Based on Chapter 3, 5 and 21 of Bennett, McRobb and Farmer:
Outline

- RUP / USDP
  - Section 3.4.1 (pp. 77 – 79)
  - Section 5.4 (pp. 128 – 135)
  - Section 21.3 (pp. 614 – 618)
Unified Process

- **Unified Software Development Process (USDP)**
  - A public domain development methodology originally proposed by the same team (in Rational Software, 1999) who created UML
    - brought the *Booch method*, *OMT* and *Objectory* together
  - Large and complex
    - significant learning curve involved, or tailor to fit

- **Rational Unified Process (RUP)**
  - Proprietary methodology owned by IBM (since 2003)
  - The most mature OO methodology to date
    - USDP has been largely superseded by RUP (though they are very similar in their main aspects)
Underlying Principles

- Iterative
- Incremental
- Requirements (use case) driven
- Component based
- Architecture centric
- Visual modelling techniques
A use case is a single interaction between user and system.
Phases

- Phases are organized along time
  Each phase consists of a number of iterations

- Inception Phase
  - Determining the scope and purpose of the project

- Elaboration Phase
  - Capturing the requirements
  - Determining the structure of the system

- Construction Phase
  - Building the system

- Transition Phase
  - Product installation and roll-out
Milestones

- Phases matter to project managers
  - Phases are sequential and delineated by milestones
  - Manager’s focus shifts from one phase to the next

Each *milestone* is a decision point – begin next phase or stop now?
Workflows

- Workflows are organized along content
  - Each workflow consists of a group of activities

- 5 main workflows
  - Requirements
  - Analysis
  - Design
  - Implementation
  - Test

- Workflows matter to developers
Main Activities

- Requirements capture and modelling (use case model, requirements list, prototypes)
- Requirements analysis (identify objects, communication diagrams)
- System design (system architecture)
- Class design (sequence and state diagrams, design class diagrams)
- Interface design (interface specification, prototypes)
- Data management design (database specification)
- Construction
- Testing
- Implementation (installation)
# Phases and Workflows

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<th>Inception</th>
<th>Elaboration</th>
<th>Construction</th>
<th>Transition</th>
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- **Project Phases**
  - Requirements
  - Analysis
  - Design
  - Implementation
  - Test

- **Workflows**
  - Iterations within each phase
  - Size of square relative to the time spent on a workflow
Within each phase, activities iterate.
- No set rule for the number of iterations.
- Workflows within a phase are the same.

The balance of effort spent in each workflow varies from phase to phase
- All phases run from requirements to testing, but emphasis changes.
  - At first, main effort is on capture, modeling, analysis of requirements.
  - Later phases emphasise implementation and testing.
In a TLC project the phases and the workflows and activities are linked together

- For example, in the Requirements phase only Requirements workflow activities are carried out; all Requirements work should be completed before work starts on Analysis.

In a Unified Process project the phases and the workflows/activities are independent with each other

- For example, some Requirements work may be happening alongside Analysis work.
Take Home Messages

- Unified Process
  - Phases and Workflows
  - 2D Structure