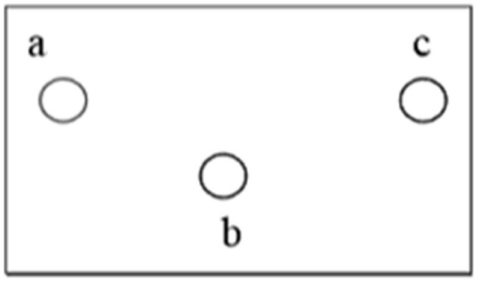
Types of Graphs

There are different types of graphs, which we will learn in the following section.

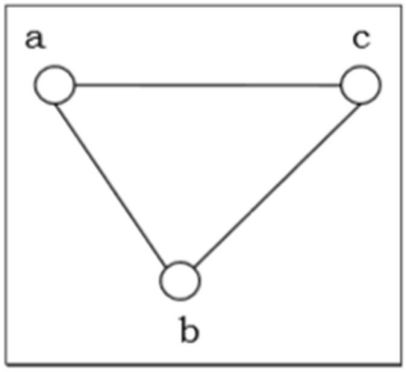
Null Graph

A null graph has no edges. The null graph of n vertices is denoted by Nn



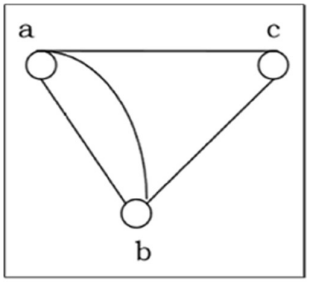
Simple Graph

A graph is called simple graph/strict graph if the graph is undirected and does not contain any loops or multiple edges.



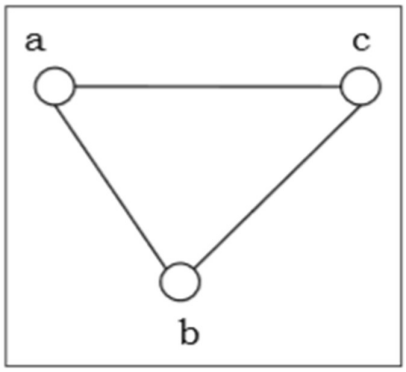
Multi-Graph

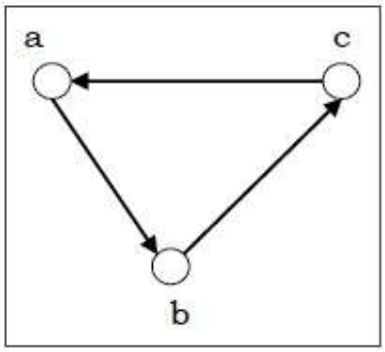
If in a graph multiple edges between the same set of vertices are allowed, it is called Multigraph. In other words, it is a graph having at least one loop or multiple edges.



Directed and Undirected Graph

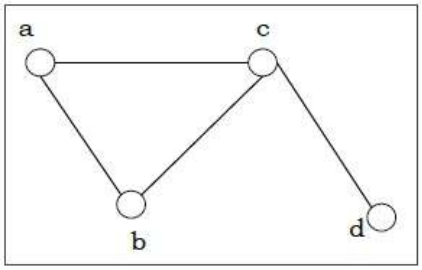
A graph G=(V,E) is called a directed graph if the edge set is made of ordered vertex pair and a graph is called undirected if the edge set is made of unordered vertex pair.

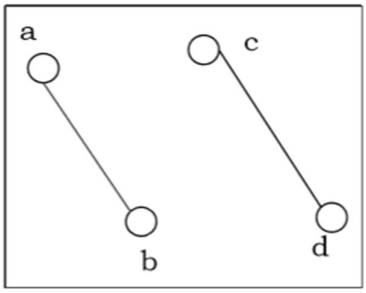




Connected and Disconnected Graph

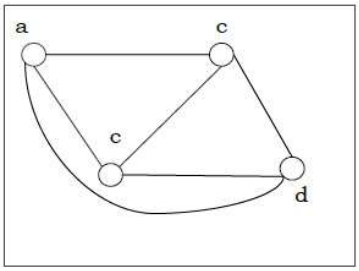
A graph is connected if any two vertices of the graph are connected by a path; while a graph is disconnected if at least two vertices of the graph are not connected by a path. If a graph G is disconnected, then every maximal connected subgraph of G is called a connected component of the graph G.





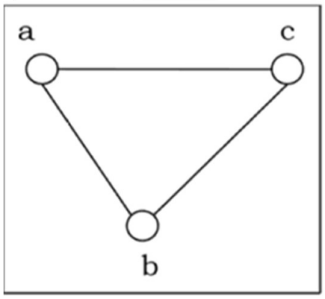
Regular Graph

A graph is regular if all the vertices of the graph have the same degree. In a regular graph G of degree r, the degree of each vertex of G is r.



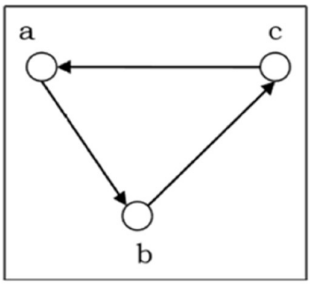
Complete Graph

A graph is called complete graph if every two vertices pair are joined by exactly one edge. The complete graph with n vertices is denoted by Kn



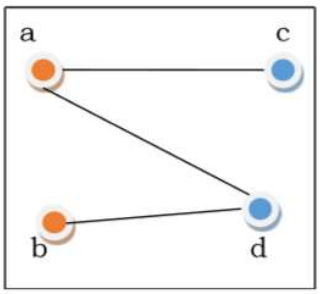
Cycle Graph

If a graph consists of a single cycle, it is called cycle graph. The cycle graph with n vertices is denoted by Cn



Bipartite Graph

If the vertex-set of a graph G can be split into two disjoint sets, V1 and V2, in such a way that each edge in the graph joins a vertex in V1 to a vertex in V2, and there are no edges in G that connect two vertices in V1 or two vertices in V2, then the graph G is called a bipartite graph.



Complete Bipartite Graph

A complete bipartite graph is a bipartite graph in which each vertex in the first set is joined to every single vertex in the second set. The complete bipartite graph is denoted by Kx,y where the graph G contains x vertices in the first set and y vertices in the second set.