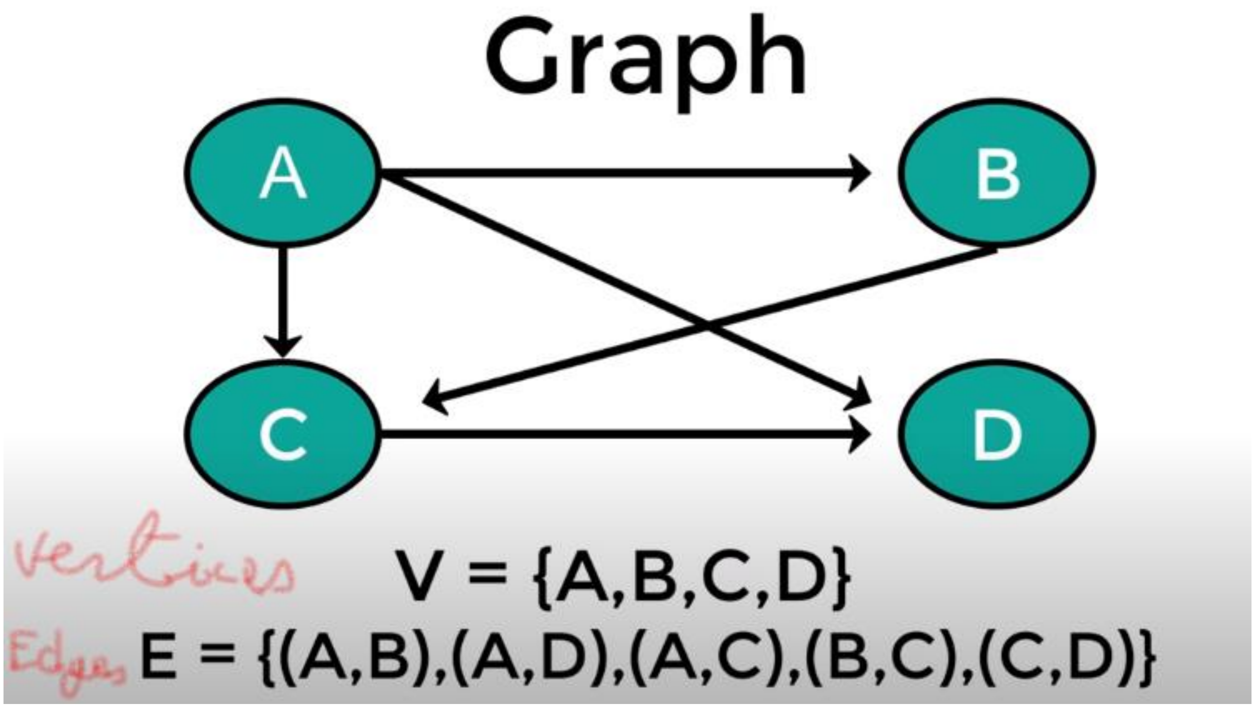
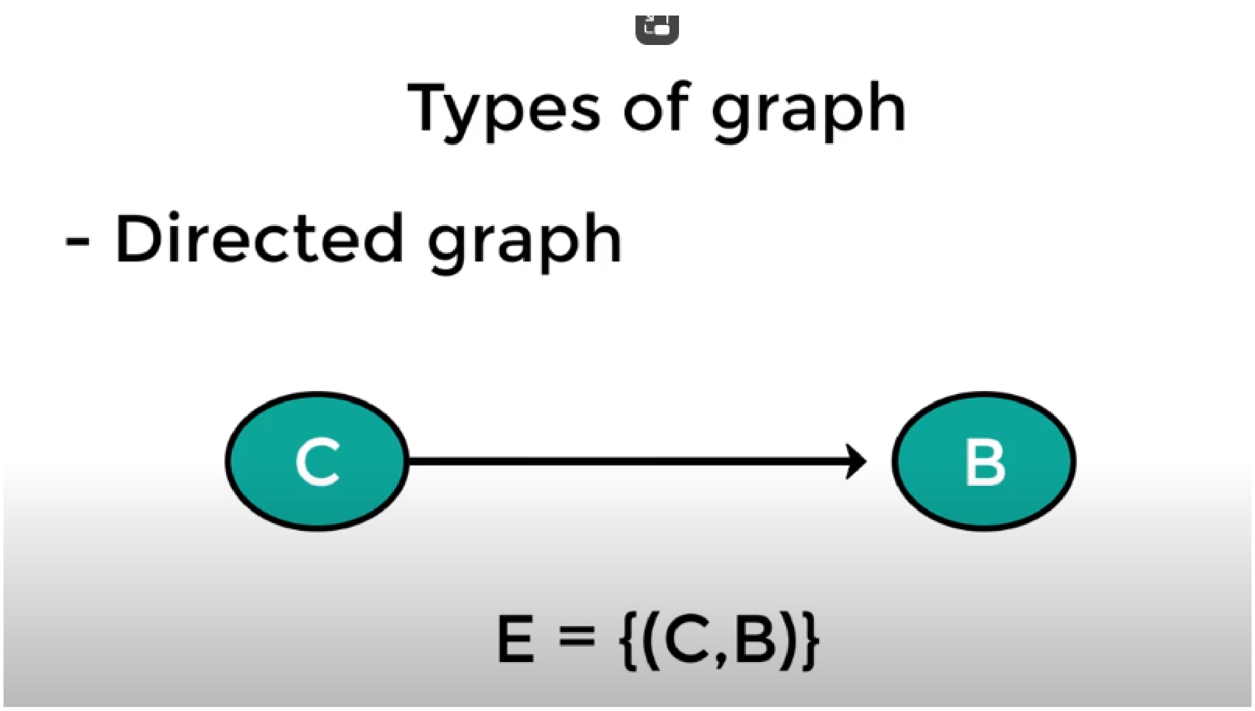


