15.082J & 6.855J & ESD.78J
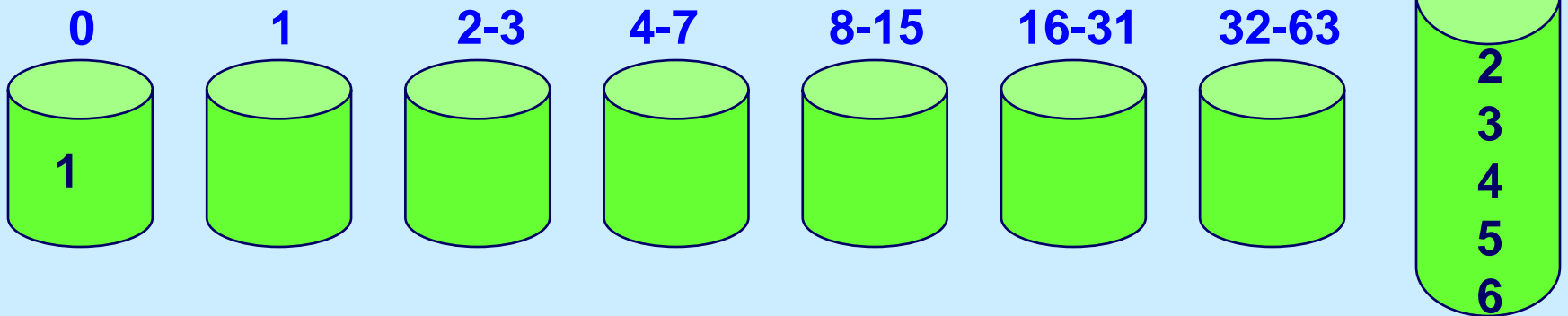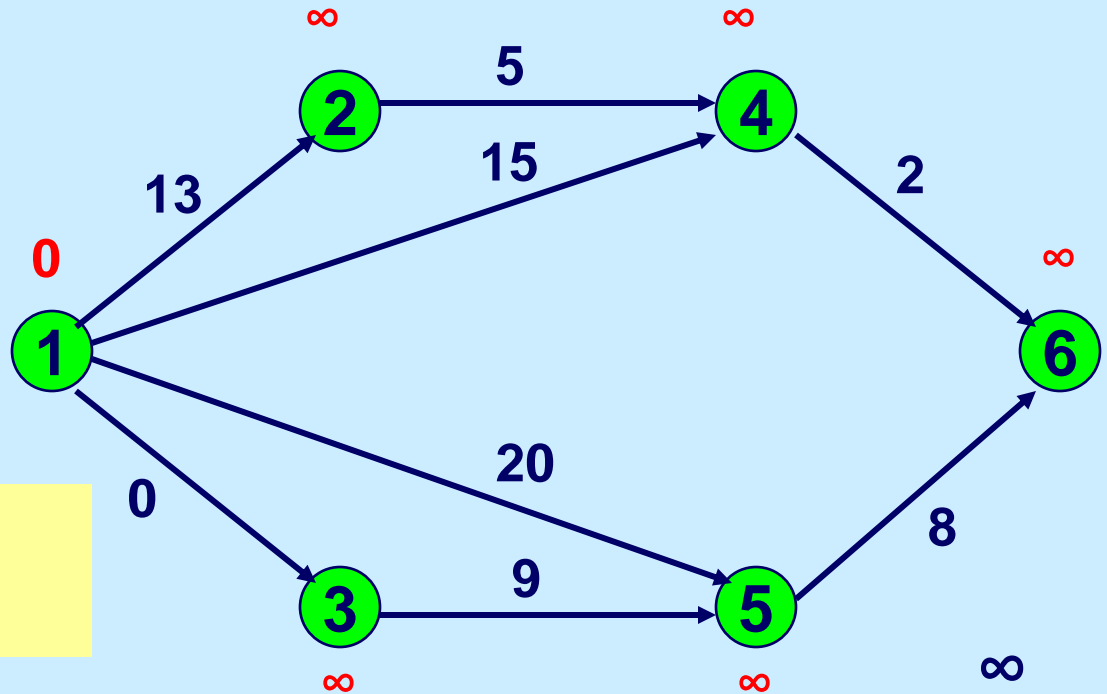
Radix Heap Animation

An Example from AMO (with a small change)

Initialize distance labels

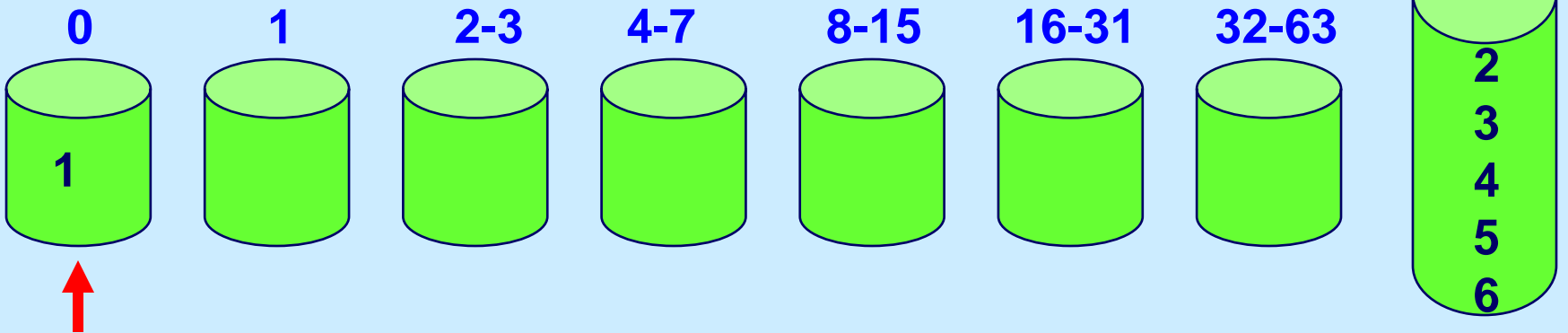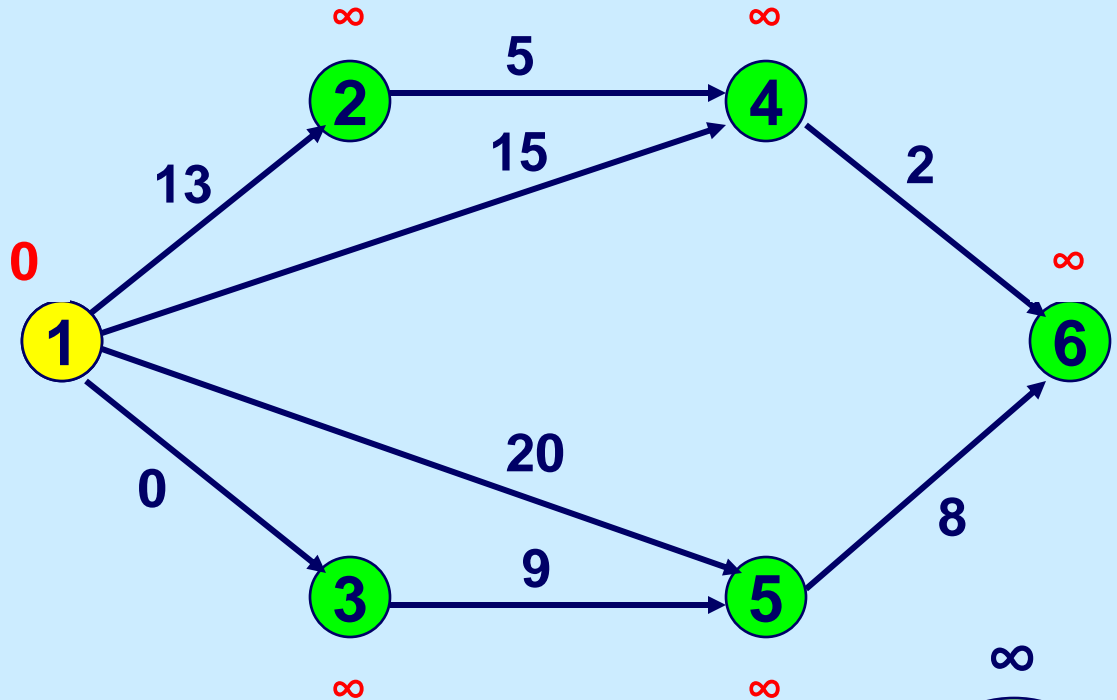**Initialize buckets and their ranges.**

Insert nodes into buckets.

