數值分析 Jocobi method for eigenvalues

學號姓名: 00757025 何文豪

1.

matrix A

6	12	15	10
12	11	4	18
15	4	15	0
10	18	0	17

```
times = 15
eigenvalue , A after iteration
 -8.45237  -0.00000   0.00000   0.00000
 -0.00000  -4.67960  -0.00000   0.00000
  0.00000  -0.00000  19.54497  -0.00000
  0.00000   0.00000  -0.00000  42.58700

eigenvector
  0.81781   0.08797   0.30085   0.48264
 -0.32081   0.72800  -0.23601   0.55803
 -0.46835  -0.21502   0.78520   0.34334
 -0.09443  -0.64502  -0.48709   0.58119

Av
 -6.91243  -0.41165   5.88007  20.55417
  2.71164  -3.40675  -4.61273  23.76476
  3.95865   1.00621  15.34665  14.62180
  0.79815   3.01841  -9.52017  24.75113

Lv
 -6.91243  -0.41165   5.88007  20.55417
  2.71164  -3.40675  -4.61273  23.76476
  3.95865   1.00621  15.34665  14.62180
  0.79815   3.01841  -9.52017  24.75113

norm = 1.72085e-014

Check Orthogonal
  1.00000   0.00000   0.00000   0.00000
  0.00000   1.00000   0.00000   0.00000
  0.00000   0.00000   1.00000   0.00000
  0.00000   0.00000   0.00000   1.00000
```

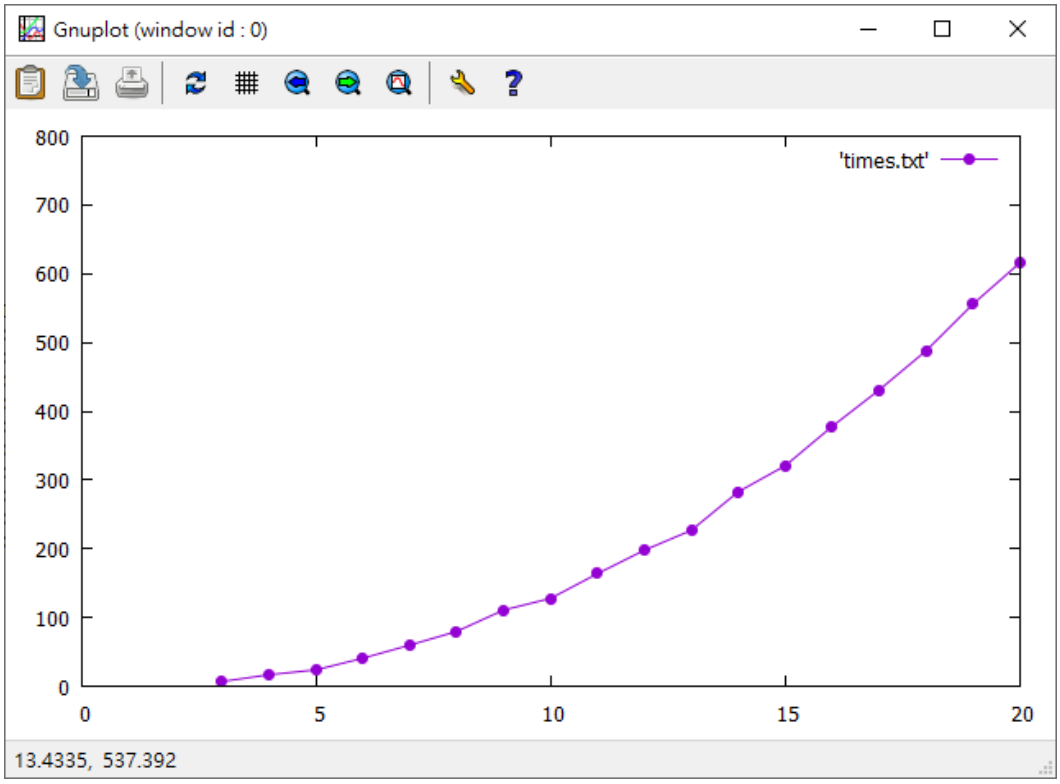
2.

offDiag , eigenvalues 的結果放在 002.txt 裡

3.

N = 3 ~ 20 , the numbers of iterations

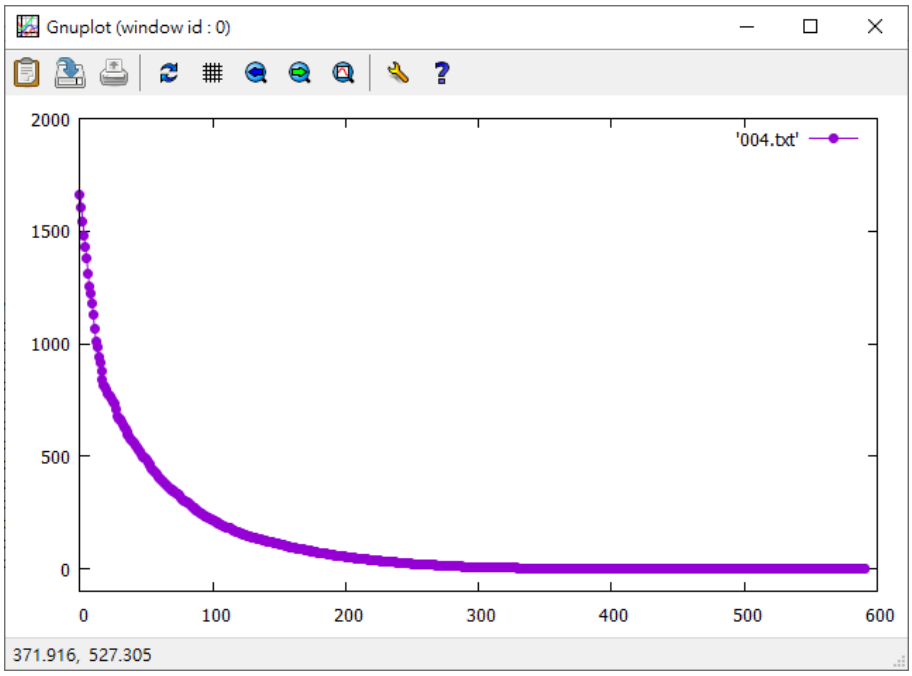
N	M	N	M	N	M	N	M	N	M
3	7	7	60	11	164	15	321	19	556
4	17	8	80	12	198	16	378	20	616
5	24	9	111	13	227	17	431	X	X
6	41	10	128	14	283	18	488	X	X



4.

offDiag is quadratic convergence

N = 10



N = 20