undirected graphs.

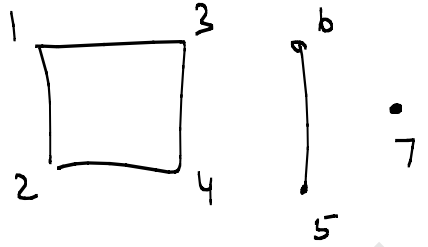
Note Title

$G = (V, E)$

↓

unordered pairs.

$\{a, b\}$, (a, b)



$1 - 3 - 4$

$4 - 3 - 1$

undirected edges are like 'two-way' streets

directed edges are like 'one way' streets.

if $(i, j) \in E$

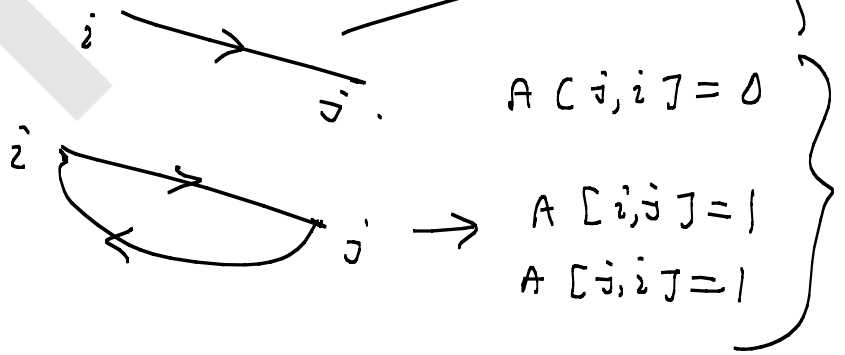
$\{i, j\} \in E$

$A[i, j] = 1$

$A[j, i] = 1$

In directed graphs

if $(i, j) \in E$

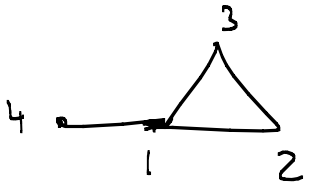


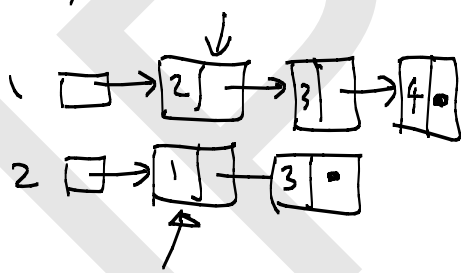
The Adj Matrix of an undirected graph is always symmetric.

in Adj List of i, we include j.

AND

in Adj List of j, we include i.



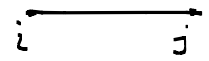


Size of Adj List of Directed graph is $|E|$

Size of Adj List for undirected graph is $2|E|$.

Degree of a node is number edges incident on it.

$$\sum_{v \in V} d(v) = 2|E|$$



Recall for Directed graphs

$$\sum_{v \in V} \text{in\_degree}(v) = |E|$$

$$\sum_{v \in V} \text{out\_degree}(v) = |E|$$