## Graph Algorithm

Graph Algorithm Outline

1. Discuss how to represent one graph, and discuss *BFS and DFS algorithm*.
2. Discuss how to calculate the *Minimum Generated Tree of Graph*.
3. Discuss how to calculate the *Shortest Path of Two Nodes within Weight Graph*.
4. Discuss how to calculate the *Maximum Flow in Flow Network*.

*Representation in Graph Algorithm*

* For the given graph *G = ( V, E )*, when represent run time of the algorithm, normally we use the Node Number | V | of Graph and the Edge Number | E | as input, which is to say we use two parameters but not one parameter to describe the scale of input.
* Graph Search Skill is the Core in the whole Graph Algorithm.

*Representation of Graph*

For Graph = (V, E), there have two standard method to represent graph.

1. *Adjacency List Method*
2. *Adjacency Matrix Method*

These two method all can be used to present the *Undirected Graph*, and the *Directed Graph*. Most of algorithms use Adjacency Matrix Method as input, but when need to check if there has edge between two nodes, we may need to use Adjacency Matrix Method.

* *Adjacency List Representation Method*
* *Adjacency Matrix Representation Method*