
15.082 and 6.855J

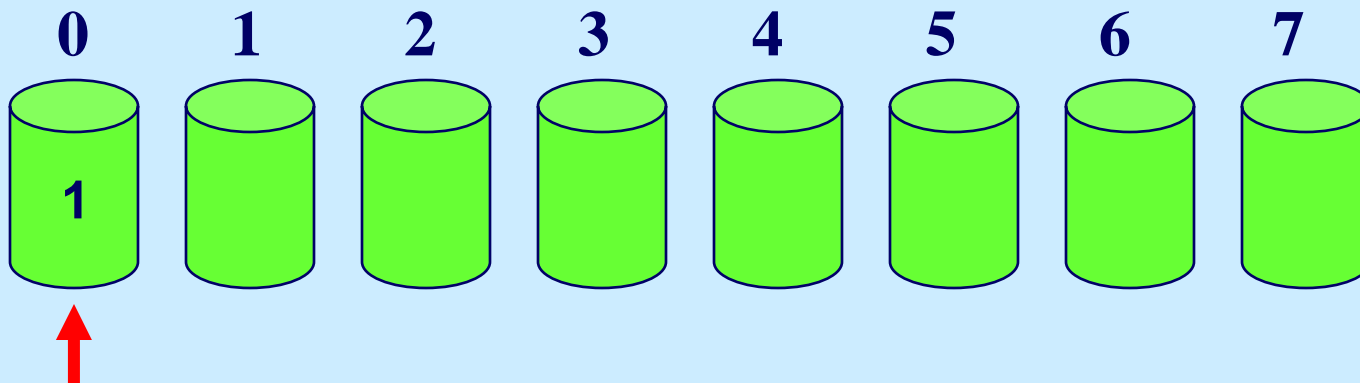
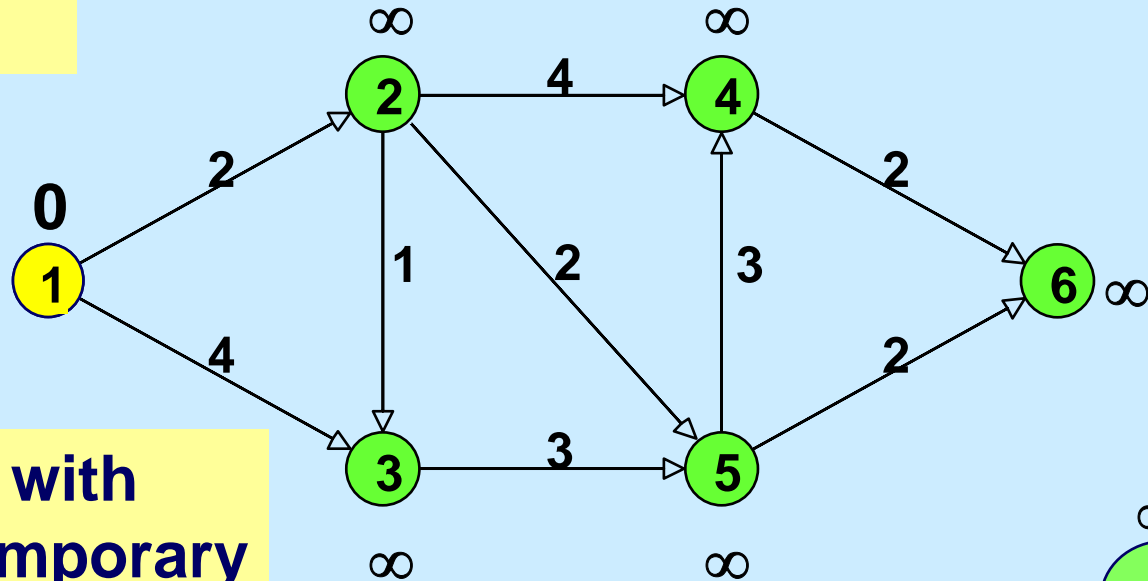
**Dijkstra's Algorithm with simple
buckets
(also known as Dial's algorithm)**

