

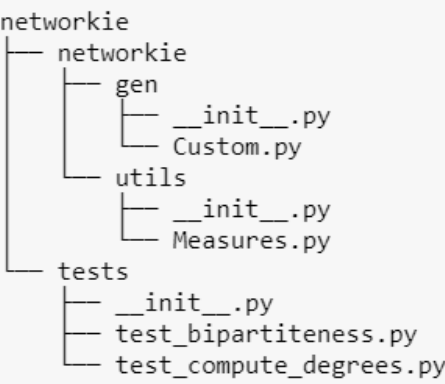
(a) Acyclic directed : Schedule

Acyclic directed graph have topology order, pop nodes have no indegree one by one.
schedule also have orders, things are done one by one, things are done cannot be undone.

(b) Cyclic directed : Deterministic finite automata

node: states
edge: transition between states

(c) Tree : package



(d) Planar : Country (node), border (edge)

Surface of a ball can be mapped to a plan by map projection.
tie two countries if there is a border between them.

(e) Bipartite : students--department

```
A B C D E F G H ...
| / \ / \ / | ...
STAT CSIE EE ACC FLL CL CHEM ...
```

(f) Temporal : friendship

remove edge: break up, grow apart
add edge: new friend

(a)

```
[[0 0 0 0 1]
 [1 0 1 1 0]
 [0 0 0 0 0]
 [0 1 1 0 1]
 [0 0 0 1 0]]
```

(b)

```
[ 1:[5]
 2:[1, 3, 4]
 3:[]
 4:[2, 3, 5]
 5:[4] ]
```

(c)

```
[[1 0 0 0 0 0]
 [1 1 0 0 0 0]
 [1 0 1 1 0 0]
 [0 0 1 0 1 1]
 [0 0 0 0 1 1]]
```

(d)

```
0 1 2 vector_a [1 1 0 1 0 0 1]
 \ / \ / vector_b [0 1 1 1 1 1 0]
 5a-6b a · b 2
 \ / \ |a| · |b| = sqrt(20) = 0.4472136
 3 4
```

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