Important Properties of Matrix Rank

- $Rank(A^T) = Rank(A)$
- $Rank\left(A_{m\times n}B_{n\times p}\right) \leq \min\left(Rank(A_{m\times n}), Rank\left(B_{n\times p}\right)\right)$
  $\leq \min(m, n, p)$
- $Rank(AA^T) = Rank(A^TA) = Rank(A^T) = Rank(A)$
- $A_{m\times m}$ is invertible iff $Rank(A_{m\times m}) = m$ (Full Rank)