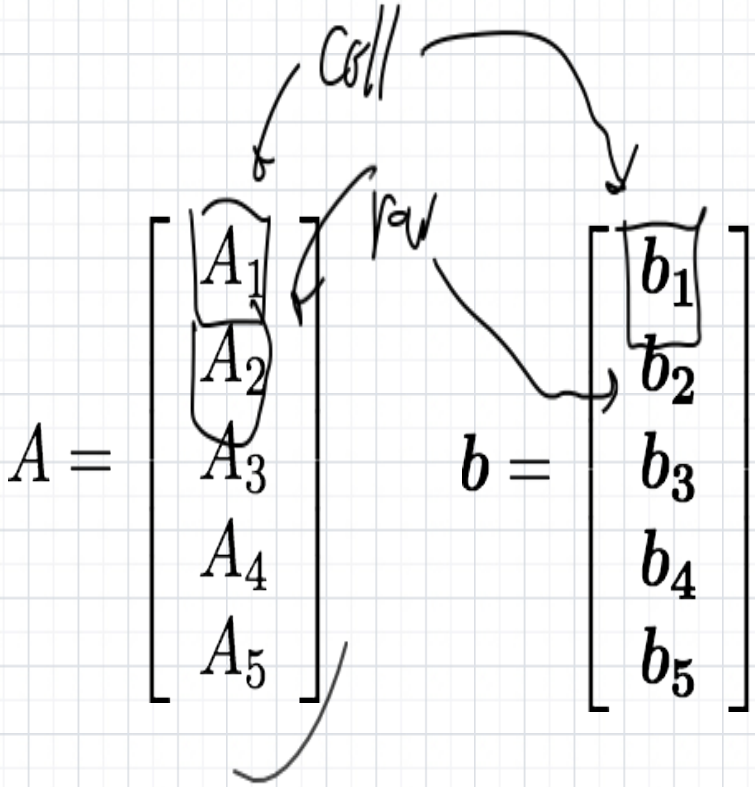
Define A and b s.t. $Ax = b$

- based on the 5 rules!

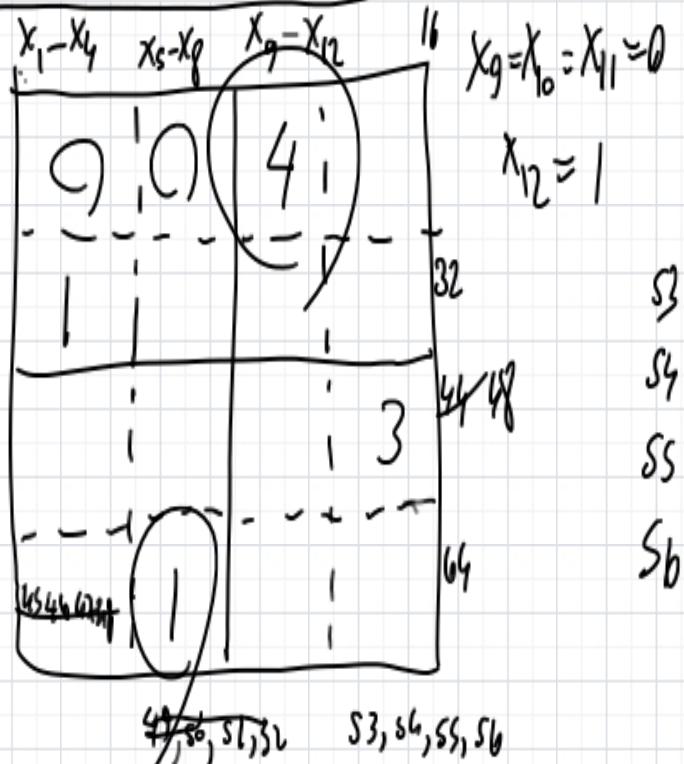
- Each Integer should only show up once
  - -- 1.) in each 2x2 (or 3x3) cell
  - -- 2.) in each row
  - -- 3.) in each column
  - -- 4.) in each space
  - -- 5.) No Clue should be replaced



Define A_5 and b_5

- based Rule 5.)
  - -- 5.) No Clue should be replaced

- Don't have a pattern like others!



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\begin{array}{c}
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x_9 \\
x_{10} \\
x_{11} \\
x_{12} \\
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 \\
s_3 \\
s_4 \\
s_5 \\
s_6
\end{array}
\begin{array}{c}
\begin{array}{ccccc} x_9 & x_{10} & x_{11} & x_{12} & \end{array} \\
\left[\begin{array}{ccccc}
\mathbf{0}^{8\times1} & 1 & 0 & 0 & 0 \\
\mathbf{0}^{8\times1} & 0 & 1 & 0 & 0 \\
\mathbf{0}^{8\times1} & 0 & 0 & 1 & 0 \\
\mathbf{0}^{8\times1} & 0 & 0 & 0 & 1 \\
\mathbf{0}^{16\times1} & 1 & 0 & 0 & 0 \\
\mathbf{0}^{16\times1} & 0 & 1 & 0 & 0 \\
\mathbf{0}^{16\times1} & 0 & 0 & 1 & 0 \\
\mathbf{0}^{16\times1} & 0 & 0 & 0 & 1 \\
\mathbf{0}^{44\times1} & 0 & 0 & 1 & 0 \\
\mathbf{0}^{44\times1} & 0 & 0 & 1 & 0 \\
\mathbf{0}^{44\times1} & 0 & 0 & 1 & 0 \\
\mathbf{0}^{44\times1} & 0 & 0 & 1 & 0 \\
\mathbf{0}^{52\times1} & 1 & 0 & 0 & 0 \\
\mathbf{0}^{52\times1} & 0 & 1 & 0 & 0 \\
\mathbf{0}^{52\times1} & 0 & 0 & 1 & 0 \\
\mathbf{0}^{52\times1} & 0 & 0 & 0 & 1
\end{array}\right]
\end{array}
\begin{array}{c}
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\end{array}
\begin{array}{c}
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\end{array}
\begin{array}{c}
\left[\begin{array}{c} x_1 \\ x_2 \\ \vdots x_9 \\ \vdots \\ x_{64} \end{array}\right]
\end{array}
=
\begin{array}{c}
\left[\begin{array}{c}
0 \\ 0 \\ 0 \\ 1 \\ 1 \\ 0 \\ 0 \\ 0 \\ 0 \\ 1 \\ 0 \\ 1 \\ 0 \\ 0 \\ 0 \\ 0
\end{array}\right]
\end{array}
$$