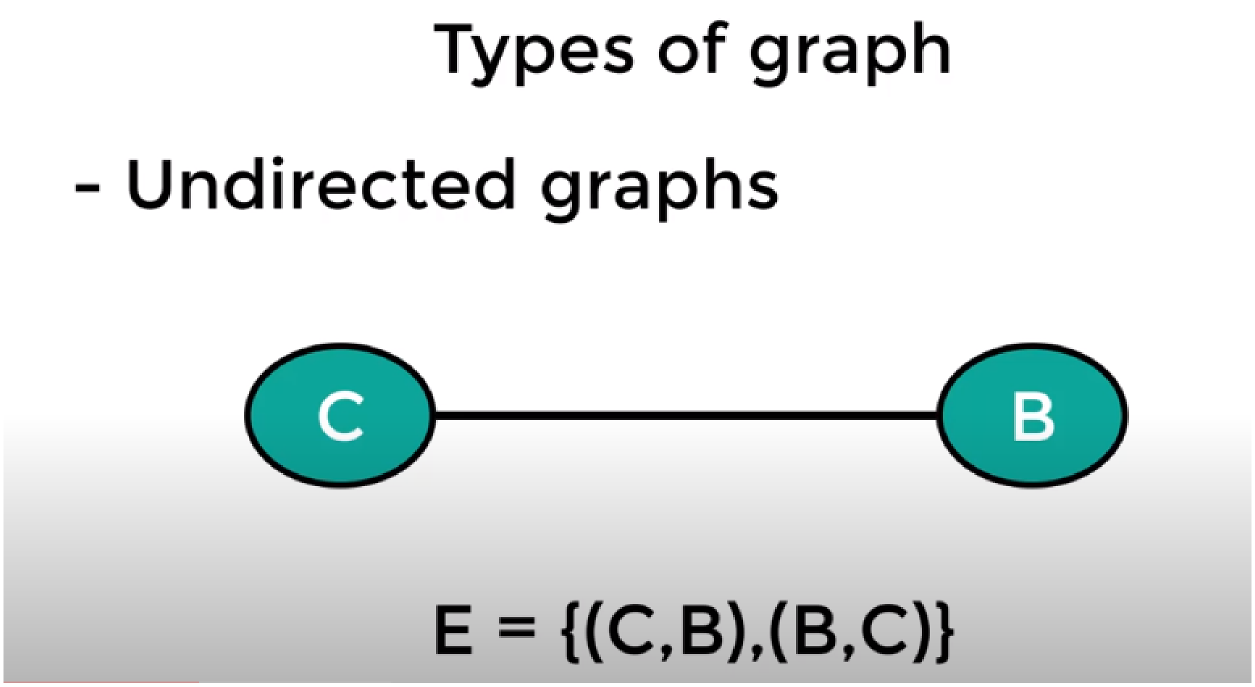
Directed Graph Graph

There’s a direct relation between the vertices



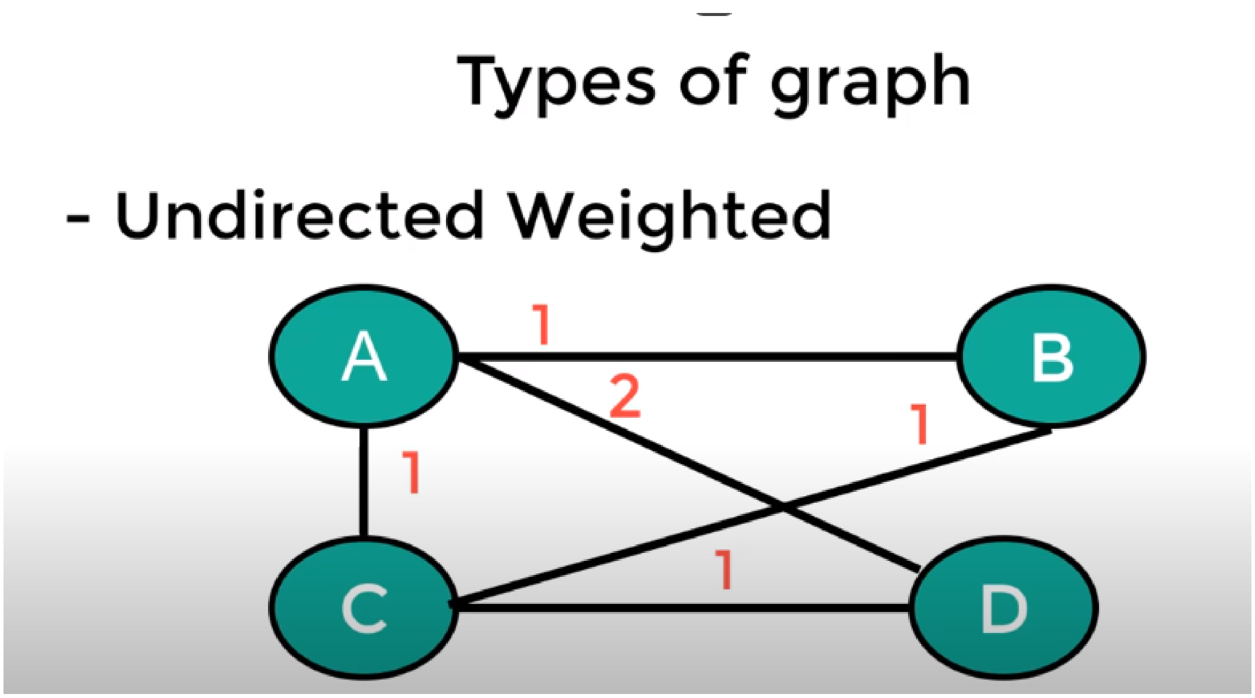
Undirected Graph Graph

There's a relation between the two vertices

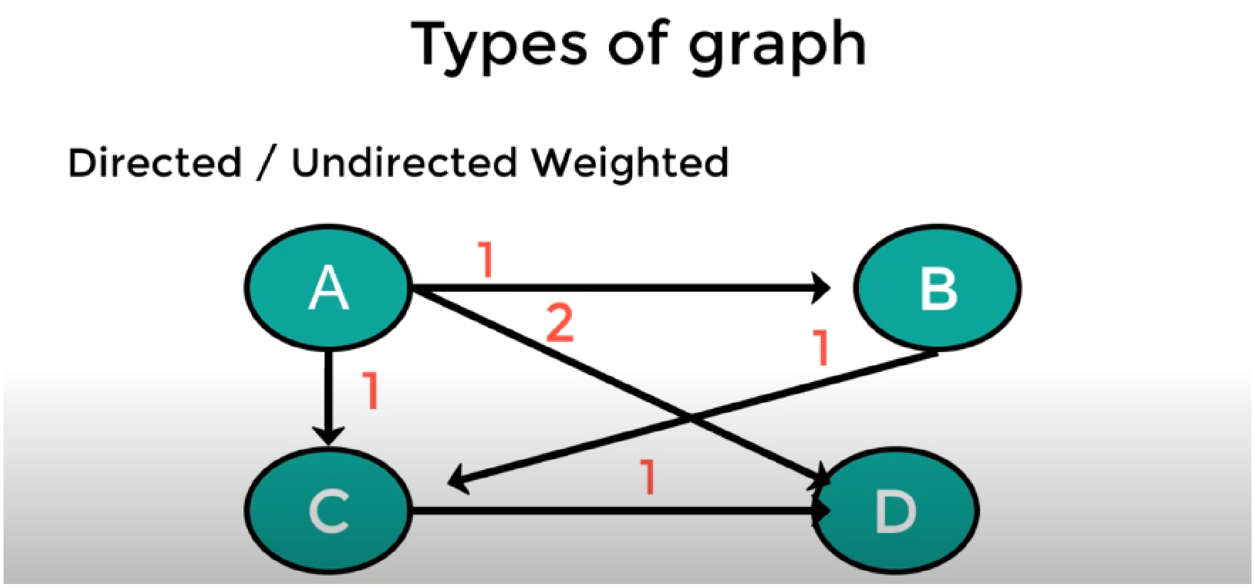


Undirected Weighted

For the numbers it could be the distance between each vertex or cost…