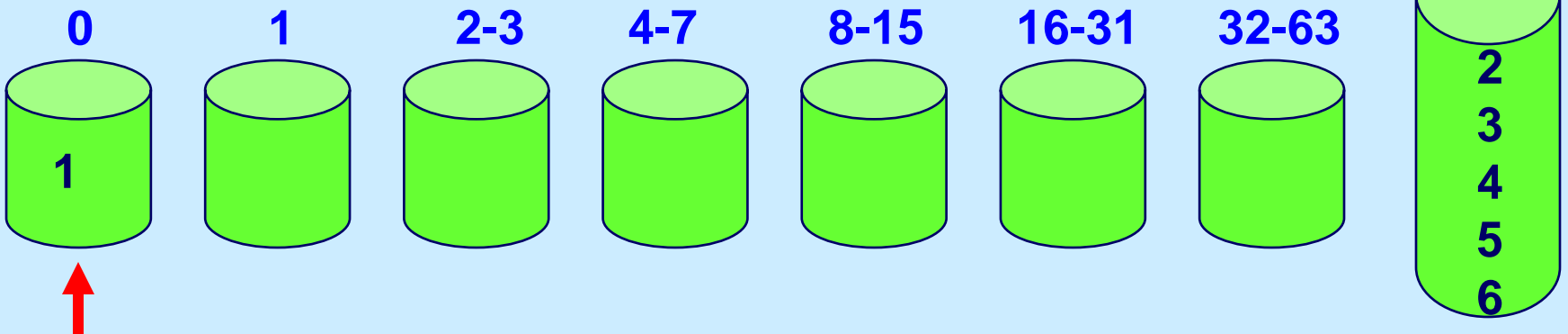# Find Min Bucket

Find Min Non-Empty Bucket

If the bucket has width 1 or a single element then select a node of the bucket.

3

Update

Scan arcs out of node 1.

Update the distance labels and buckets.
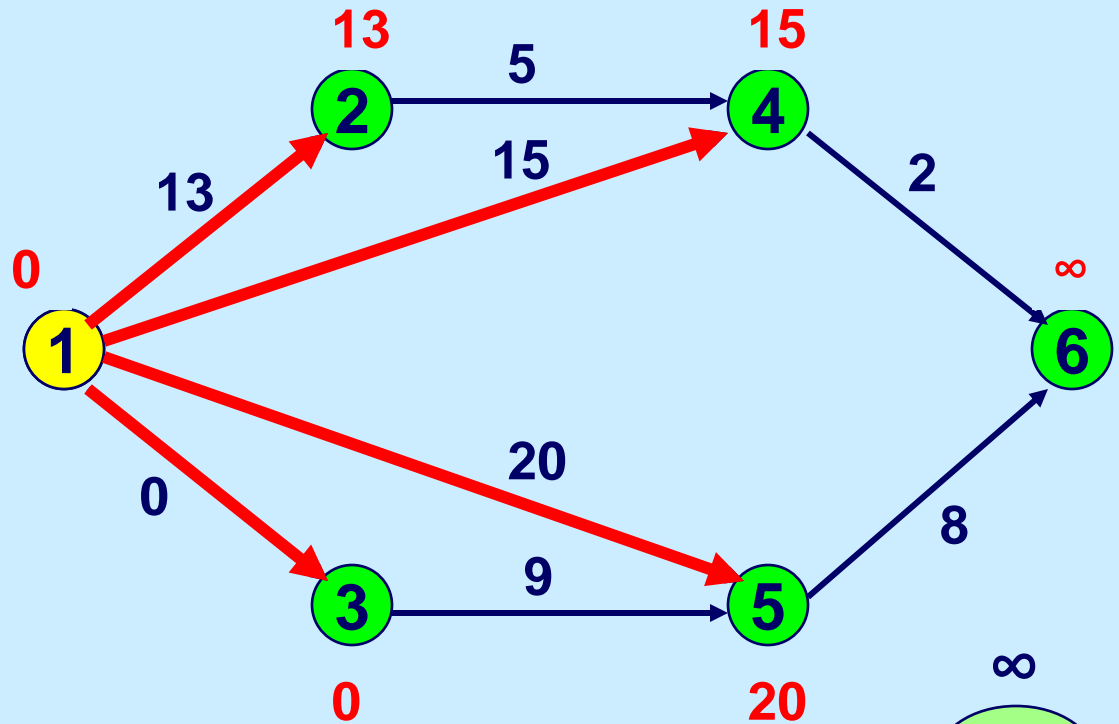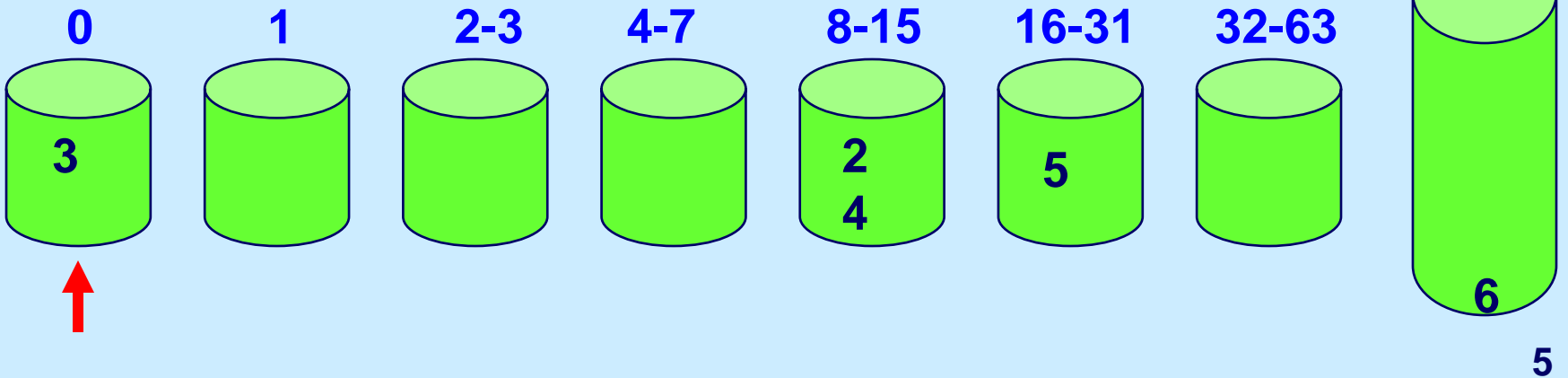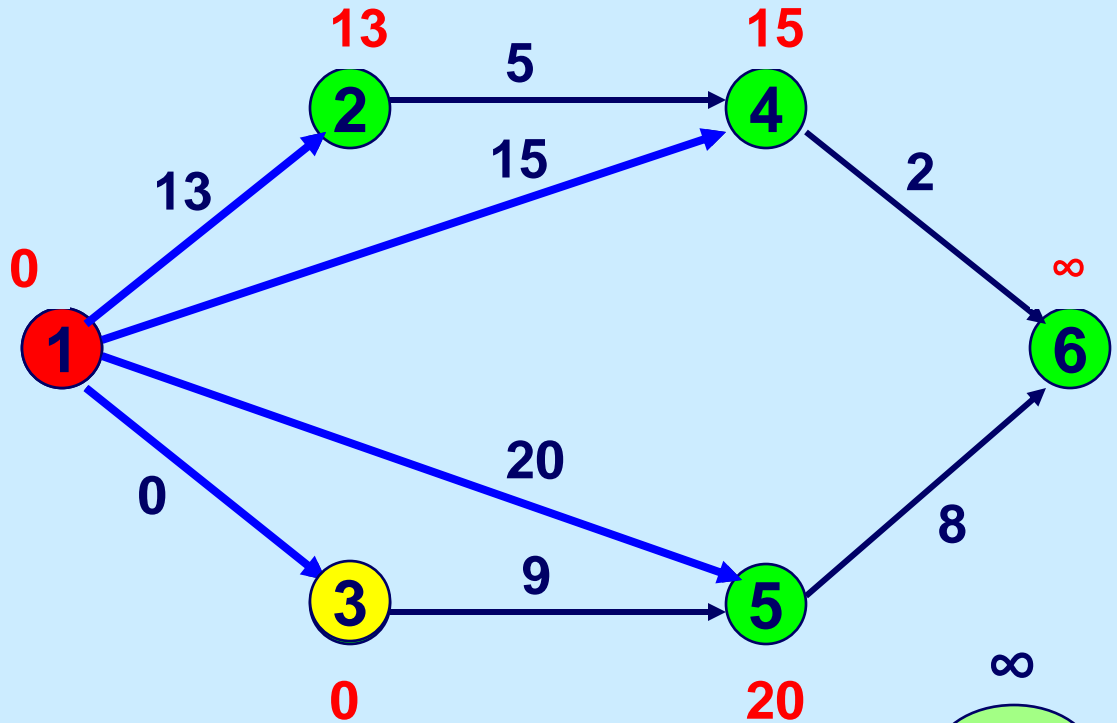
Find Min Bucket

Find Min Non-Empty Bucket

If the bucket has width 1 or a single element then select a node of the bucket.

