

Develop a code for *INCOMPLETE* LU and try it on the 2D matrix for increasing N . You can make it a general code or specialize it to these particular matrices (and decide which entries to keep in the approximate factors L and U). Try on $A_{2D} u = \text{random right side}$. You could use `eig` to find the spectral radius of the preconditioned matrix B . That matrix is $I - \text{inv}(P)A_{2D}$ where $P \approx LU$. Of course if $P = A_{2D}$ then $B = 0$ and convergence in 1 step.