Overview of topics

Michael Ernst
CSE 403
Lecture 2
Lifecycle

• Requirements
• Design (architecture, modules, classes, routines)
• Implementation
• Testing
• Maintenance
Program analysis

• Static analysis (types, verification)
• Dynamic analysis (creating, selecting, evaluating)
• Model checking (exhaustive testing via static optimization)
• Manual:
  • Code reviews
  • Understanding a codebase or library
Correcting problems

• Bug reporting
• Debugging
  • Reproduce
  • Minimize/localize
  • Fix
  • Generalize
  • Prevent
• Refactoring
Discipline of development

- Teamwork & coordination
- Process
- Tools
  - Version control
  - Build systems
Love your users

- User interfaces
- Documentation