Update

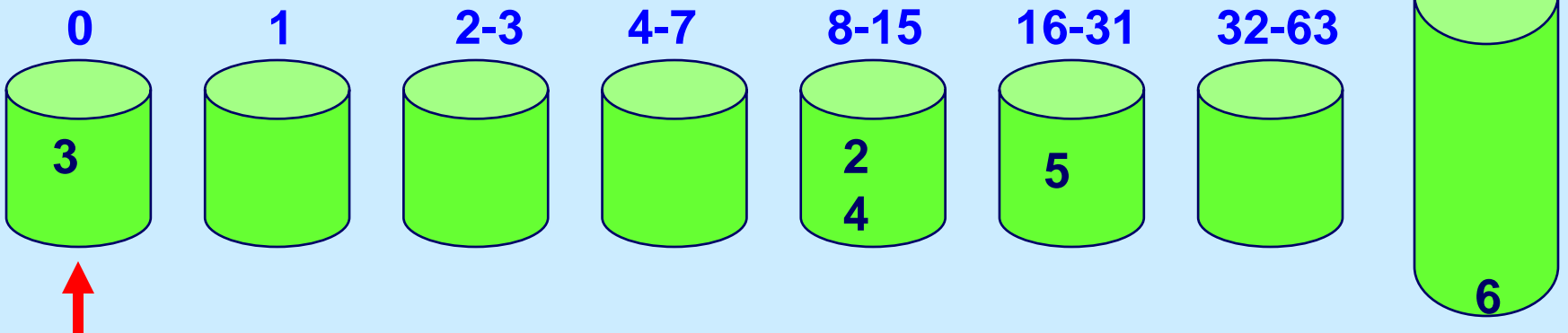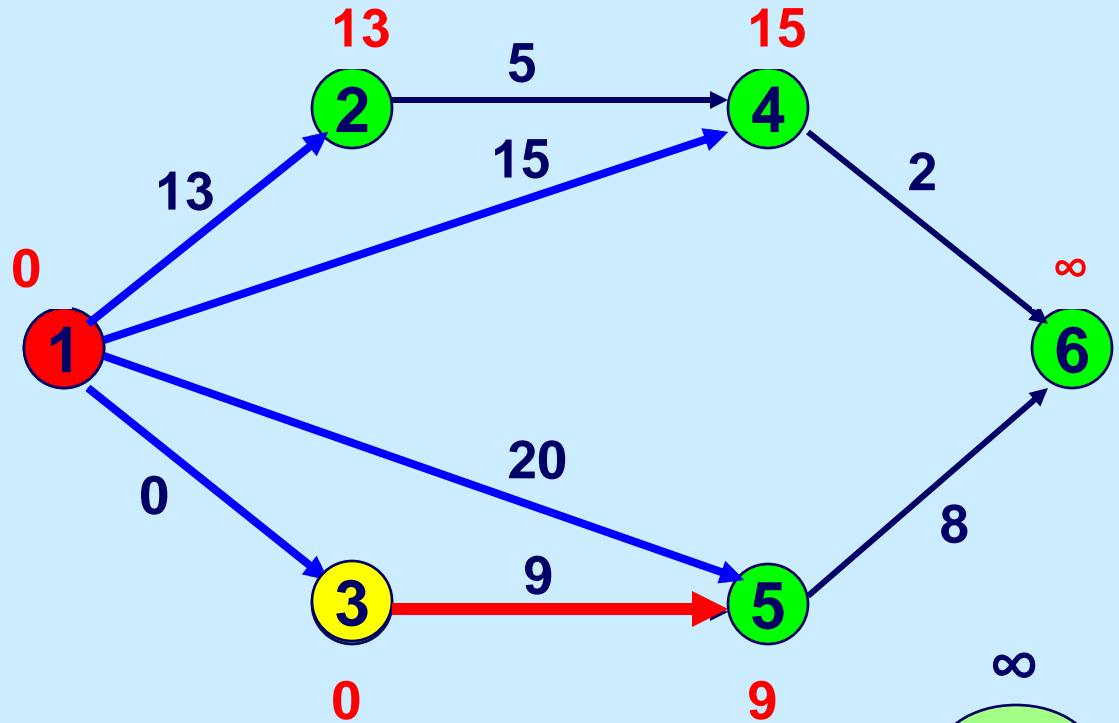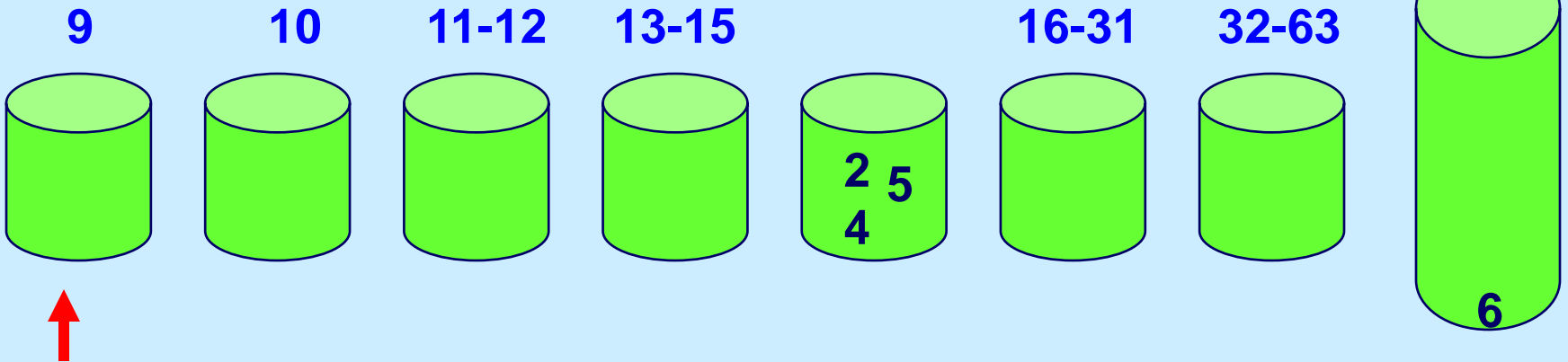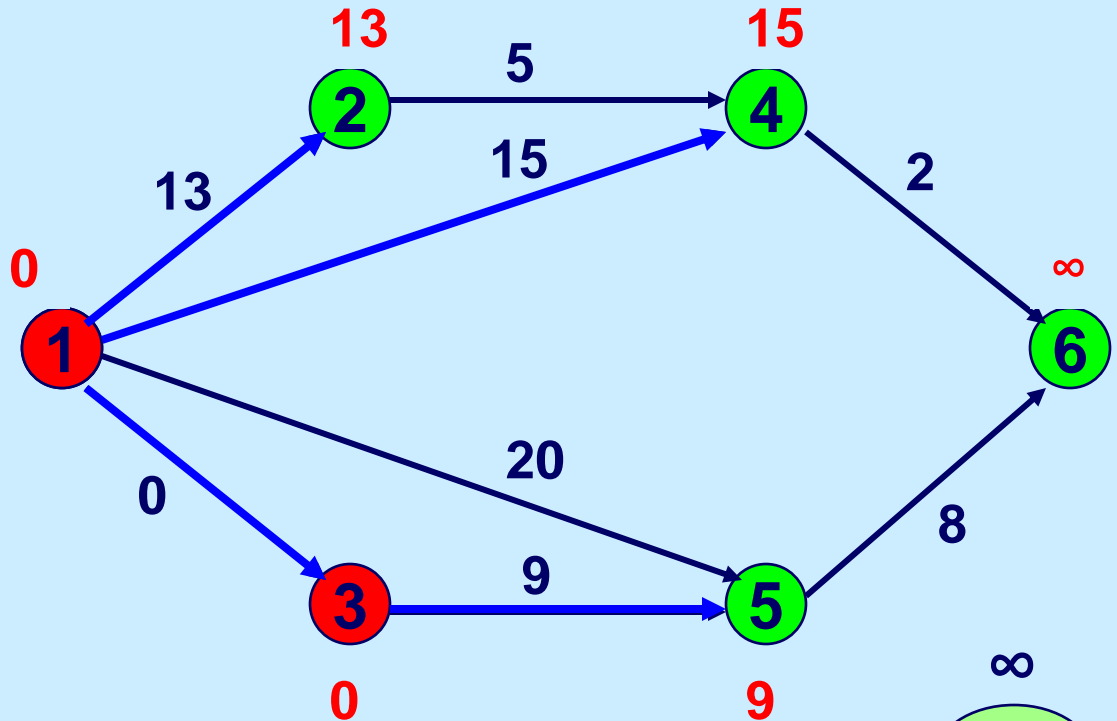**Scan arcs out of node 3 and update distances and buckets.**

