Graphs

What is Graph

- A non-linear data structure consisting of vertices and edges.

- More formally a Graph is composed of a set of vertices(**V**) and a set of edges(**E**). The graph is denoted by **G(V, E).**

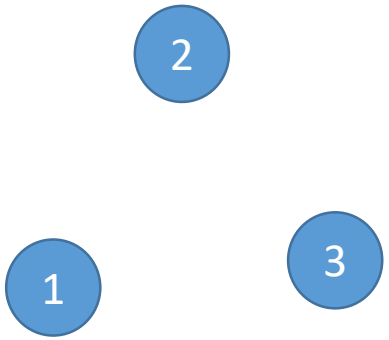
Types of Graph

Null Graph

- A graph is known as a null graph if there are no edges in the graph.

Trivial Graph

- Graph having only a single vertex, it is also the smallest graph possible.



Null Graph

Trivial Graph

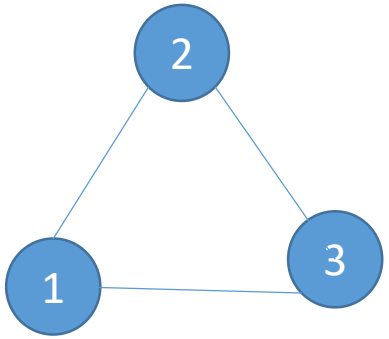
Types of Graph

Undirected Graph

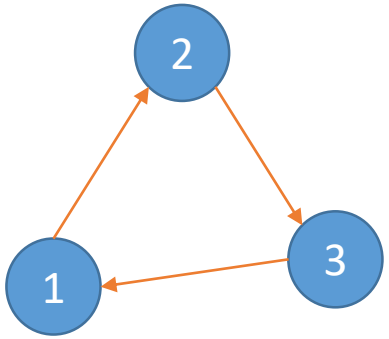
- A graph in which edges do not have any direction. That is the nodes are unordered pairs in the definition of every edge.

Directed Graph

- A graph in which edge has direction. That is the nodes are ordered pairs in the definition of every edge.



Undirected Graph



Directed Graph

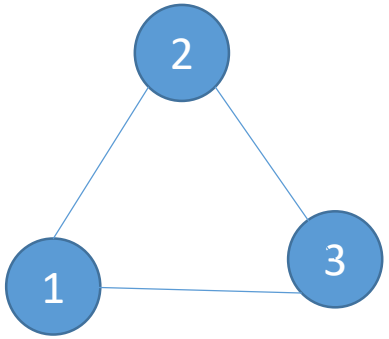
Types of Graph

Connected Graph

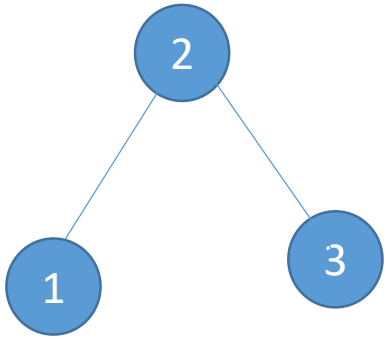
- The graph in which from one node we can visit any other node in the graph is known as a connected graph.

Disconnected Graph

- The graph in which at least one node is not reachable from a node is known as a disconnected graph.



Connected Graph

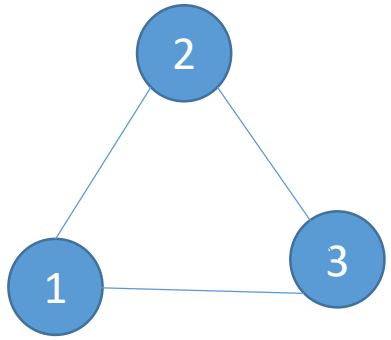


Disconnected Graph

Types of Graph

Complete Graph

- The graph in which from each node there is an edge to each other node.

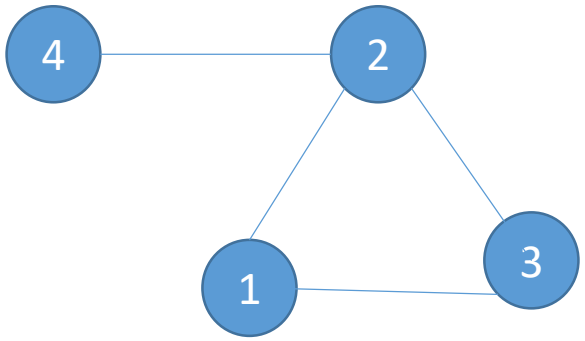


Complete Graph

Types of Graph

Cyclic Graph

- A graph containing at least one cycle is known as a Cyclic graph.



Connected Graph

Types of Graph

Weighted Graph

- A graph in which the edges are already specified with suitable weight is known as a weighted graph.
- Weighted graphs can be further classified as directed weighted graphs and undirected weighted graphs.

Graph traversal

- DFS Traversal
- BFS Traversal