Summary

CS 217

Goals

• Master the art of programming
  ◦ Learn how to be “good” programmers
  ◦ Introduction to software engineering

• Learn C and the Unix development tools
  ◦ C is the systems language of choice
  ◦ Unix has a rich development environment

• Introduction to computer systems
  ◦ Machine architecture
  ◦ Operating systems
  ◦ etc.
Software in COS126

- Specification
- Design
- Programming
- Debugging
- Testing

1 Person
$10^2$ Lines of Code
1 Type of Machine
0 Modifications
1 Week

Software in the Real World

- Specification
- Design
- Programming
- Debugging
- Testing

Lots of People
$10^6$ Lines of Code
Lots of Machines
Lots of Modifications
1 Decade or more
Major Lessons

- C programming
  - Learn modular design with interfaces and abstraction
  - Understand importance of programming style and testing
  - How is design of software different than other large systems?

- Machine architecture
  - Understand how hardware works
  - Understand how machine works
  - What are design trade-offs
  - What are possibilities? limits?

- Unix operating system
  - Understand how an OS works
  - How can we use it most effectively?
  - What will future OS look like?

Next Steps in Computer Science

- Theory
  - CS423 - Algorithms
  - CS487 - Complexity

- Systems
  - CS318 - Operating systems
  - CS461 - Networks
  - CS471 - Computer architecture

- Software
  - CS333 - Advanced programming techniques
  - CS320 - Compilers
  - CS425 - Databases
  - CS426 - Graphics
  - CS496 - Vision
  - etc.
Questions?