Find Min Bucket

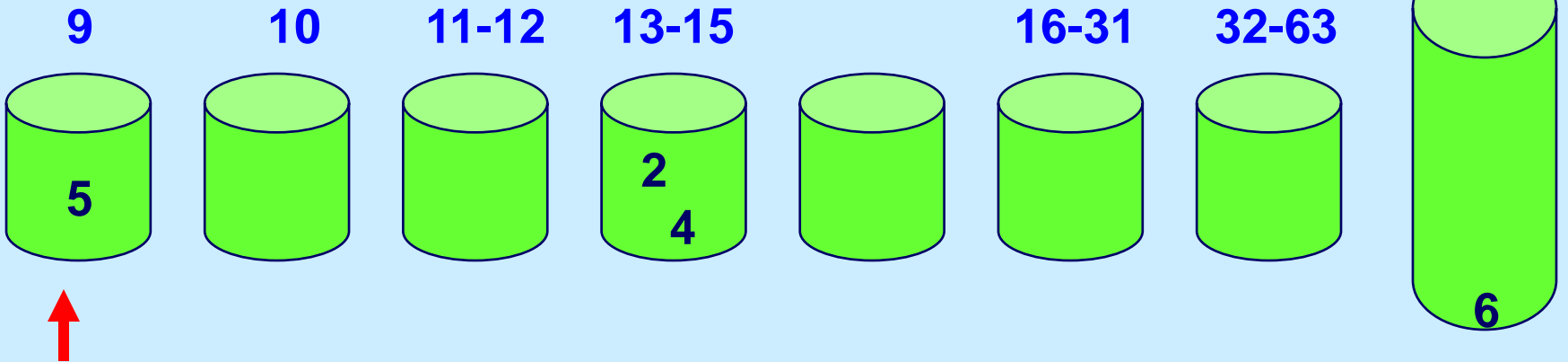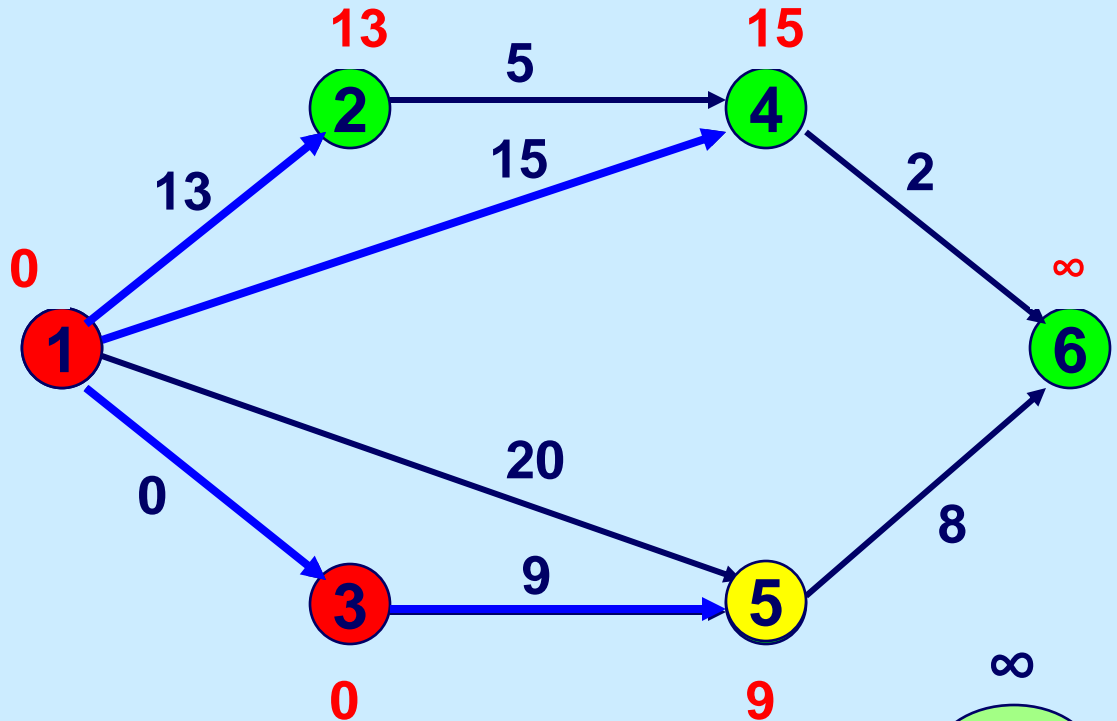**Find Min Non-Empty Bucket**

If the bucket has width 1 or a single element then select a node of the bucket. Else, redistribute the range of the bucket.

Find Min Bucket

Find Min Non-Empty Bucket

If the bucket has width 1 or a single element then select a node of the bucket.

8

Update

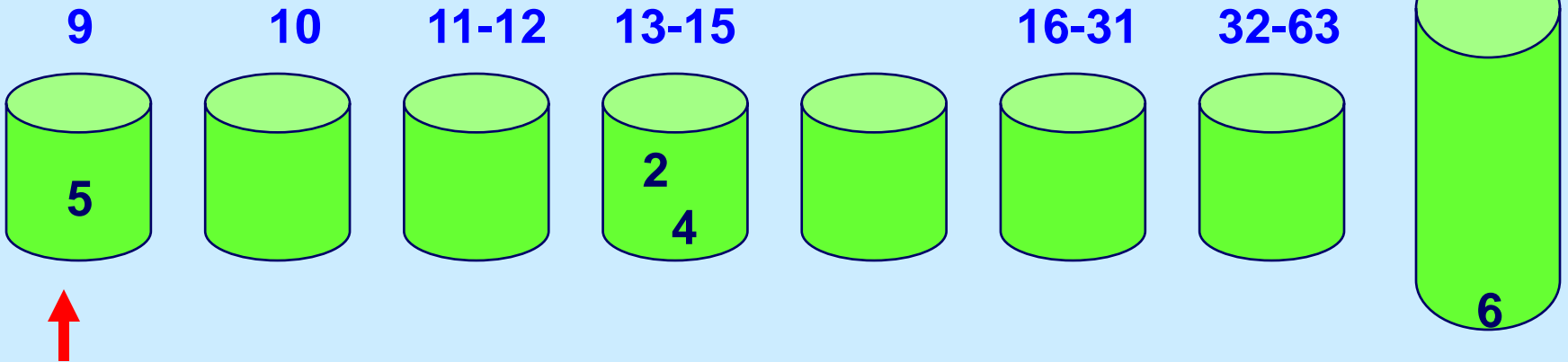Scan arcs out of node 5 and update distances and buckets.

