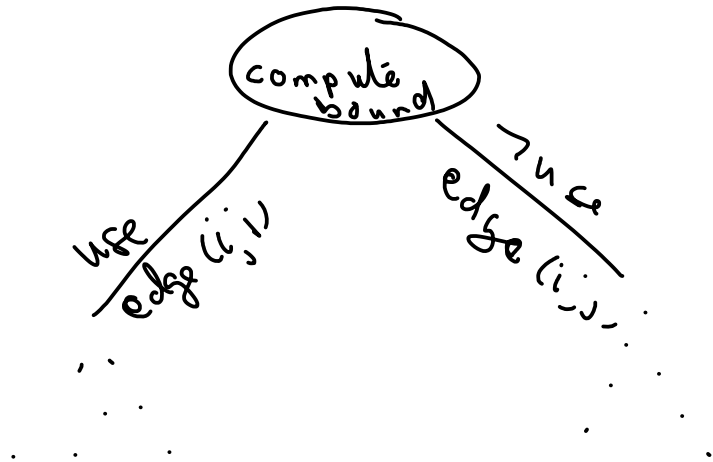


Branch & Bound Algorithm



$n=6$

$D = [d_{ij}]$

∞	3	4	5	4	6	3
2	∞	1	3	1	5	1
4	3	∞	2	5	2	2
7	3	4	∞	3	5	3
∞	1	2	3	∞	6	1
7	3	4	2	3	∞	2
<hr/>						
12						

Row Min

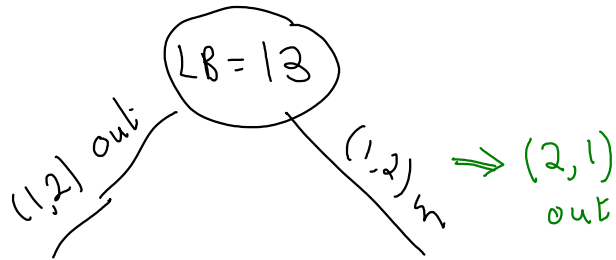


∞	0	1	2	1	3
1	∞	0	2	0	4
2	1	∞	0	3	0
4	0	1	∞	0	2
7	0	1	2	∞	5
5	1	2	0	1	∞
1	0	0	0	0	0

$$\rightarrow \begin{bmatrix} \infty & 0 & 1 & 2 & 1 & 3 \\ 0 & \infty & 0 & 2 & 0 & 4 \\ 1 & 1 & \infty & 0 & 3 & 0 \\ 3 & 0 & 1 & \infty & 0 & 2 \\ 6 & 0 & 1 & 2 & \infty & 5 \\ 4 & 1 & 2 & 0 & 1 & \infty \end{bmatrix}$$

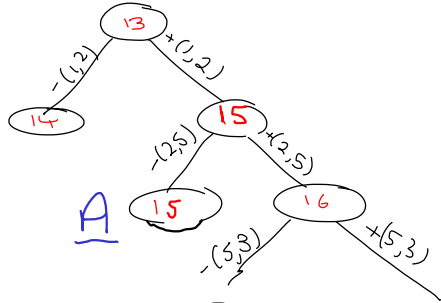
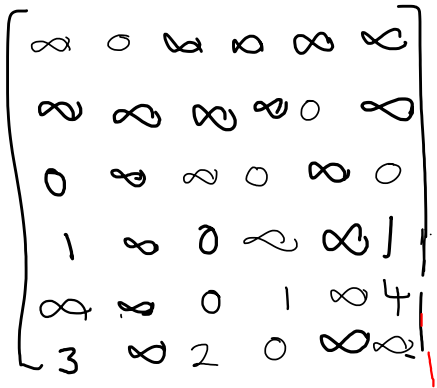
$$\downarrow \begin{bmatrix} \infty & \infty & 1 & 2 & 1 & 3 \\ 0 & \infty & 0 & 2 & 0 & 4 \\ 1 & 1 & \infty & 0 & 3 & 0 \\ 3 & 0 & 1 & \infty & 0 & 2 \\ 6 & 0 & 1 & 2 & \infty & 5 \\ 4 & 1 & 2 & 0 & 1 & \infty \end{bmatrix}$$

LB = 14

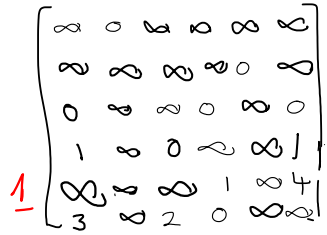


$$\downarrow \begin{bmatrix} \infty & 0 & \infty & \infty & \infty & \infty \\ \infty & \infty & 0 & 2 & 0 & 4 \\ 1 & \infty & \infty & 0 & 3 & 0 \\ 3 & \infty & 1 & \infty & 0 & 2 \\ 6 & \infty & 1 & 2 & \infty & 5 \\ 4 & \infty & 2 & 0 & 1 & \infty \end{bmatrix}$$

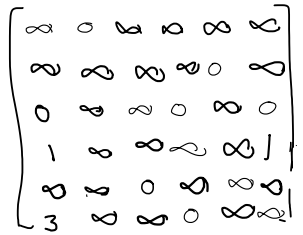
LB = 15



A

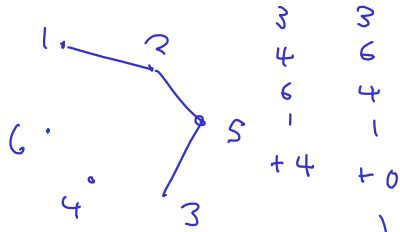


LB=17



LB=17

Flow of length 17



$$\begin{bmatrix} 8 & 0 & 8 & 0 & 8 & 8 \\ 0 & 8 & 0 & 2 & 8 & 4 \\ - & 8 & 8 & 0 & 3 & 0 \\ 3 & 8 & - & 8 & 0 & 2 \\ 5 & 8 & 0 & - & 8 & 4 \\ 4 & 8 & 2 & 0 & - & 8 \end{bmatrix}$$

Problem A.

$$LB = 15$$

~~-(4,5)~~

$$\begin{bmatrix} 8 & 0 & 8 & 8 & 8 & 8 \\ 8 & 8 & 0 & 2 & 8 & 4 \\ - & 8 & 8 & 0 & 3 & 0 \\ 3 & 8 & - & 8 & 8 & 2 \\ 5 & 8 & 0 & - & 8 & 4 \\ 4 & 8 & 2 & 0 & - & 8 \end{bmatrix}$$

LB = 17 - DONE

~~+(4,5)~~

$$\begin{bmatrix} 8 & 0 & 8 & 8 & 8 & 8 \\ 8 & 8 & 0 & 2 & 8 & 4 \\ - & 8 & 8 & 0 & 8 & 0 \\ 8 & 8 & 8 & 8 & 0 & 8 \\ 5 & 8 & 0 & 8 & 8 & 4 \\ 4 & 8 & 2 & 0 & 8 & 8 \end{bmatrix}$$

LB = 16

