

Development Process

Based on Chapter 5

Bennett, McRobb and Farmer

*Object Oriented Systems Analysis
and Design Using UML*

4th Edition, McGraw Hill, 2010

In This Lecture You Will Learn:

- About the Unified Software Development Process
- How phases relate to workflows in an iterative life cycle
- An approach to system development
- Major activities in the development process

Unified Software Development Process

- Developed by the team that created UML
- Embodies best practice in system development
- Adopts an iterative approach with four main phases
- Different tasks are captured in a series of workflows

Best Practice

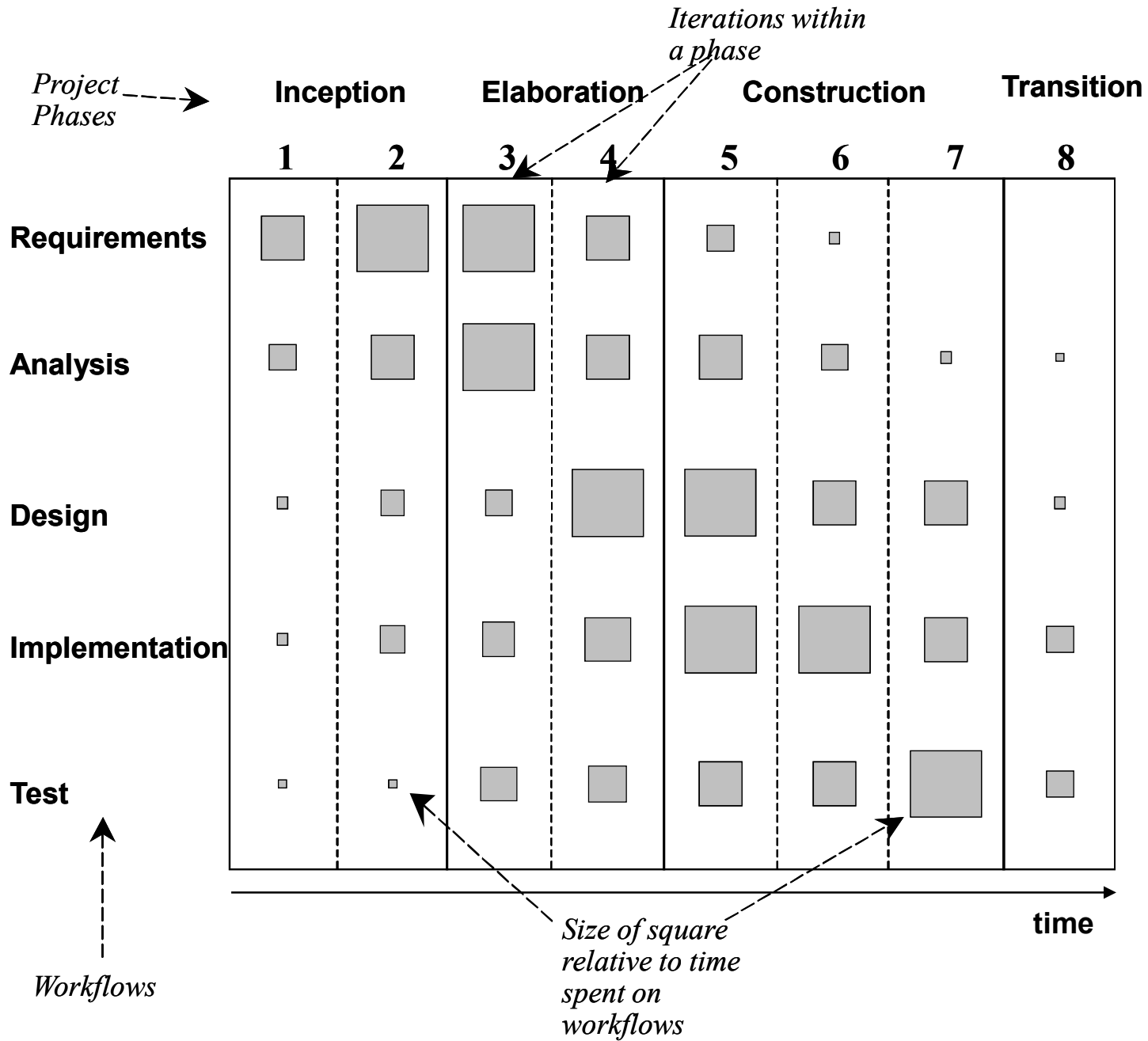
- Iterative and incremental development
- Component-based development
- Requirements-driven development
- Configurability
- Architecture-centrism
- Visual modelling techniques

