B Inverting a matrix directly is not recommended as it might lead to numerical instability. MATRIX FACTORIZATION PROVIDES A MORE SANER WAY OF DOING THIS.

L-U DECOMPOSITION: Complexity = $\frac{2n^3}{3}$ | Stable |

In LU Decomposition Method, The matrix is Broken down to an upper and a lower matrix (triangular).

$\Rightarrow A = LU$ [L = lower triangular matrix
U = upper triangular matrix]

Pseudocode:

① Decomposition

$A = LU$

$\Rightarrow A\beta = Y$

$\Rightarrow LU\beta = Y$

$\Rightarrow L^{-1}LU\beta = L^{-1}Y$

$\Rightarrow IU\beta = L^{-1}Y$

$\Rightarrow U^{-1}U\beta = U^{-1}L^{-1}Y$

$\Rightarrow \boxed{\beta = U^{-1}L^{-1}Y}$