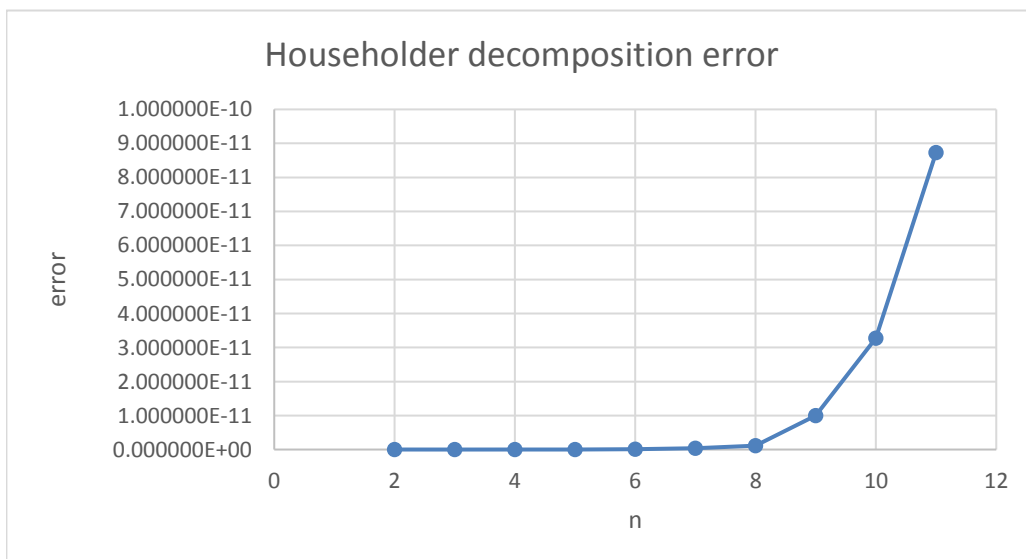
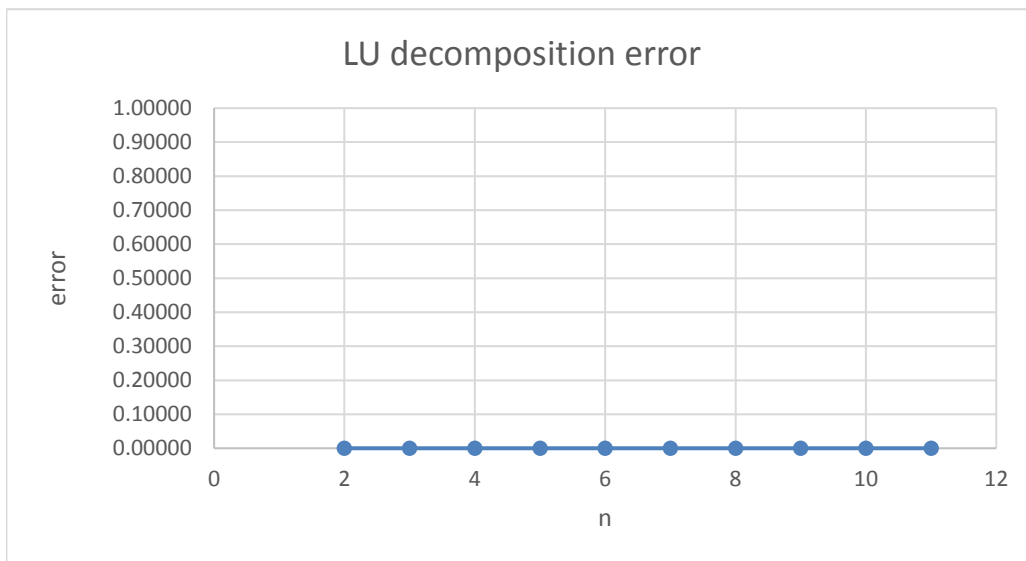
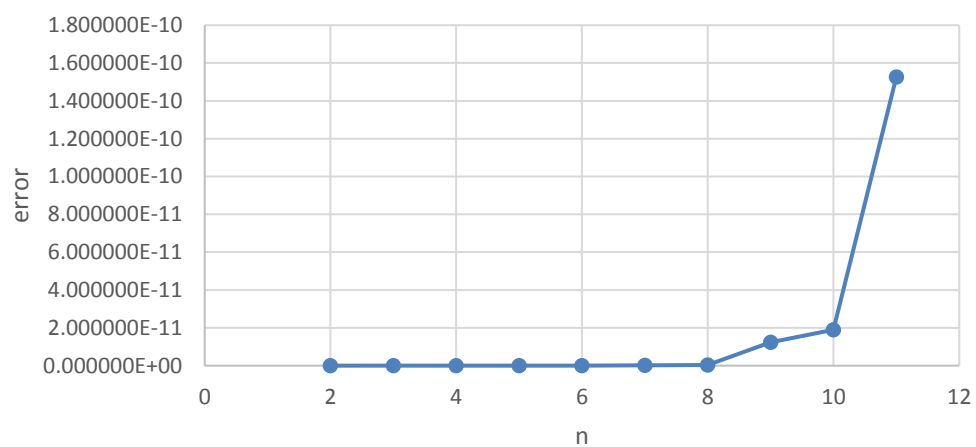


