

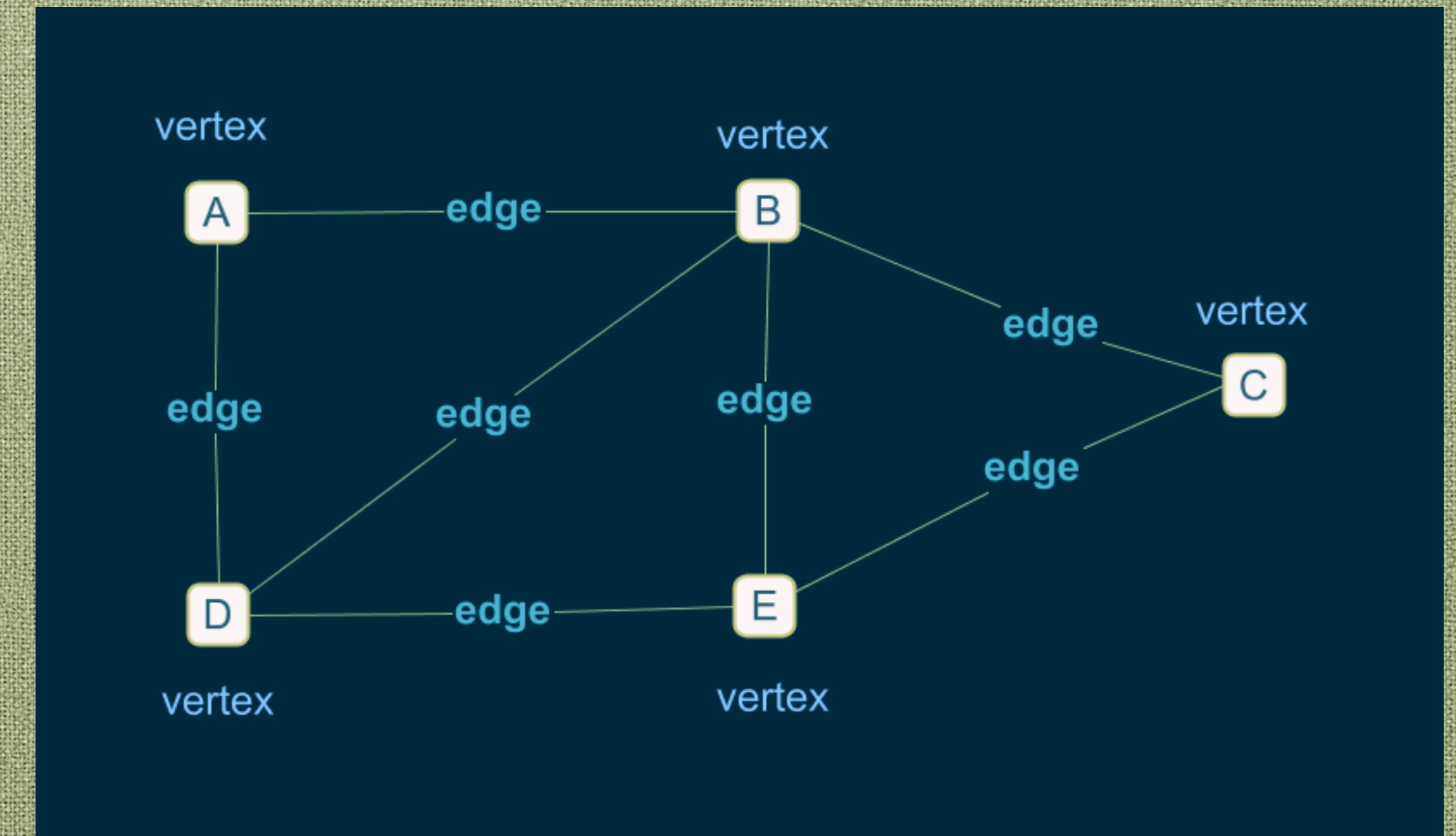
Data Structures with Real-World Examples.

