Class Testing

Chapter 17

Questions

- **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?

- 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

- 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

- Solves intraclass integration problem

- Different views

  - **Static view – class text**

    - **Ignores inheritance**

      - Good only for reading

  - **Compile-time view**

    - **When inheritance occurs**

  - **Execution view**

    - **Behavioral view – class are instantiated**

    - **This is where testing occurs**

When units are classes – 2

- Cannot test abstract classes
    - **Cannot be instantiated**

- Choices
    - **Classes flattened for testing**
        - **Need to unflatten when testing is completed**
    - **Use inherited classes**
        - **Configuration management nightmare**

- Make most sense when
    - **Little inheritance occurs**
    - **Intraclass control complexity**
        - **Interesting statechart**

When units are classes – 3

- 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

- Statechart has in-state preconditions
  - **Internal state changes are done by set methods**
  - **A subtlety that needs to be looked for**