An Example

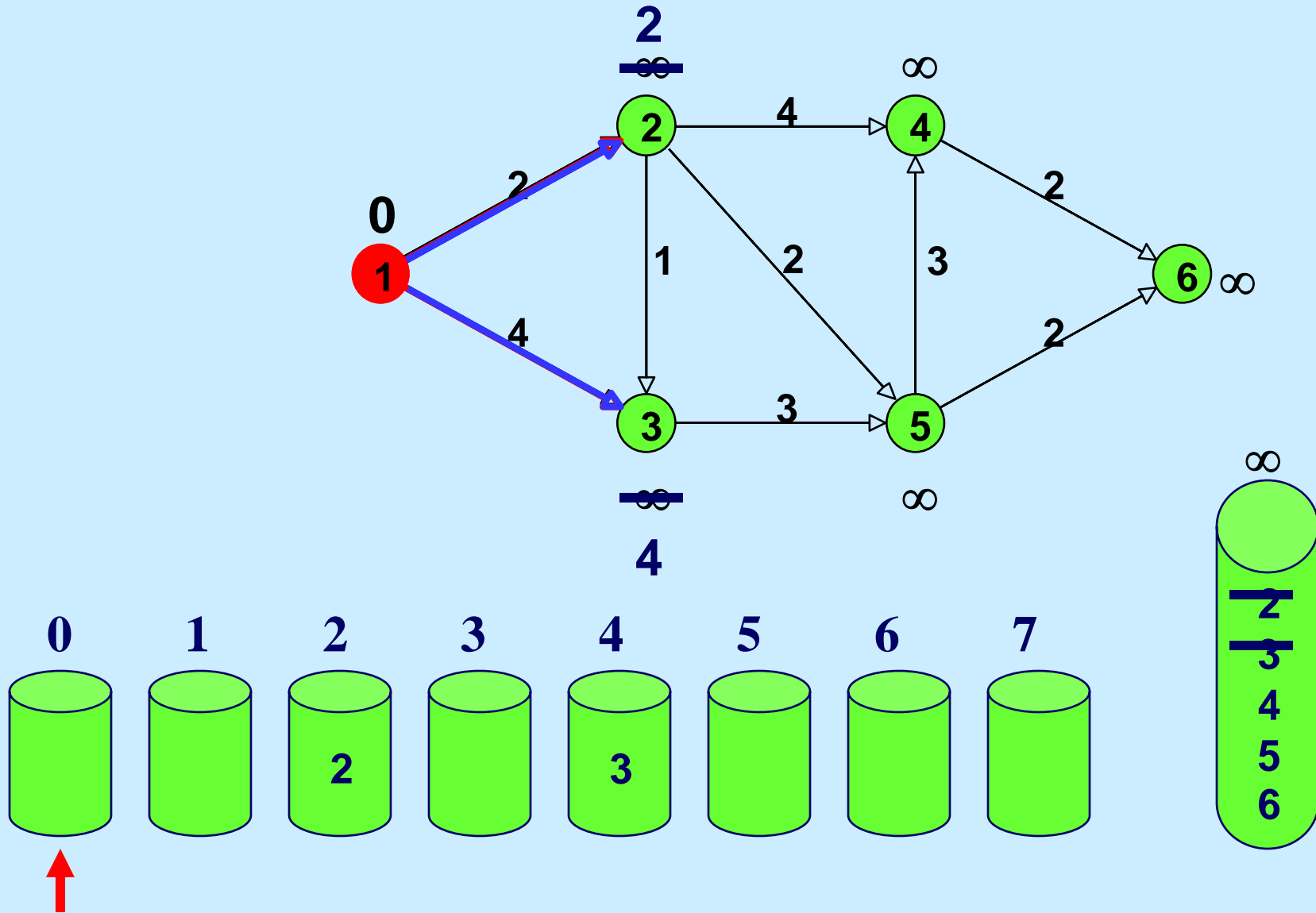
Initialize distance labels

Initialize buckets.

Select the node with the minimum temporary distance label.

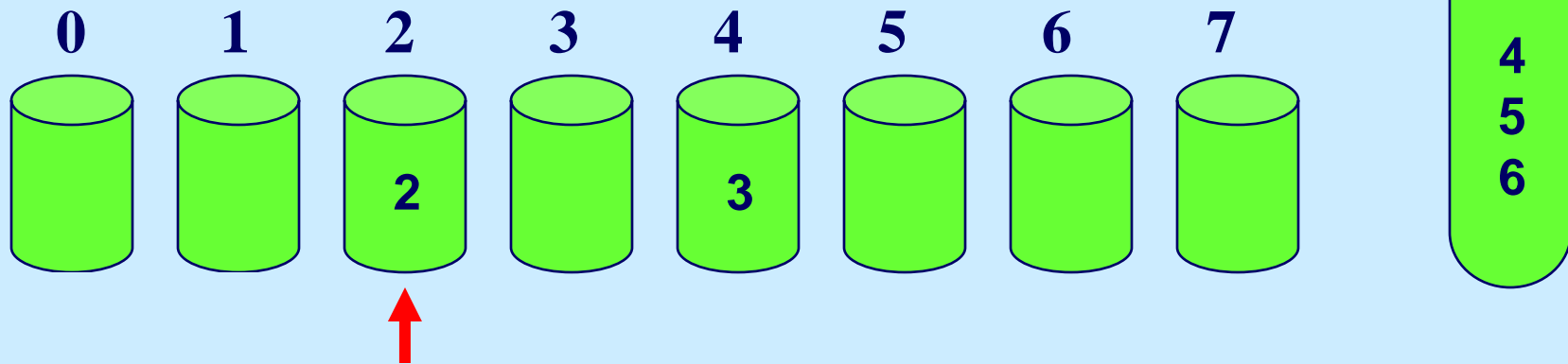
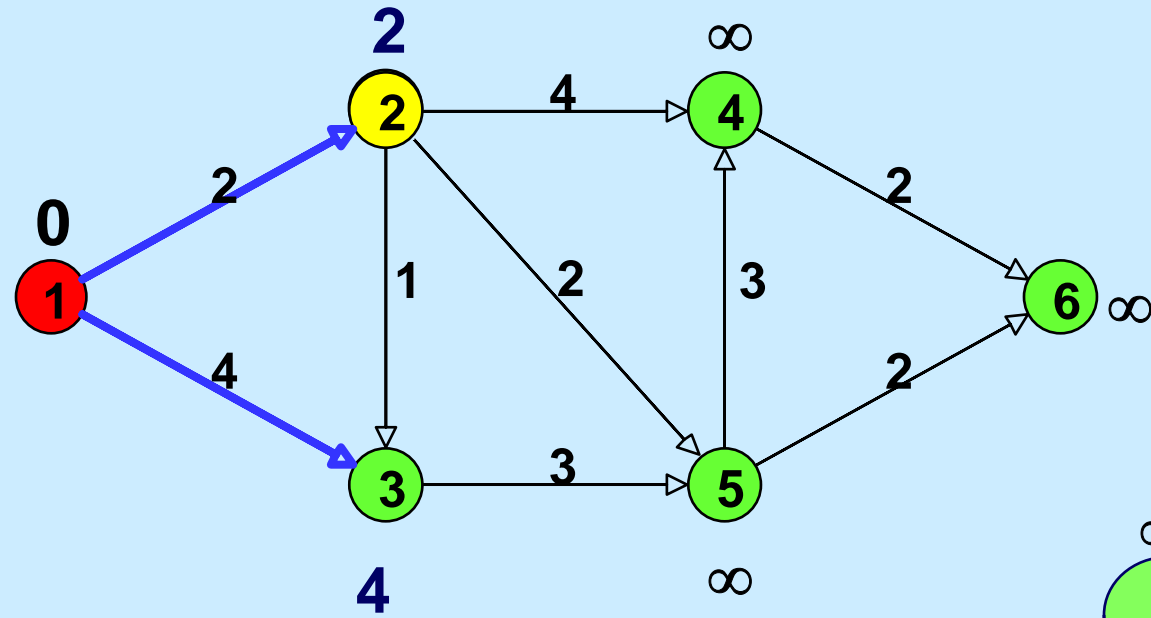


