PHYSICAL DESIGN AUTOMATION

LAB1

海螺(DOYOUKNOWWHOIAM1006@GMAIL.COM)

OFFICE HOUR: MON. 15:30~16:30 (ED413)

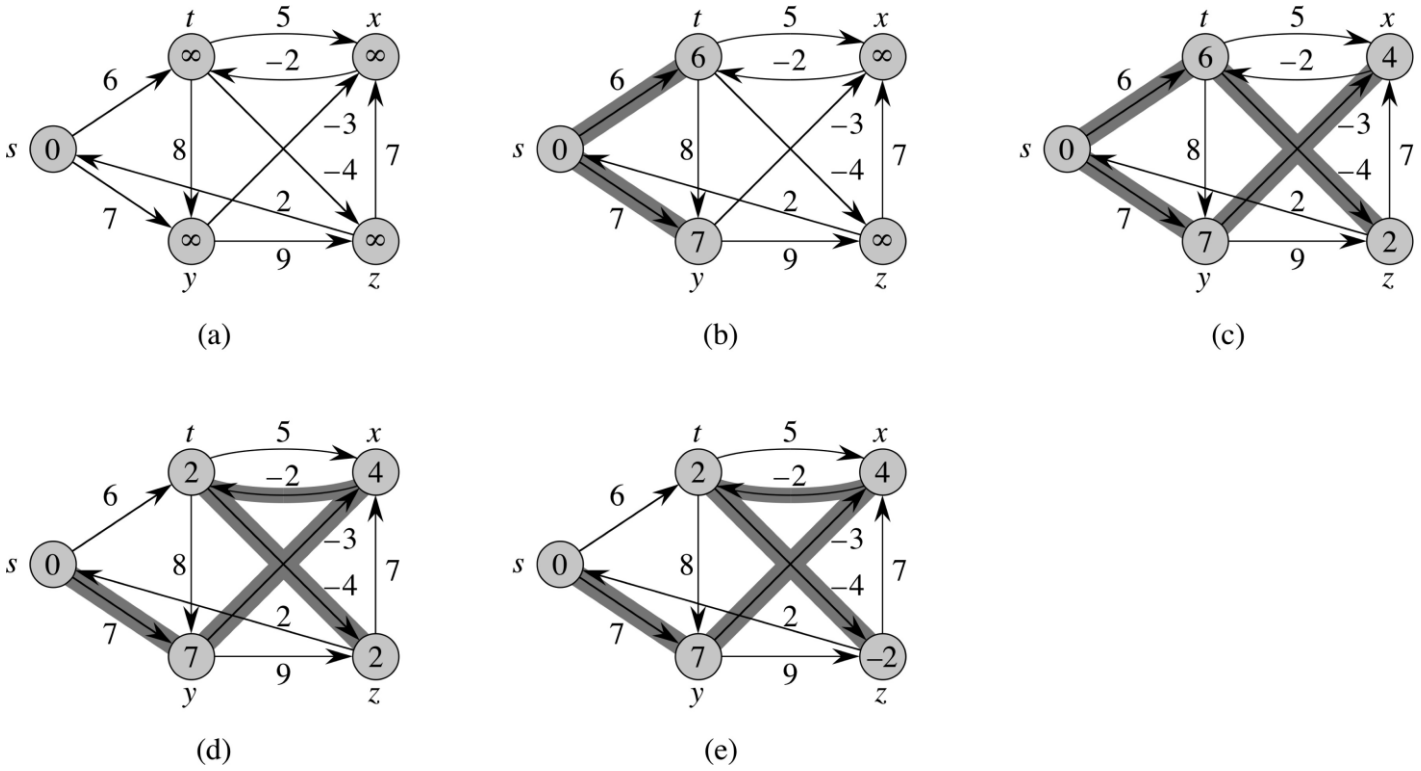
About Lab1…

- You will need to complete
  - 1. Single Source Shortest Path Problem
    - Bellman-Ford
  - 2. Critical Path Delay
    - Topological Sort

Shortest Path Problem

- Bellman Ford – Shortest Path Problem
  - Give a graph G = (V, E) comprising a set V of vertices together with a set E of weighted edges
  - Find shortest paths from a source vertex *v* to all other vertices in the graph

Bellman-Ford – Example



Critical Path Problem

- Topological sort – Max Delay Problem
  - Give a graph G = (V, E) comprising a set V of vertices together with a set E of weighted edges
  - Find the path that has the maximum cost from vertex s to vertex t

Max Delay Calculation

1. Topological sort the nodes
    1. Create a queue Q, an empty array A;
    2. For all nodes n, cost[n] = 0; delay[n] = 0;
    3. Push all source nodes to Q
    4. While Q is not empty
        1. n = Q.front()
        2. For all nodes ‘t’ that is fanout of ‘n’
        3. {
        4. cost[t] ++;
        5. If(cost[t] == Size of Fanin[t])
        6. {
        7. push ‘t’ to Q
        8. delay[t] = max (delay fanin[t])
        9. }
        10. }
        11. A.add(n)
        12. Q.pop()

Q & A