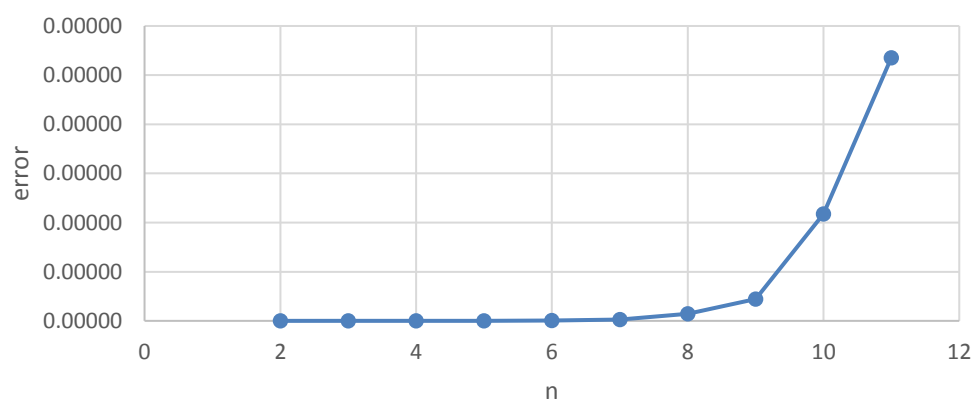
| n | LU decomposition error | Householder_fact_error | GivensRotation_fact_error |
|----|------------------------|------------------------|---------------------------|
| 2 | 0.00000 | 2.553513E-15 | 6.661338E-16 |
| 3 | 0.00000 | 1.443290E-15 | 1.665335E-15 |
| 4 | 0.00000 | 1.487699E-14 | 6.439294E-15 |
| 5 | 0.00000 | 1.265654E-14 | 6.439294E-15 |
| 6 | 0.00000 | 9.148238E-14 | 8.415491E-14 |
| 7 | 0.00000 | 4.024558E-13 | 2.560174E-13 |
| 8 | 0.00000 | 1.131761E-12 | 3.872458E-13 |
| 9 | 0.00000 | 9.969581E-12 | 1.237432E-11 |
| 10 | 0.00000 | 3.273548E-11 | 1.903233E-11 |
| 11 | 0.00000 | 8.733470E-11 | 1.526976E-10 |



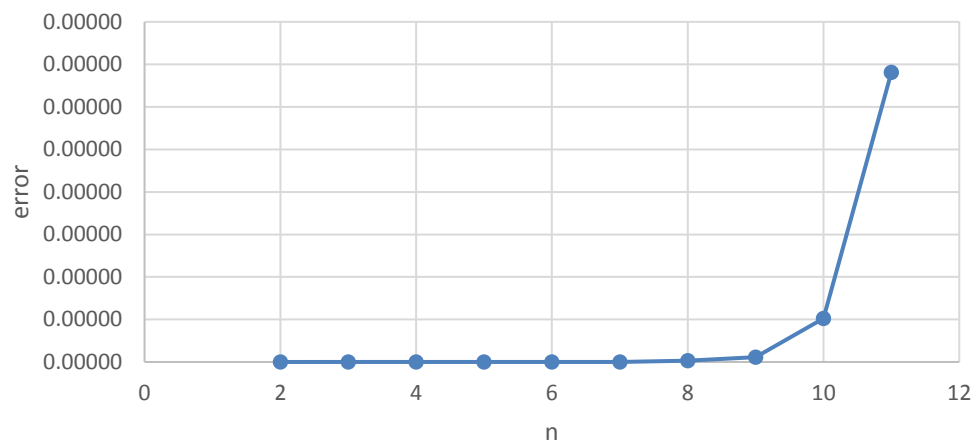
Givens rotation decomposition error



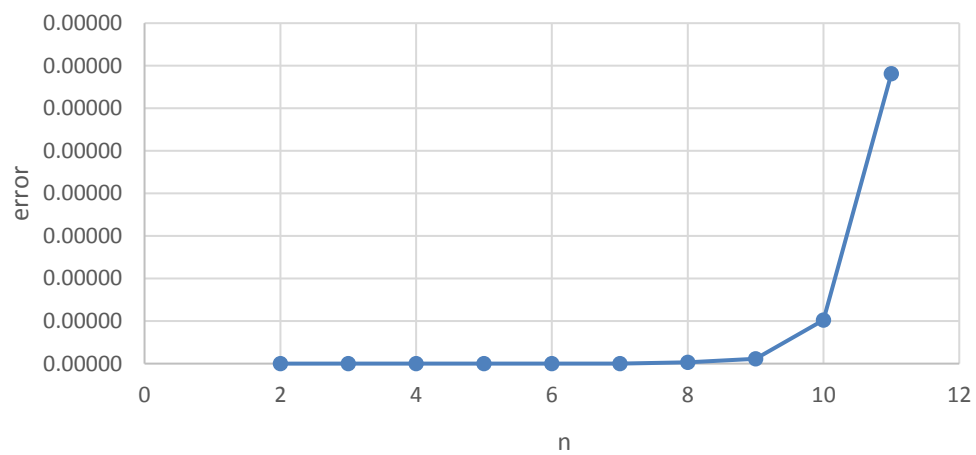
Solve_lu_b error



solve_qr_b givens rotation



solve_qr_b householder



| Solution_lu_b | Solution_householder_b | Solution_Givens_b |
|---------------|------------------------|-------------------|
| 0.00000 | 0.00000 | 0.00000 |
| 3.885781E-16 | 4.996004E-16 | 4.996004E-16 |
| 8.881784E-16 | 1.498801E-15 | 1.498801E-15 |
| 6.383782E-15 | 5.773160E-15 | 5.773160E-15 |
| 1.895706E-14 | 1.895706E-14 | 1.895706E-14 |
| 4.737877E-14 | 2.886580E-14 | 2.886580E-14 |
| 2.842171E-13 | 2.882694E-13 | 2.882694E-13 |
| 8.842371E-13 | 1.136979E-12 | 1.136979E-12 |
| 4.345357E-12 | 1.025707E-11 | 1.025707E-11 |
| 1.071182E-11 | 6.812942E-11 | 6.812942E-11 |