Update Step

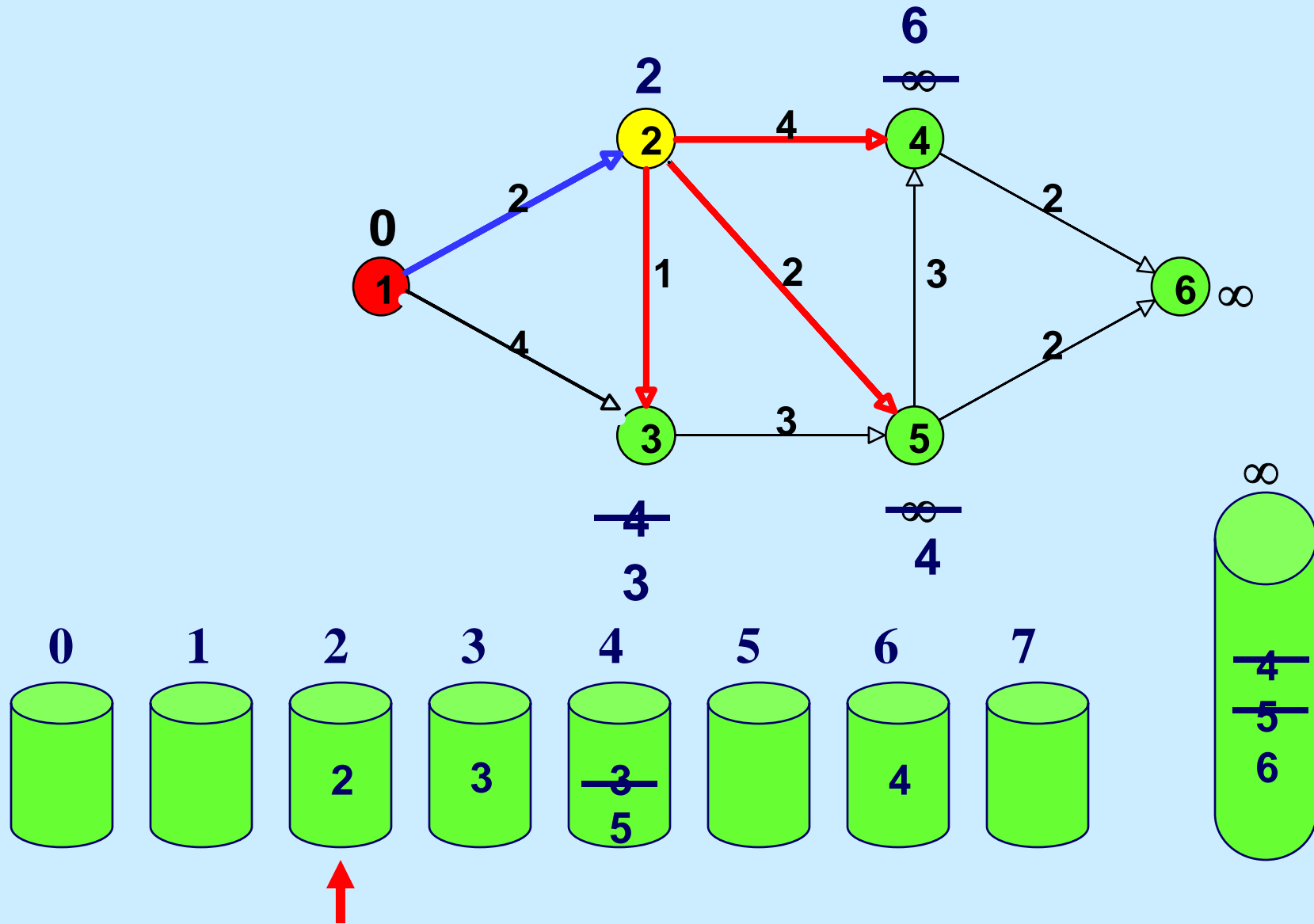


Choose Minimum Temporary Label

Find Min by starting at the leftmost bucket and scanning right till there is a non-empty bucket.

