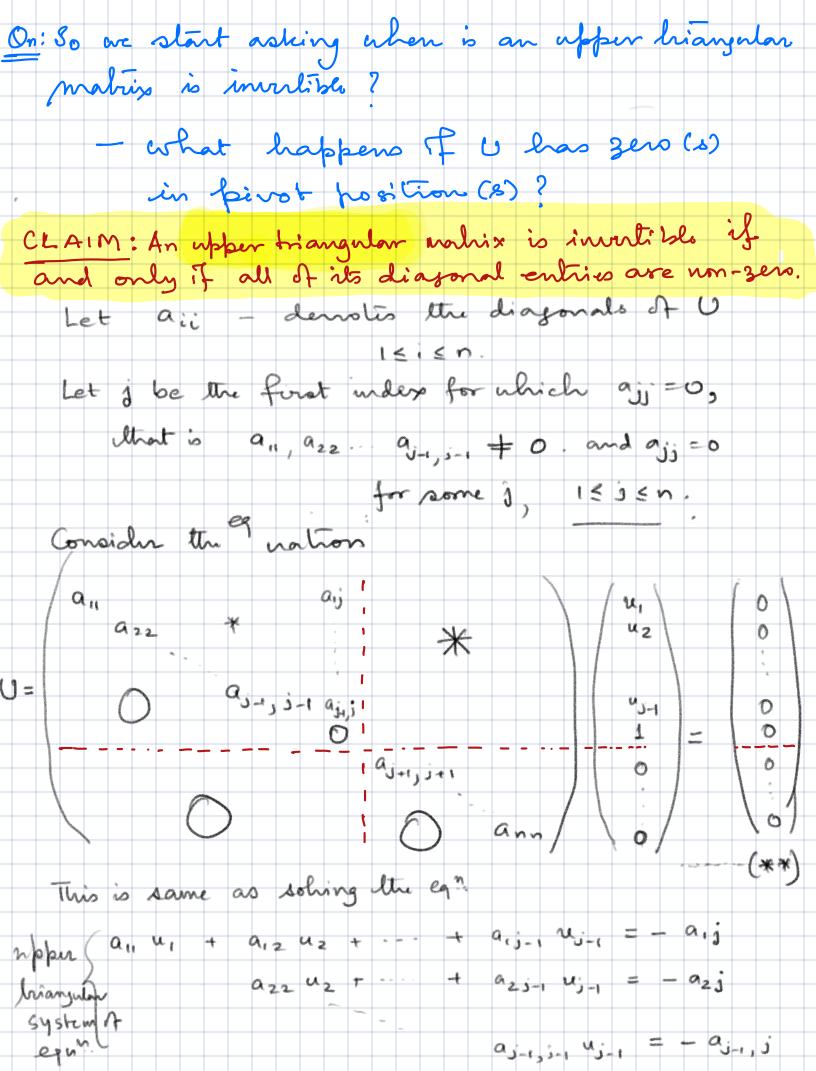
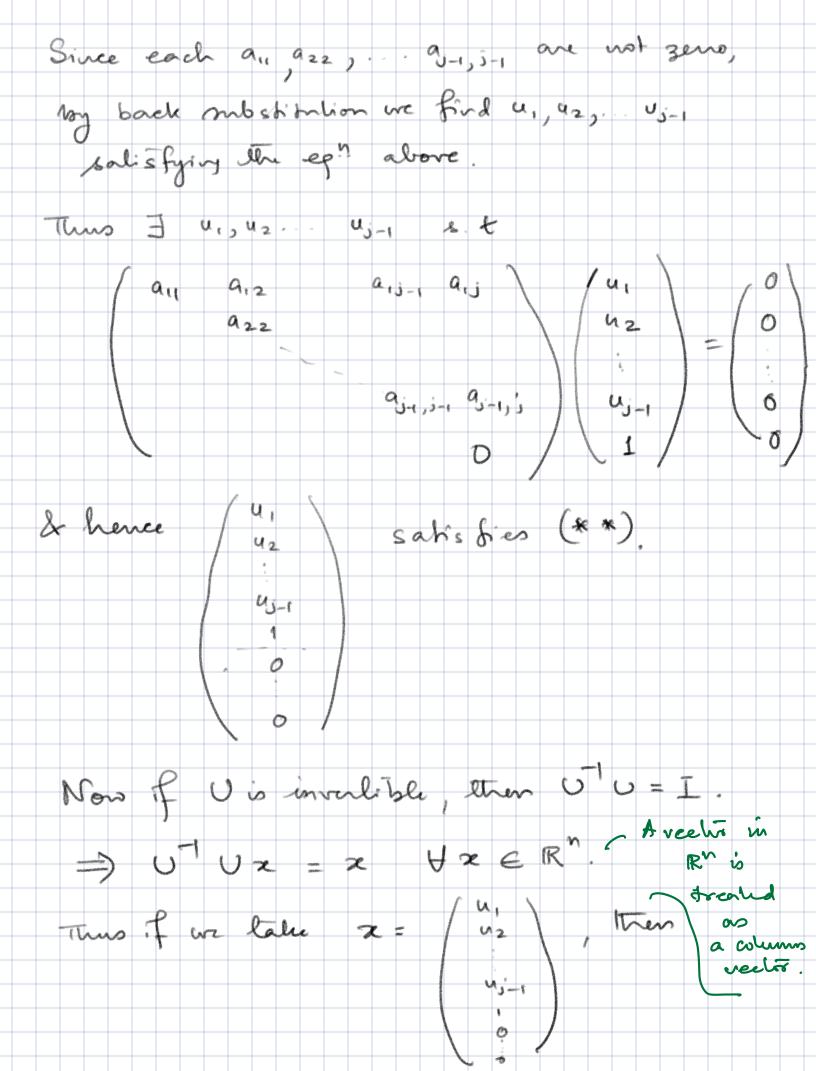
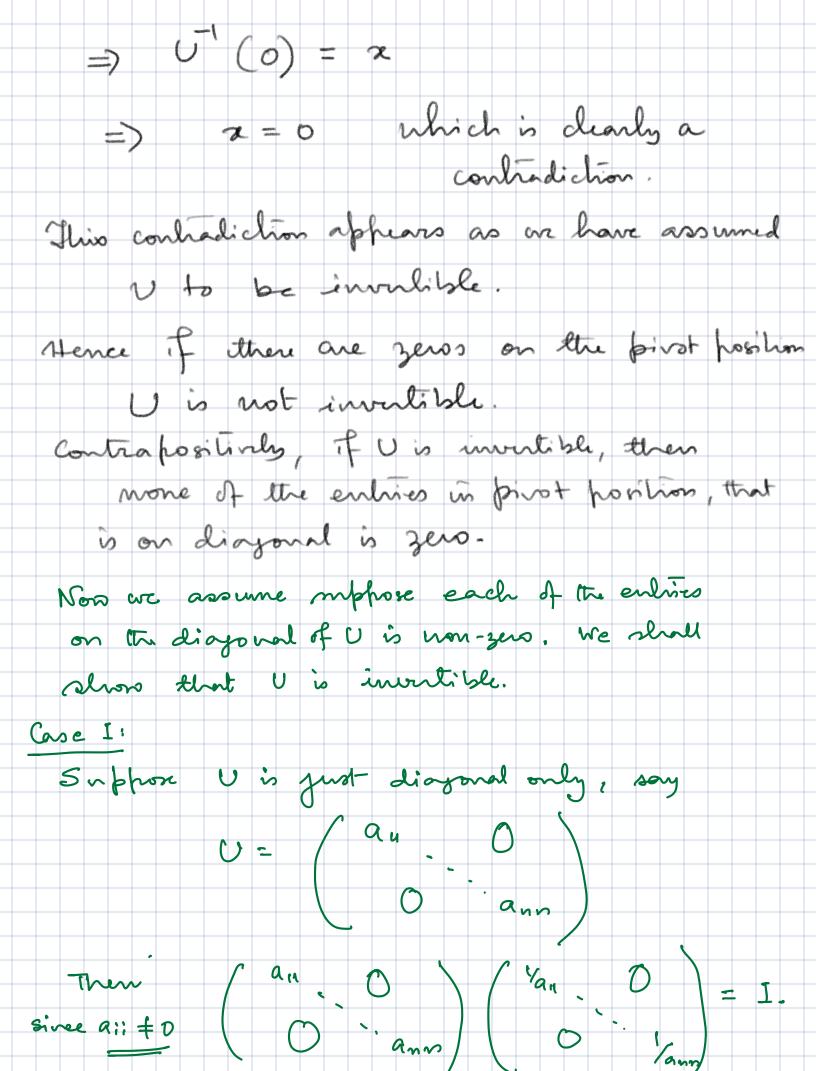
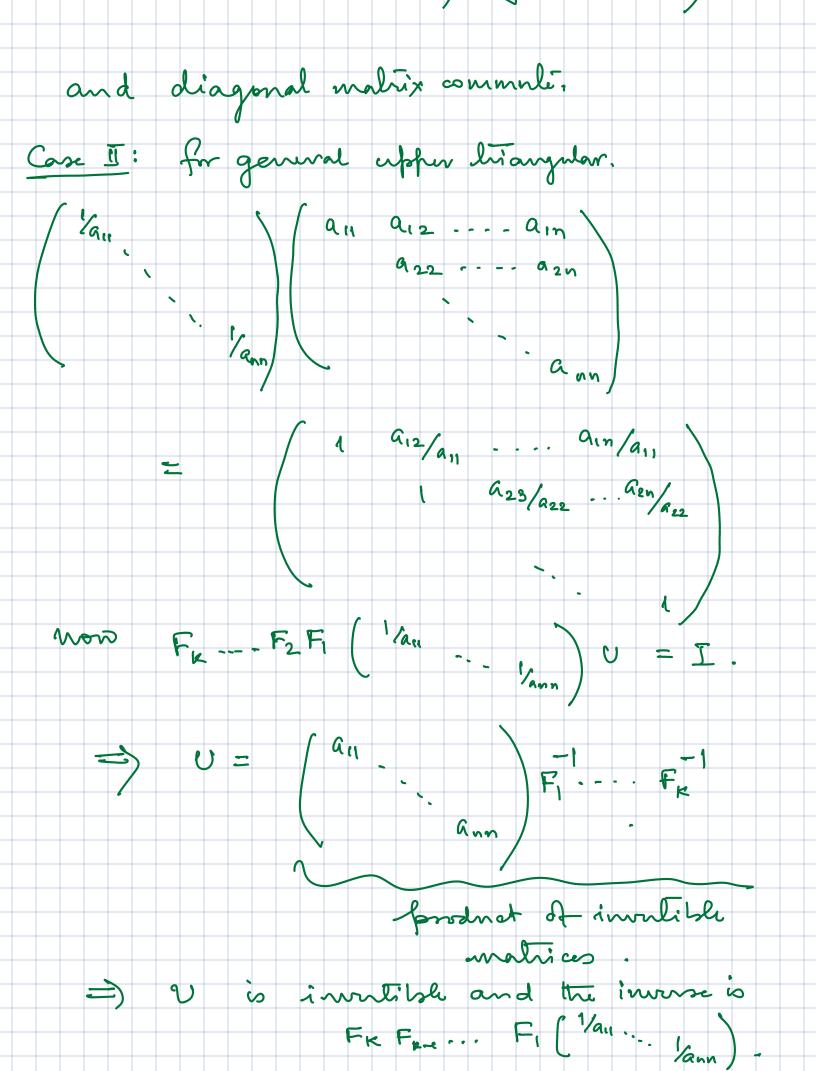
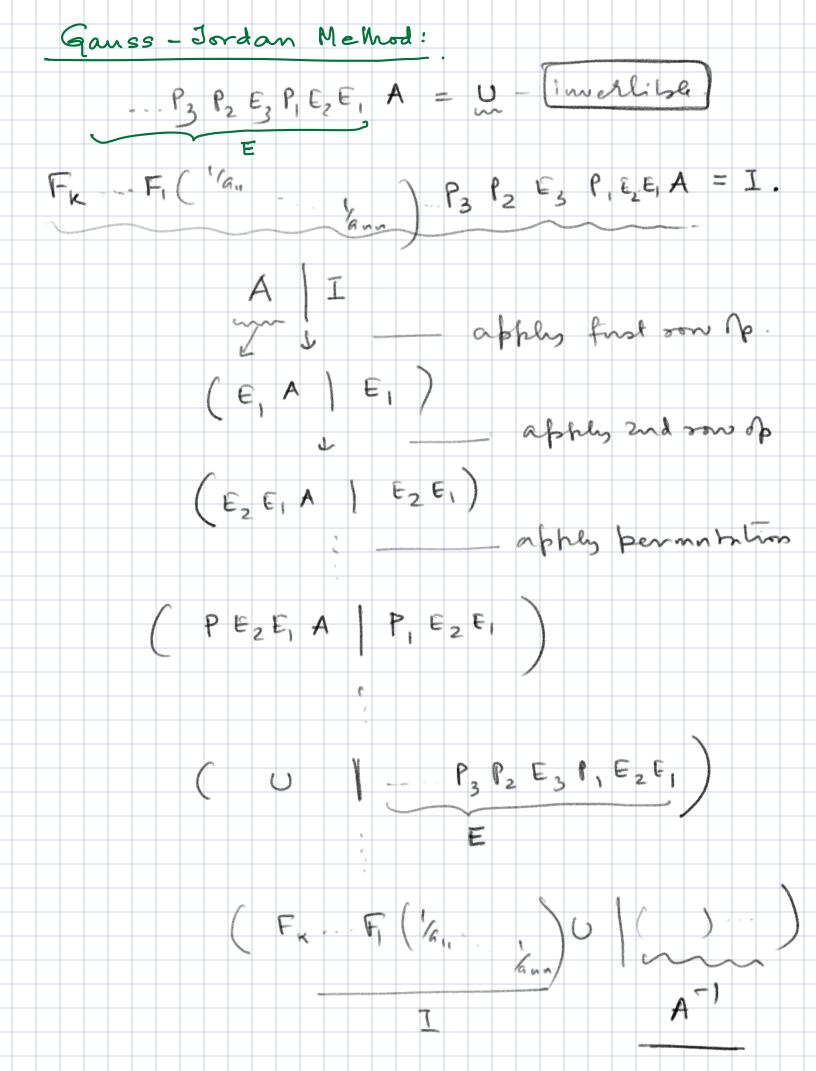
