A NODE in three states

LS labeled & scanned

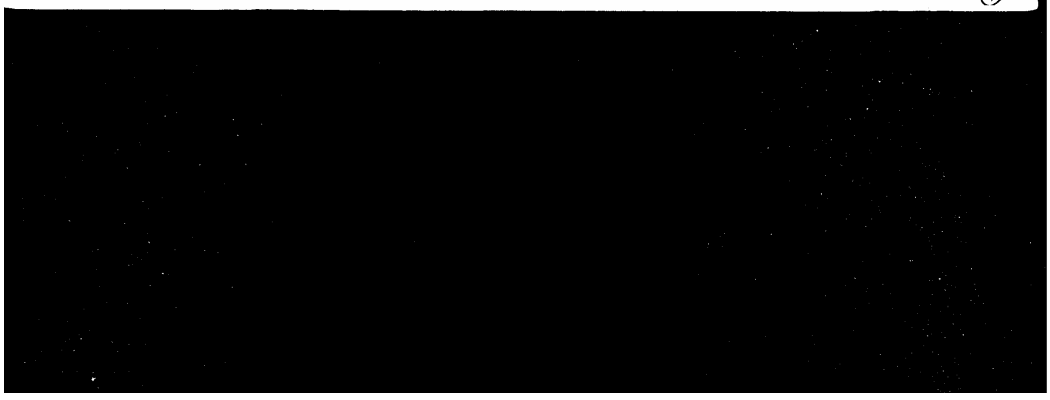
LU labeled & unscanned

U unlabeled

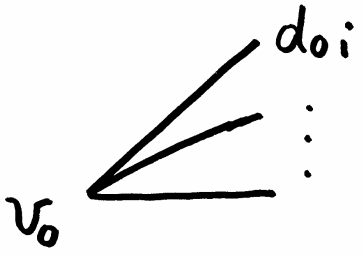
Two kinds of labels

Temp

Permanent



Step 0



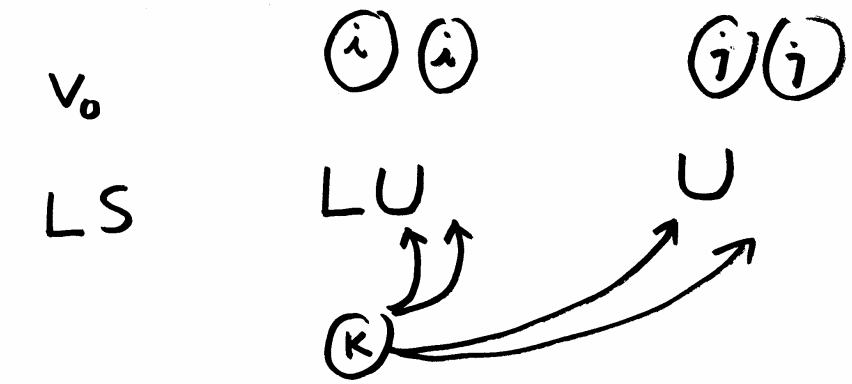
LS LU U

Step 1 $\ell_k = \min_i \ell_i$

$\ell_k \leftarrow \ell_k^*$

once neighbors of v_0 have labels

$v_0 \in LS$



Step 2 updates neighbors of V_K

$$\ell_i \leftarrow \min\left(\ell_i, \ell_K^* + d_{Ki}\right)$$

$$\ell_j \leftarrow \min\left(\overset{\infty}{\ell_j}, \ell_K^* + d_{Kj}\right)$$

once neighbors of V_K have labels

V_0 (k) (i)(i)(i)(i) (j)(j)

LS LU U

(p)

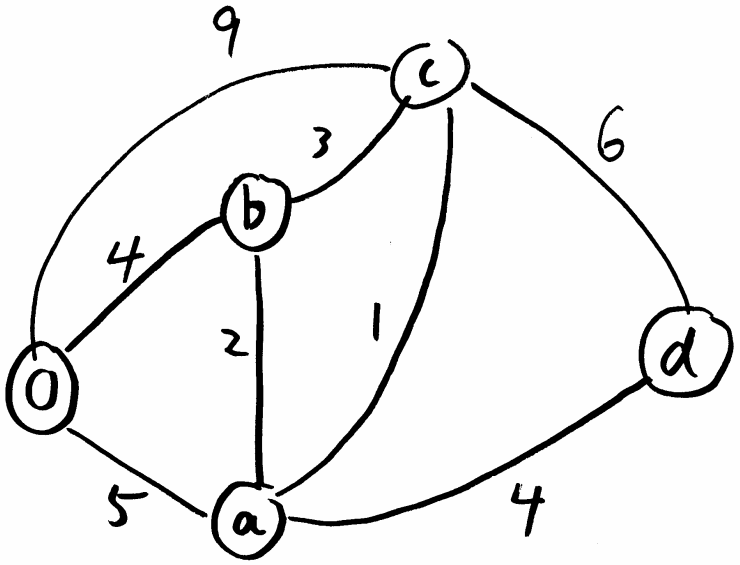
Step 1. $\ell_p = \min_i |LU|$

$\ell_p \leftarrow \ell_p^*$

Once neighbors of (p)

