

On my honor, I pledge that I have neither recieved nor provided improper assistance in the completion of this assignment - 21900112 김성민

## Asymptotic Analysis – Quiz

- Example: Running time estimates - empirical analysis
  - Personal computer executes  $10^9$  compares/second
  - Super-computer executes  $10^{13}$  compares/second

	Selection sort – $O(N^2)$			Merge sort – $O(N \log_2 N)$		
N	Million	10 million	Billion	Million	10 million	Billion
PC	16.7 min	1.15 day	31.7 years	instant	0.2 sec	29.9 sec
Super Com	0.1 sec	10 sec	1.15 day	Instant	Instant	Instant

$\log_{10} 2 \cong 0.3$   
86,400sec/day  
instant < 0.1 sec

Use a reasonable or understandable time units.  
Do not say, for example, "3660 days" nor "1220 seconds",  
but 10.0 years or 20.3 min, respectively.

※ **Bottom line:** Good algorithms are better than supercomputers.