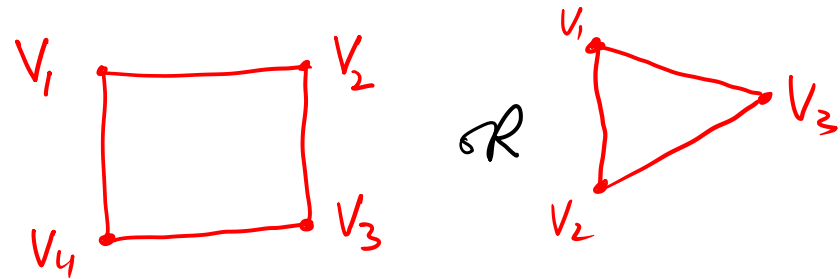# Types of Graph

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1. Simple Graph

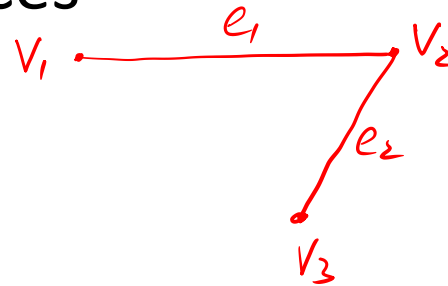- A graph in which there is no more than one edge between any pair of vertices is called a Simple Graph, e.g.

2. Isolated / Null Graph

* A graph in which no pair of vertices has a common edge, e.g.

3. Connected Graph

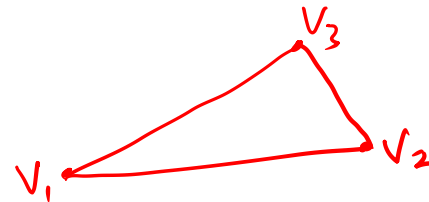- A graph in which there is at least one Simple Path between any two vertices

4. Finite Graph

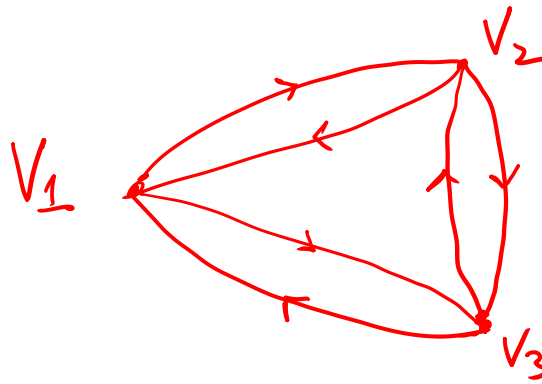A graph in which number of vertices is equal to number of edges, e.g.

No: of Vertices = No: of Edges

3 = 3

5. **Regular Graph**

A graph in which each vertex is of the same degree, e.g.

Here

$d(v1) = 4$

$d(v2) = 4$

$d(v3) = 4$

$d(v4) = 4$

6. Complete Graph / Strongly Connected Graph

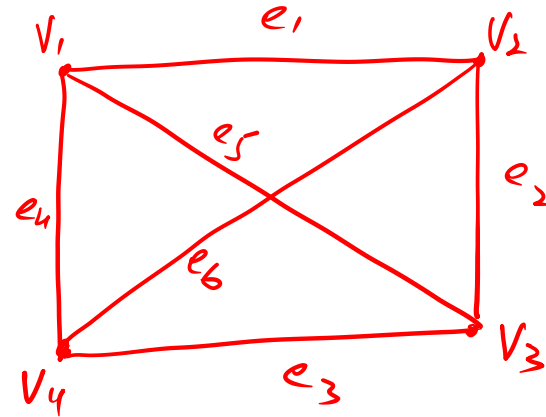A graph in which each vertex is connected to every other vertex.

If there are n vertices then there will be n*(n-1)/2 edges, e.g.

Number of vertices = n= 4

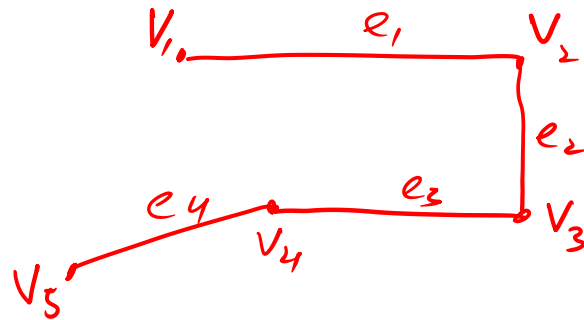Number of Edges = n*(n-1)/2

$\qquad$ = 4*(4-1)/2

$\qquad$ = 6

7. Tree Graph / Free Graph / Loosely Connected Graph

It is a graph without a Cycle.
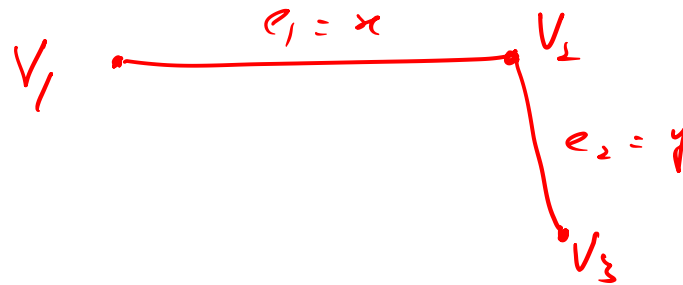
For "n" vertices there are "n-1" edges, e.g.

Number of Vertices = n = 5

Number of Edges = n − 1 = 4

8. Labeled Graph
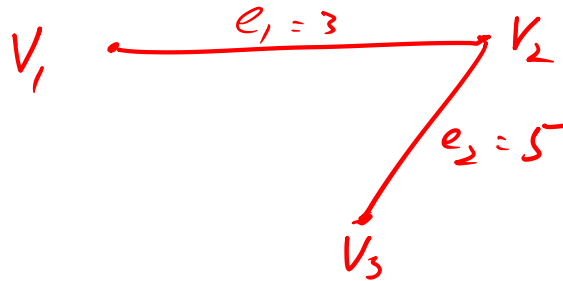
* It is a graph in which edges are assigned titles.

* The assigned titles are called Labels.

V_1 —— $e_1 = x$ —— V_2, $e_2 = y$ —— V_3

9. **Weighted Graph**

It is a graph whose edges are assigned some specific non-negative numeric value.

The default weight for an edge is 1.

V_1 —— $e_1 = 3$ —— V_2

$e_2 = 5$

V_3

Weight of graph = weight of e1 + weight of e2

= 3 + 5 = 8

10. **Directed Graph / Diagraph**

* It is a graph in which directions are assigned to edges.

- The directions are shown by means of arrow heads

$$(\rightarrow, \leftarrow, \uparrow, \downarrow)$$