

The purpose of this project is to make a program which implements the *LU*-decomposition of Gaussian Elimination with partial pivoting to solve a linear system $Ax = b$.

A main program `LU_Solver` should consists of the following subprograms: `PA_LU`, `Forward_Sub`, `Backward_Sub`, `Cond`.

By using your subprograms, find the inverse matrix H^{-1} of a given matrix H and compute the condition number $c(H) = \|H\|_{\infty} \|H^{-1}\|_{\infty}$.

Intputs: Hilbert matrices H_n

$$H_n = \left(h_{ij} \right)_{n \times n} \quad \text{with } h_{ij} = \frac{1}{i+j-1}, \quad 1 \leq i, j \leq n.$$

Outputs:

n	$c(H_n)$
4	with e-format such as 3.141+5 denoting 3.141×10^5
8	
16	
\vdots	
?	

The End