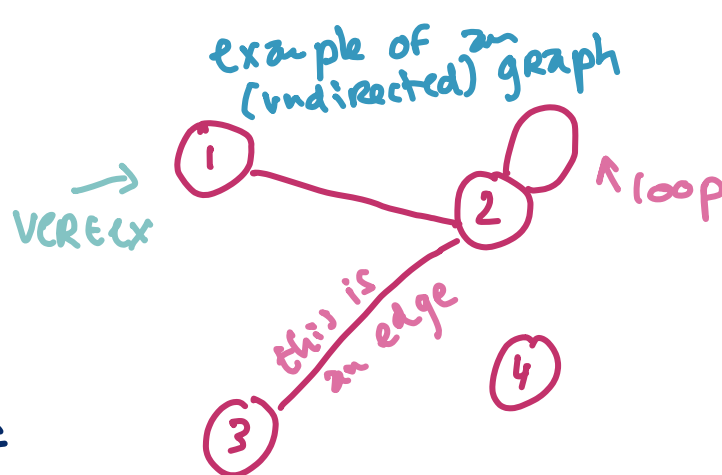


Lecture 23: Intro to GRAPHS

We define a graph as

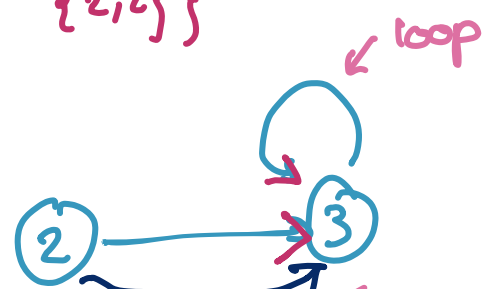
$$G = (V, E)$$

the set of vertices the set of edges



$$V = \{1, 2, 3, 4\}$$

$$E = \{\{1, 2\}, \{2, 3\}, \{2, 2\}\}$$



$$V = \{2, 3\}$$

$$E = \{(2, 3), (3, 2)\}$$

this is a parallel edge because there is already an edge between 2 and 3

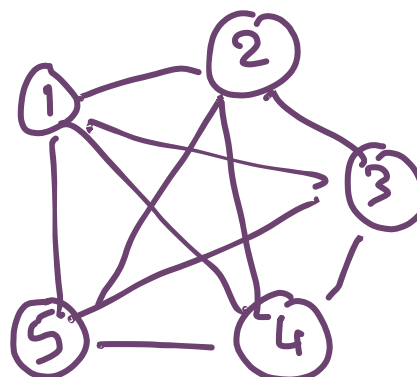
Sometimes we allow loops (edge from one vertex to itself).
parallel edges (multiple edges between the same vertices)

Some typical graphs

DISCONNECTED GRAPH n
(here $n=5$)



COMPLETE GRAPH n
(here $n=5$)



number of edges?

$$\frac{n(n-1)}{2}$$