Starting Competitive Programming

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Getting started

- Learn the basics of least 1 programming language
  - Bare minimum: Input, Output, Arrays, Loops
  - Nearly complete list: List, Map, Set, Queue, Stack
- Most common languages: C++, Java, Python
- Setup:
  - Not fun to do >:(
  - C++ : Recommend sublime text + the command line (maybe)
  - Java: Recommend to use eclipse or intellij
  - Python: Recommend to use pycharm

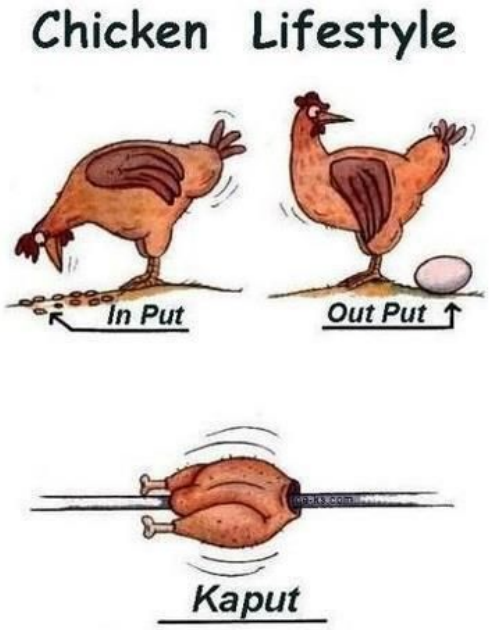
Doing Input and Output

Here are 3 solutions to a very basic problem, in c++, python, and java.

Problem: https://open.kattis.com/problems/r2

Solutions:

https://github.com/OSUACM/Weekly_Events



Speed

- Try to run less than 10^8 lines of code in the worst case.

Example: Count the number of pairs (i, j) in an array with up to 10^5 elements where $a_i < a_j$.

- Use other libraries to increase your coding speed :P

- Memory limits

Big numbers

Sometimes, numbers given will be very large, and you need to make sure that nothing will overflow.

integer max size: $2^{31} = \sim 2*10^9$

long max size: $2^{63} = \sim 8*10^{18}$

- Even bigger numbers?

Strategy (because college students obviously wouldn't know any test-taking strategies)

- Look at every problem

- Plan before you code

Other Resources

- Codeforces
- Book explaining a lot of common techniques