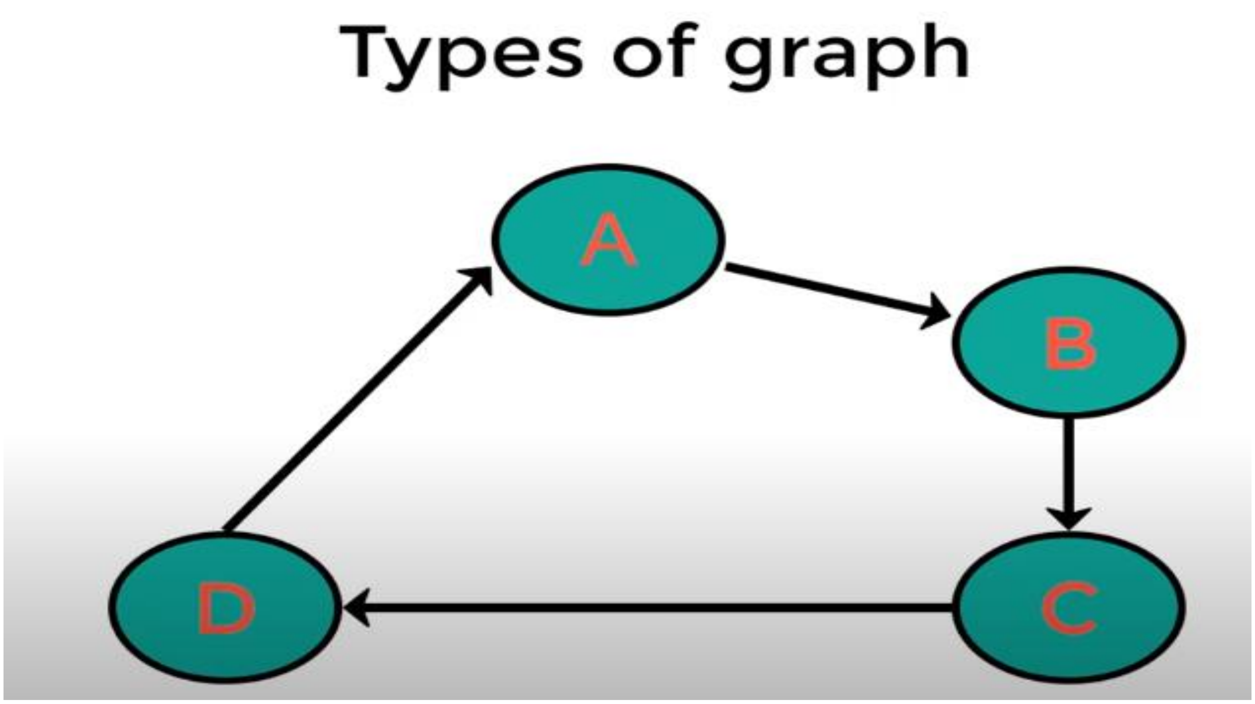


Directed Weighted

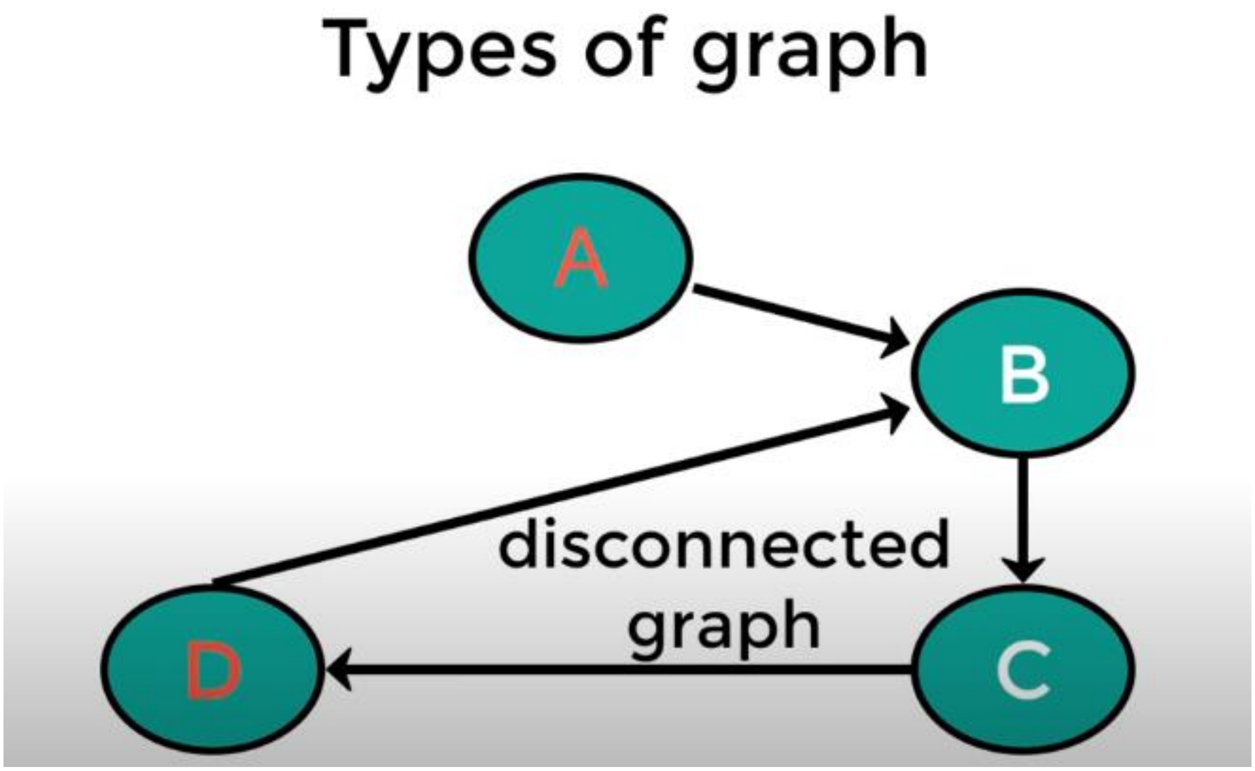


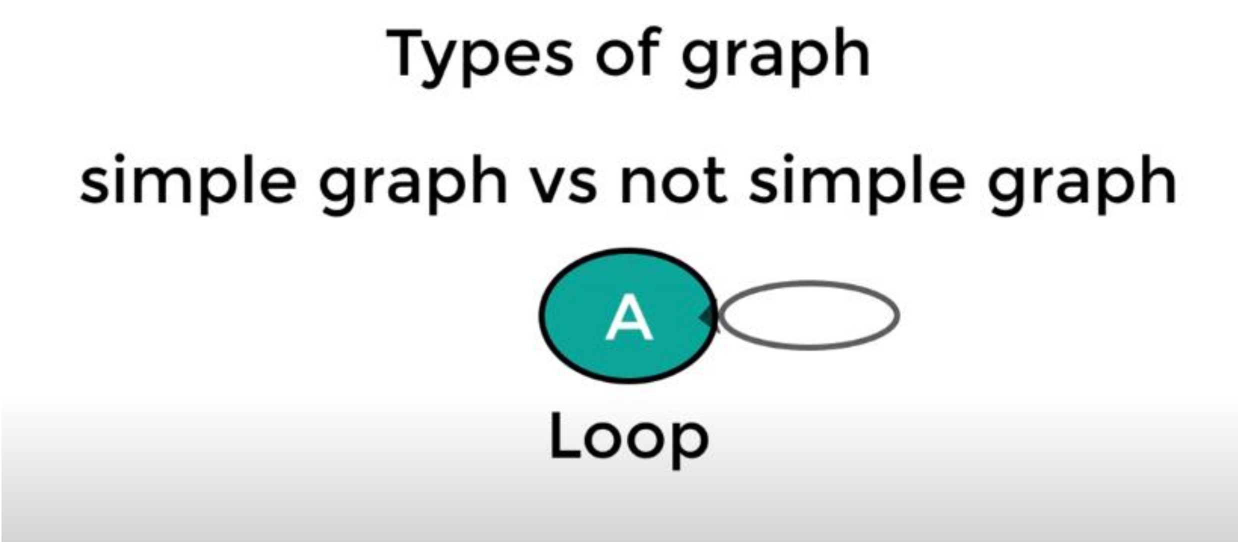
Connected Graph

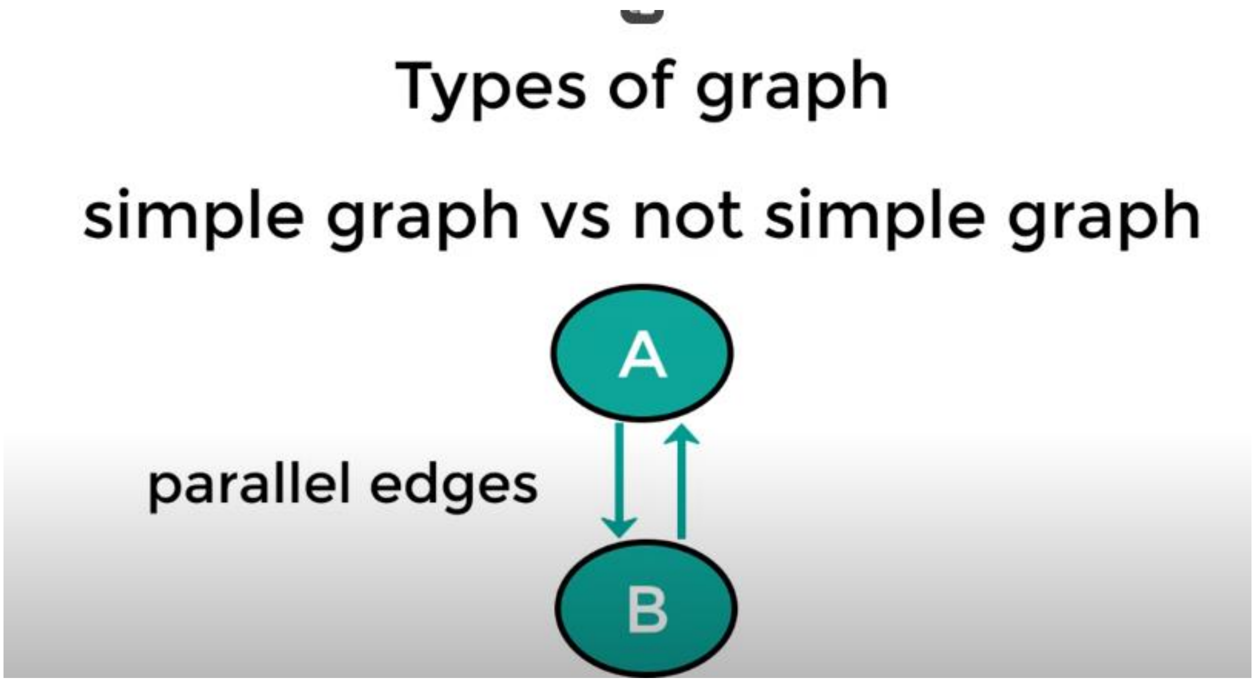
Connected graph i can go in a path for any case just like this example i can go from A to D or from D to C ...