PART-II [GRAPH]

GRAPH

About:

- Graph is a non-linear data structure consisting of nodes and edges.
- Nodes are sometimes also referred to as vertices and the edges are lines that connect any two nodes in the graph.



GRAPH

Types of Graphs:

DIRECTED GRAPH

A type of graph that contains ordered pairs of vertices

Edges represent the direction of vertexes

An arrow represents the edges

UNDIRECTED GRAPH

A type of graph that contains unordered pairs of vertices

Edges do not represent the direction of vertexes

Undirected arcs represent the edges

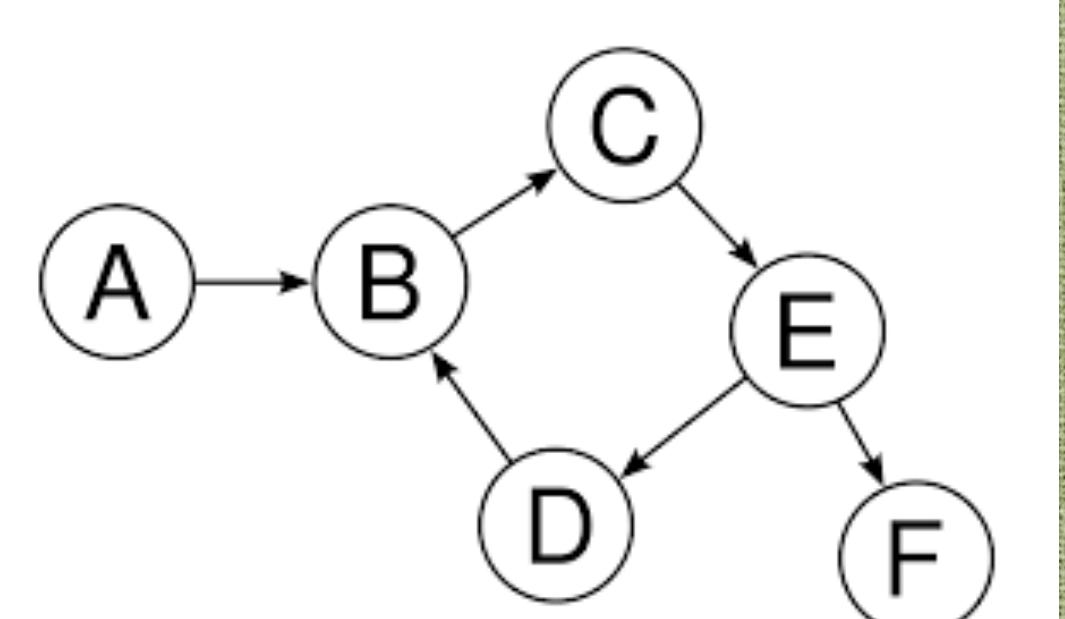
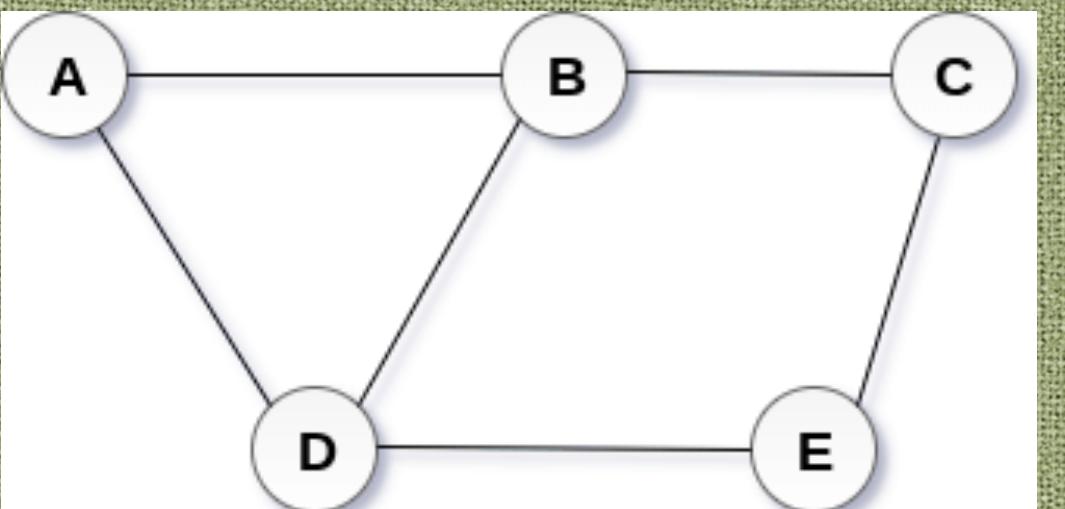