Four Phases

- Inception
- Elaboration
- Construction
- Transition

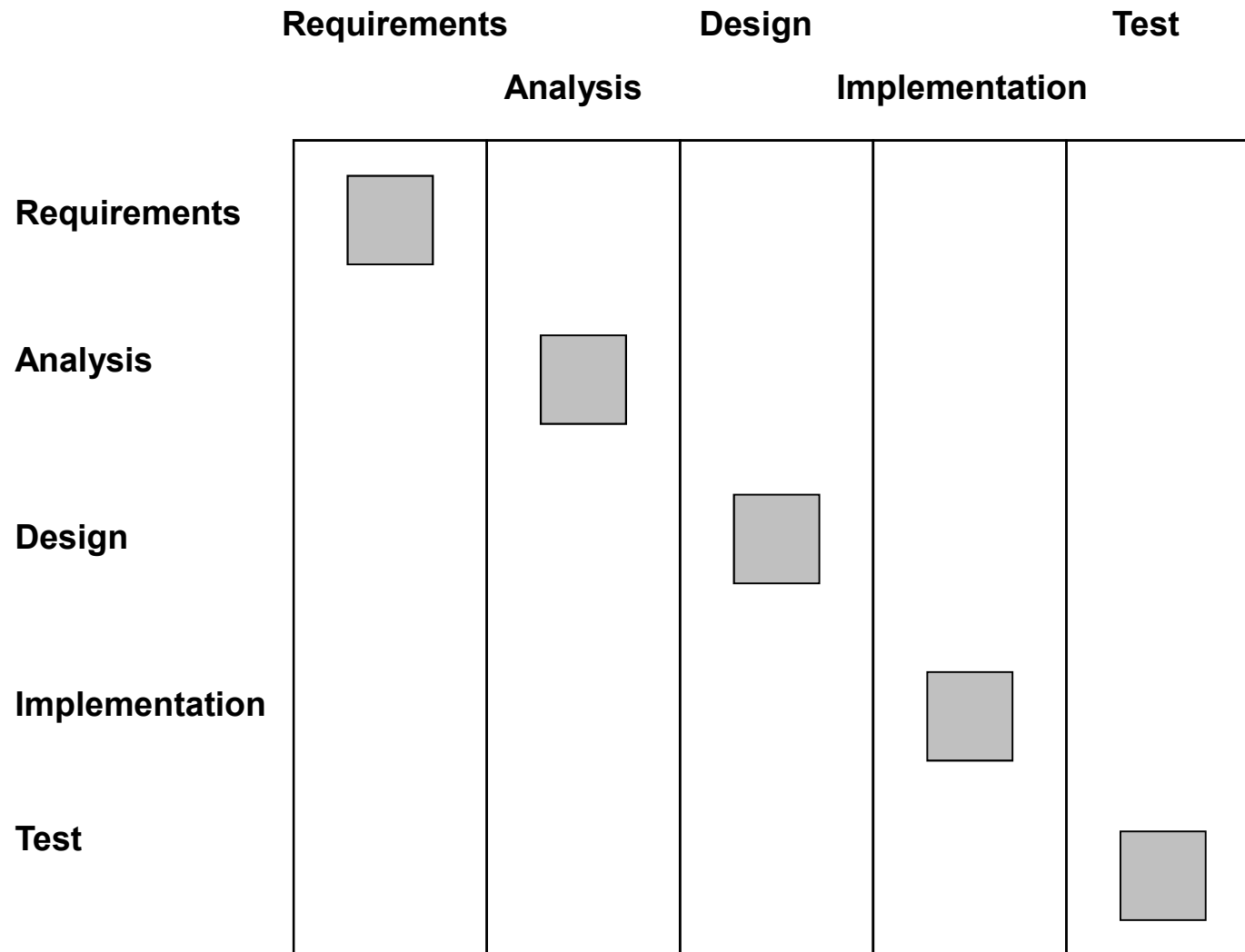
Phases, Workflows and Iterations

- Within each phase activities are grouped into workflows
- The balance of effort spent in each workflow varies from phase to phase
- Within phases there may be more than one iteration



Difference from Waterfall Life Cycle

- In a waterfall life cycle project the phases and the workflows are linked together
- In the Requirements phase, only Requirements workflow activities are carried out
- All Requirements activity should be completed before work starts on Analysis
- In an iterative life cycle project it is recognised that some Requirements work will be happening alongside Analysis work



Major Activities of the Development Process

Activity	Techniques	Key Deliverables
Requirements Capture and Modelling	Requirements Elicitation Use Case Modelling Architectural Modelling Prototyping	Use Case Model Requirements List Initial Architecture Prototypes Glossary

Major Activities of the Development Process

Activity	Techniques	Key Deliverables
Requirements Analysis	Communication Diagrams Class and Object Modelling Analysis Modelling	Analysis Models

Major Activities of the Development Process

Activity	Techniques	Key Deliverables
System Architecture and Design	Deployment Modelling Component Modelling Package Modelling Architectural Modelling Design Patterns	Overview Design and Implementation Architecture

Major Activities of the Development Process

Activity	Techniques	Key Deliverables
Class Design	Class and Object Modelling Interaction Modelling State Modelling Design Patterns	Design Models

Major Activities of the Development Process

Activity	Techniques	Key Deliverables
User Interface Design	Class and Object Modelling Interaction Modelling State Modelling Package Modelling Prototyping Design Patterns	Design Models with Interface Specification

Major Activities of the Development Process

Activity	Techniques	Key Deliverables
Data Management Design	Class and Object Modelling Interaction Modelling State Modelling Package Modelling Design Patterns	Design Models with Database Specification

Major Activities of the Development Process

Activity	Techniques	Key Deliverables
Construction	Programming Component Re-use Database DDL Programming Idioms Manual Writing	Constructed System Documentation

Major Activities of the Development Process

Activity	Techniques	Key Deliverables
Testing	Programming Test Planning and Design Testing	Test Plans Test Cases Tested System

Major Activities of the Development Process

Activity	Techniques	Key Deliverables
Implementation	Planning Training Data Conversion	Installed System

Summary

In this lecture you have learned about:

- The Unified Software Development Process
- How phases relate to workflows in an iterative life cycle
- An approach to system development
- Major activities in the development process

References

- Jacobson, Booch and Rumbaugh (1999)
- Kruchten (2004)
- Chapter 21 of Bennett, McRobb and Farmer includes more about the Unified Process as well as Agile alternatives
(For full bibliographic details, see Bennett, McRobb and Farmer)