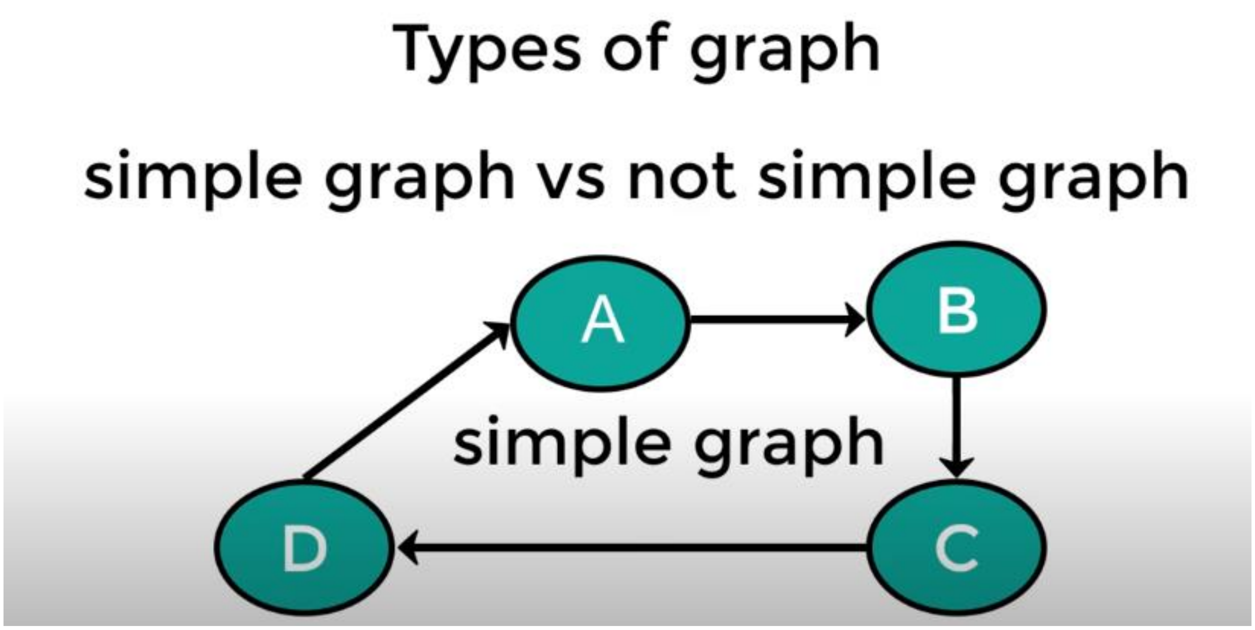


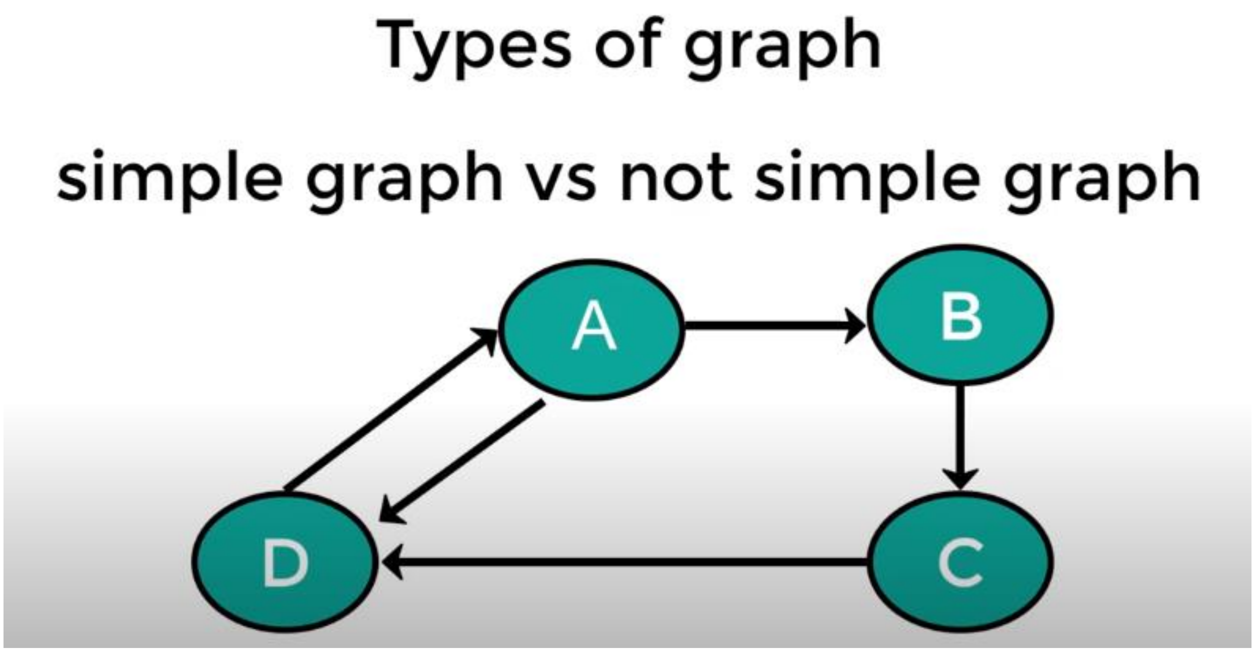
Disconnected Graph



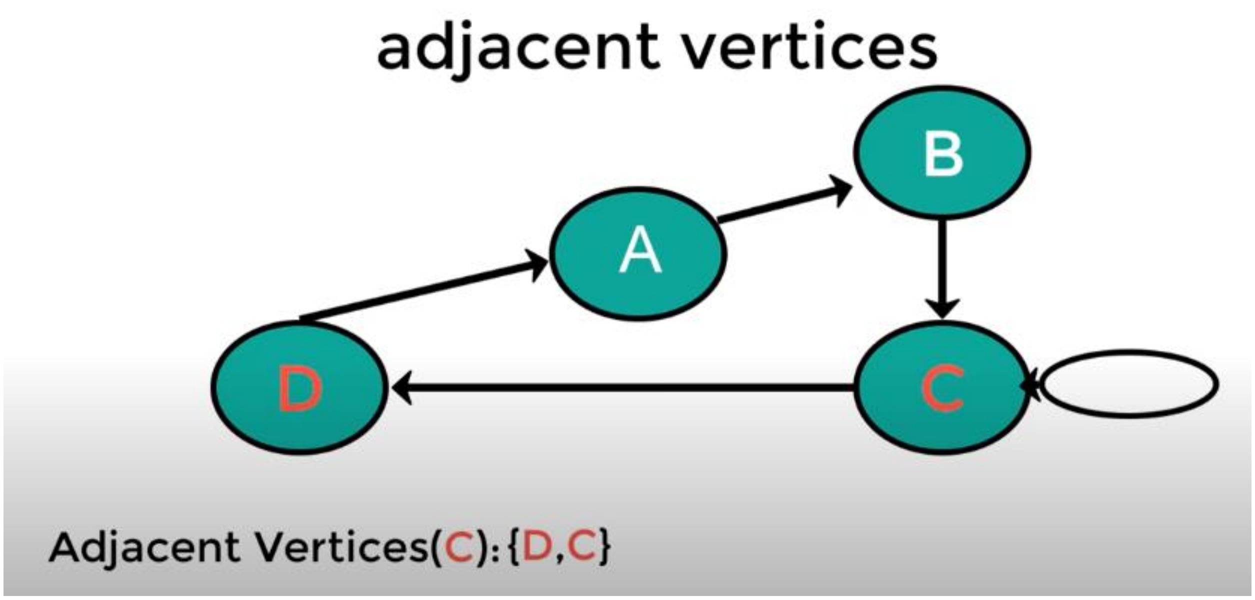



Types of graph
simple graph vs not simple graph
A
parallel edges
B

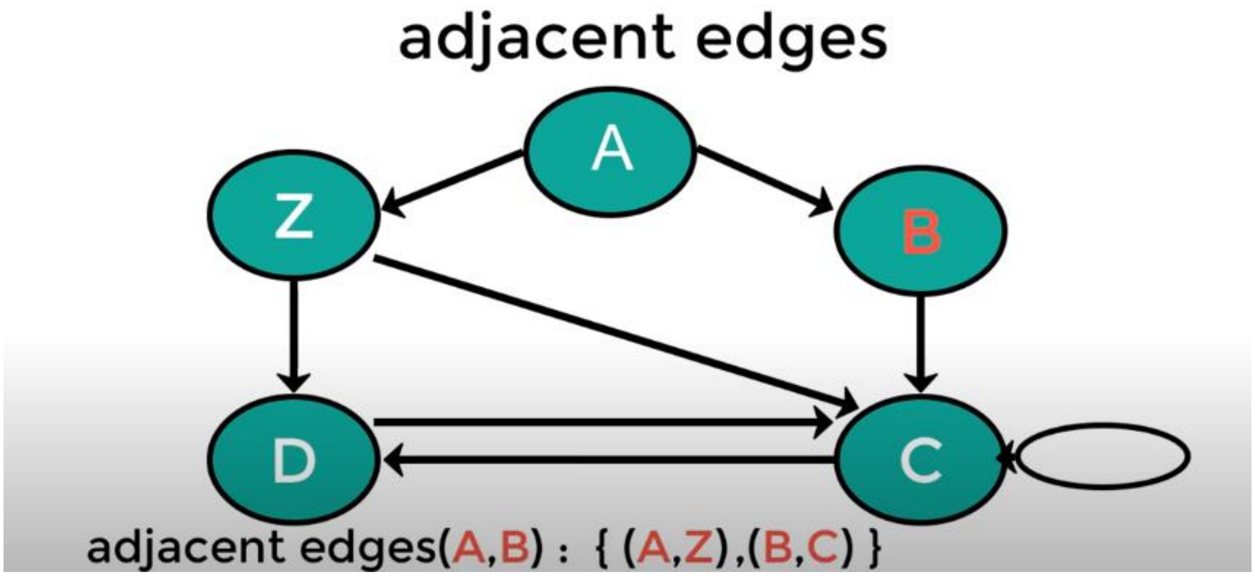

Types of graph
simple graph vs not simple graph
A
B
simple graph
D
C

