Agenda

• hw2 returned
• hw5 returned
• hw4 being graded
• hw6 due tonight

• Midterm on Monday
• hw7 due in 2 weeks
Agenda

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Reasoning about code:

- Assertions
- Invariants
- Pre- and post-conditions
  - Forward and backward reasoning
  - Finding the weakest precondition
- Hoare triples
- Loop development
- ex0, hw1, hw2
Specifications (vs. implementation)

• When does an implementation satisfy a specification
  – proving where applicable
• Stronger vs weaker specs.
  – Effect on client/implementer
• Javadoc -- requires, effects, modifies, etc.
• hw4, hw5
JavaDoc

• Knowing when and how to use
• hw5
Abstract Data Types (ADT’s)

• Abstraction vs. implementation/representation
• Representation Invariant
• Abstraction function
• Mutation & Advantage of immutable data
• Representation exposure
  • hw4, hw5
Interfaces & Classes

• Specification
• Classes & Types
  – Coupling/Cohesion
• hw5
Testing

• JUnit basics
• Unit testing vs. other kinds
• Black box vs. white box
• Implementation vs. specification
• Revealing subdomains
• Boundary cases
• Coverage
• hw3, hw5, hw6
Debugging strategies

• Setting up experiments
• Use with testing
• Regression testing
  • hw3, hw4, hw5, hw6
Exceptions and assertions

• Rationale behind exceptions
• Basic Uses
• Exception vs. assertions
• Checked vs. unchecked exceptions
Identity & Equality

• Reference equality
• `hashCode()` and `equals()`
Version control

• Repository vs. working copy
• Basic operations
  – add
  – checkin
  – checkout
  – commit
• hw3, hw4, hw5, hw6
Midterm topics

• Reasoning
• Specifications
• JavaDoc
• ADT’s
• Interfaces
• Class design
• Testing
• Debugging
• Exceptions & assertions
• Identity and Equality
• Version Control