Assignment 10

This assignment is for practice and it is to be attempted by all the groups.

1. Try to solve following 10 x 10 linear system AX = b using any software. The last column is the b constant term.

1	1	1	1	1	1	1	1	1	1	1
1	2	3	4	5	6	7	8	9	10	0
1	3	6	10	15	21	28	36	45	55	0
1	4	10	20	35	56	84	120	165	220	0
1	5	15	35	70	126	210	330	495	715	0
1	6	21	56	126	252	462	792	1287	2002	0
1	7	28	84	210	462	924	1716	3003	5005	0
1	8	36	120	330	792	1716	3432	6435	11440	0
1	9	45	165	495	1287	3003	6435	12870	24310	0
1	10	55	220	715	2002	5005	11440	24310	48620	0

2. Select any rectangular matrix (minimum 10 x 5) from matrix A and try to find the singular value decomposition using software.

3. Select any suitable matrix (with minimum dimension 5 on a side, including sign change of a number or creating a complex number from given numbers) from matrix A and try to obtain LU decomposition, rank factorization, RRQR factorization, Eigen decomposition, Schur decomposition, QR decomposition and Takagi's decomposition (you may include more) using software, as applicable.