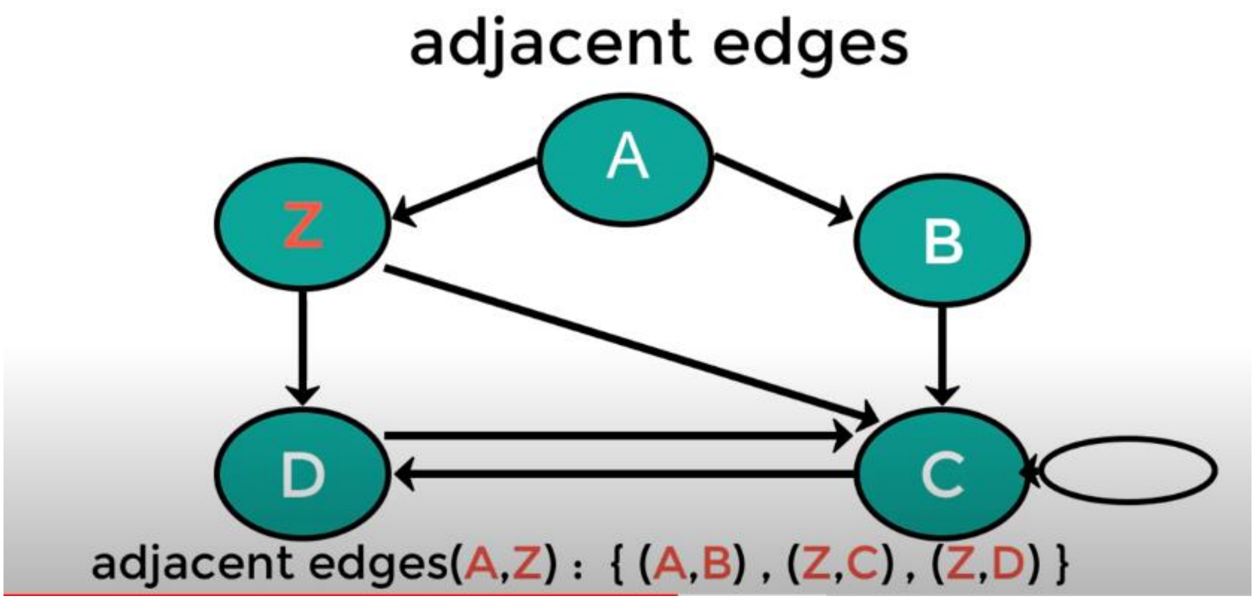


Kanchofo limrbot nichan m3a c had l case we have D and C because there’s a loop

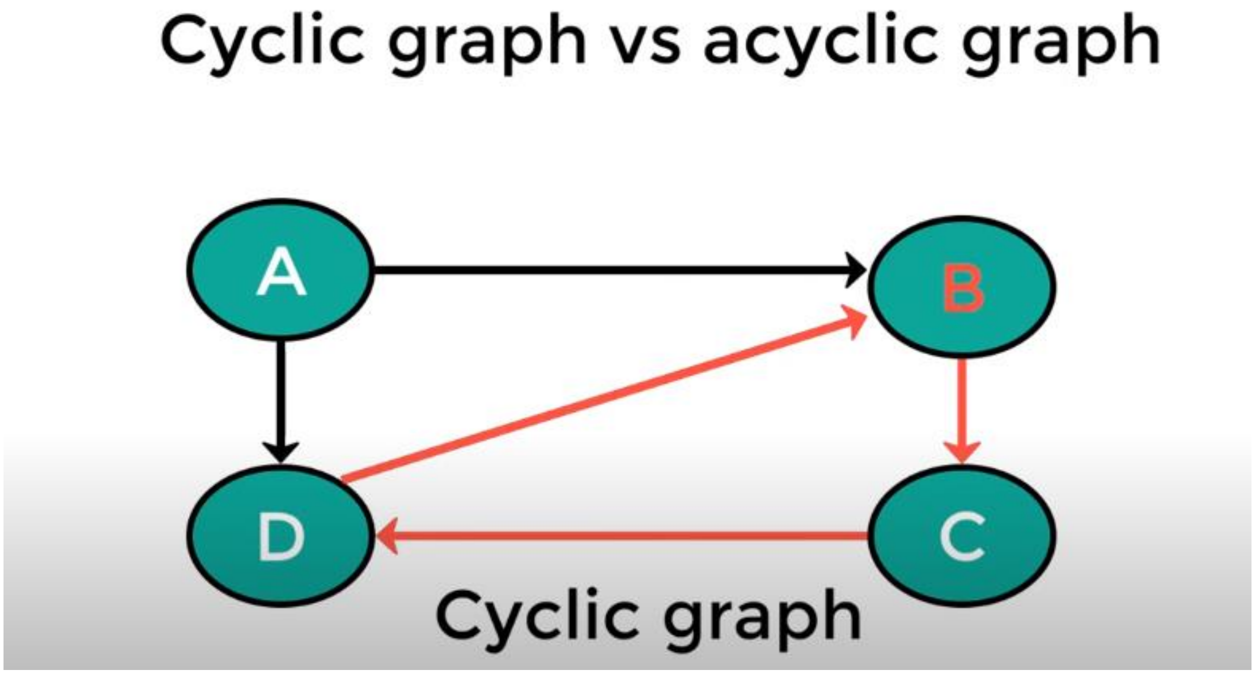


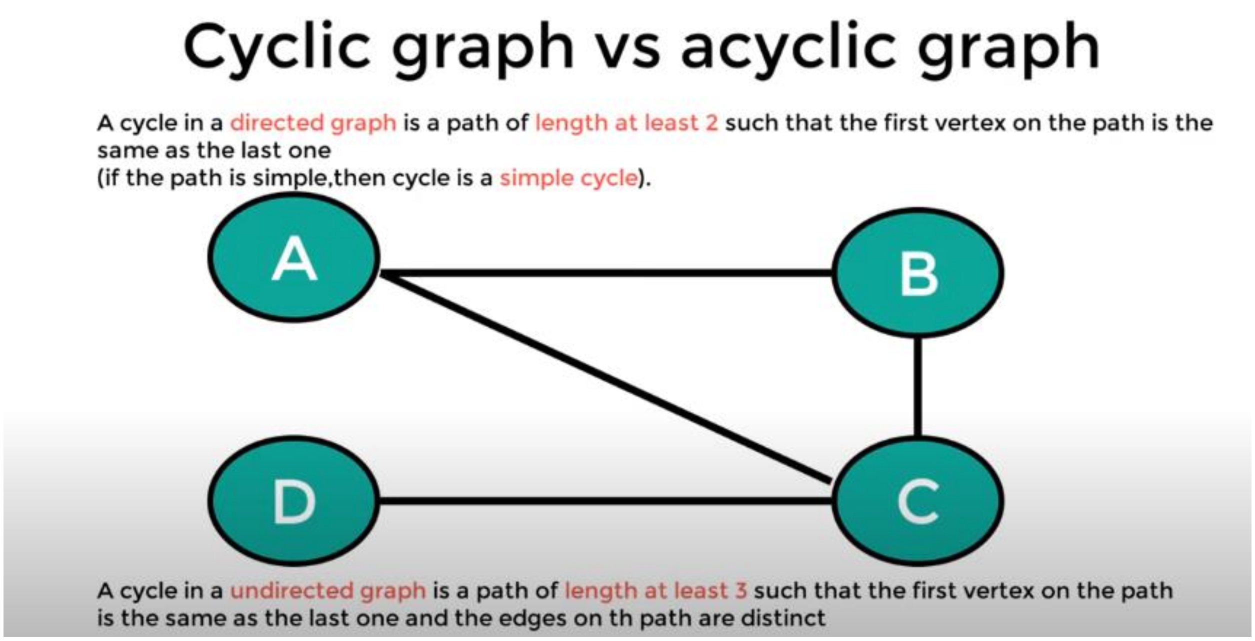
We get rid off the originale adjacent edge and we should mention the other edges that have a relation between the (A,B) in this case we have : a-z and b-c



