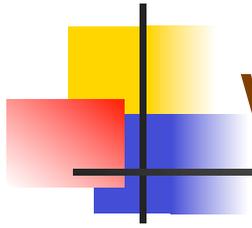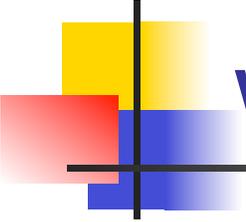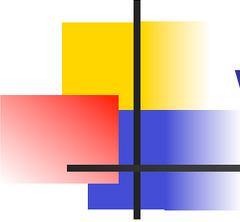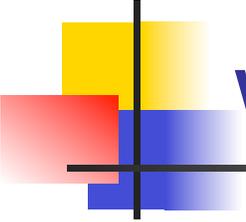# Class Testing

Chapter 17

What is 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

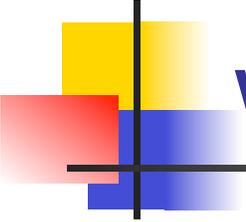- Something small enough to be developed by one person

When units are methods

- **What testing techniques are used?**

- **What are the advantages?**

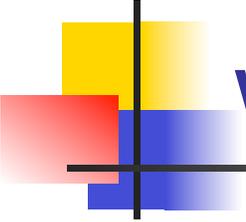- **What are the disadvantages?**

When units are methods – 2

- Simplistic view reduces to traditional procedural unit testing

    - **Apply functional and structural test methods**
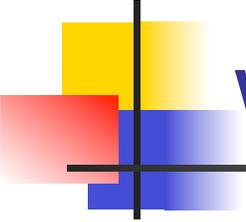
    - **Require drivers and stubs**

When units are methods – 3

- 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
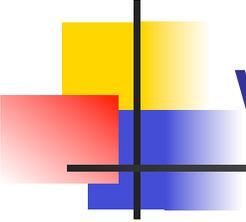 - **Intraclass**
  - **Interclass**

When units are classes

- **What views are there?**

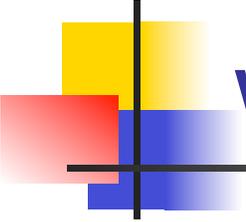- **What do the different views give us?**

When units are classes – 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**
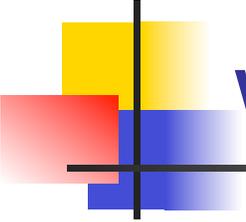   - **This is where testing occurs**

When units are classes – Q2

- **When does it make the most sense to use class as a unit?**
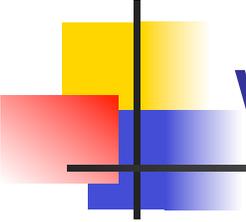
When units are classes – Most sense to use

- When
    - **Little inheritance occurs**
    - **There is intraclass control complexity**
        - **Interesting statechart**
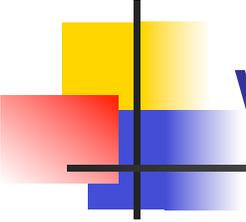
- Solves intraclass integration problem

When units are classes – Q3

- **What are some problems with class as a unit?**
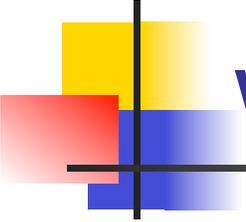
When units are classes – Most sense to use

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

- Choices
  - **Classes flattened for testing**
    - **Need to unflatten when testing is completed**

  - **Use inherited classes**
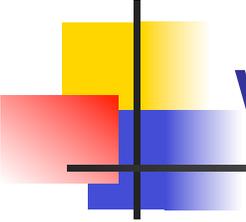   - **Configuration management nightmare**

When units are classes – Q4

- **What do you need to consider when testing a class as a unit?**

When units are classes – Testing considerations

- Levels of unit testing

  - **Need to test methods in a bottom up sequence**

  - **Implies intraclass testing (integration)**

    - **Contradicts notion of unit testing**

    - **Sequences of events for a test**

      - Example p309
      - Should be a minimal output test

When units are classes – Testing considerations – 2

- Need to set preconditions for tests

- If statechart has in-state preconditions
    - **Internal state changes are done by set methods**

    - **A subtlety that needs to be looked for**