Week 1

Lecture 1

- Syllabus class

Lecture 2

- Keep in mind programming assignments
- Review notes on slide The Order of Growth

Proof below:

$f_3(n)$ is not $O(f_1(n))$

Proof by contradiction

Assume $f_3(n)$ is $Of_1(n)$

$f_3(n) \leq cf_1(n), n \geq n_0$

$n^3 \leq cn^2, n \geq n_0, neven$

$n \leq cn^2, n \geq n_0, neven$

$n \leq c, n \geq n_0, neven$

- Contradiction, there are arbitrary even numbers

Calculating the Running Time of Bubble Sort

- (3-6) O(1)
- (2-6) O(n-i)
- (1-6) $\sum_{n=1}^{n-i} = \frac{n-1+1}{2}(n-1) = \frac{n}{2}(n-1)$
- Review other time comparison and calculation examples