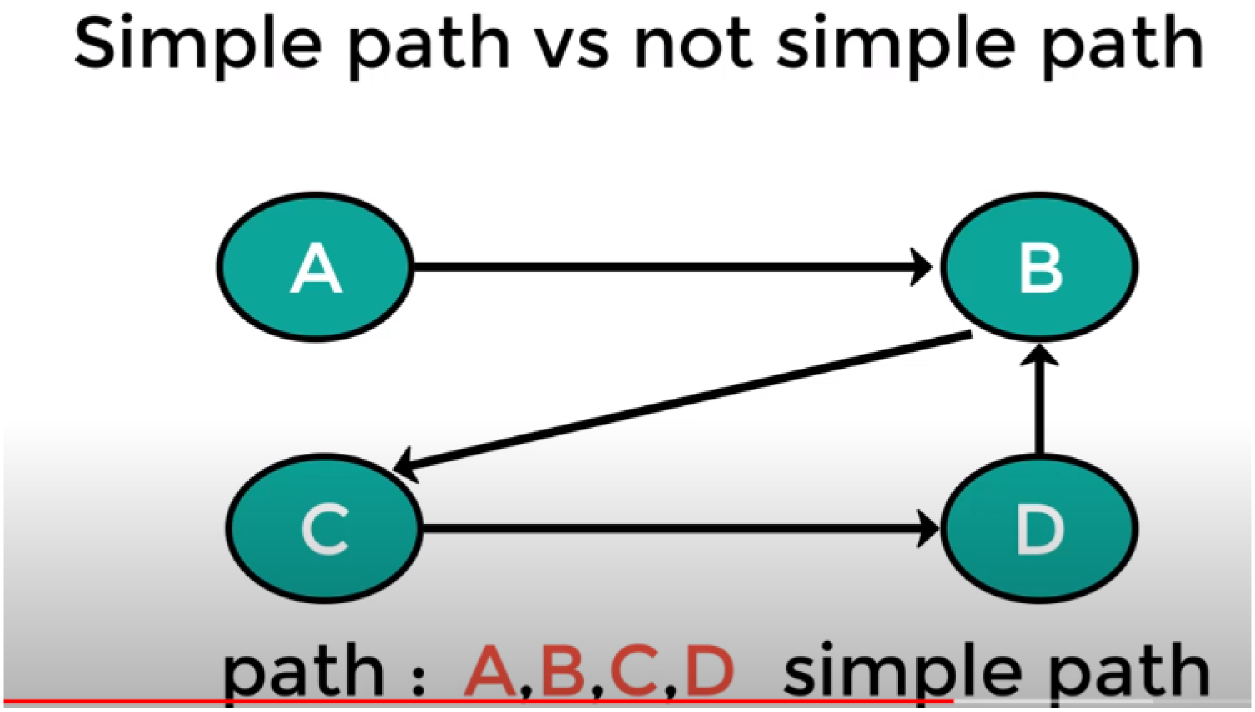


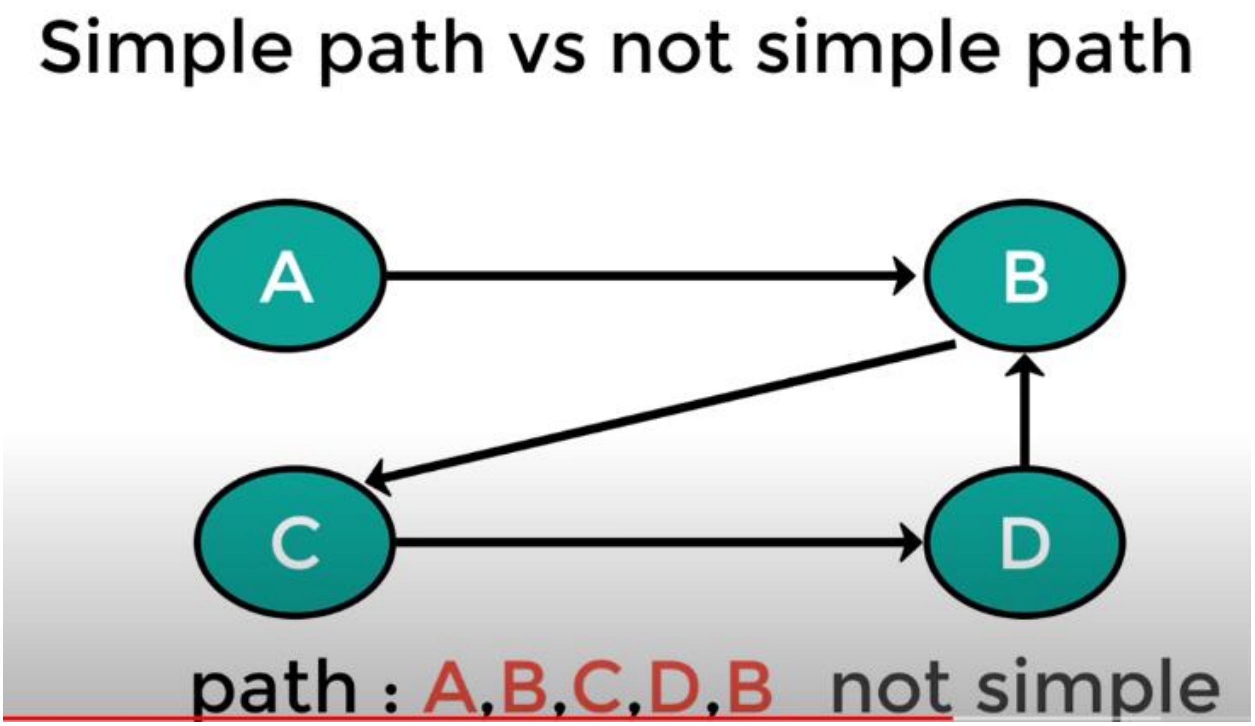
When we can go back to the same vertex



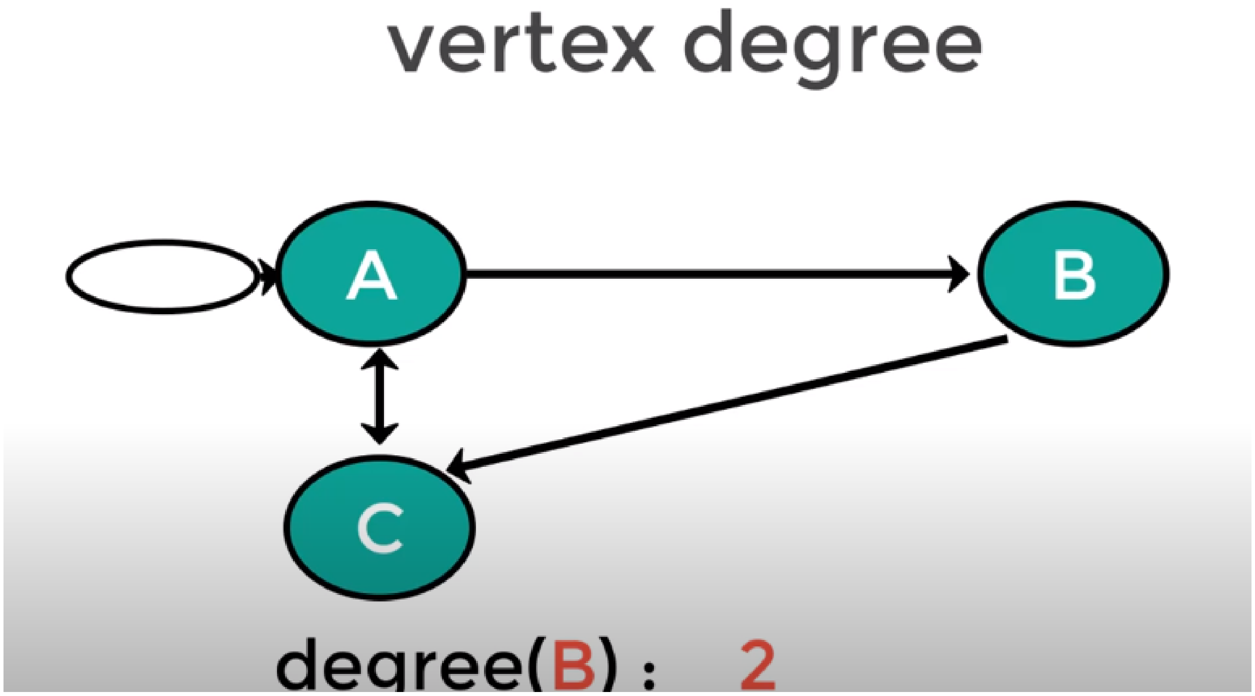


To Achieve simple path we have to avoid reputation same as the example at the bottom

