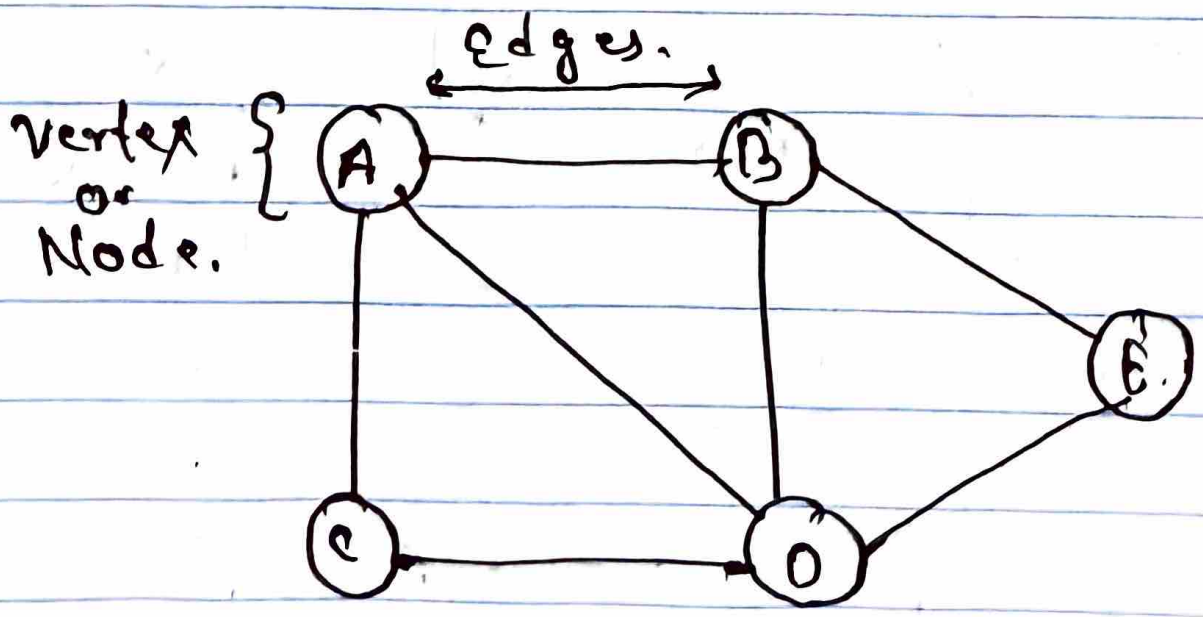
* For search the complexity O(n).
  length of the word O(k)
  O(k)

* Insert O(k).
* Delete - update word end we = 0 before deleting.

* Graph ***

→ Graph is a non-linear data structure which has node and edges. Node is also reffered as vertex.

→

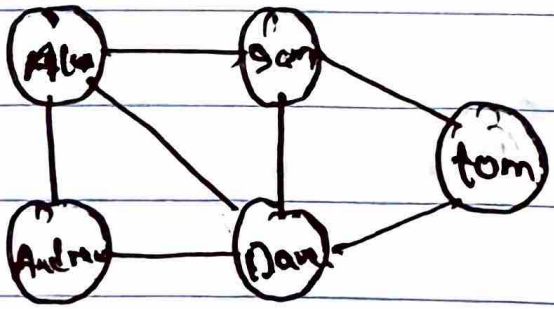


* Connection between A and B. is known as edges.

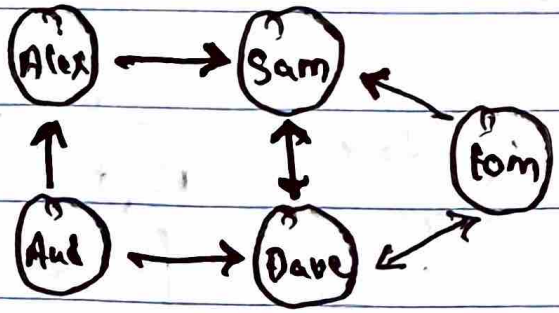
* In graph we do not have direction we can start from anywhere means at any node or vertex unlike binary tree.

* It basically depicts relationship between different objects.
* Tree is one implementation of graph

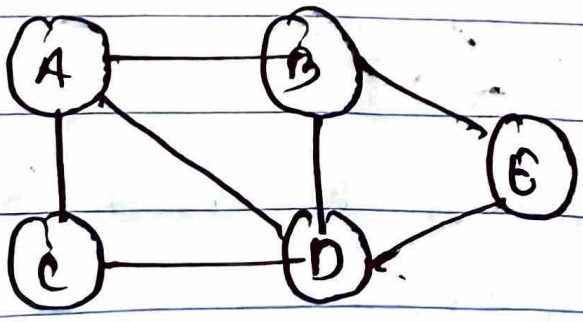
* There are two types of graph directed or undirected.



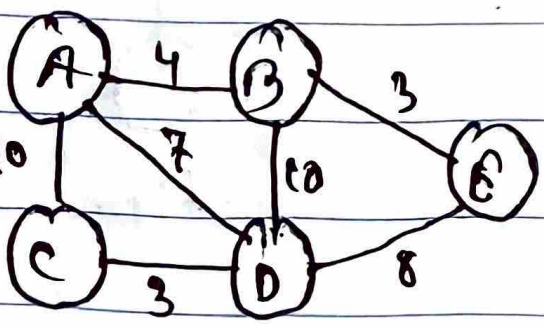
Undirected.



