Algorithm performance

Asymptotic analysis

Drop constants

$$10000000 = O(1)$$

Keep only dominant term

Keep only dominant term

fastest growing

Keep only dominant term

$$3n+3 = O(3n)$$

Keep only dominant term

$$3n+3 = O(3n) = O(n)$$

Examples?

IVQ

- f(n) = 3 log_2 n + 4n log_2 n + n . Which of the following is true?
    - f(n) = O(log_2 n)
    - f(n) = O(n log_2 n)
    - f(n) = O(n^2)   ** In response, industry / academic use of O
    - f(n) = O(n)

- f(n) = 100. Which of the following is true?
    - f(n) = O(2^n)
    - f(n) = O(n^2)
    - f(n) = O(n)
    - f(n) = O(1)

Formally

f(n) = O (g(n))

means

there are constants N and c so that for each n > N,
f(n) ≤ C g(n)

Next up ...

Analyzing code