Find Min Bucket

Find Min Non-Empty Bucket

If the bucket has width 1 or a single element then select a node of the bucket. Else, redistribute the range of the bucket.
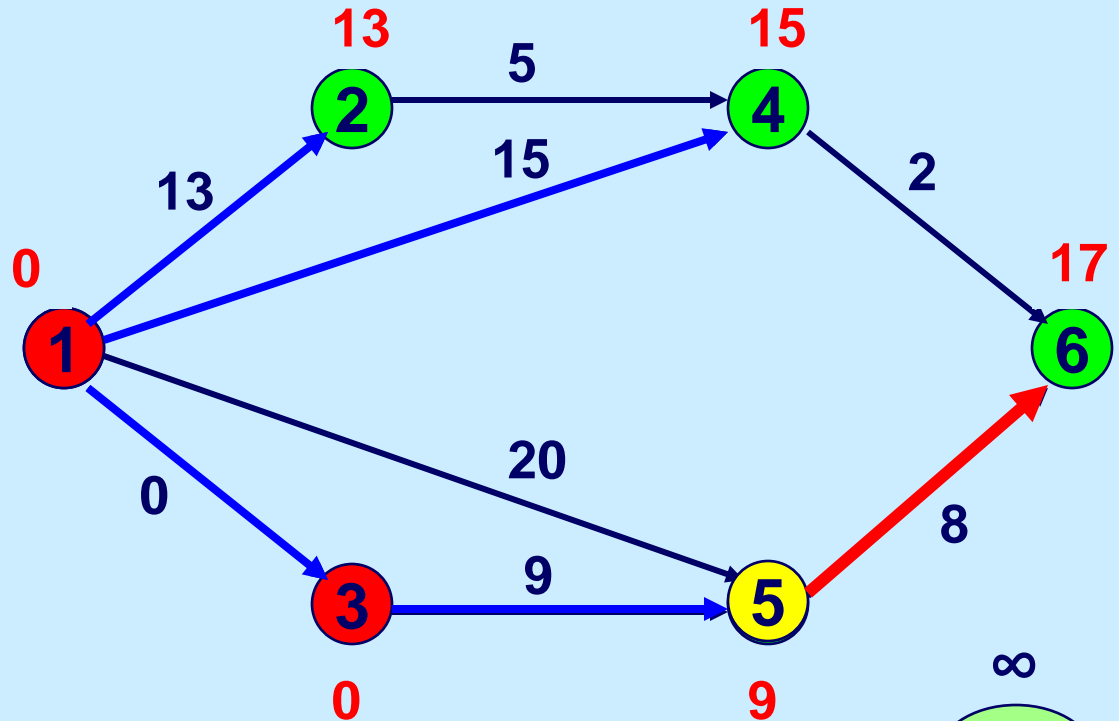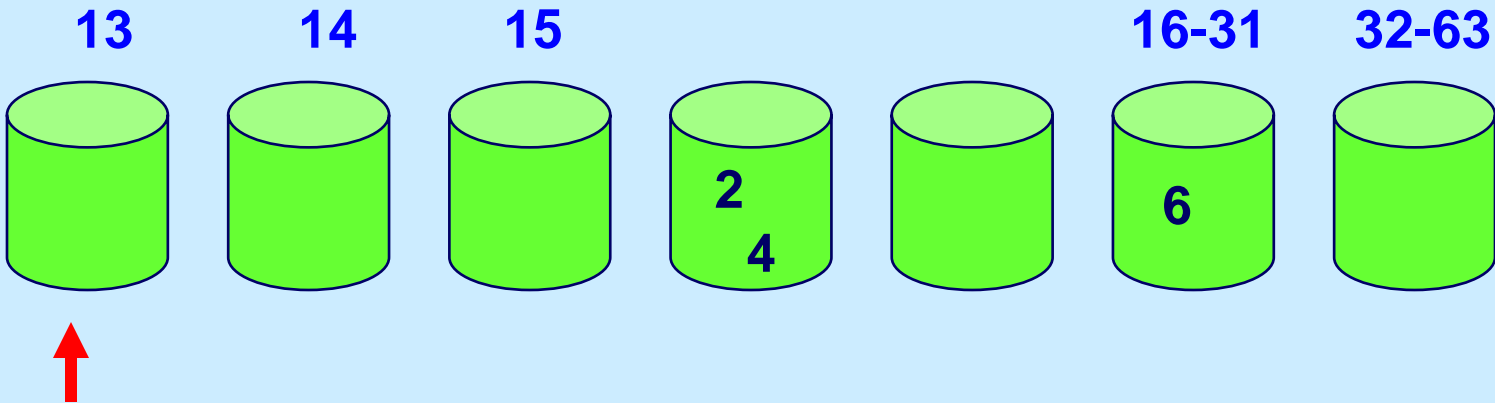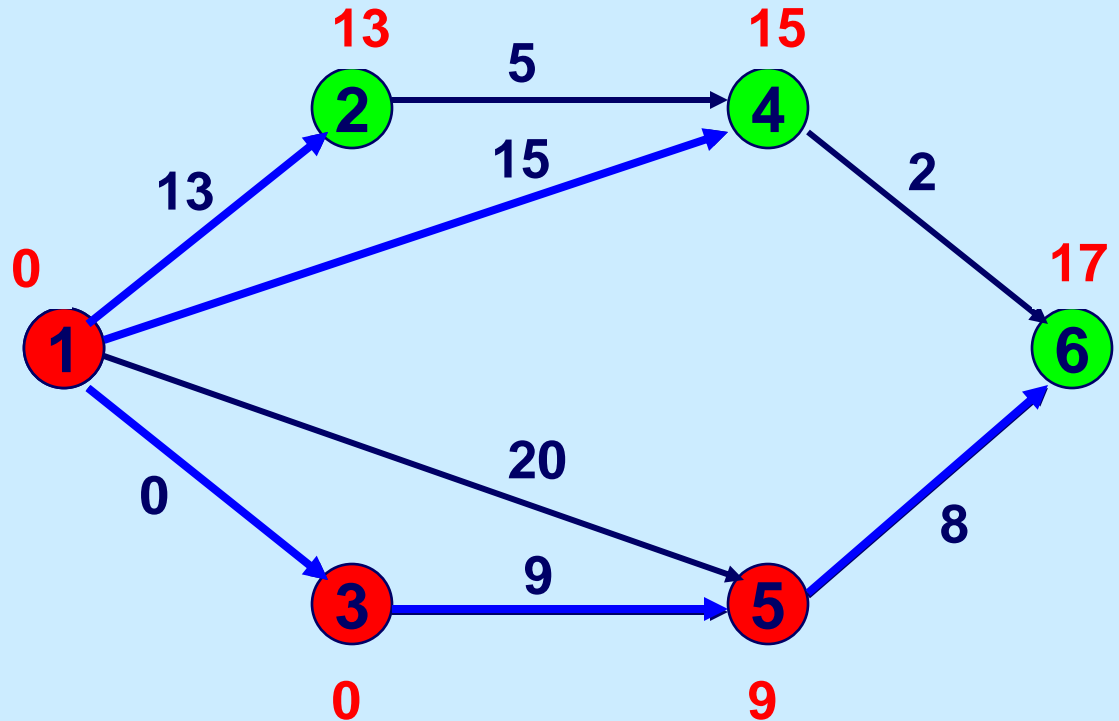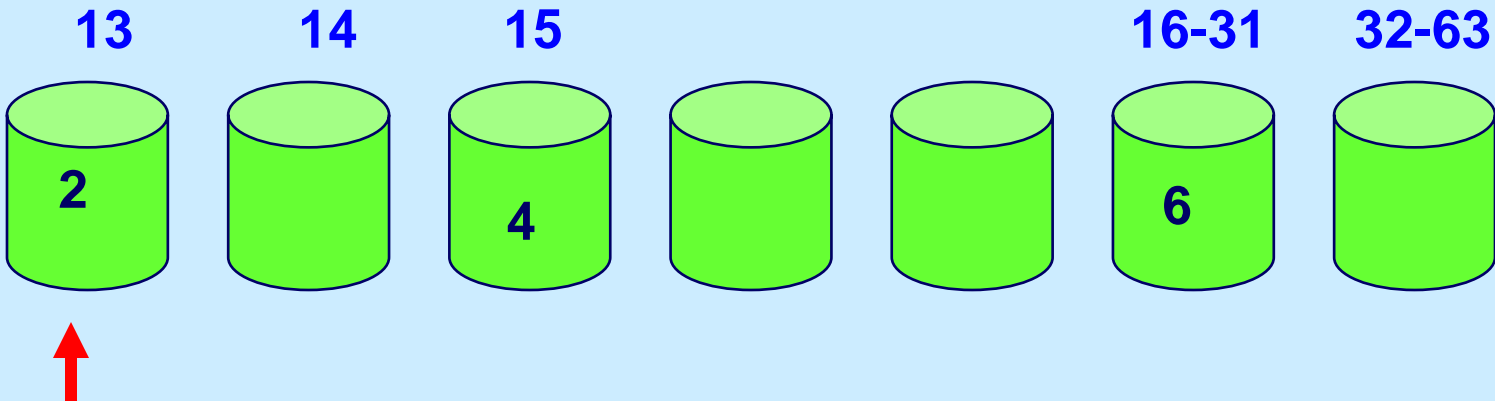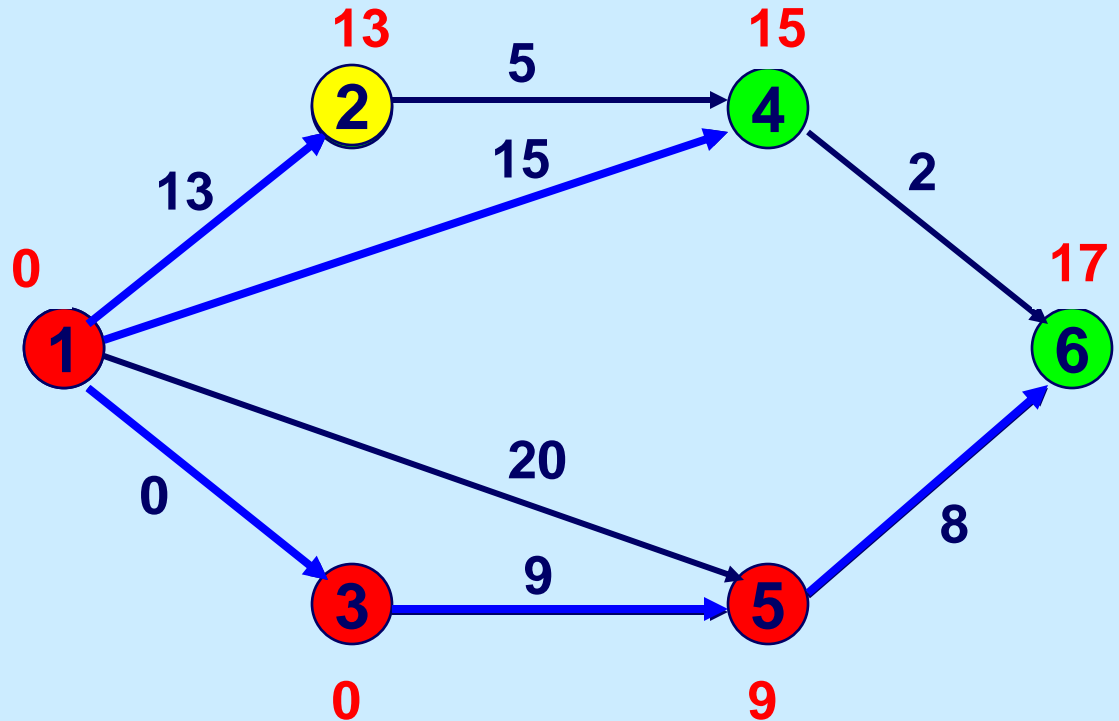
Find Min Bucket

Find Min Non-Empty Bucket

If the bucket has width 1 or a single element then select a node of the bucket.

Update

Scan arcs out of node 5 and update distances and buckets.