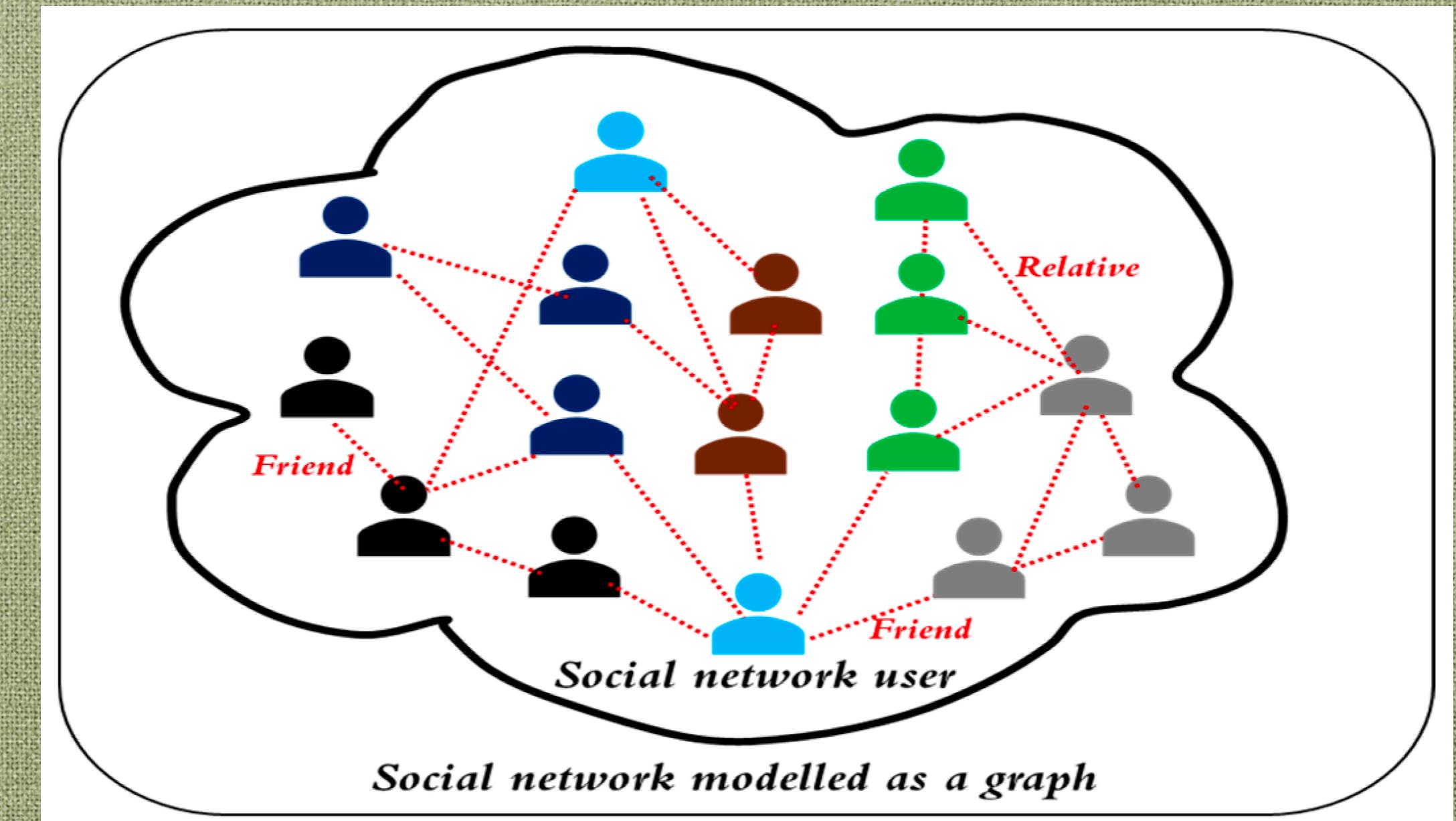