have labels

then (p) moves to LS



$V_0 \in LU \qquad a, b, c, d, \in U$

$d_{0a} = l_a = 5$

$d_{0b} = l_b = 4 \qquad l_d = \infty$

$d_{0c} = l_c = 9,$

Step 1

$$\min(5, 4, 9) = 4$$

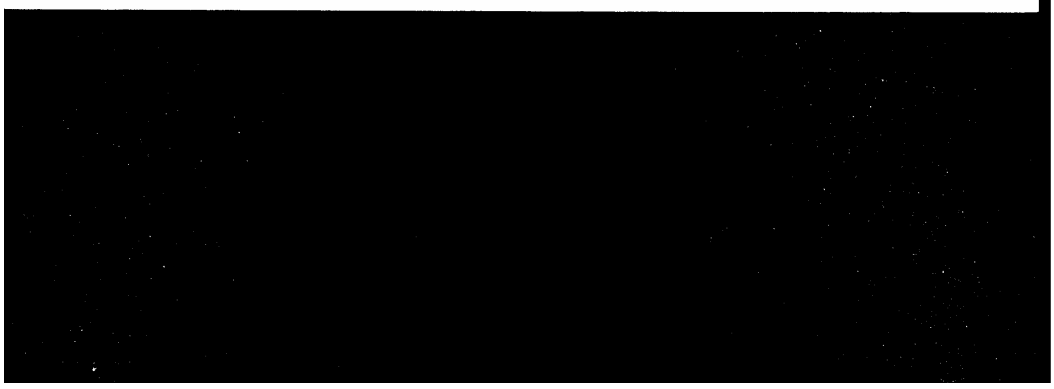
$$l_b \leftarrow l_b^*$$

Step 2. updates of (b)

$$l_a \leftarrow \min(5, 4+2) = 5$$

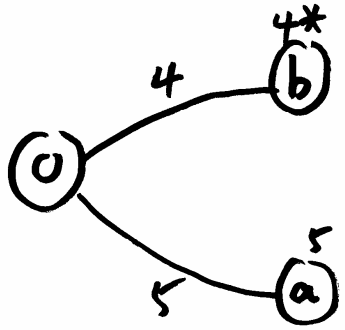
$$l_c \leftarrow \min(9, 4+3) = 7$$

$$l_a \leftarrow l_a^*$$



v_0 (b)

LS



7
c

∞
d

Step 1 $\min(7, 5,) = 5$

$l_a \leftarrow l_a^* = 5$

Step 2 update neighbors of (a)

