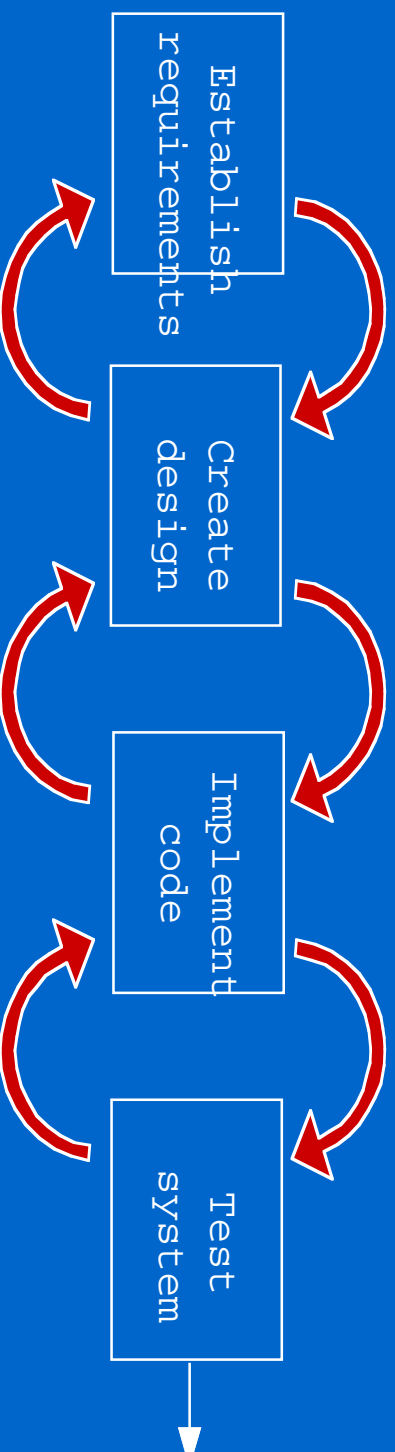


Software Development Process II -- In

- We now extend the process established in Chapter 14 to include more object-oriented issues
- Chapter 15 focuses on:
 - evolutionary development
 - object-oriented design and implementation
 - Slide Puzzle problem

An Iterative Development Process

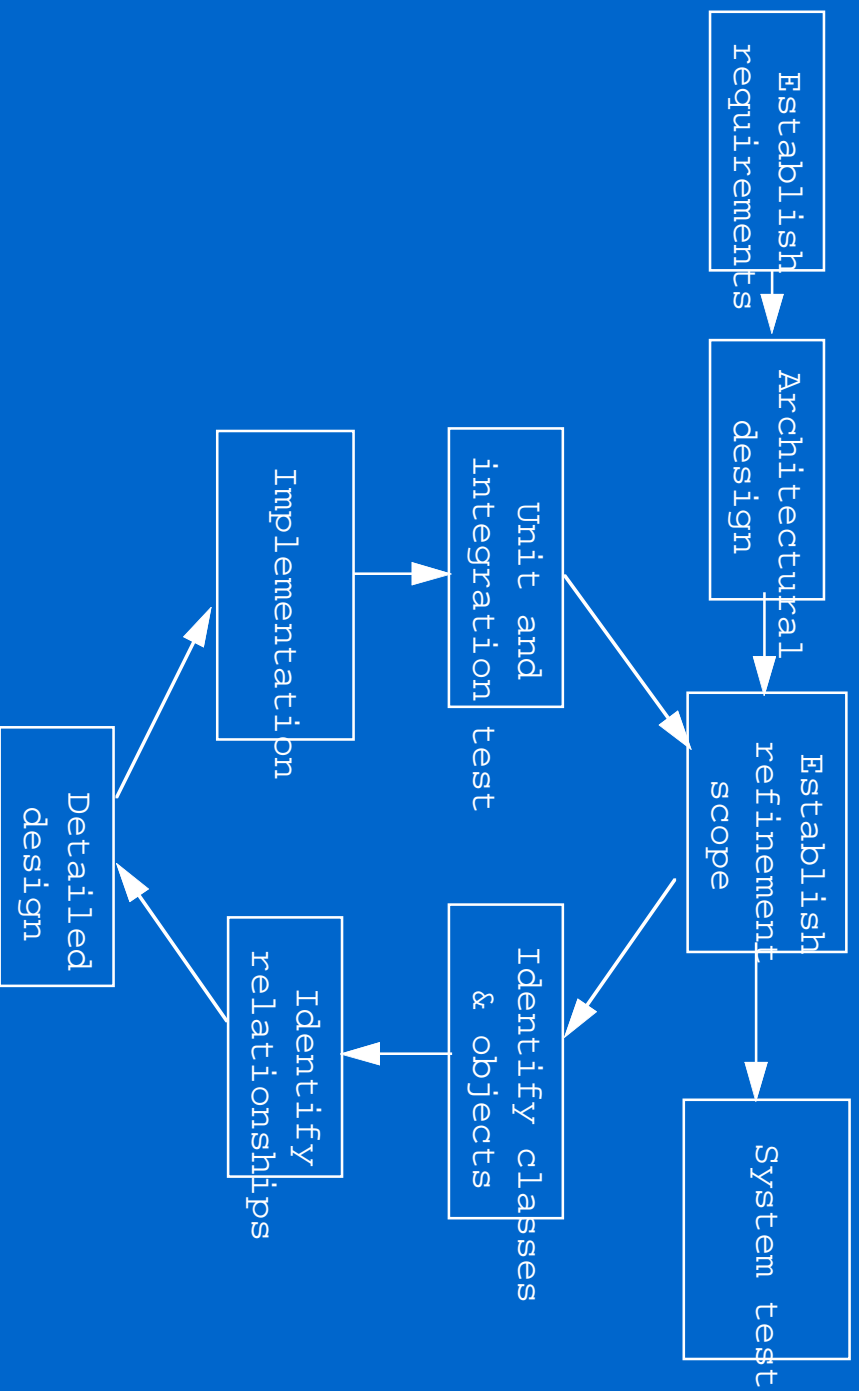
- Recall from Chapter 11 our simple process n



