

Graph

Graph is a set of nodes या बि-न
edge এর মাধ্যমে connected থাকে।

অর্থাৎ,

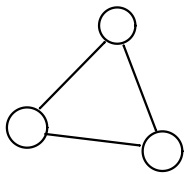
Graph is a set of nodes which are connected with each other through edges.

Graph - Linear ন non-linear?

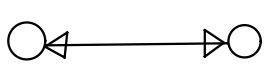
Non-linear

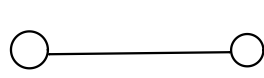
Node \rightarrow Vertex
Nodes \rightarrow Vertices

Tree কি Graph? Yes

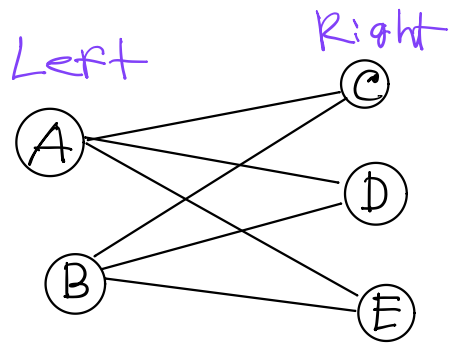


\rightarrow এটি tree নয় কারণ
cycle আছে।

 Directed graph

 undirected graph

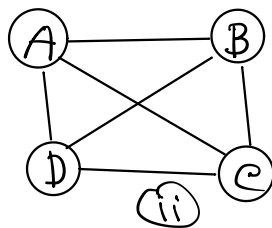
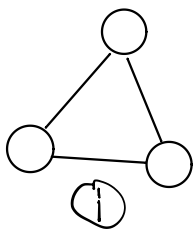
Bipartied Graph



* Left এর নোডগুলো বিচ্ছিন্ন
স্বাথে Disconnected

* Right এর নোডগুলো বিচ্ছিন্ন
স্বাথে Disconnected

Complete Graph



স্বাধীন স্বাধীন স্বাথে
connected

Complete graph এর edge তর

করার সূত্র, total edge = $\frac{n(n-1)}{2}$

$$\frac{3 \times 2}{2} = 3$$

(i) ↙

$$\frac{4 \times 3}{2} = 6$$

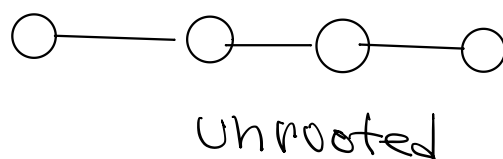
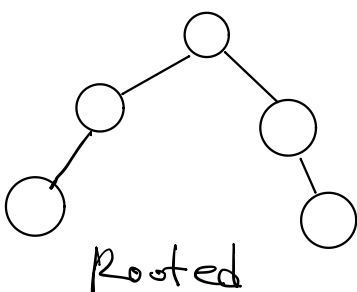
↘ (ii)

Tree এর 2 টা বৈশিষ্ট্য:

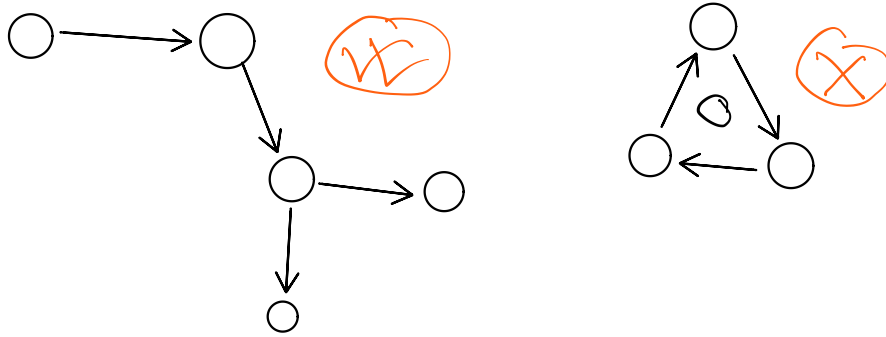
(i) Acyclic

(ii) Unique path

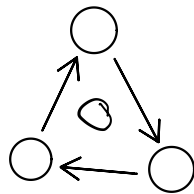
Rooted vs un-rooted graph



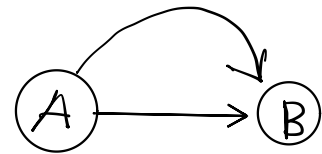
DAG (Directed Acyclic Graph)



DCG (Directed cyclic graph)



Multi-edge



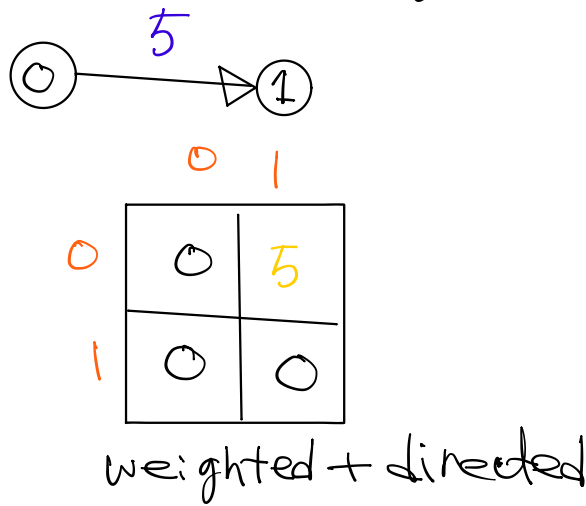
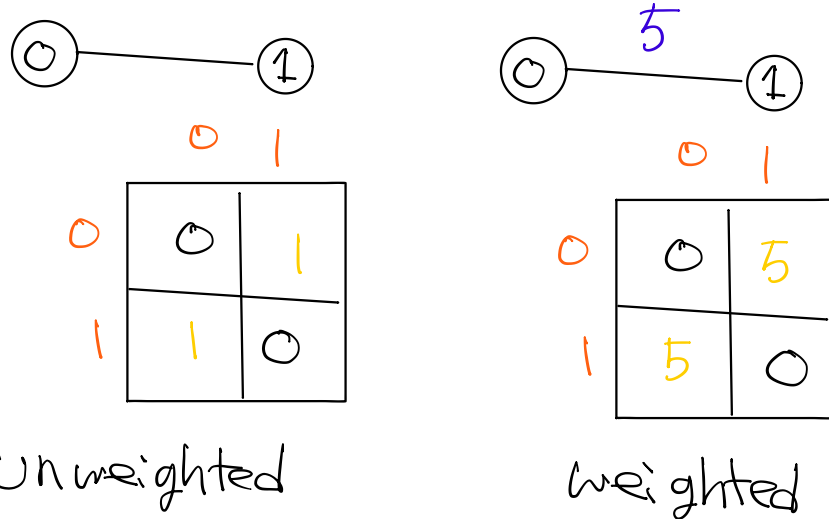
Self-edge



Graph Representation

- (i) Adj matrix
- (ii) Adj list
- (iii) Edge list

① Adj matrix \rightarrow 2D array



memset

* memset \rightarrow int array
0 অথবা -1 ব্যবহার করা যায়।
অন্যথায় garbage value আসবে।

\rightarrow char জন্য char

\rightarrow Boolean জন্য T or F

* memset এর memory related issues
আছে।