

Algorithmic Analysis

"bit twiddling: 1. (pejorative) An exercise in tuning (see *tune*) in which incredible amounts of time and effort go to produce little noticeable improvement, often with the result that the code becomes incomprehensible."

- The Hackers Dictionary, version 4.4.7

Is This Algorithm Fast?

- Problem: Given a problem, how fast does this code solve that problem?
- Could try to measure the time it takes, but that is subject to lots of errors
 - multitasking operating system
 - speed of computer
 - language solution is written in
- "My program finds all the primes between 2 and 1,000,000,000 in 1.37 seconds."
 - how good is this solution?

Grading Algorithms

- What we need is some way to grade algorithms and their representation via computer programs for efficiency
 - both time and space efficiency are concerns
 - are examples simply deal with time, not space
- The grades used to characterize the algorithm and code should be independent of platform, language, and compiler
 - We will look at C++ and Java examples as opposed to pseudocode algorithms