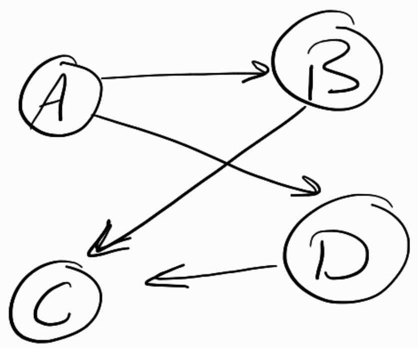
Graphs

G ⇒ Vertices (nodes)
Edges (links)
→ collection of vertices connected by edges.

Types of G

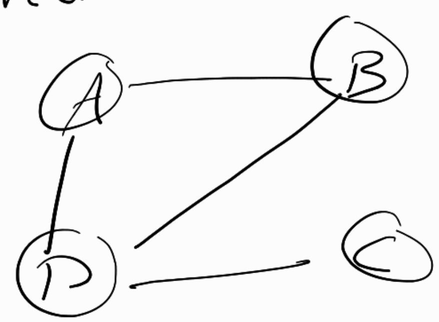
① Digraph ⇒ Directed graph



* From B → C
* From A → B
A → D
A → B → C
A → D → C

Paths

② Undirected Graph



From C — D
C — D — A — B

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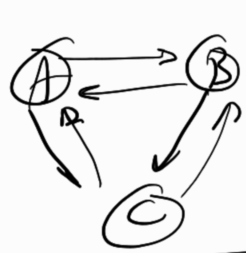
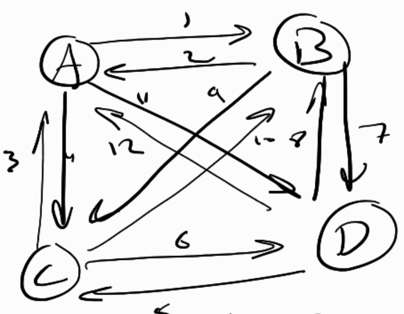
* كم أقصى عدد لل Edges يلي ممكن تكون

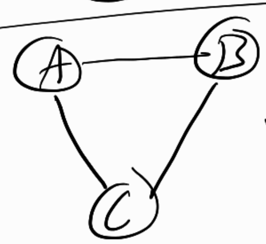
|V| ⇒ max |E|



⇒ 6   3 × 2



4 × 3



⇒ 3

max |E| ⇒ digraph → $V(V-1)$

max |E| ⇒ undirected graph → $\frac{V(V-1)}{2}$

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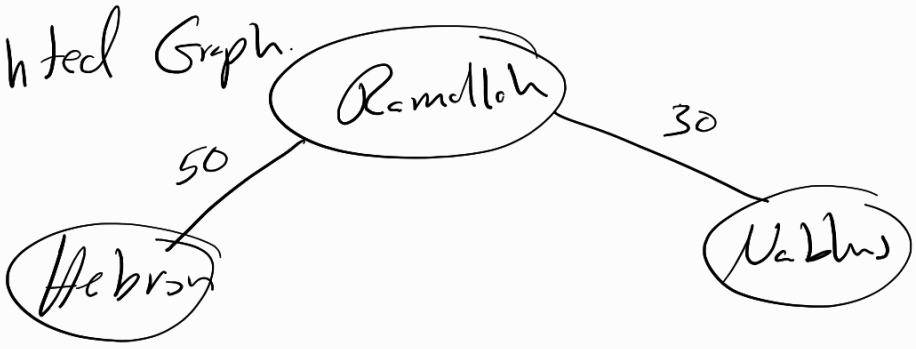
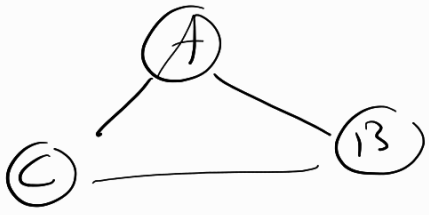
③ Weighted Graph.

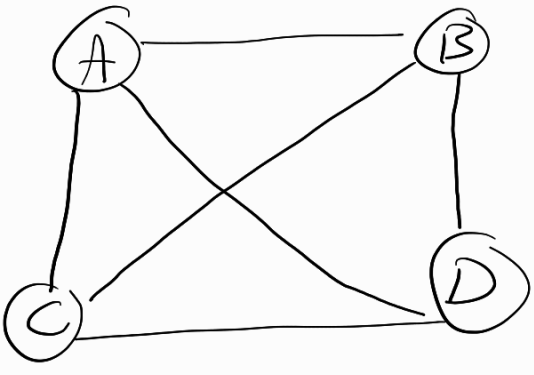


④ unweighted graph

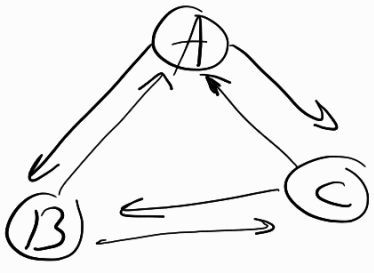


Types of connectivity :-

① Complete graph :-

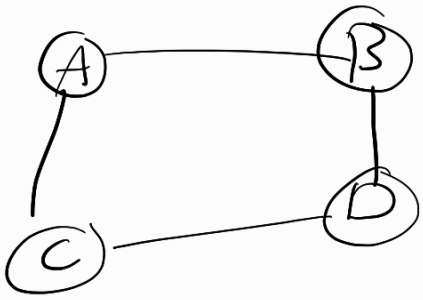


② Fully connected graph (Complete directed graph)

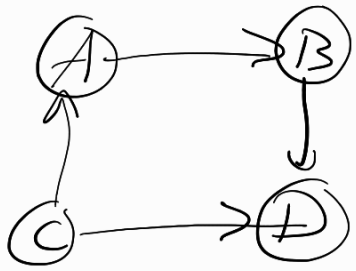


③ Connected graph.

I can reach from/to any pairs (A B) —
(A D) —



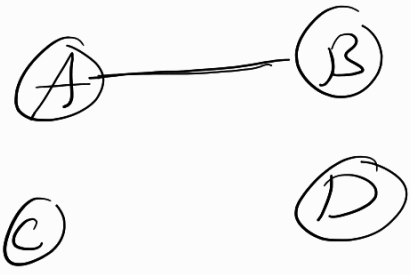
④ Disconnected graph.



Sparse Graph

$$\max |E| = \frac{4(4-1)}{2}$$

$$1 \leq 6$$



Dense Graph

$$5 \simeq 6$$