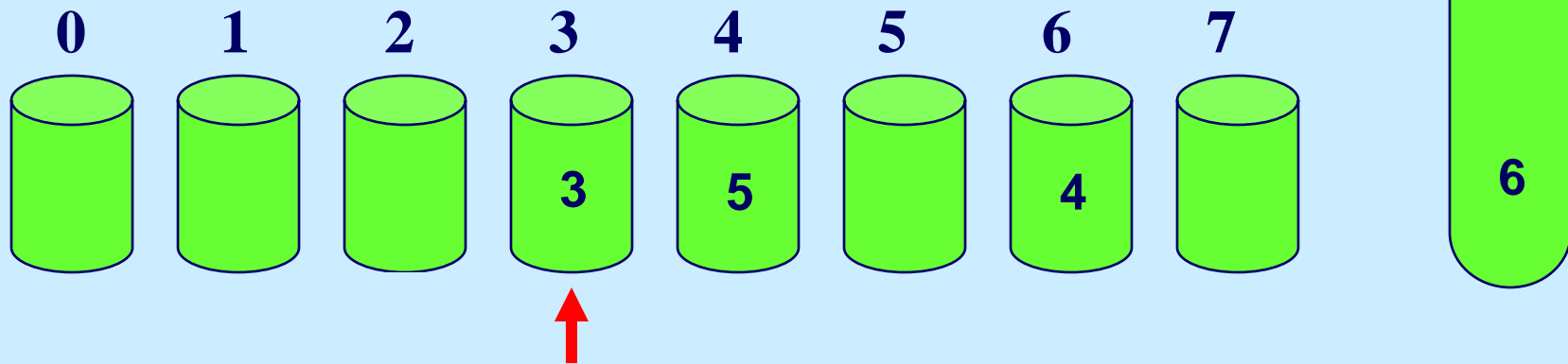
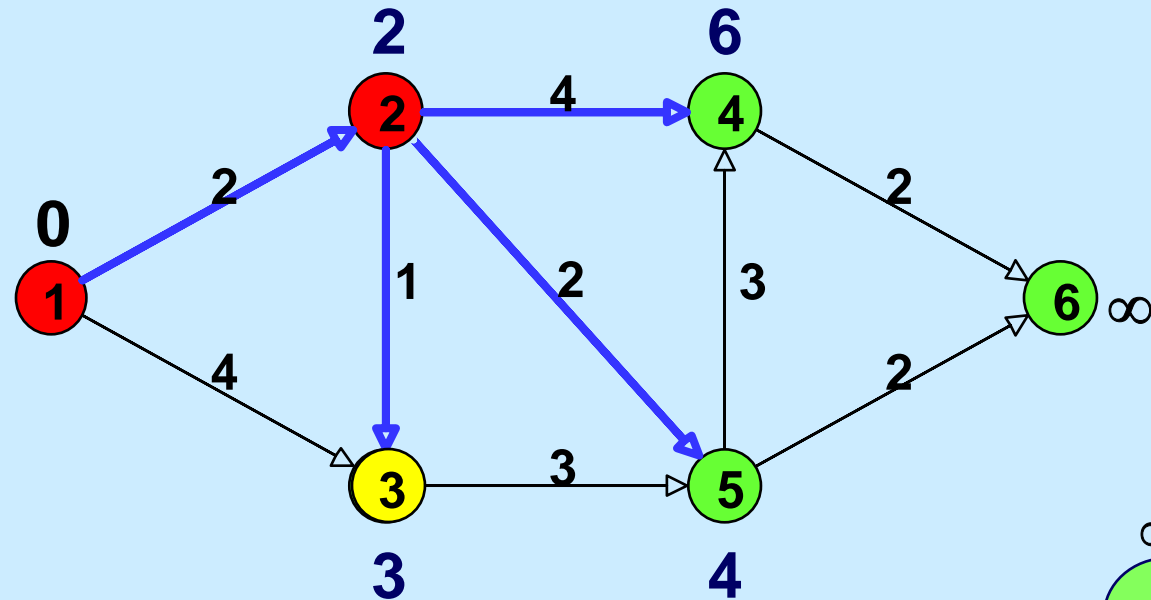


Update Step

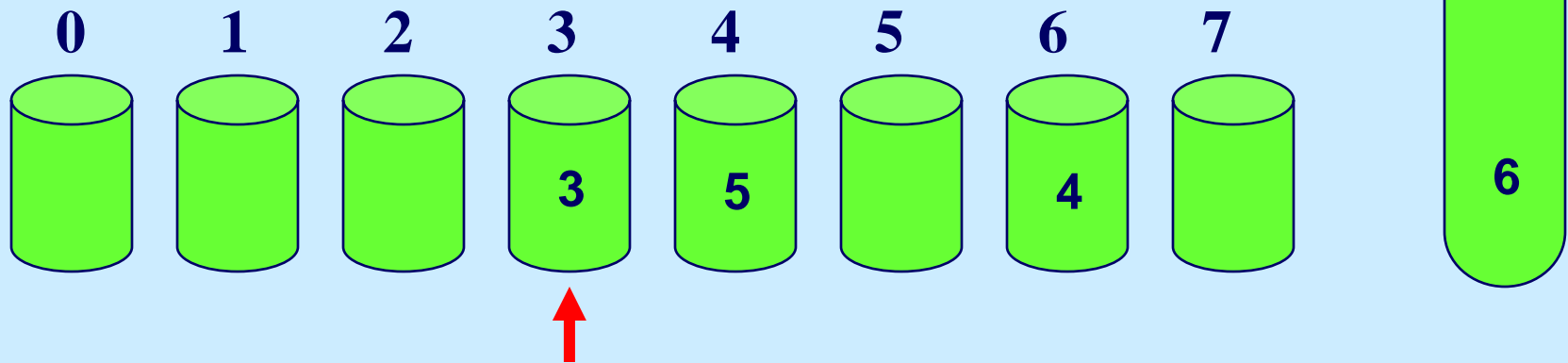
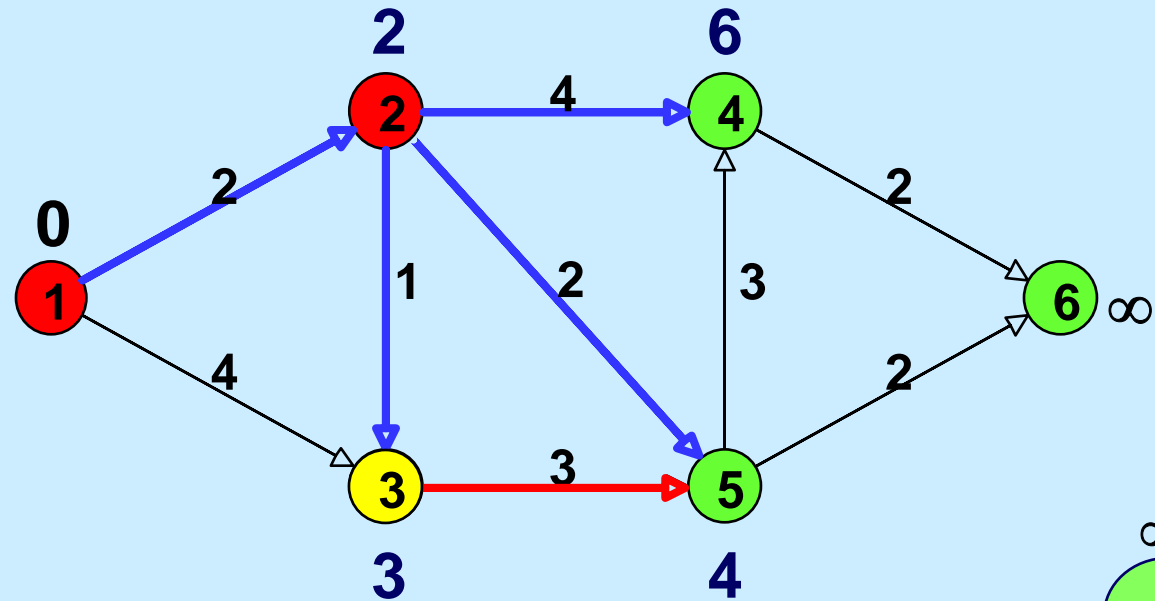


