



# Class Testing

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Chapter 17



## Questions 1

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- **What is a unit?**
- **Method as a unit**
  - **What techniques are used?**
  - **What are the advantages?**
  - **What are the disadvantages?**
- **Class as a unit**
  - **What views are there?**
  - **What are the problems with each view?**
  - **When does it make the most sense to use class as a unit?**



## What is a unit?

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- The smallest chunk that can be compiled by itself
- A single method that does not call use other methods
- Something small enough to be developed by one person



## When units are methods

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- Simplistic view reduces to traditional procedural unit testing
  - **Apply functional and structural test methods**
  - **Require drivers and stubs**
- Encapsulation advantage
  - **Methods are simple**
- Encapsulation disadvantage
  - **Interface complexity is high**
    - **Intense message sending**
    - **Lots of work building stubs and drivers**
- Burden of testing moves to integration level
  - **Intraclass**
  - **Interclass**



## When units are classes

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- Solves intraclass integration problem
- Different views
  - **Static view – class text**
    - **Ignores inheritance**
      - ???
  - **Compile-time view**
    - **When inheritance occurs**
  - **Execution view**
    - **Behavioral view – class are instantiated**
    - **This is where testing occurs**



## When units are classes – 2

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- Cannot test abstract classes
  - **Cannot be instantiated**
- Choices
  - **Classes flattened for testing**
    - **Need to unflatten when testing is completed**
  - **Need inherited classes**
    - **Configuration management nightmare**
- Make most sense when
  - **Little inheritance occurs**
  - **Intraclass control complexity**
    - **Interesting Statechart**



## When units are classes – 3

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- Levels of unit testing
  - **Need to test methods in a bottom up sequence**
  - **Imply intraclass testing (integration)**
    - **Contradicts notion of unit testing**
    - **Sequences of events for a test (p309)**
- Need to set preconditions for tests
- Internal state changes are done by set methods
  - **This is a subtlety**
    - **???**