

## Step-1

Let  $A$  be a 64 by 17 matrix of rank 11.

Therefore the echelons form of  $A$  having 11 pivot columns remaining 6 columns are free columns.

Therefore there are six variables are free in  $Ax = 0$

There are six independent vectors satisfy  $Ax = 0$ .

## Step-2

$A^T$  is a 17 by 64 matrix of rank = 11

Therefore the echelon form of  $A$  having 11 pivot columns. Remaining 55 columns free columns thus there are 55 variable are free in  $A^T y = 0$

There are 55 independent vector satisfy  $A^T y = 0$ .