Choose Minimum Temporary Label

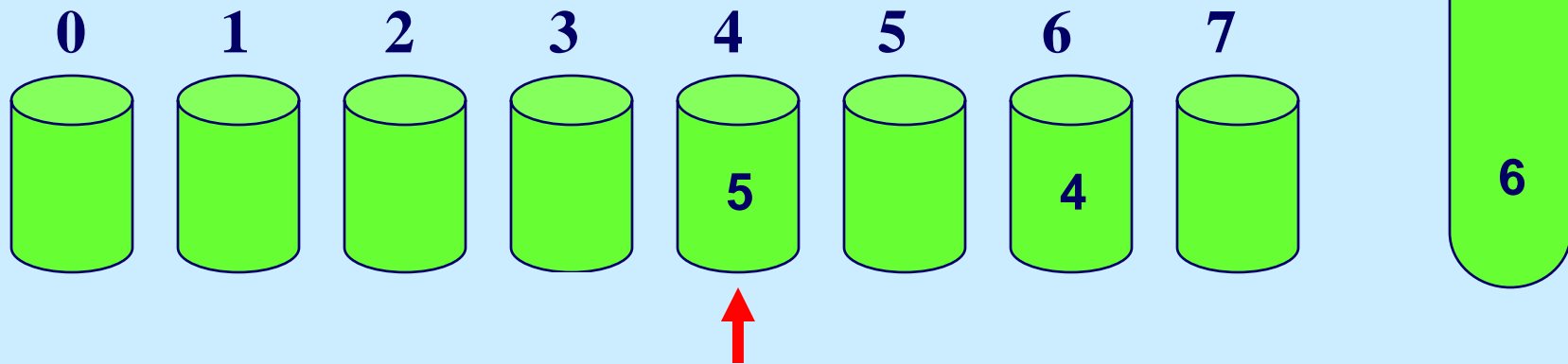
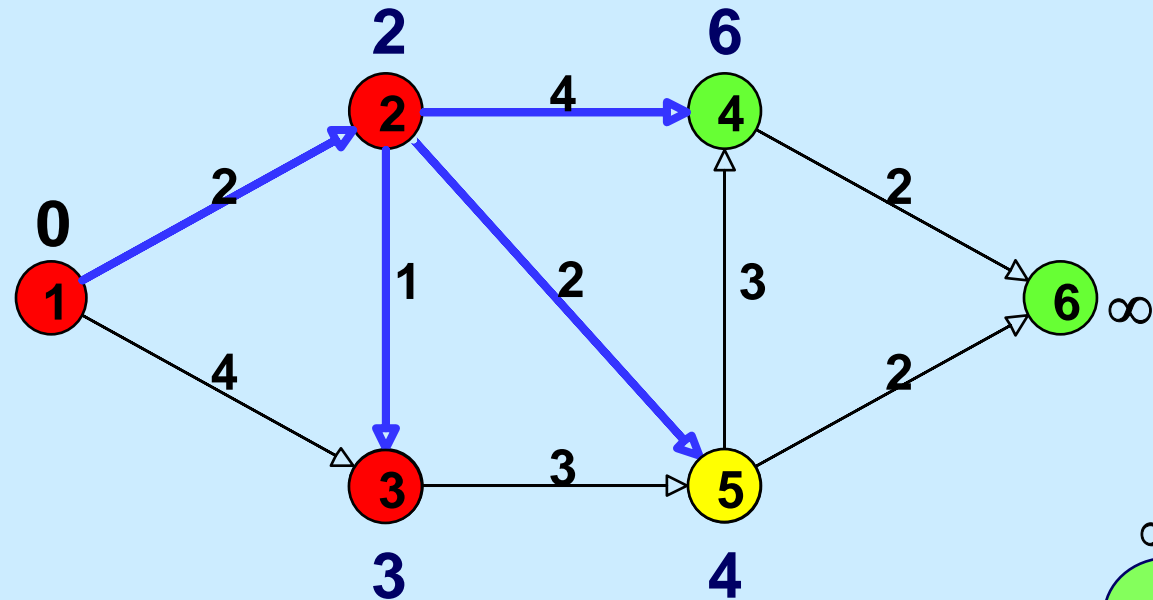
Find Min by starting at the leftmost bucket and scanning right till there is a non-empty bucket.



