Graph

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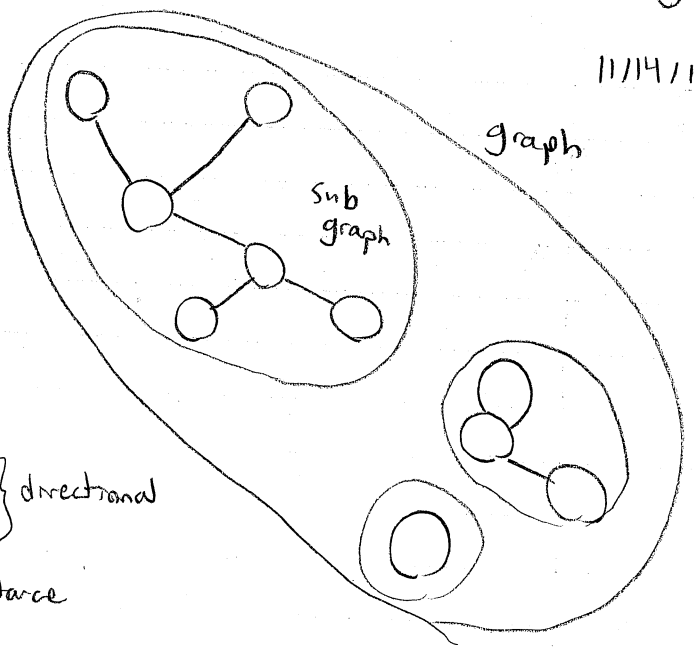
Alg

6 degrees of separation



Brainstorming what is a Graph

- Vertices
  - x single
  - x isolated
  - x n-way
- Edge
  - 1-way } directional
  - 2-way }
- Path / Distance
- x Perimeter
- x Self-connection

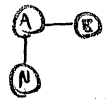
Graph $G = (V, E)$ (graph, set of vertices, edges)

$E(A, N)$

can be "unconnected"
can be an empty set
- so empty graph??

Path

e.g. N, A, B For N → B



Labels

Vertice labels can be omitted
e.g. path through maze can be unlabeled

Neighbors

"Friends" or "Incidence"

Max connections? → **Complete** graph, every node connected

↳ $|V|^2 - |V| = |E|$ For #edges in both directions

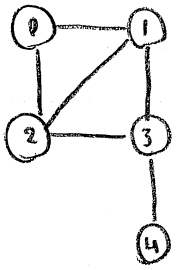
Weight → cost to travel edge (Think distance)

Alg

11/14

```
Node {
  T data
  *. neighbors
}
```

How to store as array



	0	1	2	3	4
0		1	1	1	
1	1		1	1	
2	1	1		1	
3		1	1		1
4				1	

Sparse → Less connections

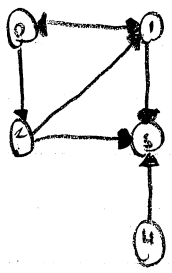
vs

Dense → More connections

Undirected → Both directions default

vs

Directed → Some 1-way, others 2-way



	0	1	2	3	4
0	0	1	1	0	0
1	1	0	0	1	0
2	0	1	0	1	0
3	0	0	0	0	0
4	0	0	0	1	0