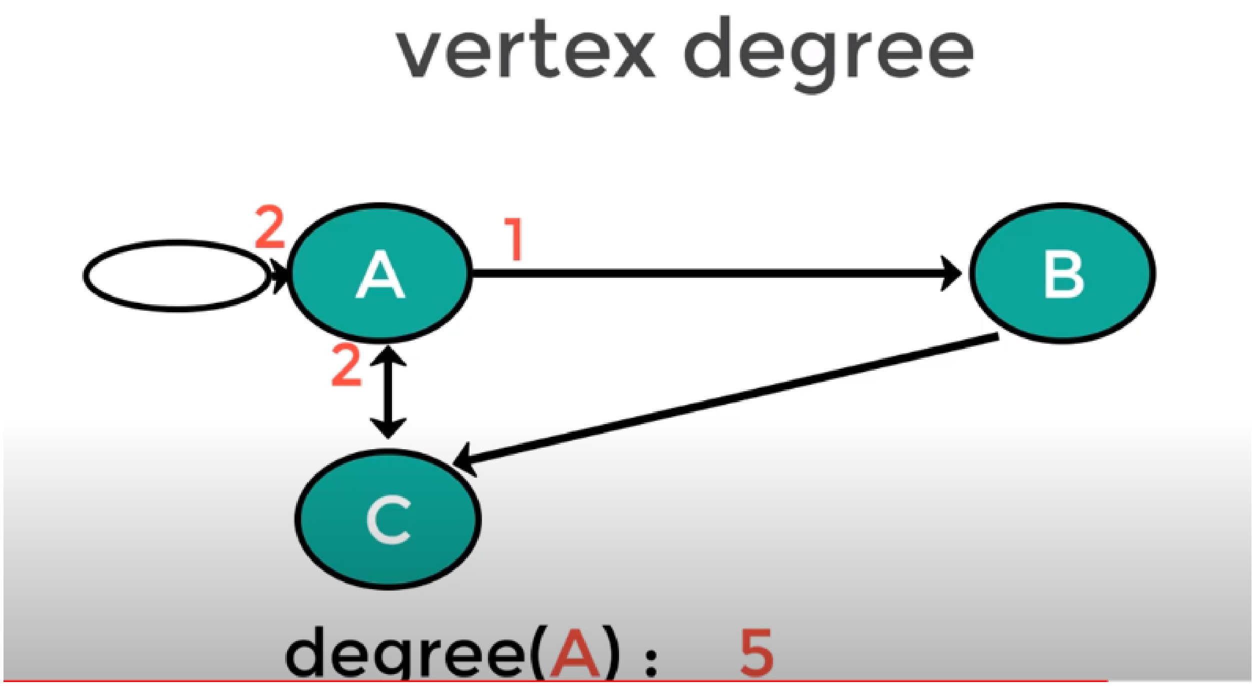


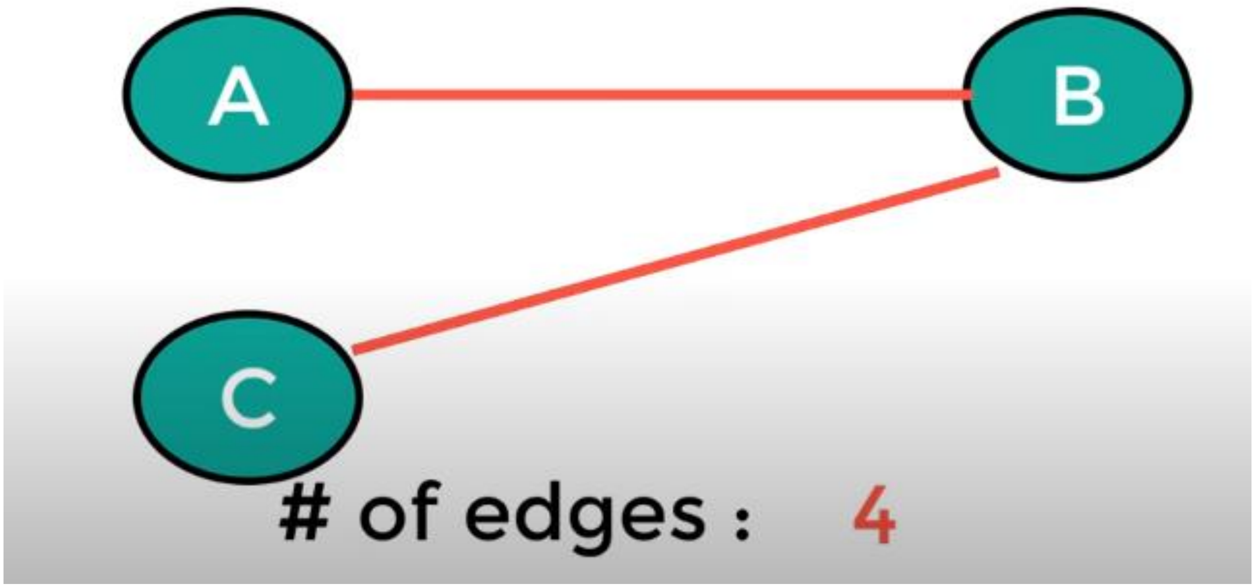


Degree 3ibara 3la edges lidakhla fel vertex wli kharja meno hna 3ndna c w a idan 2