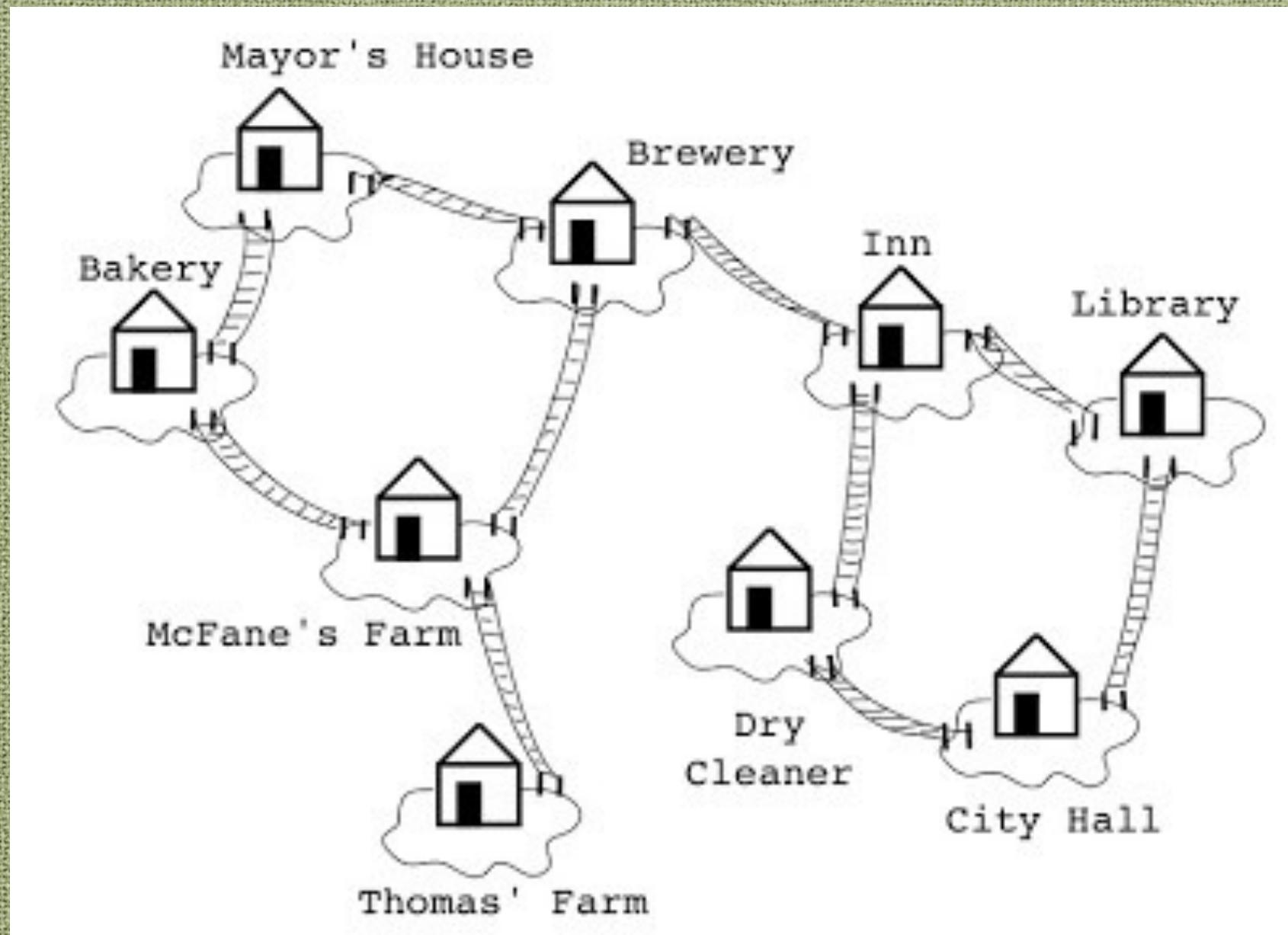
Figure 3 : Directed Graphs