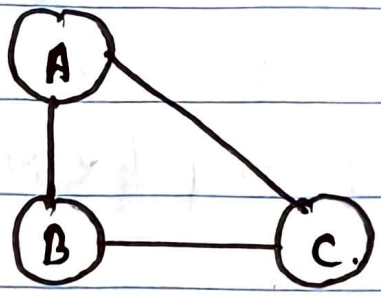
Directed.



Unweighted Graph.

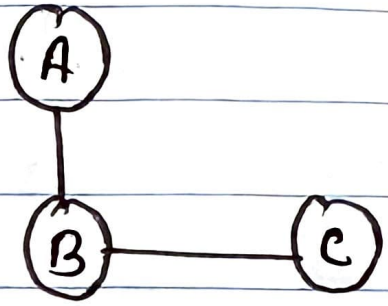


Weighted Graph.



Cyclic Graph.

In this we start from node and reach back to node again



Acyclic Graph.

In this start with node and no way returning back to Node again.

* Once the facebook friend request accepted then it forms undirected graph between 2 of them.

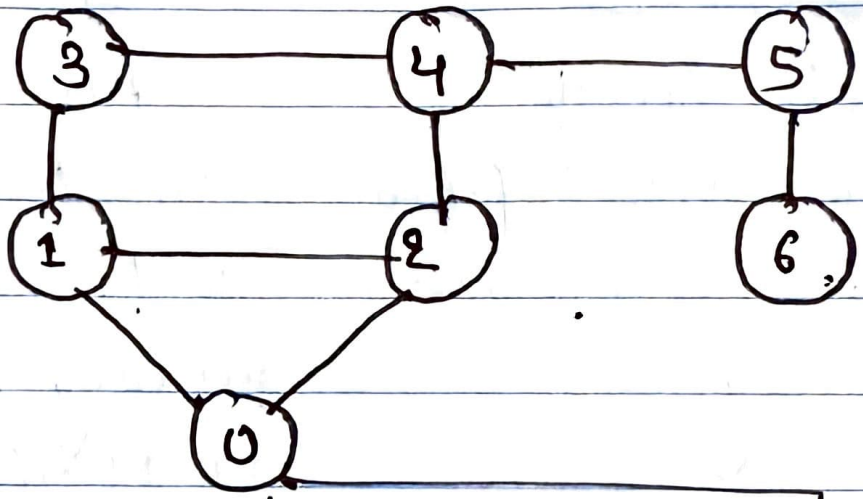
* Sending a follow request on instagram forms directed graph relation as it is not necessary that the other person will follow back.

* Youtube recommended system is based on weighted graph.

* weight defines thier bond in terms of weight.

* "people you may know" these are the functionality of weighted graph or say example.

*



Type 1: Adjacency Matrix — Not very Popular.

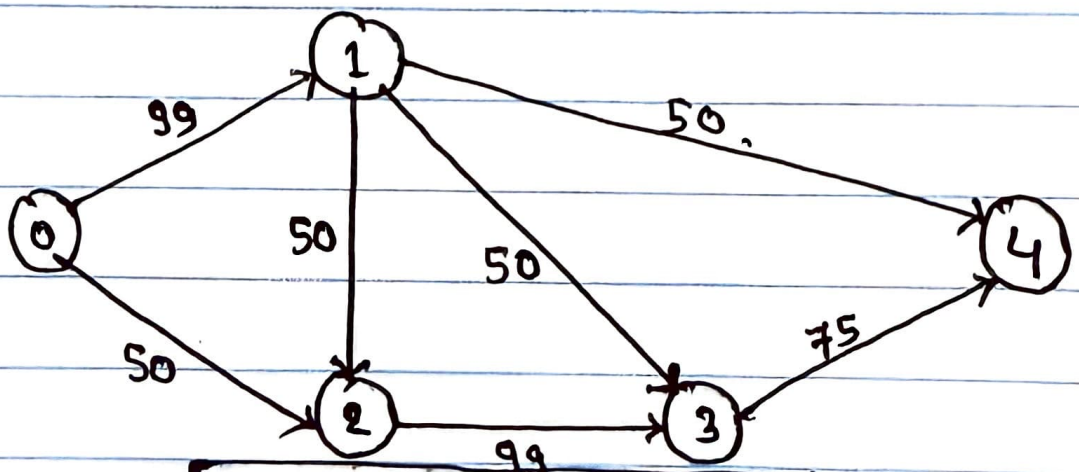
	0	1	2	3	4	5	6
0	0	1	1	0	0	0	0
1	1	0	1	1	0	0	0
2	1	1	0	0	1	0	0
3	0	1	0	0	1	0	0
4	0	0	1	1	0	1	1
5	0	0	0	0	1	0	1
6	0	0	0	0	0	1	0

Type 2: Adjacency List.

Popular one.

0:	1	2	
1:	0	2	3
2:	0	1	4
3:	1	4	
4:	3	2	5
5:	4	6	
6:	5		

Type 3: Edge list (Not very popular



Adjacency List			
0:	(1, 99)	(2, 50)	
1:	(2, 50)	(3, 50)	(4, 50)
2:	(3, 99)		
3:	(4, 75)		
4:			

either in list or tuple.

* Google map is a classical example of graph usage.

* Degree of a node in an undirected graph is done by counting the number of edges that connect to the node.