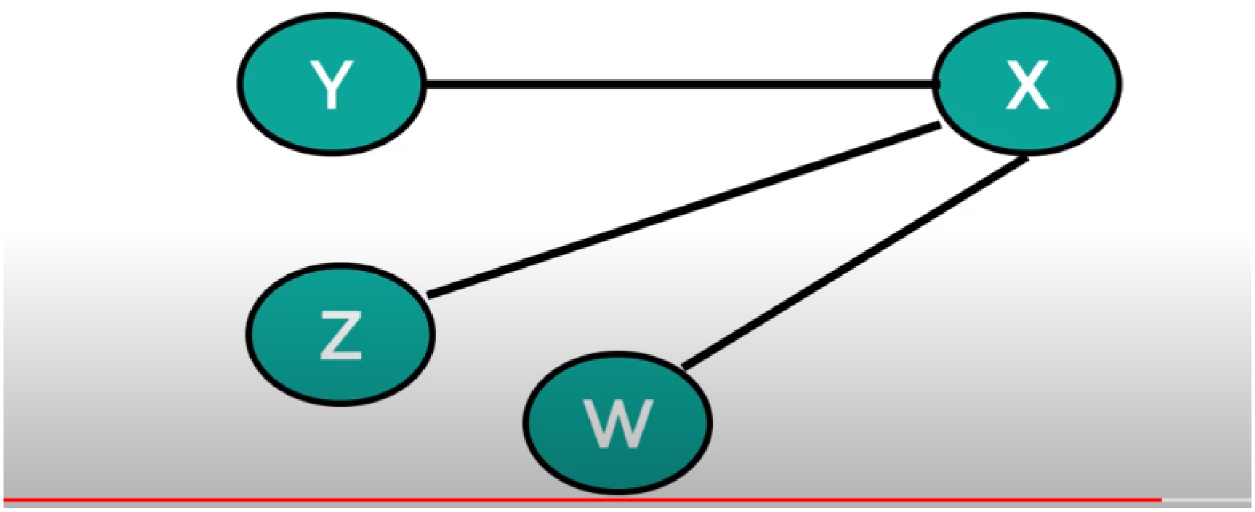


Hadi 5 hint ila kan sahem kaydi wyib edge kadrab fe 2

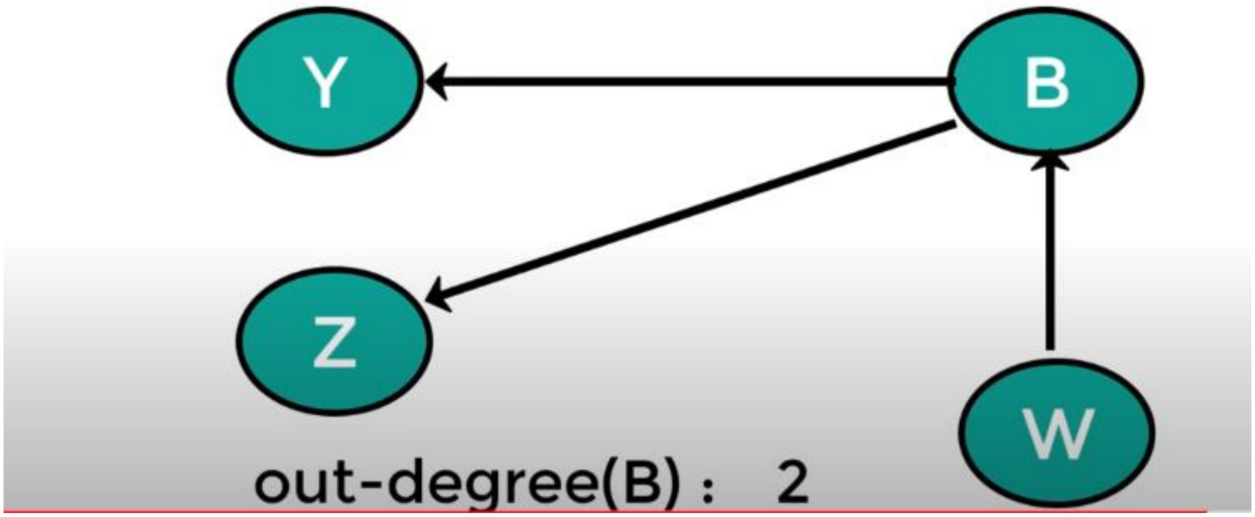




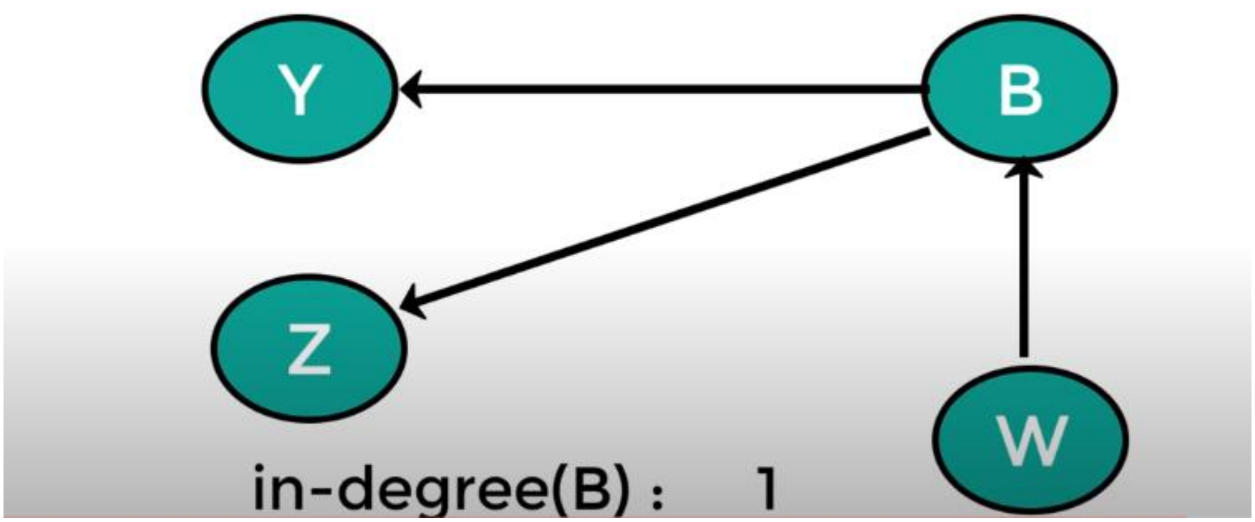
Incident edges =3



In-degree and Out-degree

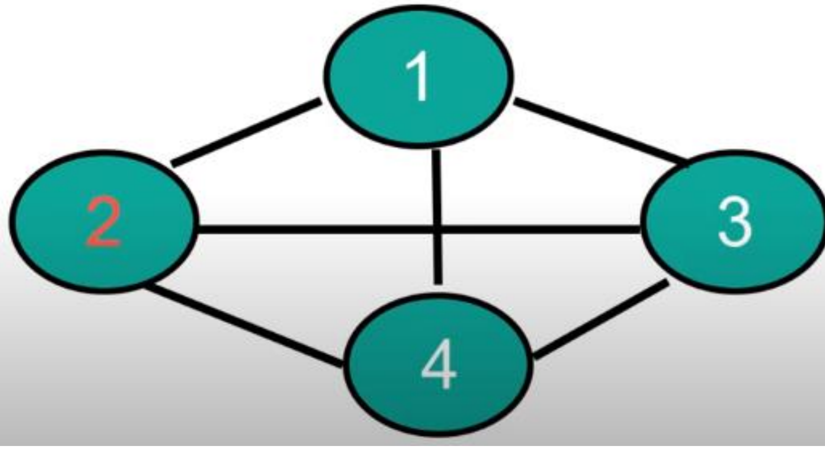


In-degree and Out-degree



Type of graph

complete graph



Dense vs Sparse

$|E| \approx |V|^2$ the graph is dense

$|E| \approx |V|$ the graph is sparse

Graph representation

1. Adjacency Matrix

2. Adjacency List

Graph representation

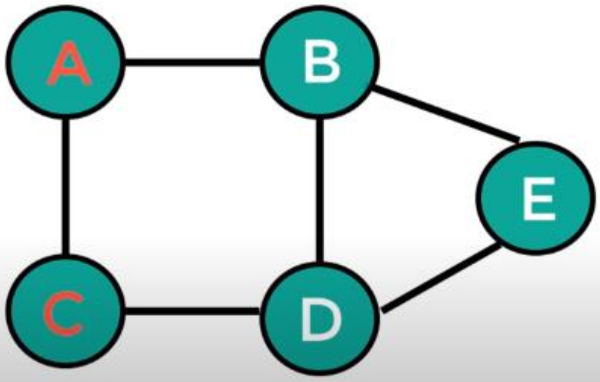
1. Adjacency Matrix

size of matrix = 5 X 5

4 X 4

Graph representation

1. Adjacency Matrix



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

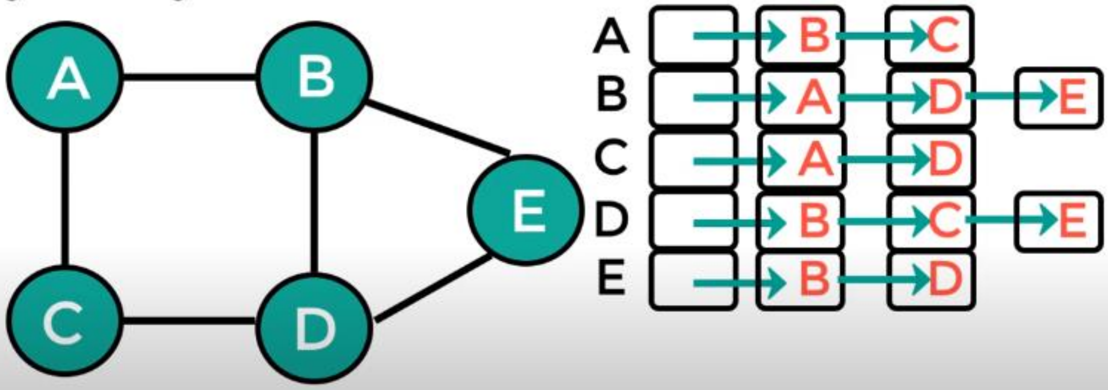
Graph representation

1. Adjacency Matrix

Space Complexity O(v^2)

Graph representation

2. djacency List



Space Complexity O(V + E)