**Analysis Data Collected for Merge Sort**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| n | T(n) —Try 1 | T(n) —Try 2 | T(n) — Try 3 | T(n) — average | T(n)/nlgn |
| 15000 | 4 | 2 | 3 | 3.00 | 4.79x10-5 |
| 30000 | 4 | 5 | 1 | 3.33 | 2.48x10-5 |
| 60000 | 7 | 8 | 8 | 7.67 | 2.68x10-5 |
| 120000 | 13 | 13 | 12 | 12.67 | 2.08x10-5 |
| 240000 | 16 | 25 | 19 | 20.00 | 1.55x10-5 |
| 480000 | 45 | 46 | 46 | 45.67 | 1.67x10-5 |
| 960000 | 91 | 89 | 90 | 90.00 | 1.57x10-5 |
| 1920000 | 184 | 182 | 185 | 183.67 | 1.52x10-5 |
| 3840000 | 383 | 378 | 368 | 376.33 | 1.49x10-5 |
| 7680000 | 790 | 787 | 789 | 788.67 | 1.49x10-5 |

Converging to 1.49x10-5

T(7680000) = 788.67 = a\*((7680000)log(7680000)) a = 1.49x10-5

**Analysis Data Collected for Quick Sort**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| n | T(n) —Try 1 | T(n) —Try 2 | T(n) — Try 3 | T(n) — average | T(n)/nlgn |
| 15000 | 3 | 2 | 2 | 2.33 | 3.72x10-5 |
| 30000 | 4 | 4 | 3 | 3.67 | 2.73x10-5 |
| 60000 | 5 | 8 | 9 | 7.33 | 2.56x10-5 |
| 120000 | 13 | 13 | 12 | 12.67 | 2.08x10-5 |
| 240000 | 19 | 19 | 19 | 19.00 | 1.47x10-5 |
| 480000 | 41 | 51 | 32 | 41.33 | 1.52x10-5 |
| 960000 | 75 | 71 | 73 | 73.00 | 1.27x10-5 |
| 1920000 | 143 | 146 | 143 | 144.00 | 1.19x10-5 |
| 3840000 | 324 | 286 | 293 | 301.00 | 1.19x10-5 |
| 7680000 | 615 | 584 | 588 | 595.67 |  |

Converging to 1.19x10-5

T(3840000) = 301.00 = a\*((3840000)log(38400000)) a = 1.19x10-5

Conclusion: Overall Quick Sort is faster than Merge Sort as Quick Sort converges at 1.19x10-5, whereas Merge Sort converges at 1.49x10-5.