LU Decomposition

We can do LU Decomposition for any matrix. But for our convenience, there is a result which confirms about existence of LU Decom. for invertible matrix.

If $A_{n \times n}$ matrix is invertible, then LU Decom. is possible only if all the leading minors are non-zero.

for any singular matrix, LU Decomposition may or may not possible.

If LU is not possible, then we will go for PLU Decomposition. (P is the permutation matrix)

So, we can conclude that

either $A = LU$ (No row exchanges)

or $PA = LU$