Define A_4 and b_4

Ex 4×4

- based Rule 4.)

-- Each Integer should only show up once 4.) in each space.

- Notice the pattern!

Spaces (1,1)

$$\left.\begin{aligned} x_1 + x_2 + x_3 + x_4 &= 1 \\ x_5 + x_6 + x_7 + x_8 &= 1 \\ x_9 + x_{10} + x_{11} + x_{12} &= 1 \\ x_{13} + x_{14} + x_{15} + x_{16} &= 1 \\ &\vdots \\ x_{61} + x_{62} + x_{63} + x_{64} &= 1 \end{aligned}\right\} \text{16 Eq's}$$

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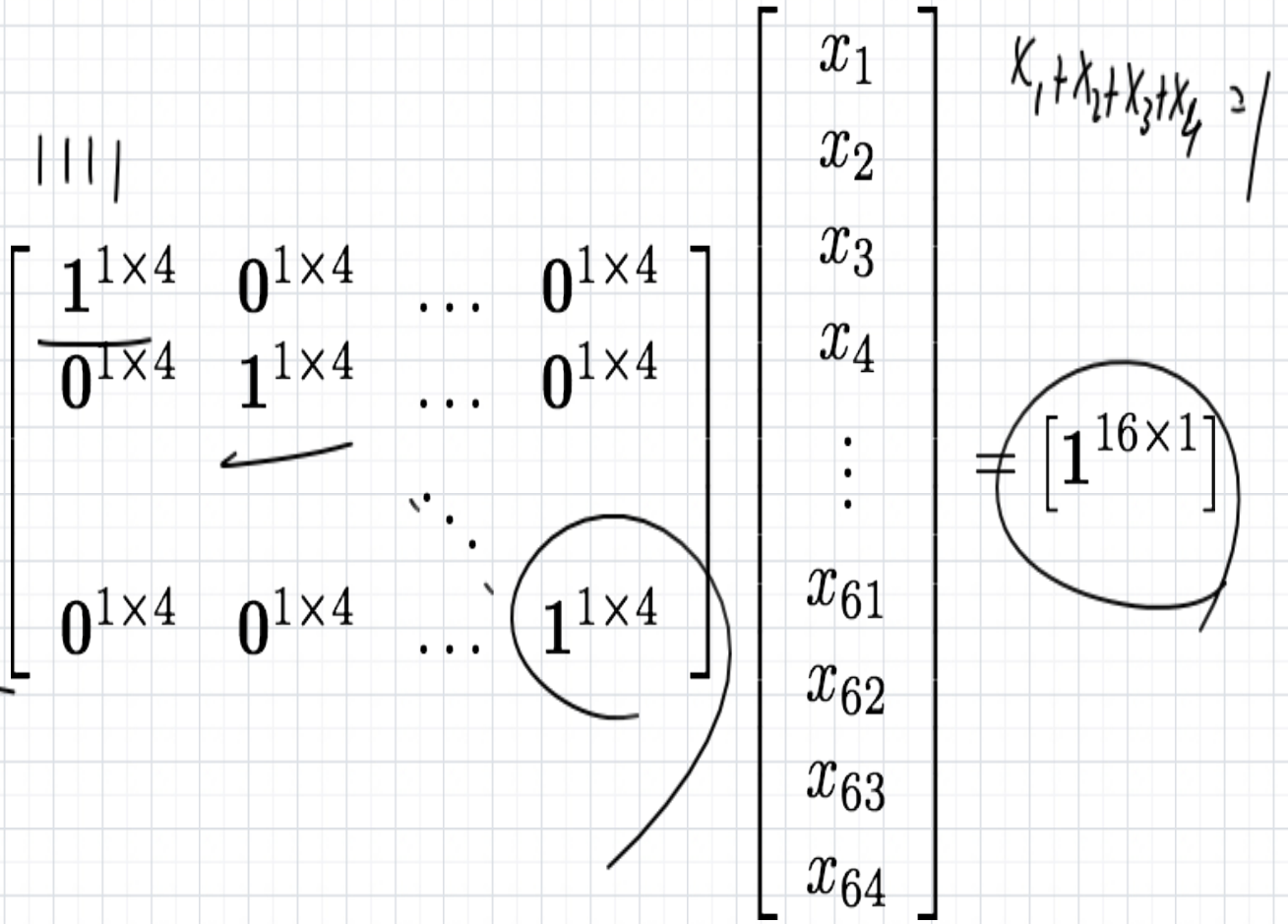

LP Relaxation

- The optimal solution will have many more 0's than 1's ($x_i = 0$)

- RELAX: allow x_i to be any real number between 0 and 1 rather than a binary integer

- Maintain the rules while making as many variable zero

- Remember the Histogram!

$$\begin{aligned} &\text{minimize} && \|\boldsymbol{x}\|_1 \\ &\text{subject to} && A\boldsymbol{x} = \boldsymbol{b} \end{aligned}$$

rules