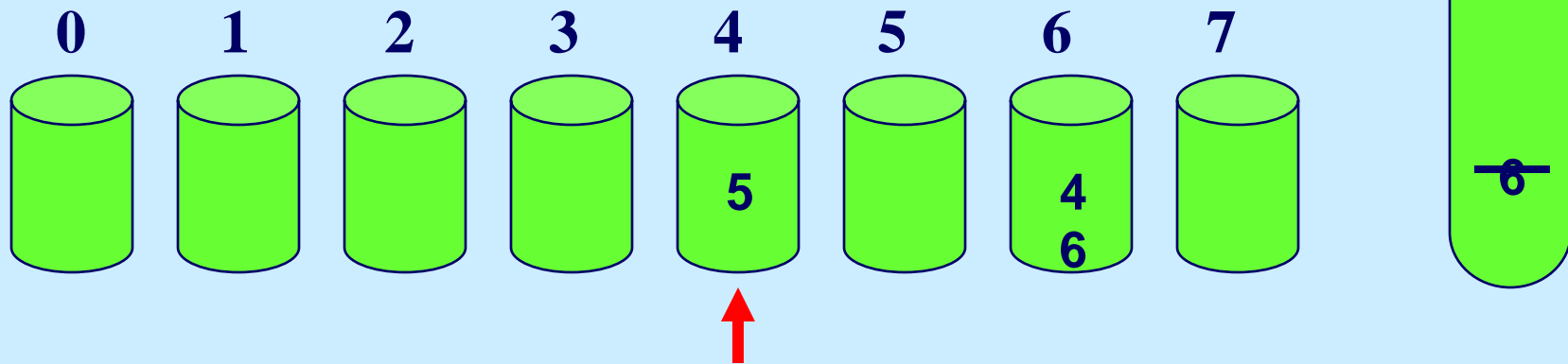
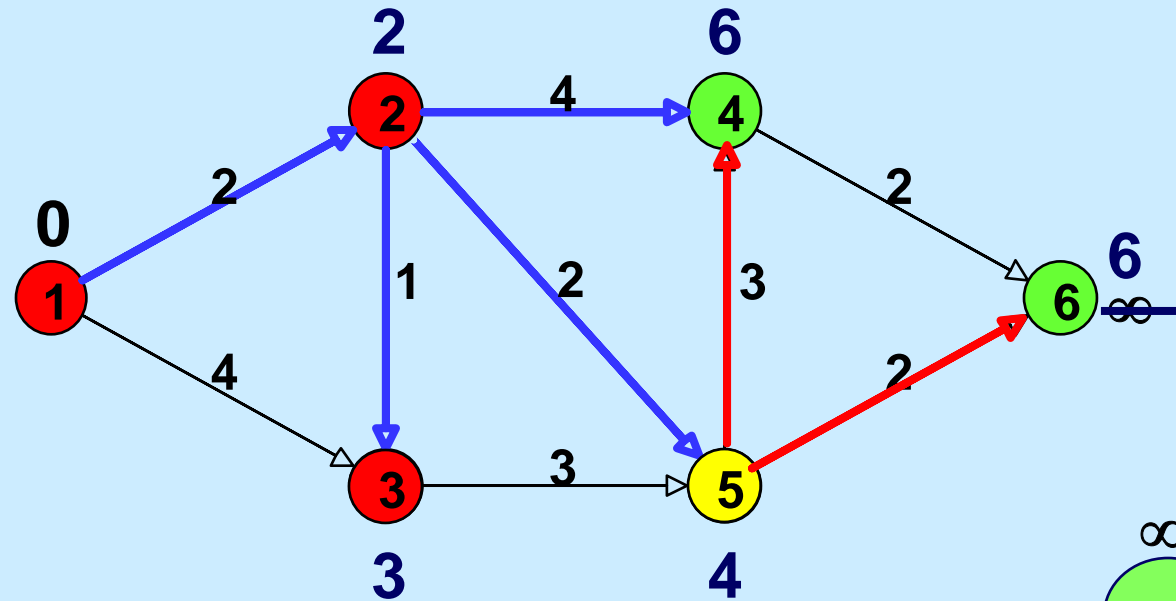
Update



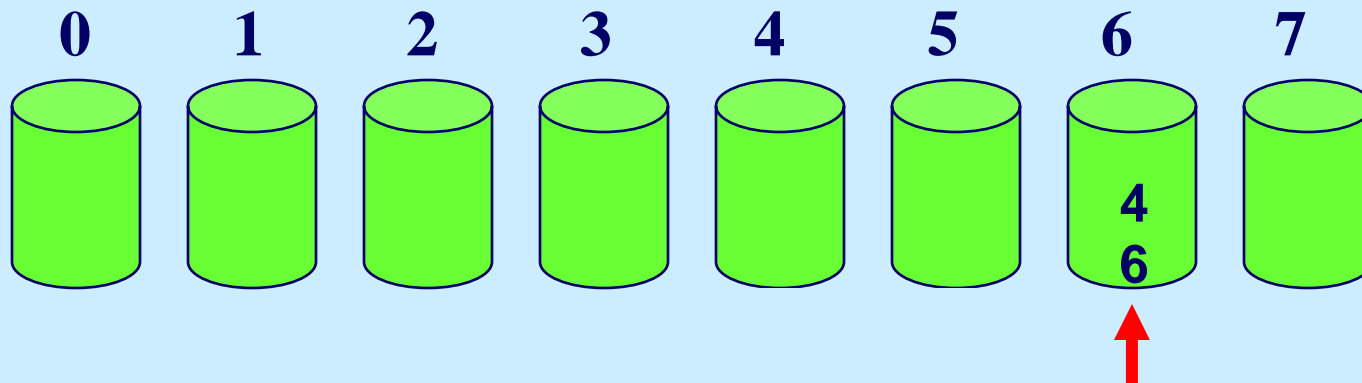
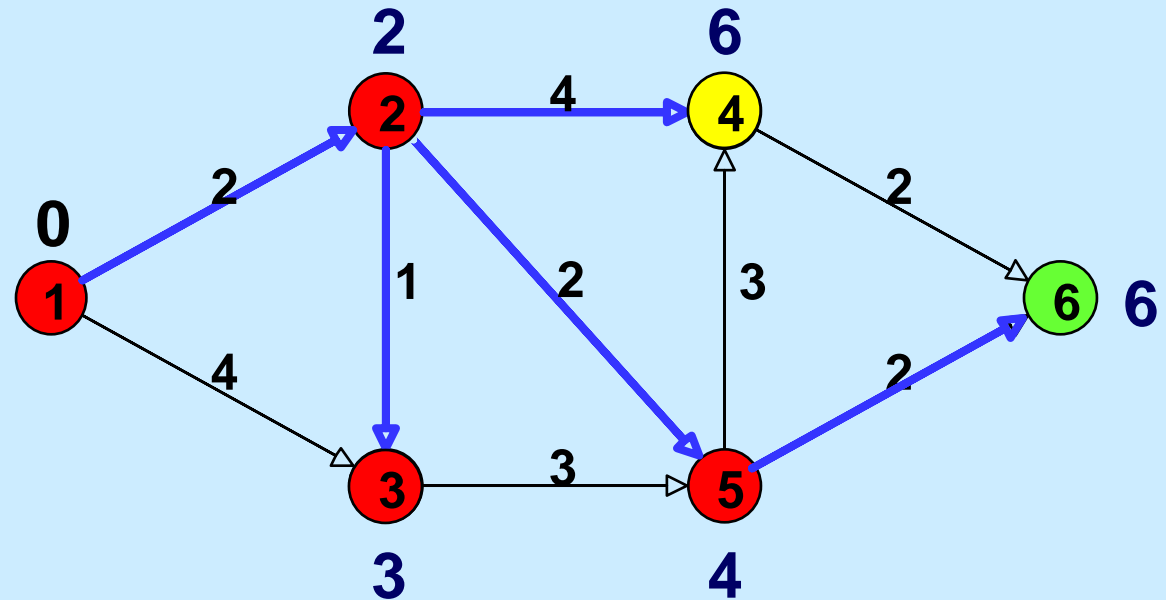
Choose Minimum Temporary Label



