⑥ Compute the determinant of $A = \begin{bmatrix} 1 & 4 & 0 \\ 1 & 2 & -1 \\ 3 & 0 & 1 \end{bmatrix}$

$i = 0 \quad |A| = \sum_j a_{0j} C_{0j}$

$C_{00} = (-1)^0 M_{00} = \begin{vmatrix} 2 & -1 \\ 0 & 1 \end{vmatrix} = 2$

$C_{01} = (-1)^1 M_{01} = -\begin{vmatrix} 1 & -1 \\ 3 & 1 \end{vmatrix} = -4$

$C_{02} = (-1)^2 M_{02} = \begin{vmatrix} 1 & 2 \\ 3 & 0 \end{vmatrix} = -6$

$\rightarrow |A| = \underset{2}{1(2)} + \underset{-16}{4(-4)} + \cancel{0(-6)} = \boxed{-14}$