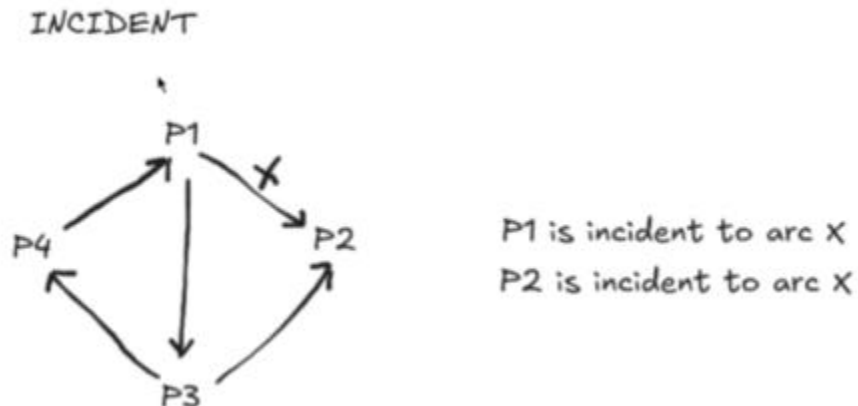


Simple cycles – is a simple path that begins and ends in the same vertex

Cyclic graph – when a graph contains a cycle

Acyclic graph – when a graph has no cycle

Incident – a node is incident to an arc if $n(\text{arc})$ is 1 of the two nodes in the ordered pair



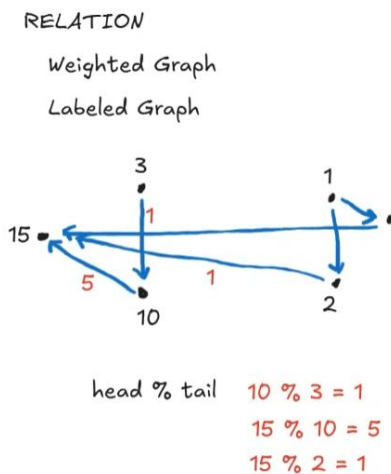
Degree – number of arcs incident to it ($P2 - 2$)

Indegree – number of arcs that have node as a head ($P2 - 2 \mid P3 - 1$)

Outdegree – number of arcs that have the node as a tail ($P3 - 2 \mid P4 - 1$)

Relation

Weighted Graph – the weight of each arc is the remainder of $y \% x$ or head $\%$ tail



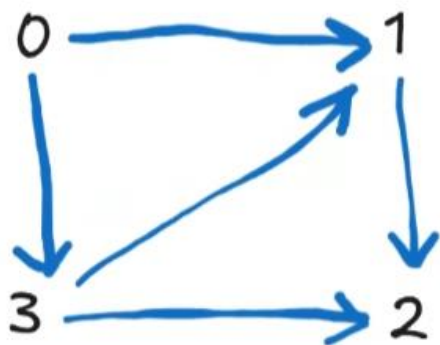
Labeled graph – is a di-graph in which arcs and or vertices have an associated label of any value

Representation

Adjacency Matrix

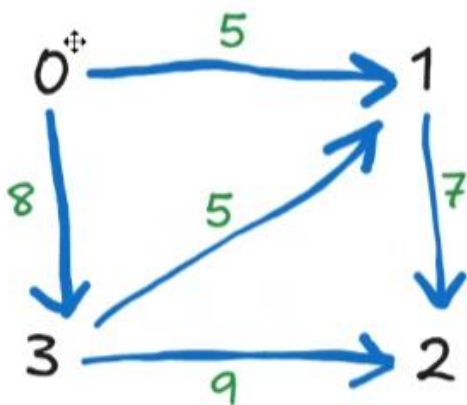
REPRESENTATION

Adjacency Matrix



head

	0	1	2	3
0	0	1	0	1
1	0	0	1	0
2	0	0	0	0
3	0	1	1	0



	0	1	2	3
0	∞	5	∞	8
1	∞	∞	7	∞
2	∞	∞	∞	∞
3	∞	5	9	∞