Find Min Bucket

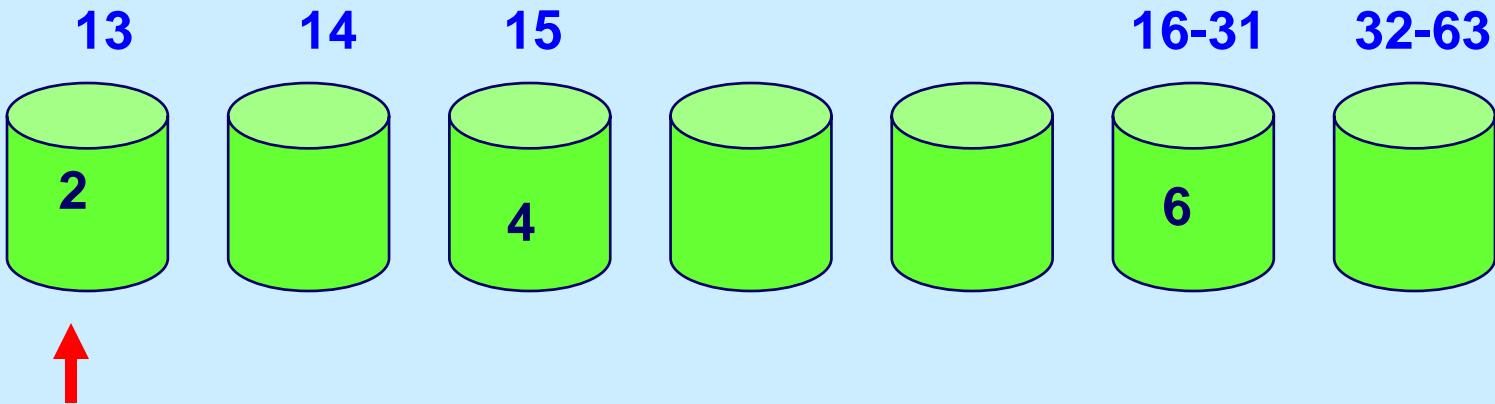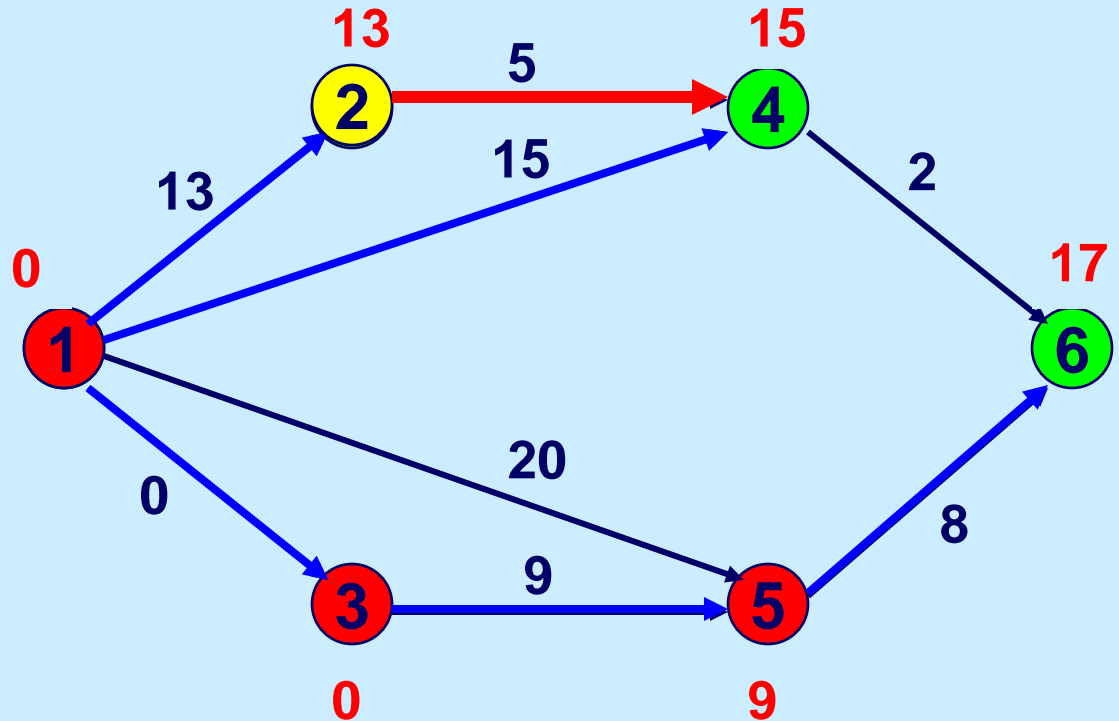**Find Min Non-Empty Bucket**

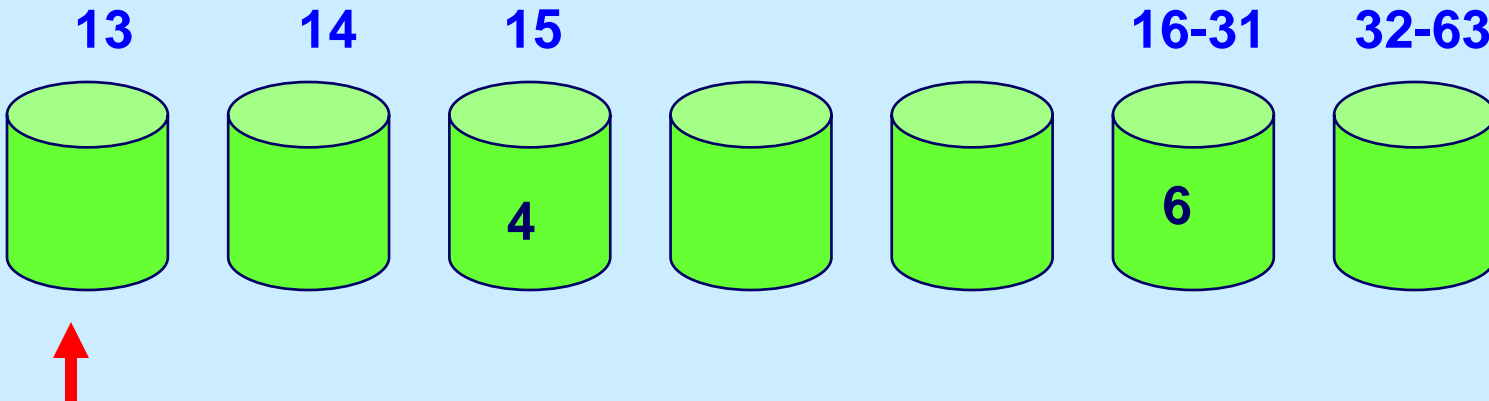**If the bucket has width 1 or a single element then select a node of the bucket.**
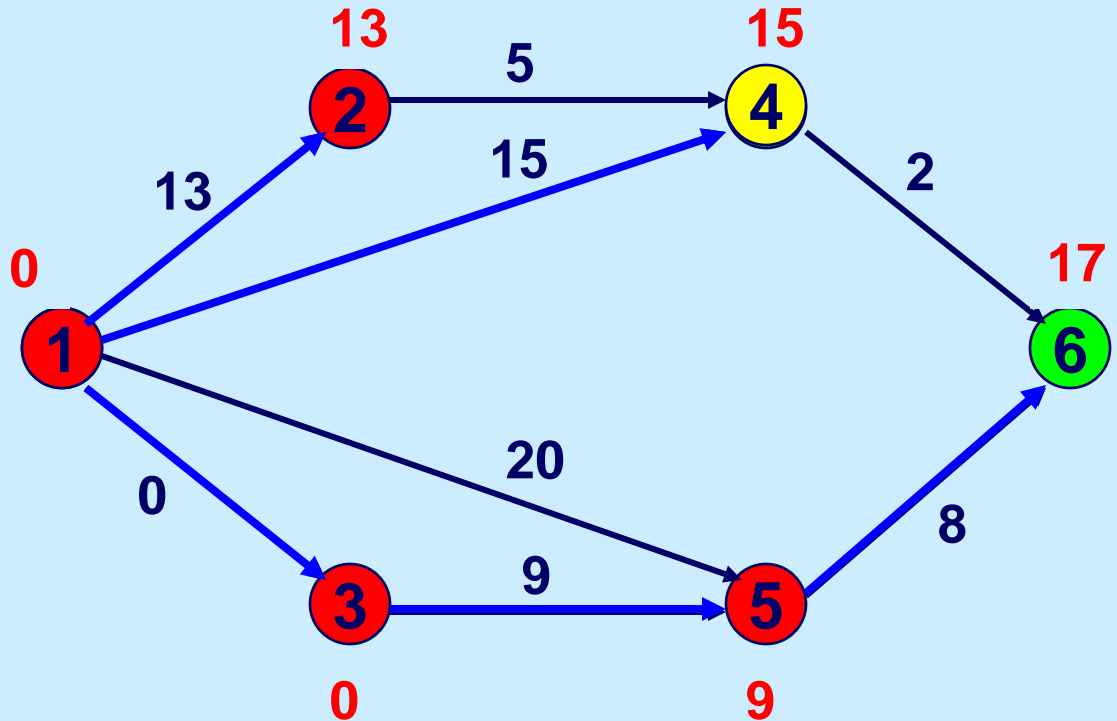
Update

