**Assignment 5 (Dimensionality Reduction)**

1. Finding CUR of a small matrix

A =

**Answer**: Picking column 0, 1 and row 1, 2 we get W matrix as:

W = and we know that matrix W can be decomposed as, W = X∑YT [SVD decomposition] where X and Y are orthonormal matrices (XXT = I and YYT = I) and ∑ is diagonal matrix.

Using equation (1) and (2) we can find SVD decomposition of matrix W and hence can find matrix U

In equation to YT = Y-1 since the matrix is orthonormal and hence taken to LHS of the equation.