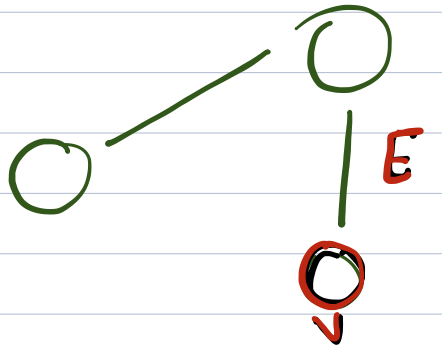
Graphs

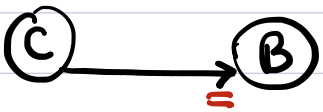


$G = (V, E)$

V: vertices

E: Edge

Directed :

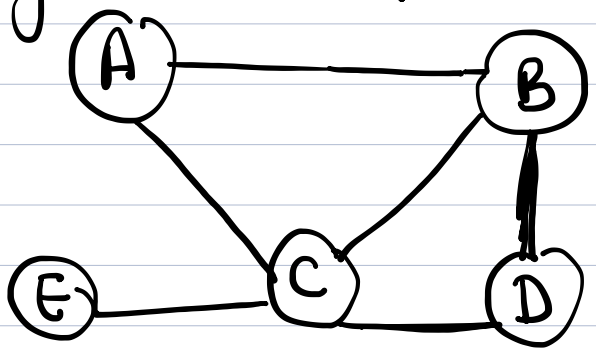


$C \rightarrow B \neq B \rightarrow C$

undirected

$E = \{(C, B)(B, C)\}$

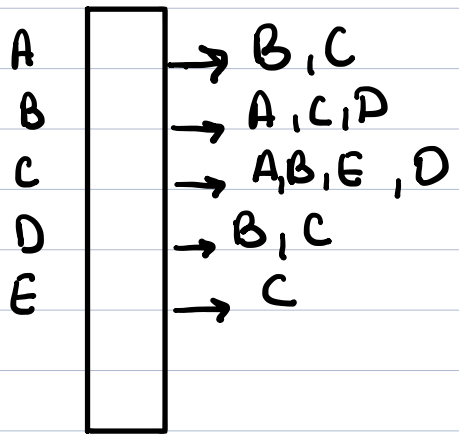
2 ways of representing graph



① Adj Matrix :

	A	B	C	D	E
A	0	1	1	0	0
B	1	0	1	1	0
C	1	1	0	0	1
D	0	1	0	0	0
E	0	0	1	0	0

② Adj List

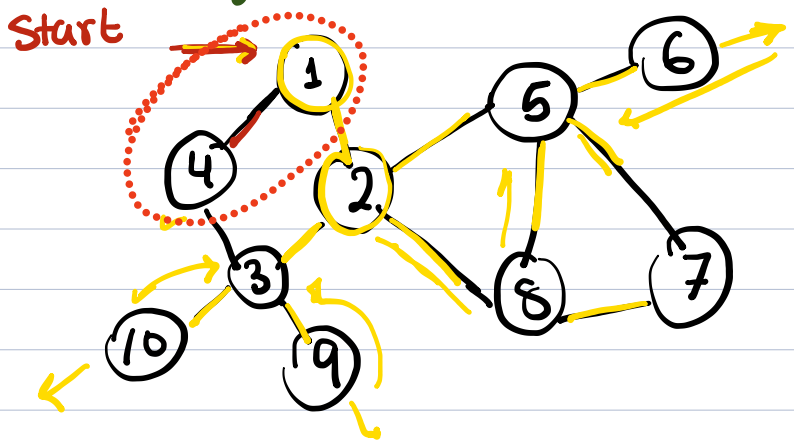


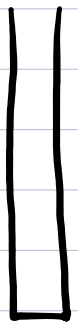
Traversal: DFS / BFS

① DFS:-

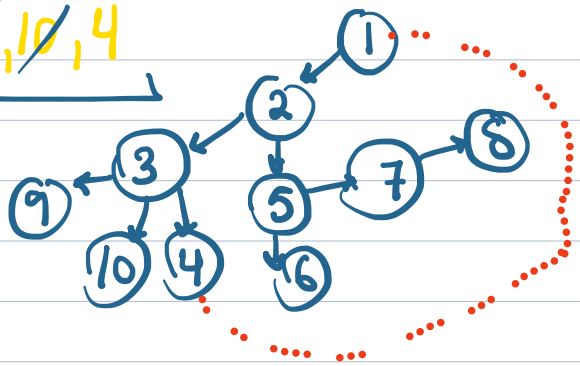
↳ based on Stack

[once you reach new vertice start exploring this one.]