Scan arcs out of node 4 and update distances and buckets.
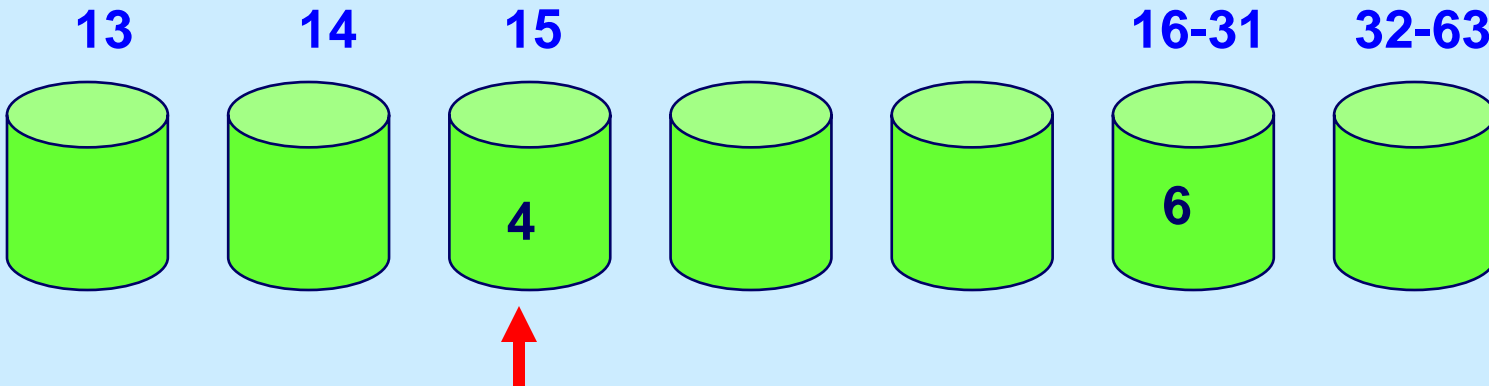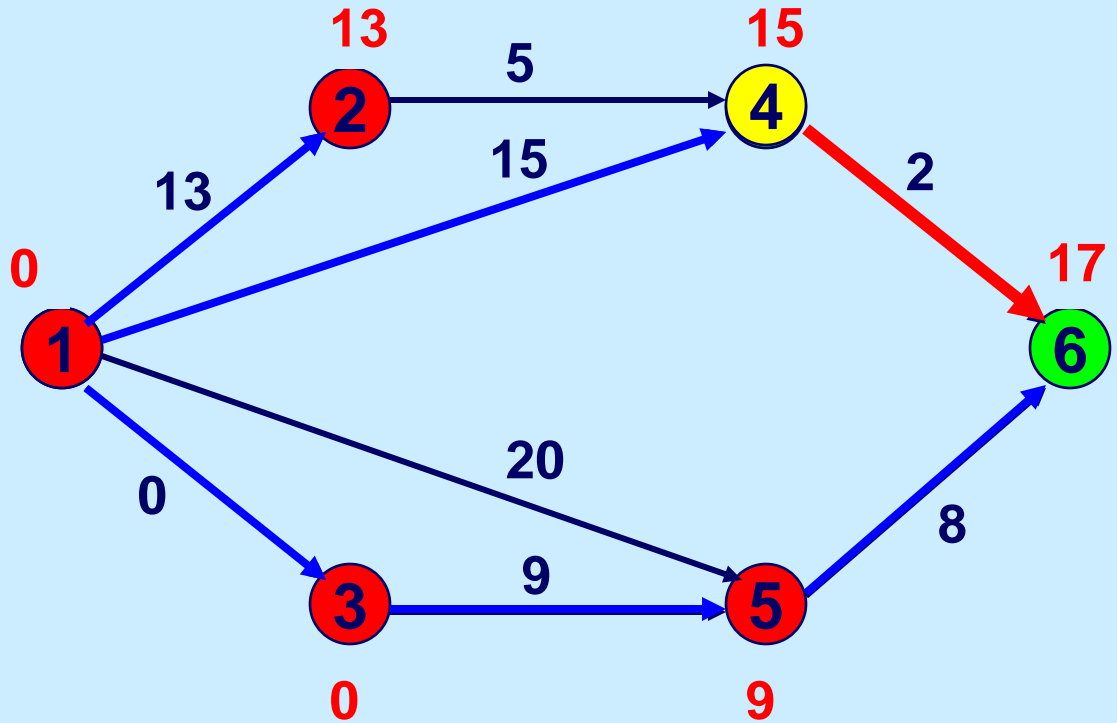
Find Min Bucket

