

Assignment 16

Compare methods for solving $A\vec{x}=\vec{b}$.

→ time, error

Use:

my fs, bs, h2oLU

Time:

tic



time3=toc

of process

Error: $A\vec{x}-\vec{b}$ = error vector

$$\text{error} = \|A\vec{x}-\vec{b}\|$$

~~$$\sqrt{\text{sum}((A*x-b).^2)}$$~~

$$\text{norm}(A*x-b, 2)$$

- ① rr-bs \rightsquigarrow get $x_1, \text{time}_1, \text{error}_1$
- ② LU (solve2)
- ③ MATLAB rref $\rightarrow \left\{ \begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array} \right\}$
- ④ $A\vec{x} = \vec{b} \implies \vec{x} = A^{-1}\vec{b}$ $A^{-1} = \text{inv}(A)$
- ⑤ $A\vec{x} = \vec{b} \implies \vec{x} = A \backslash \vec{b}$

Do for #7 on exam first $x_1 = -2$
 $x_2 = 2$
 Eventually... $x_3 = 1$

$$A = \text{randi}(9, 100, 100)$$

$$\vec{b} = \text{randi}(9, 100, 1)$$

① Assn 14 solve 2

② Assn 15, 16

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