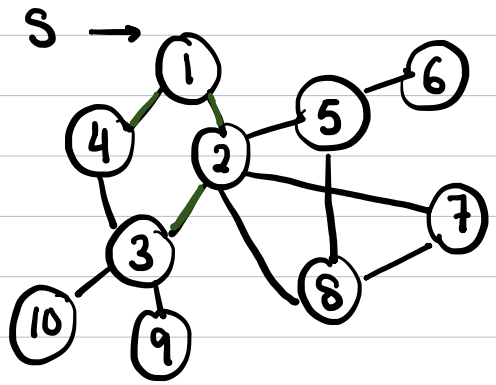


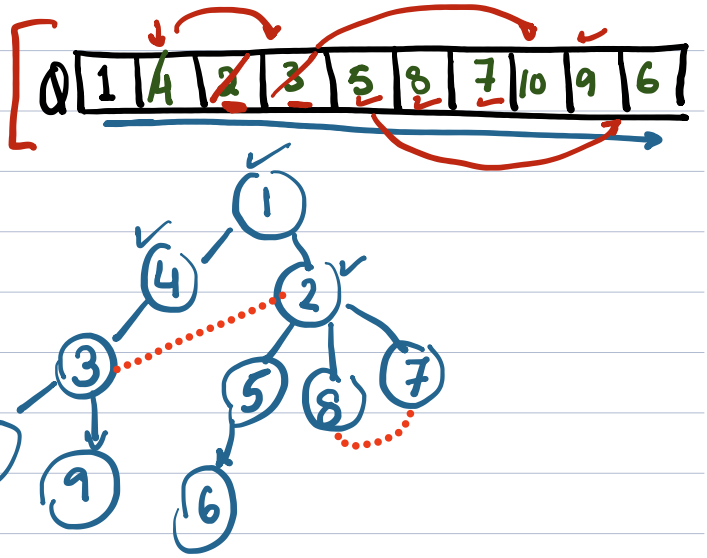


DFS: 1, 2, 5, 6, 7, 8, 3, 9, 10, 4

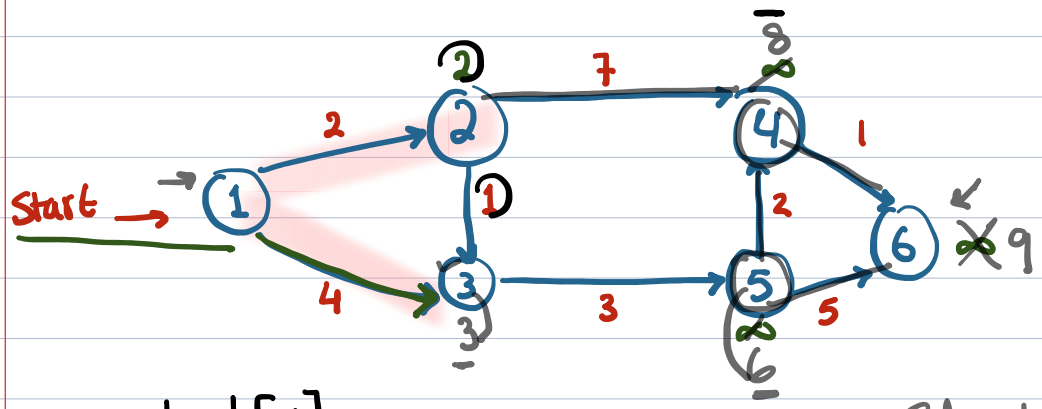


BFS : Kol el-vertices are visted in order.



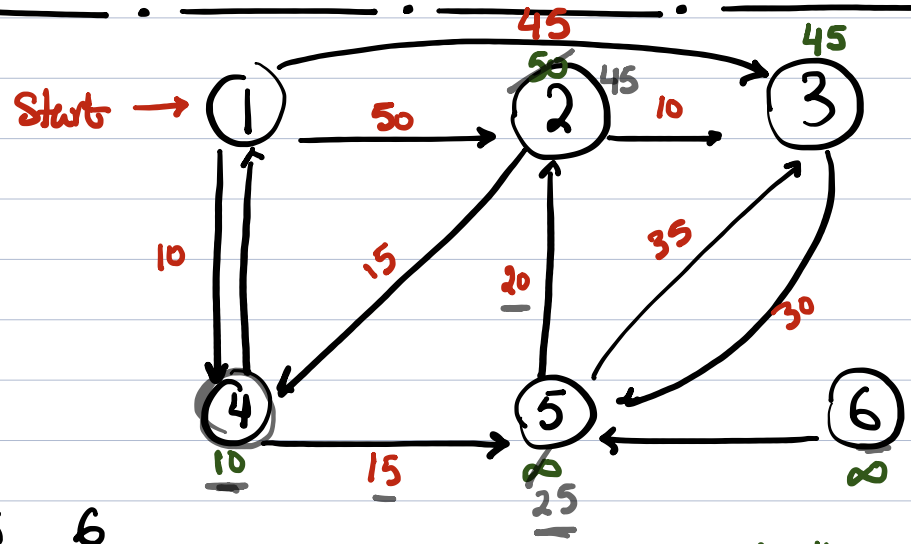


Dijkstra Algo:



v	d[v]
2	2
3	3
4	8
5	6
6	9

Shortest Path:-



v	2	3	4	5	6
4	50	45	(10)	∞	∞
5	50	45	(10)	(25)	∞
2	(45)	45	(10)	(25)	∞
3	(45)	(45)	(10)	(25)	∞

← Direct relation m3 (1) Starting Point