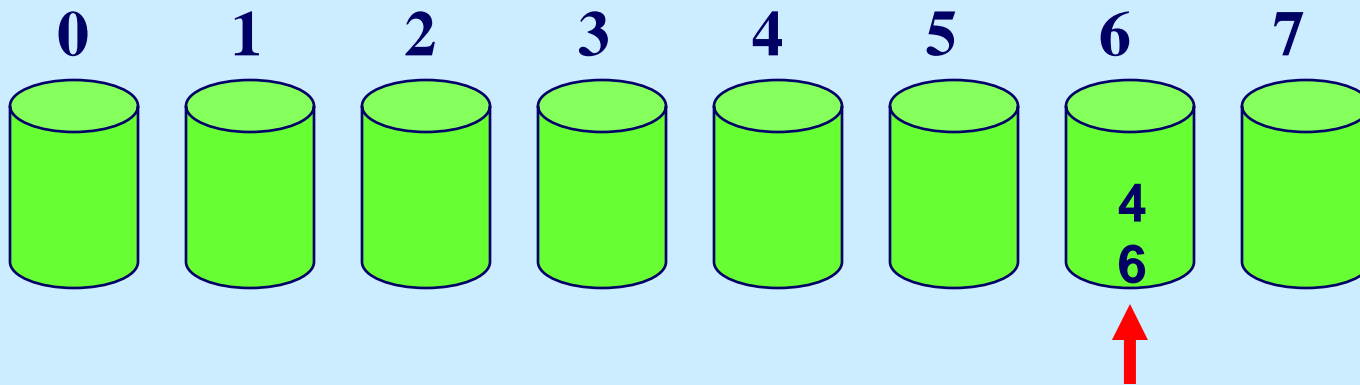
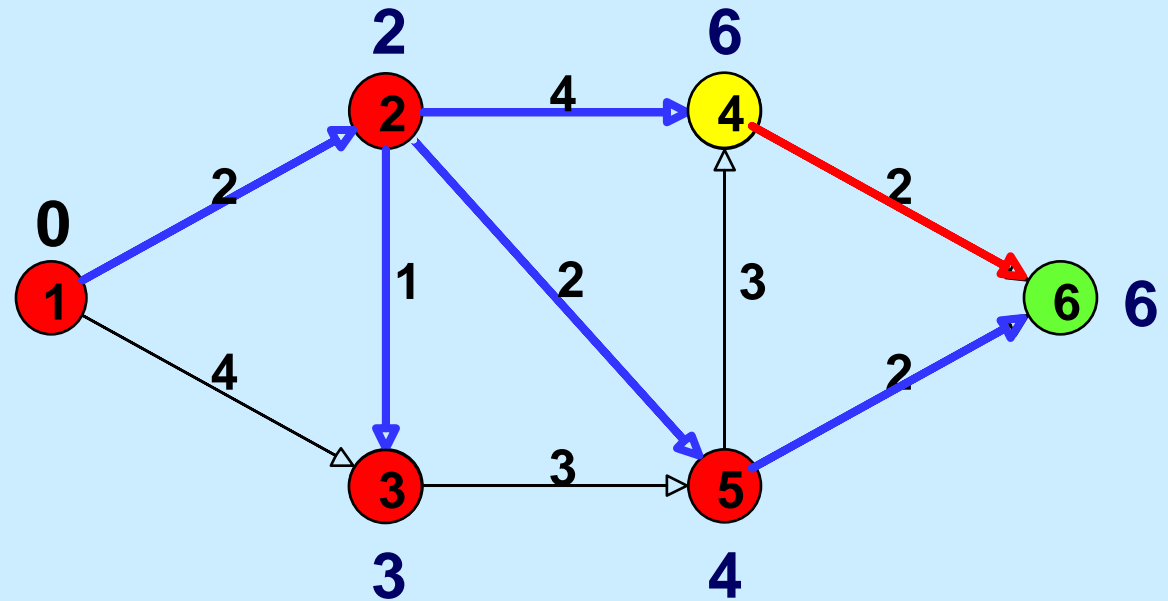
Update