Undirected Graph

GRAPH

Graphs in everyday life:

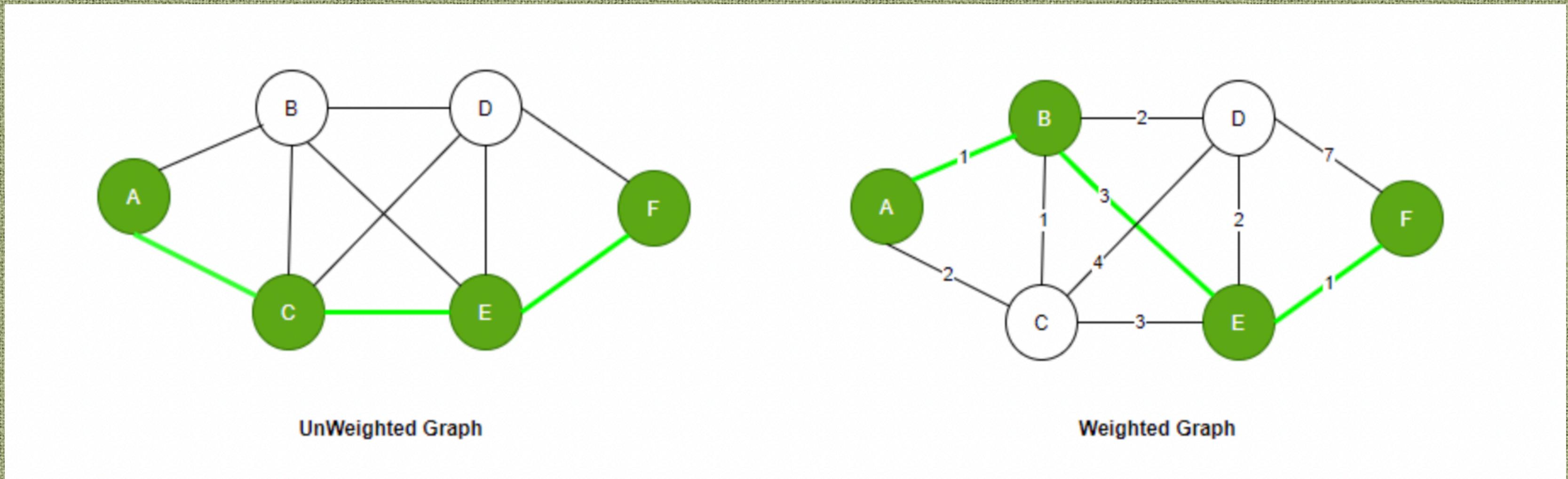


GRAPH

Types of Graphs:

Weighted and Unweighted Graphs:

- Weight is a numerical value attached to each individual edge in the graph.
- Weighted Graph will contains weight on each edge where as unweighted does not.



