CS106B
Programming Abstractions

Lecture #1

Goals for today

◇ What is CS106B all about?
◇ Overview of course admin & logistics
◇ My (unbiased) opinion of why this class rocks
◇ Check out a little C++

The CS106 courses

◇ Intro programming sequence is CS106A & B
  ▪ CS106X is "honors" version of B
◇ A covers *Programming Methodology*
  ▪ Logic, control flow, problem-solving, decomposition, debugging
  ▪ We use Java, but language choice not critical
◇ B covers *Programming Abstractions*
  ▪ Recursion, algorithms (sort/search/hash), dynamic data structures (lists, trees, heaps), data abstraction (stacks, queues, maps)
  ▪ We use C++, but this not a C++ course
◇ Placement
  ▪ New to programming or not confidant about background? CS106A
  ▪ Solid first course experience and ready to go on? CS106B
    ▪ Super-enthused and want to go hard-core? CS106X

The CS106 philosophy

◇ We welcome all students
  ▪ All majors and backgrounds, try it out and see if it's right for you!
◇ Provide solid, practical foundation in programming
  ▪ Use modern high-level language(s)
  ▪ Learn by doing (challenging, full-fledged programs assigned)
◇ Truth AND beauty
  ▪ Working is not all; well-designed and well-engineering code matters!
◇ Undergraduate section leaders as mentors
  ▪ 30+ hours per week of staff available in Lair
  ▪ Interactive grading conferences with your SL
◇ Student skills for success
  ▪ Curiosity, determination, hard-work
  ▪ Knowing when to ask for help

What makes 106B great

◇ Programming is just generally awesome
  • Learn relatively small set of fundamentals, but infinitely combinable to solve all sorts of problems
  • Build impressive things that you can be proud of
  • Nothing more satisfying than finding and fixing that last bug
◇ Second course material is amazing
  • Learn cool techniques that vastly extend the range of problems you are able to solve
  • Focus on elegance and efficiency
  • Fascinating theoretical and algorithmic underpinnings
◇ Section leaders are fabulous
  • Make the learning fun and personal

Logistics

◇ (Read handout #2 for more details)
◇ Lectures MWF 2:15pm
  • Available online, but attending in person is better :-)
◇ Section once a week
  • Signup for section online
◇ Optional lab on C++ language/libraries
◇ Workload
  • Programming assignments ~weekly (15-20 hours)
  • Midterm and final exam (in-class, open-book/note)
◇ Course reader available in bookstore
◇ Compilers
  • XCode for Mac OS, VS for Windows, available on cluster computers and can download to your computer

Introducing C++

◇ Advantages of early multi-lingualism
◇ How much C++ do you need to know to start?
◇ How much C++ will you learn?
◇ Tell me the word on the street about C+...