Choose Minimum Temporary Label

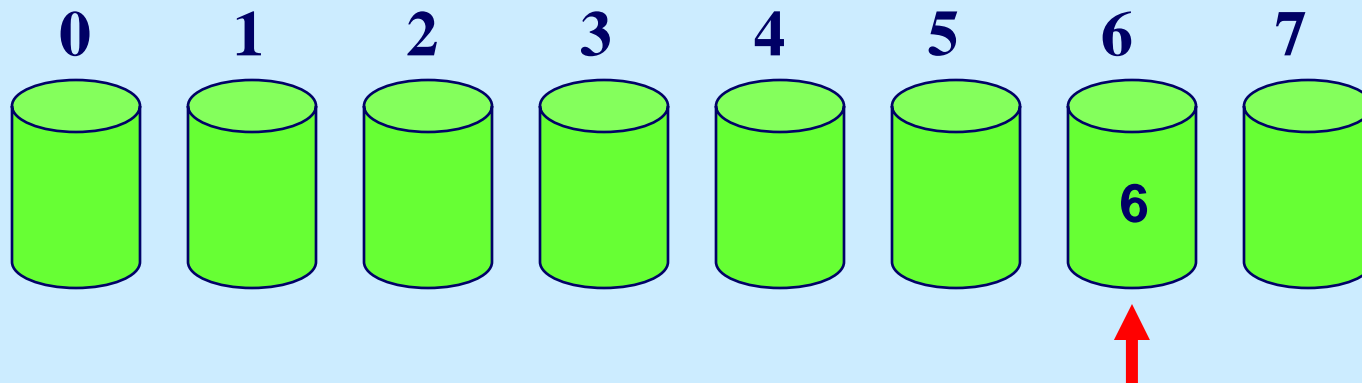
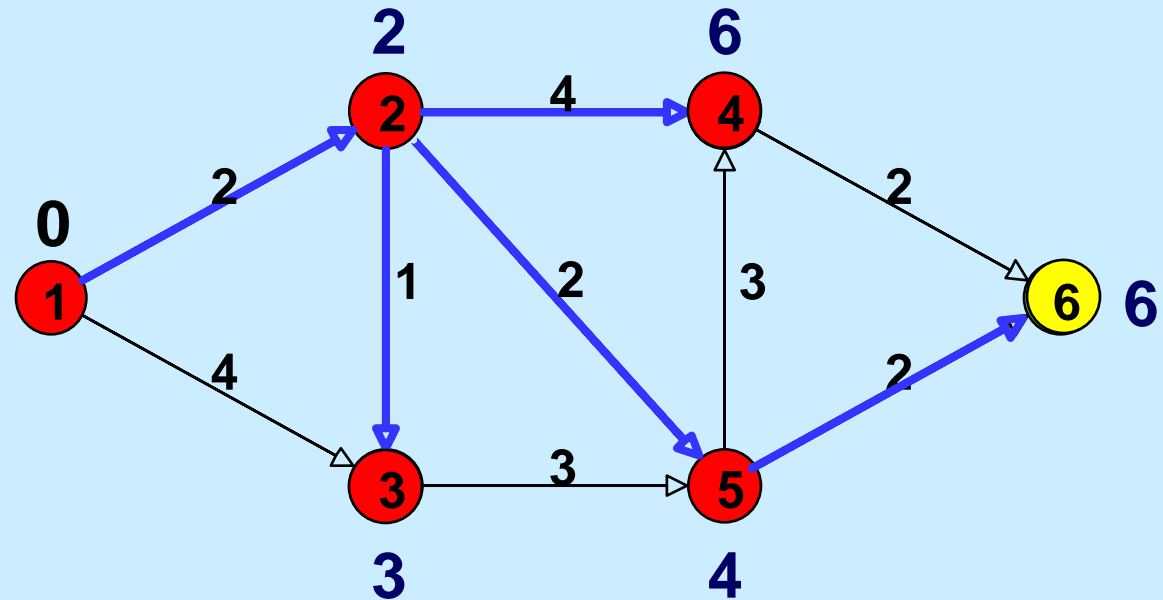


Update

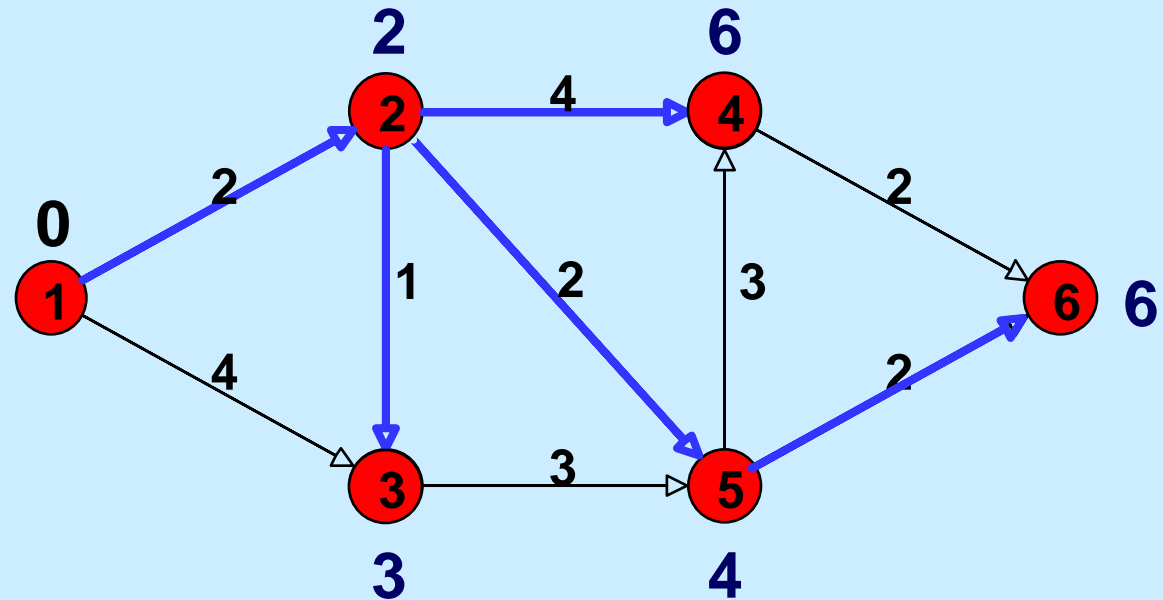


Choose Minimum Temporary Label

There is nothing to update



End of Algorithm



All nodes are now permanent

The predecessors form a tree

The shortest path from node 1 to node 6 can be found by tracing back predecessors