Table 1

| | | N | T(N) | ratio | lg ratio |
|---|---|---|---|---|---|
| | | 25 | 0.00168 | 0 | |
| | | 50 | 0.00322 | 1.91666666666667 | 0.938599455335859 |
| | | 100 | 0.00362 | 1.12422360248447 | 0.168929008968586 |
| | | 200 | 0.00437 | 1.20718232044199 | 0.271643582417394 |
| | | 400 | 0.01636 | 3.74370709382151 | 1.90446756344115 |
| | | 800 | 0.106 | 6.47921760391198 | 2.69581961139618 |
| | | 1600 | 0.7953 | 7.50283018867925 | 2.90743490613785 |
| | | 3200 | 6.331 | 7.9605180435056 | 2.99286231952238 |
| | | O(n^3) | 6.331=a*3200^2.99 | T(N) = a N ^b | constant b ~ 2.99 |
| | | a = | 0.000000000209446 | | |
| | | T(6400) = a* 6400 ^2.99 | 50.298148708895 | Hypothesis | |
| | | T(6400) = run code | 51s 888ms | Run the program for *N*=6400 and record the time | Result : both results are so close together. O(n^3) |