An Evolutionary Development Model

- Divide the process of design into
 - architectural design – primary classes and interactions
 - detailed design – specific classes, methods, and data
- Create a refinement cycle
- Each refinement focuses on one aspect of the system
- As each refinement is addressed, the system evolves

An Evolutionary Development Model



Refinement Cycle

- Establish refinement scope
- Define the specific nature of the next refinement
- Such as:
 - user interface
 - a particular algorithm
 - a particular requirement
 -
- Choosing the most appropriate next refinement is an important and requires experience

Refinement Cycle

- Identifying classes and objects
- The ones that relate to the current refinement
- Could overlap with other refinements
- Can often define by focusing on the roles the system
- Consider reusing existing classes

Refinement Cycle

- Identifying relationships
- Inheritance (is-a) relationships
- The uses relationship accomplishes another kind of between classes
- Class A uses class B in some way
- Can express cardinality
- Example: A Car has (uses) four wheels

Refinement Cycle

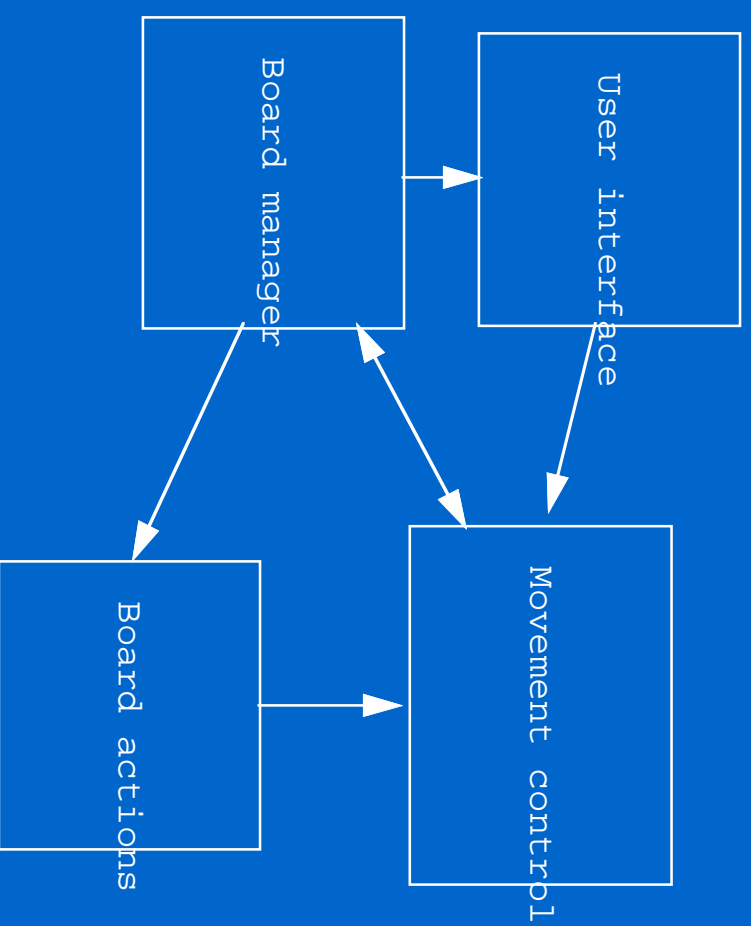
- Detailed design, implementation and test
- Design of specific methods and their translation to code
- A unit test focuses on one particular component or class
- An integration test focuses on the interaction between components

Slide Puzzle

- As we did in Chapter 11, let's explore a 1d
- Slide Puzzle
 - square board of tiles
 - user shifts tiles one at a time
 - goal is a particular configuration
 -
- We will use simple numbers as the tile face often done with pictures
- The design should take this potential modification into account

Slide Puzzle

- Architectural design



Slide Puzzle

- User interface

