03분반 21800179 김준현

On my honour, I pledge that I have neither received nor provided improper assistance in the completion of this assignment.

Signed: 김준현 Section: 03분반 Student Number: 21800179

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | T(n) = a , (a=1.0, b = 1.98)  Selection sort O(N^2) | | | T(n) = a , (a=1.0, b = 1.11)  Quick sort O(N log N) | | |
| N | 10,000 | Million | Billion | 10,000 | Million | Billion |
| My  Computer | 0.145028(s) | 22.04(h) | 36.52(years) | 0.001452(s) | 0.240959(s) | 8.586011(m) |

**In Selection sort**

***b***

My computer = 10,000 -> T(n) = 0.145028

= 20,000 -> T(n) = 0.574868

=

b = = = 1.98

***Million***

My computer = 10,000 -> T(n) = 0.145028

= Million -> T(n) = X

= =

X = \* 0.145028 = 9120.10 \* 0.145028 = 1322.66(s)

X = 22.04(m)

***Billion***

My computer = Million -> T(n) = 22.04(m)

= Billion -> T(n) = X

= =

X = \* 22.04(m) = 870963.58 \* 22.04(m) = 19196037.30(m)

X = 36.52(years)

**In Quick sort**

***b***

My computer = 10,000 -> T(n) = 0.001452

= 20,000 -> T(n) = 0.003147

=

b = = = 1.11

***Million***

My computer = 10,000 -> T(n) = 0.001452

= Million -> T(n) = X

= =

X = \* 0.001452 = 165.95 \* 0.001452 = 0.240959(s)

***Billion***

My computer = Million -> T(n) = 0.240959(s)

= Billion -> T(n) = X

= =

X = \* 0.240959(s)= 2137.96 \* 0.240959(s)= 515.1607(s)

X = 8.586011(m)

