

### Definition of Graph

Graphs are non-linear data structures made up of two major components:

Vertices: are entities in a graph

Edges: represent the relationship between the vertices in the graph

Graph's Goal

Used to visualize organized data and to represent places and the distance between them.

Types of Graphs:

Based on Direction:

Based on Direction:

Undirected Graphs:  $\text{edge}(x,y) == \text{edge}(y,x)$

Directed Graphs:  $\text{edge}(x,y) \neq \text{edge}(y,x)$

### Data Structure(Graph)

Graphs are non-linear data structures made up of two major components

Vertices: are entities in a graph  
Edges: represent the relationship between the vertices in the graph

it's goal: Used to visualize organized data and to represent places and the distance between them.

Types of Graphs:

Based on Direction: Undirected Graphs:  $\text{edge}(x,y) == \text{edge}(y,x)$

Directed Graphs:  $\text{edge}(x,y) \neq \text{edge}(y,x)$

Based on Weights: Weighted Graphs: every edge has a value

Unweighted Graphs: does not have a value associated with every edge.

Special Graphs: Trees, Directed Acyclic Graphs, Complete Graphs

Implementation:

Graphs are easily built out of lists and dictionaries as in figure(1).

This graph has six nodes (A-F) and eight edges as in figure(2).



By **mahmoudkamal**

[cheatography.com/mahmoudkamal/](https://cheatography.com/mahmoudkamal/)

Not published yet.

Last updated 9th March, 2022.

Page 2 of 2.

Sponsored by **Readable.com**

Measure your website readability!

<https://readable.com>