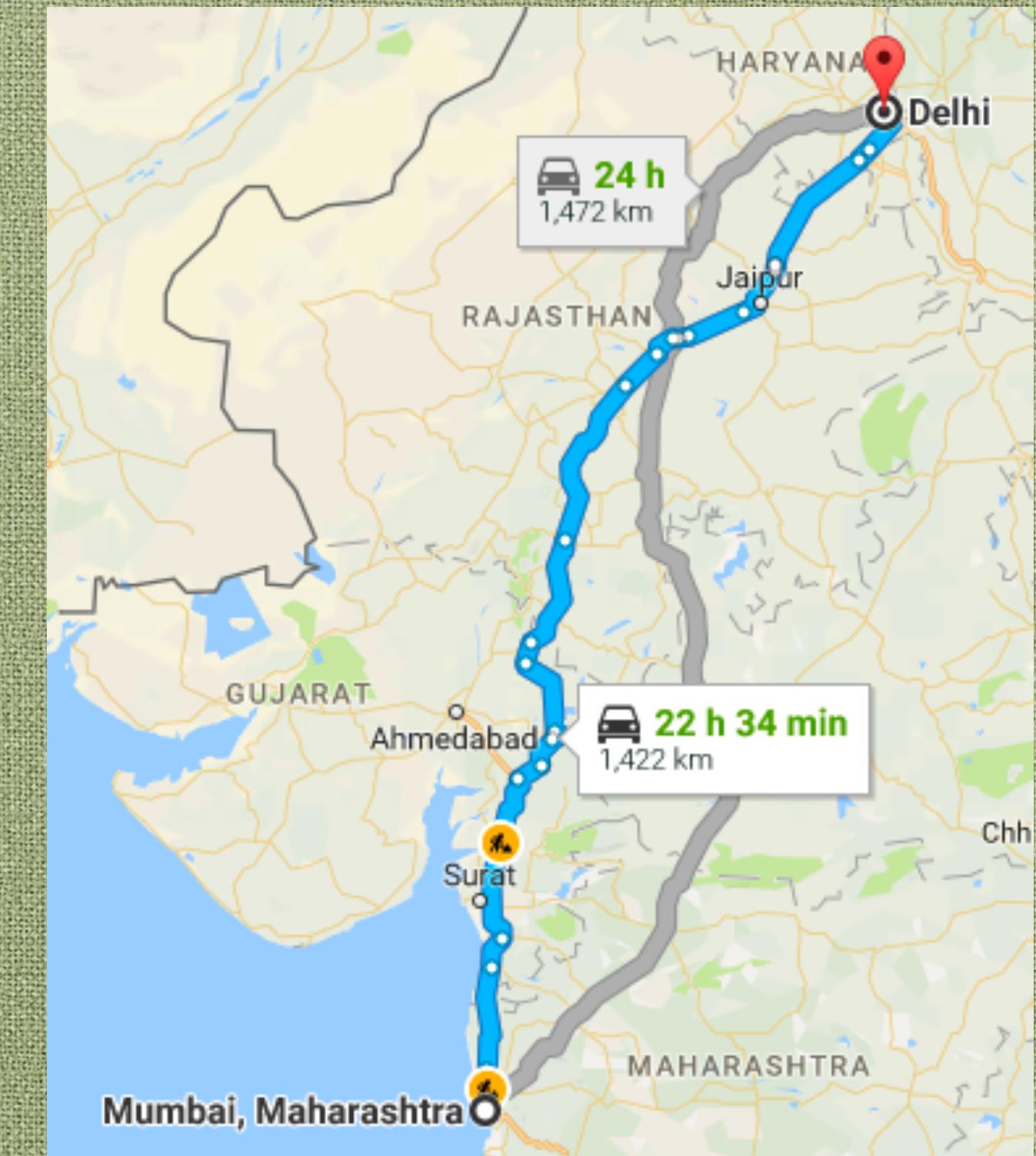
GRAPH

Real-Life Applications:

- Google Maps Platform (Maps, Routes APIs)

Google maps uses graphs for building transportation systems, where intersection of two(or more) roads are considered to be a vertex and the road connecting two vertices is considered to be an edge, thus their navigation system is based on the algorithm to calculate the shortest path between two vertices.

- On **social media** sites, we use graphs to track the data of the users. liked showing preferred post suggestions, recommendations, etc.



GRAPH

Real-Life Applications:

- Facebook uses graphs.

Facebook use graphs to suggest the mutual friends. It shows a list of the following pages, friends, and contact list.

Also in **Facebook**, users are considered to be the vertices and if they are friends then there is an edge running between them. Facebook's Friend suggestion algorithm uses graph theory. Facebook is an example of **undirected graph**.

