The data below is generated with f(n) = nlogn, still the graph looks linear with a very high R-squared value. If we look at the values of logn we can see that for the range of values of n logn only varies from 3 to 4. This variation is so small when compared to the values of n that for all practical purposes it is a constant. In theory the algorithm may be nlogn but for some narrow ranges of n it may appear almost linear.

|  |  |  |
| --- | --- | --- |
| n | nlogn | logn |
| 1000.00 | 3000.00 | 3.00 |
| 2000.00 | 6602.06 | 3.30 |
| 3000.00 | 10431.36 | 3.48 |
| 4000.00 | 14408.24 | 3.60 |
| 5000.00 | 18494.85 | 3.70 |
| 6000.00 | 22668.91 | 3.78 |
| 7000.00 | 26915.69 | 3.85 |
| 8000.00 | 31224.72 | 3.90 |
| 9000.00 | 35588.18 | 3.95 |
| 10000.00 | 40000.00 | 4.00 |