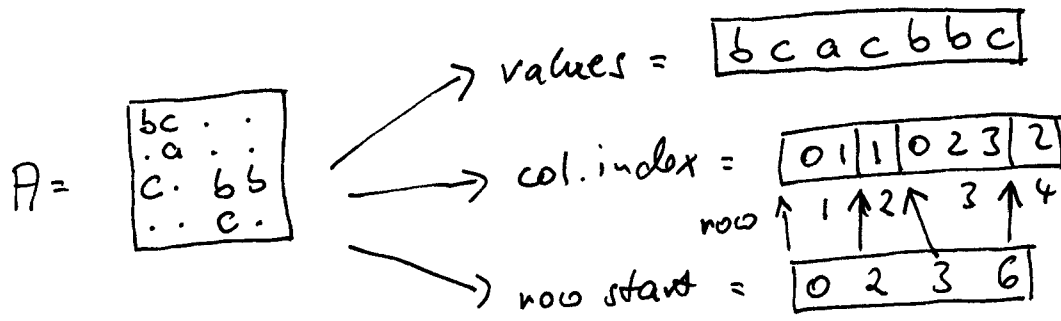


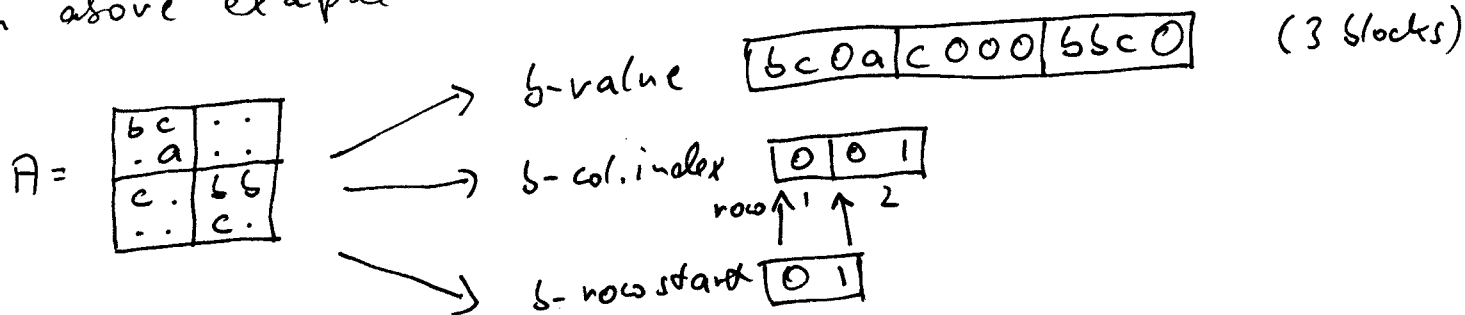
Compressed Sparse Row (CSR) Format



Storage: $\Theta(\# \text{ non-zero entries of } A)$

Blocked CSR (BCSR) Format

- block A into $r \times c$ blocks
- in above example and $r=c=2$:

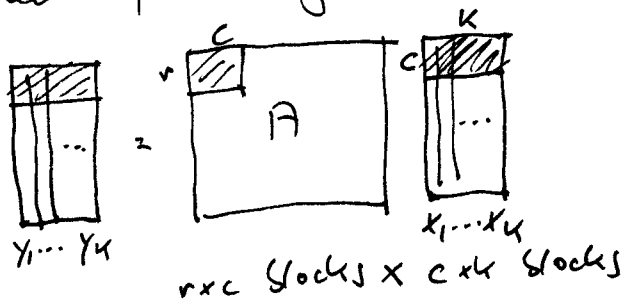


Computational overhead: $12/7 \approx 1.7$

Multiple Vectors in YVM

$$y_i = Ax_i, \quad i = 1 \dots k$$

Instead of doing it sequentially:



Equivalent to YVM.