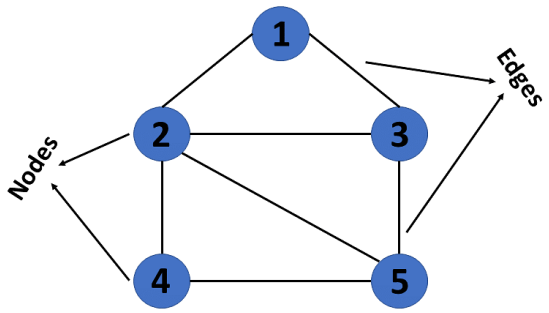
UNIT.5-Graph in Data Structure

What is Graph in Data Structure?

Graphs in data structures are non-linear data structures made up of a finite number of nodes or vertices and the edges that connect them. Graphs in data structures are used to address real-world problems in which it represents the problem area as a network like telephone networks, circuit networks, and social networks. For example, it can represent a single user as nodes or vertices in a telephone network, while the link between them via telephone represents edges.

What Are Graphs in Data Structure?

A graph is a non-linear kind of data structure made up of nodes or vertices and edges. The edges connect any two nodes in the graph, and the nodes are also known as vertices.



This graph has a set of vertices V= { 1,2,3,4,5} and a set of edges E= { (1,2),(1,3),(2,3),(2,4),(2,5),(3,5),(4,50 }.

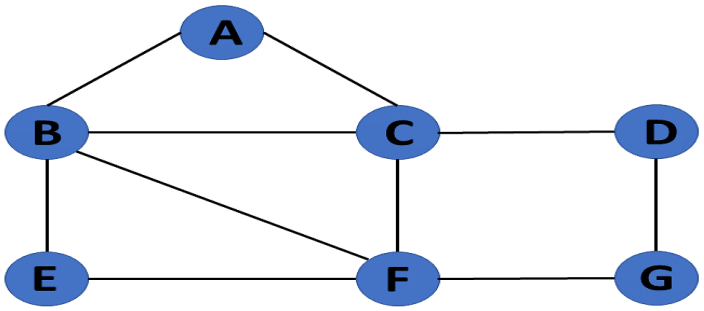
Now that you've learned about the definition of graphs in data structures, you will learn about their various types.

Types of Graphs in Data Structures

There are different types of graphs in data structures, each of which is detailed below.

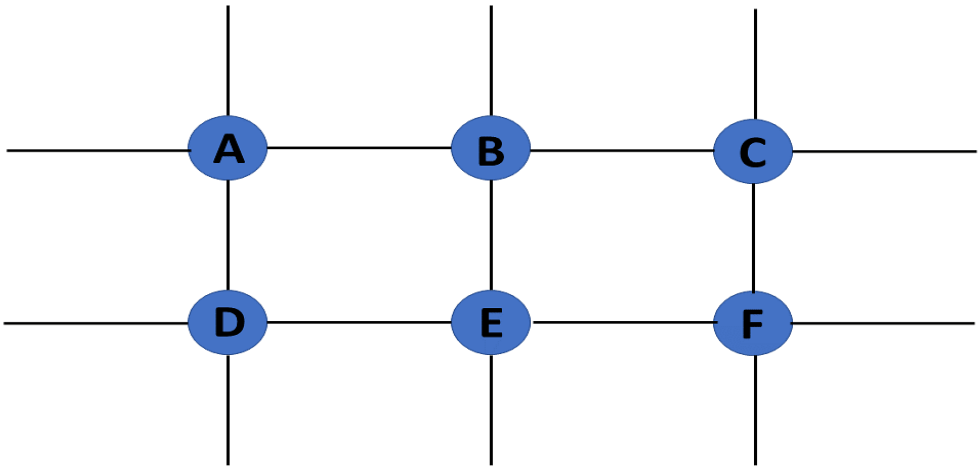
1. Finite Graph

The graph G=(V, E) is called a finite graph if the number of vertices and edges in the graph is limited in number



2. Infinite Graph

The graph G=(V, E) is called a finite graph if the number of vertices and edges in the graph is interminable.



3. Trivial Graph

A graph G= (V, E) is trivial if it contains only a single vertex and no edges.

4. Simple Graph

If each pair of nodes or vertices in a graph G=(V, E) has only one edge, it is a simple graph. As a result, there is just one edge linking two vertices, depicting one-to-one interactions between two elements.