Lecture 05: Feb 05, 2025. Computation et A : Gauss-Jordan Hettrod Given a malrix A, by Gauss-Elimination are have elementary matrices E, Ez, Ez, and permutations matrices P, P2, P3... such that P3 P2 E3 P, E2E, A = U - (*) where v is upper triangular. It is to note that A is invalible if and only if U is so. This follows from the fact that Lemma: If A & B are invertible, then so is AB (or BA). $Pf: AB(B^TA^{-1}) = I = (B^TA^{-1})AB$ So from (*) it follows that v is invertible and if we recrite (*) as $A = E_{1}^{-1} E_{2}^{-1} P_{1}^{-1} E_{3}^{-1} P_{2}^{-1} P_{3}^{-1} \dots U$ înverli ble then it follows that A is invalible if U is so,

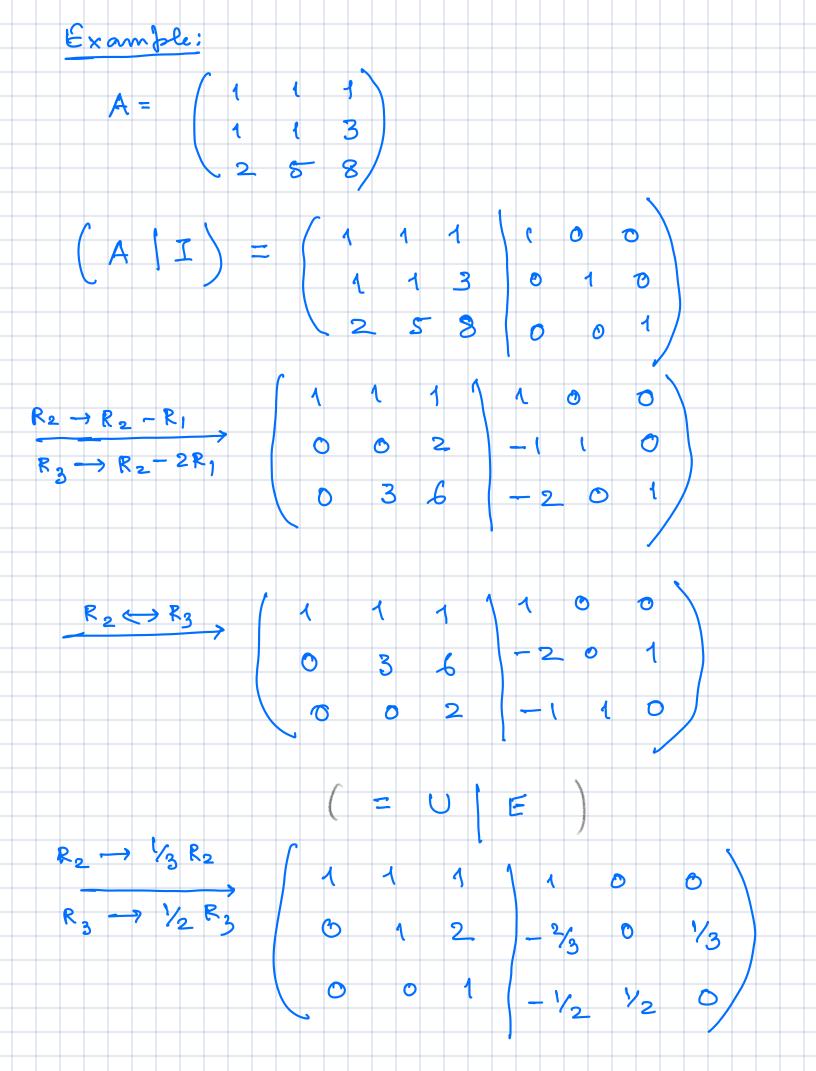


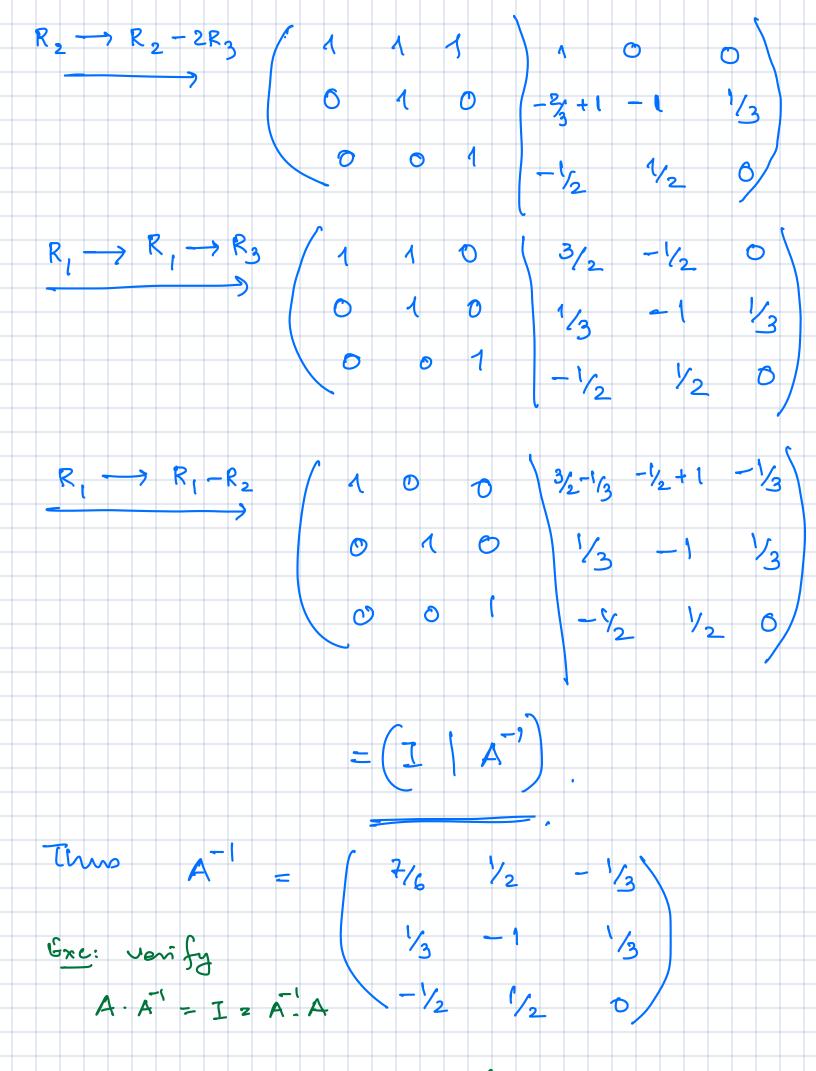


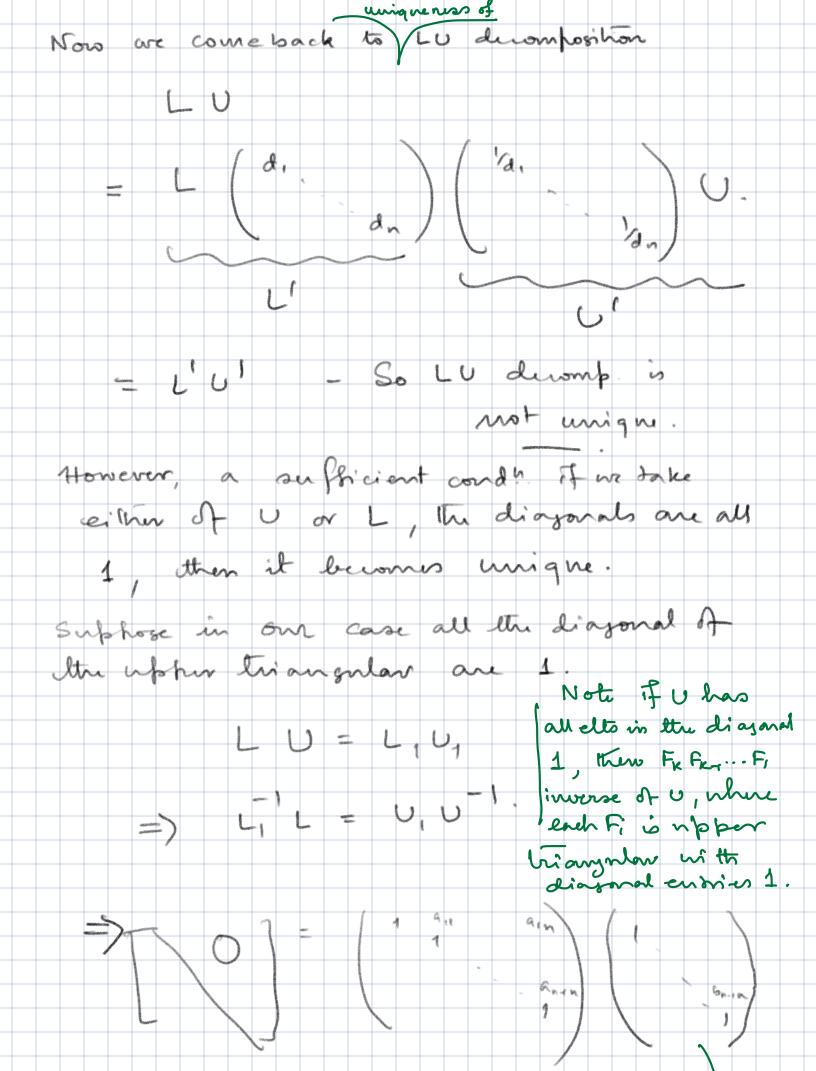


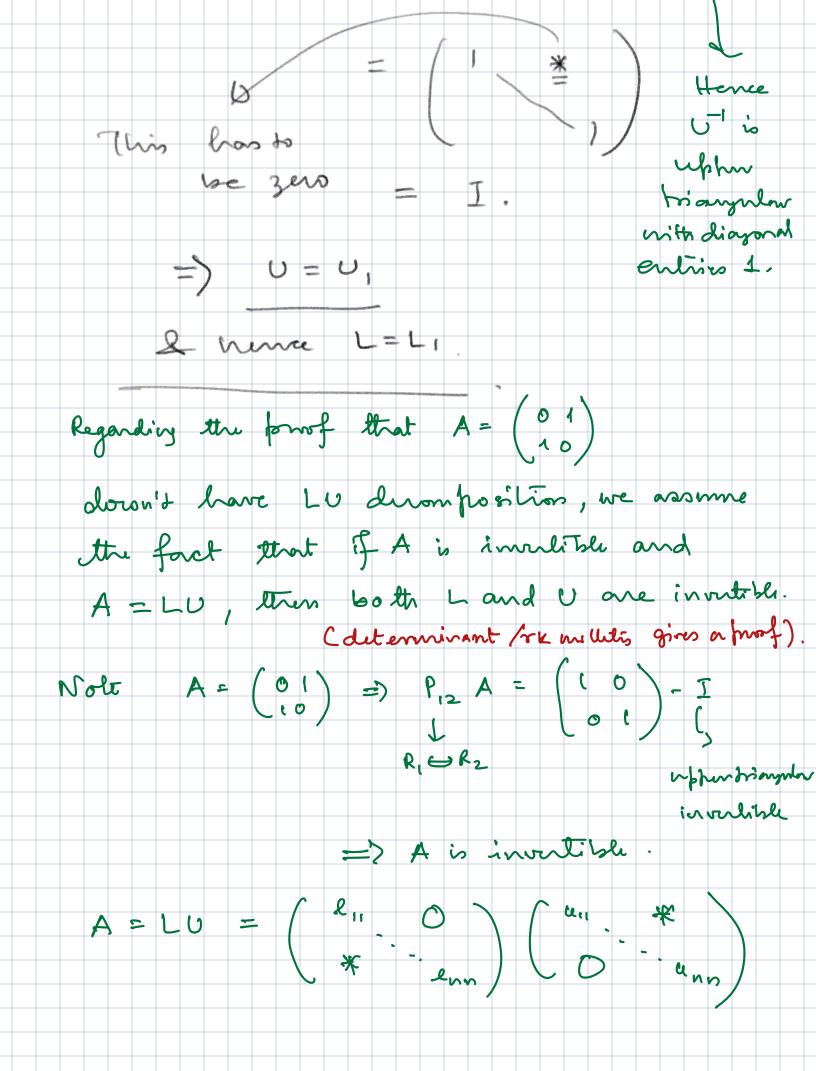












Since U-is inverlisse u; = 0 di, 18isn. On the other hand we define frame pose of a malvix A = (65) where bis = asi Enc: 1. (AB) - BTAT 2. A is inverlible (=> AT is inverlible and $(A^{T})^{T} = (A^{-1})^{T}$. Lis involible (=) L'is involible

when brangelow

List o Hi, 1 & i & n. Thus company the first entry we have 0 = lu un ± 0 uhich is a contradiction Mence no meh L, U - exists.