

## Step-1

We have to produce  $M$  by starting from a 3 by 3 matrix  $A$  with pivots 2, 7, 6, and by adding a fourth row and column to  $A$ , and we have to find the first three pivots for  $M$ , and we have to find the fourth row and the fourth column to produce 9 as a fourth pivot.

## Step-2

Given

$$A = \begin{bmatrix} 2 & & \\ & 7 & \\ & & 6 \end{bmatrix}$$

If the 3 by 3 matrix starts with pivots 2, 7, 6 and by adding the column and row with 0,0,0,1 then there is no effect on elimination since the fourth pivot there is 1.

## Step-3

That is

$$M = \begin{bmatrix} 2 & & & 0 \\ & 7 & & 0 \\ & & 6 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

By multiplying with 9 the fourth pivot becomes 9.