Graph Theory:

- a graph is a pair of sets (V, E), where V is the set of vertices and E is the set of edges, formed by pairs of vertices (WIkipedia)
- A graph can be represented as an adjacency matrix
- A graph can also be represented by a linked list of the nodes adjacent to the node
- A directed graph is one in which all the nodes in the graph connect to each other.
- Graph theory has several applications such as networks on the internet.
- A graph may be *undirected*, meaning that there is no distinction between the two vertices associated with each edge,
- A node can be represented as an intersection point on a city.
- The Edge is what connects two nodes together. But connection doesn't have to be mutual between nodes.
- Graphs with weights, or weighted graphs, are used to represent structures in which pairwise connections have some numerical values. For example, if a graph represents a road network, the weights could represent the length of each road. (WIkipedia)
- There are 2 popular methods for Graph traversals, Breadth First Search and Depth First Search. Transversal algorithm are used to see which nodes
- an adjacency list which stores each node in a dictionary along with a set containing their adjacent nodes. As the graph is undirected each edge is stored in both incident nodes adjacent sets.

Directed Graph:

Undirected Graph:

References:

http://eddmann.com/posts/depth-first-search-and-breadth-first-search-in-python/
https://github.com/davidcoallier/node-graph