Find Min Non-Empty Bucket

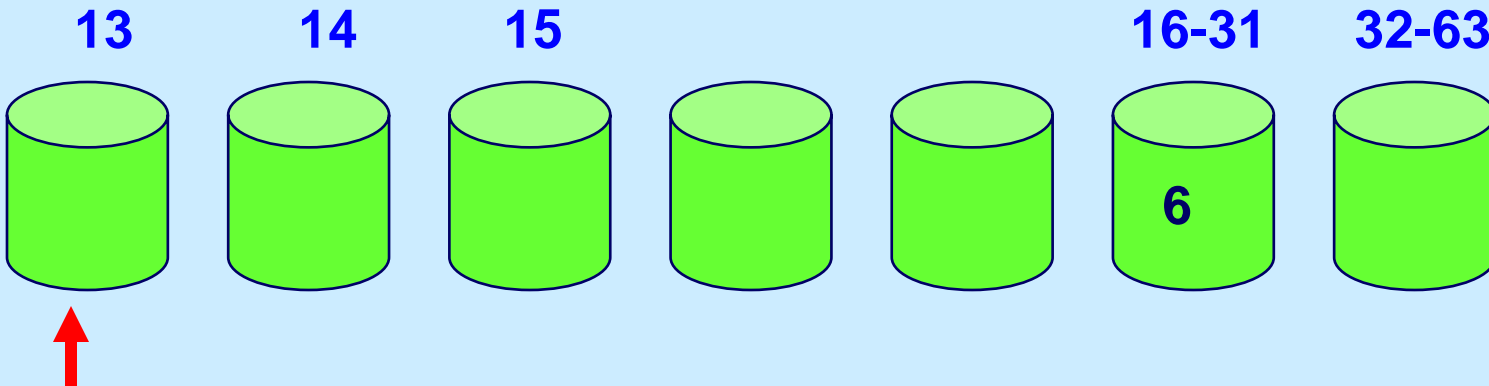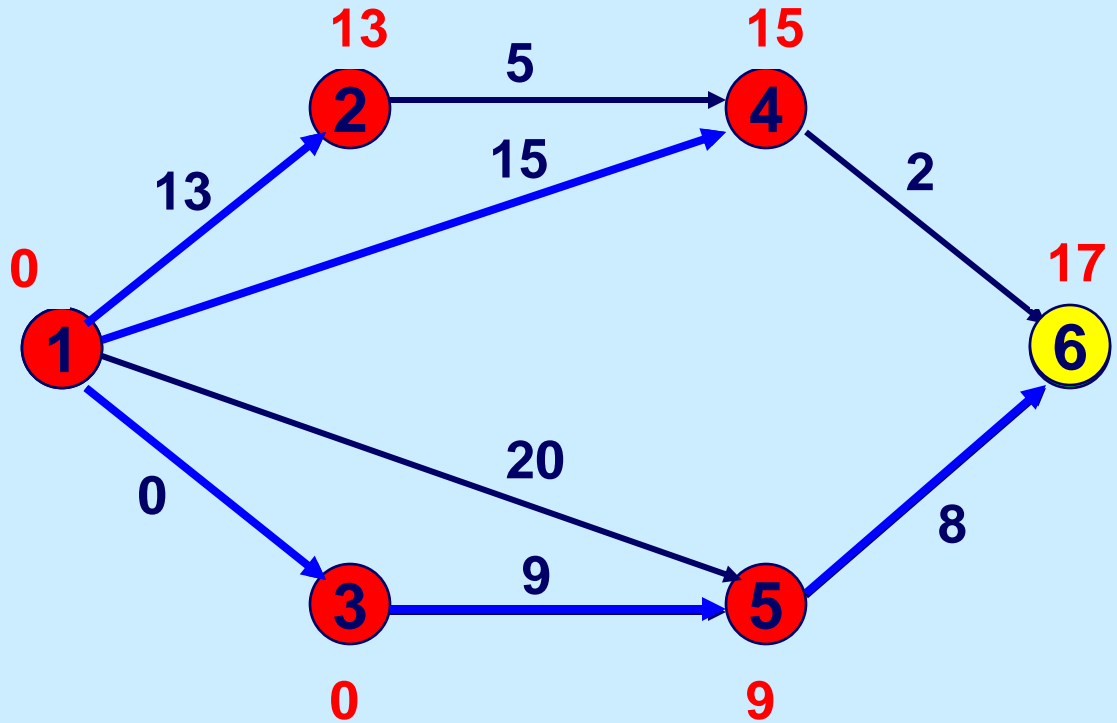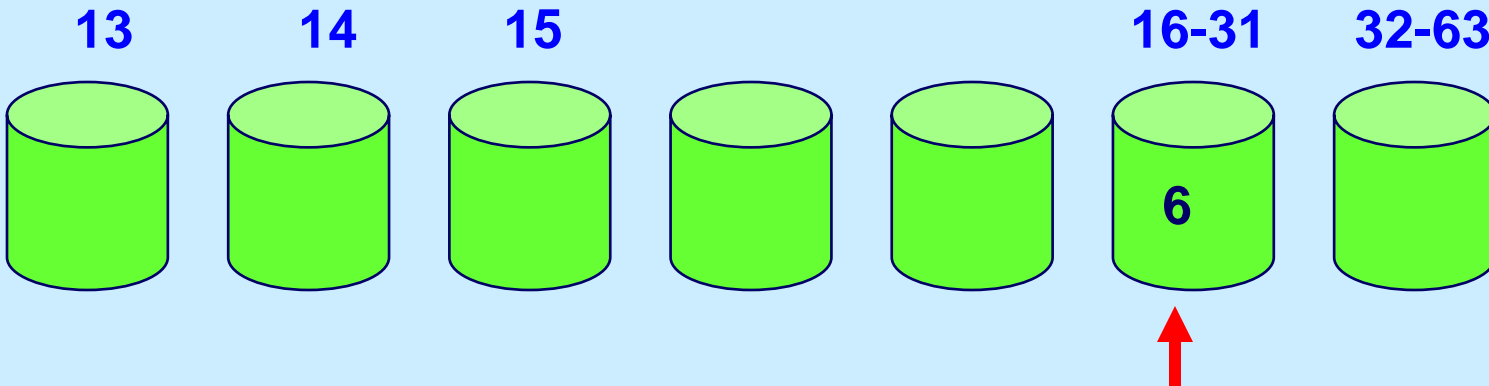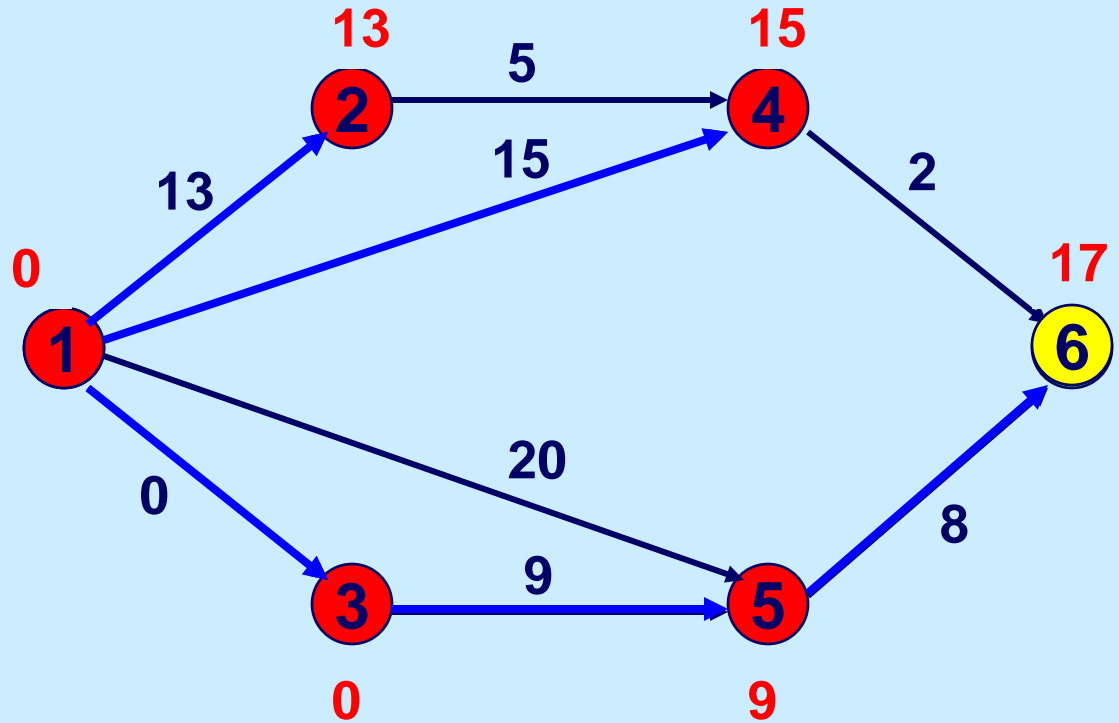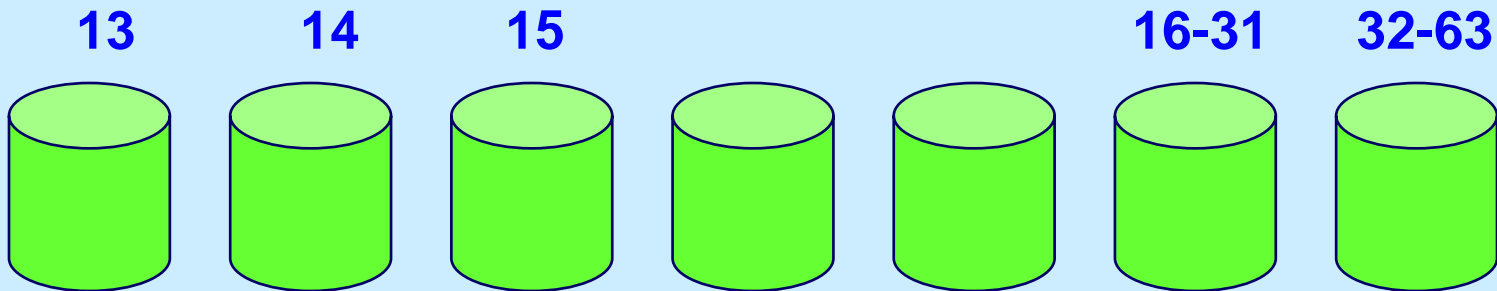**If the bucket has width 1 or a single element then select a node of the bucket.**

Update

Scan arcs out of node 4 and update distances and buckets.

13

15

5

13

0

15

2

17

20

8

0

9

9

13   14   15   16-31   32-63

6

Termination

All nodes are permanently labeled. The algorithm terminates

13

15

0

17

0

9

5

13

15

2

0

20

8

9

1

2

4

3

5

6

13   14   15   16-31   32-63
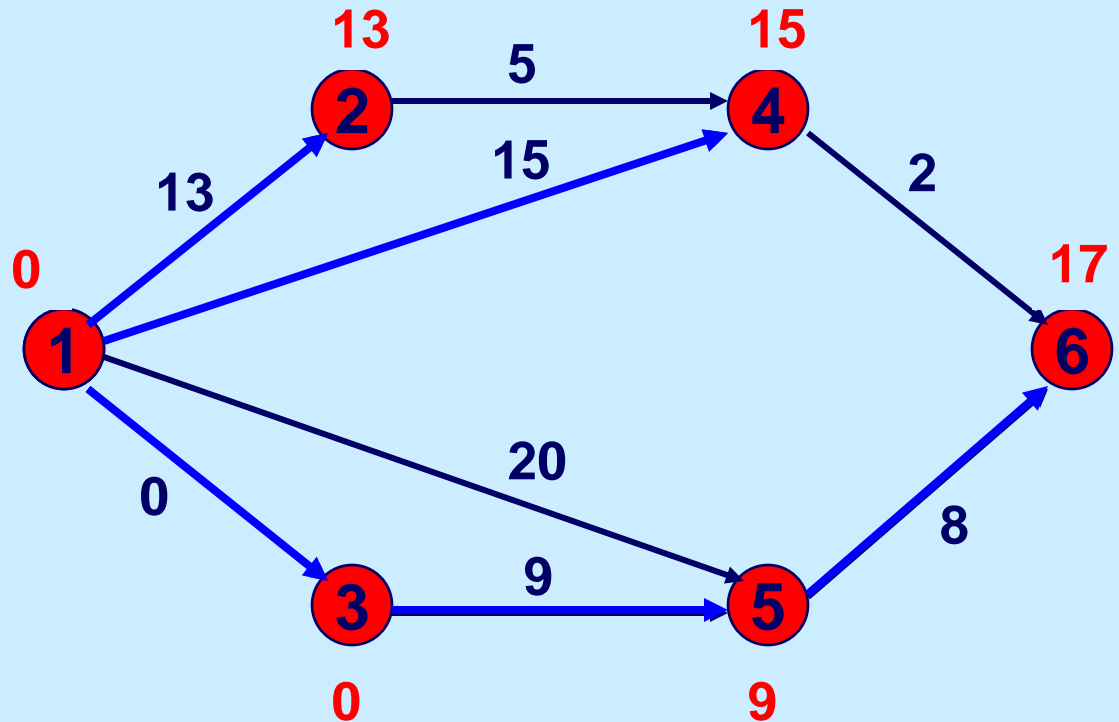
15.082J / 6.855J / ESD.78J Network Optimization

Fall 2010