$l_c \leftarrow \min(7, 5+1) = 6$

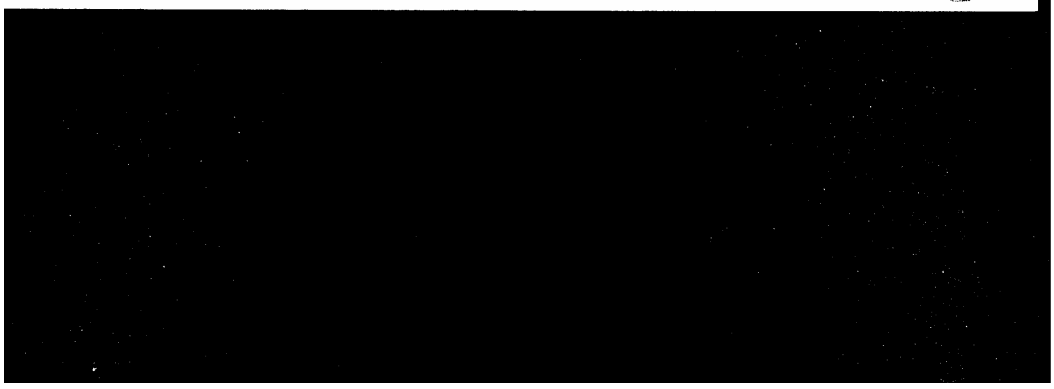
$l_d \leftarrow \min(\infty, 5+4) = 9$

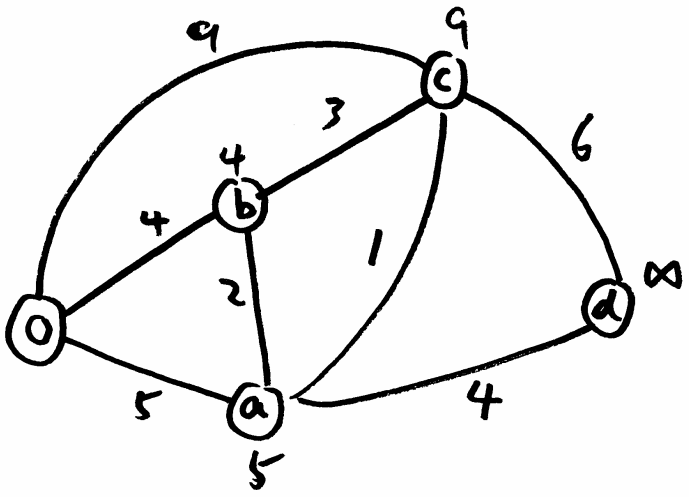
$l_c = l_c^* = 6$

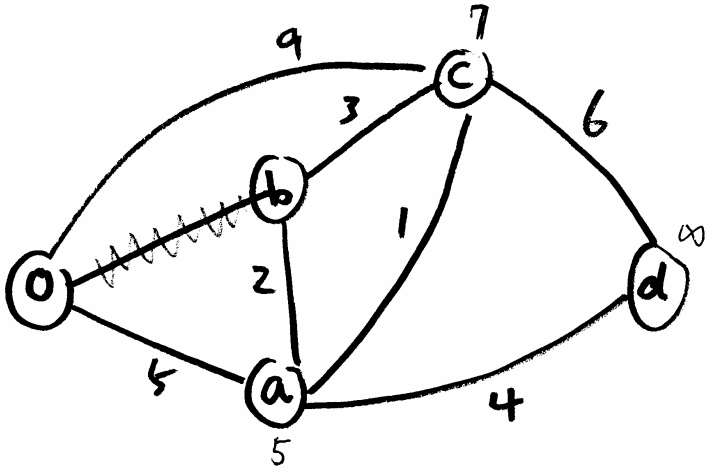
$l_d \leftarrow \min(9, l_c^* + d_{cd})$

$\min(9, 6+6)$

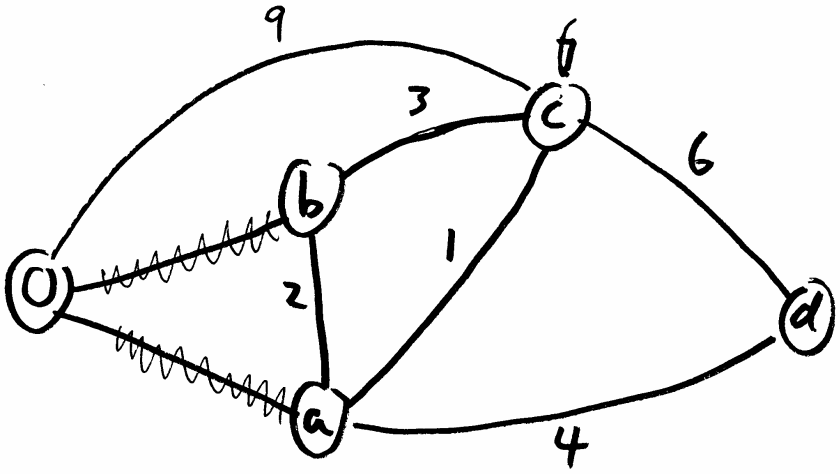
9







(9)


9
6
3
c
6
b
1
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a
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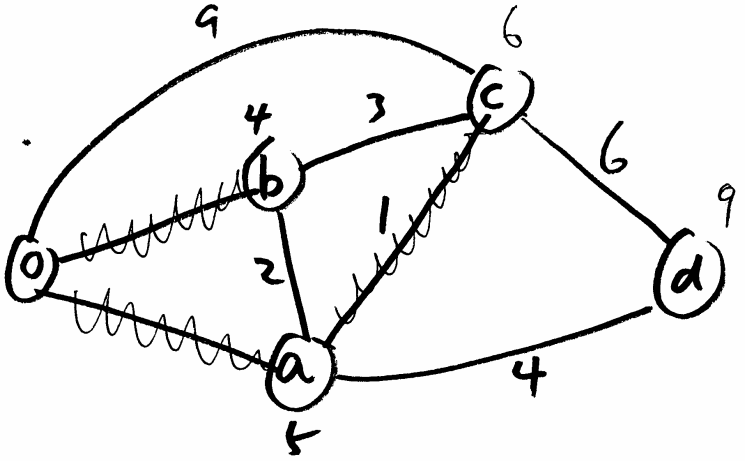
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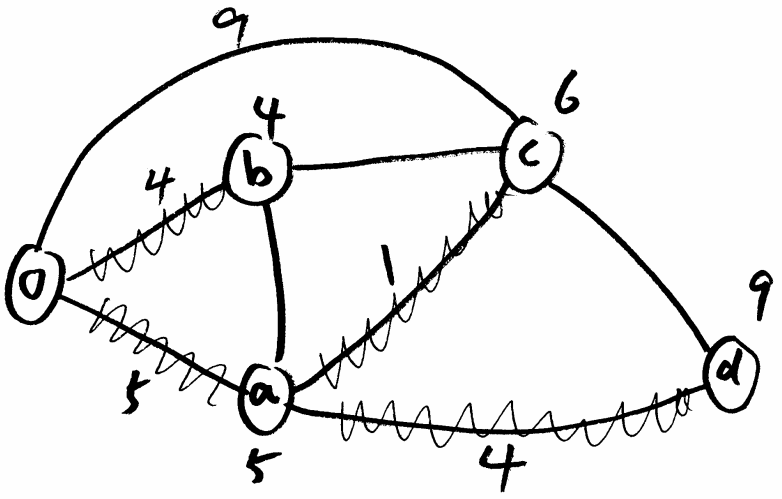
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