THE UNIVERSITY OF MELBOURNE

COMP90018

Mobile Computing Systems Programming

WEEK 7 – Application development

Atiq Shaikh,

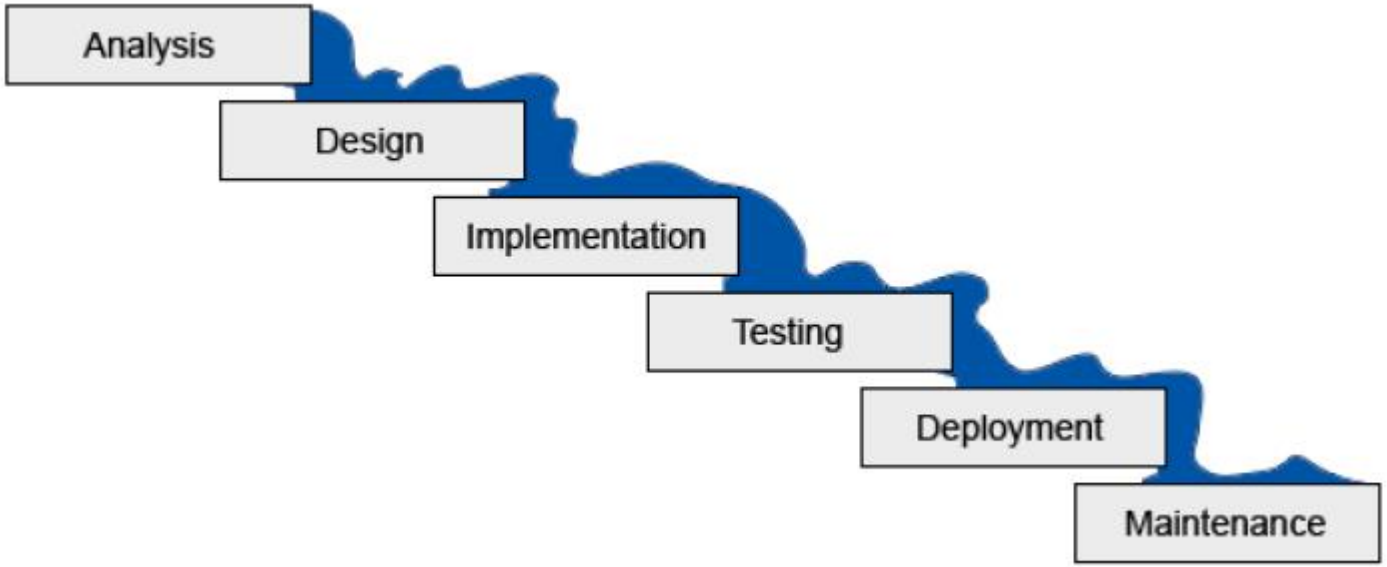
atiq.shaikh@unimelb.edu.au

1 Software Models

Intended Learning Outcomes

Application Development Models

Waterfall Model



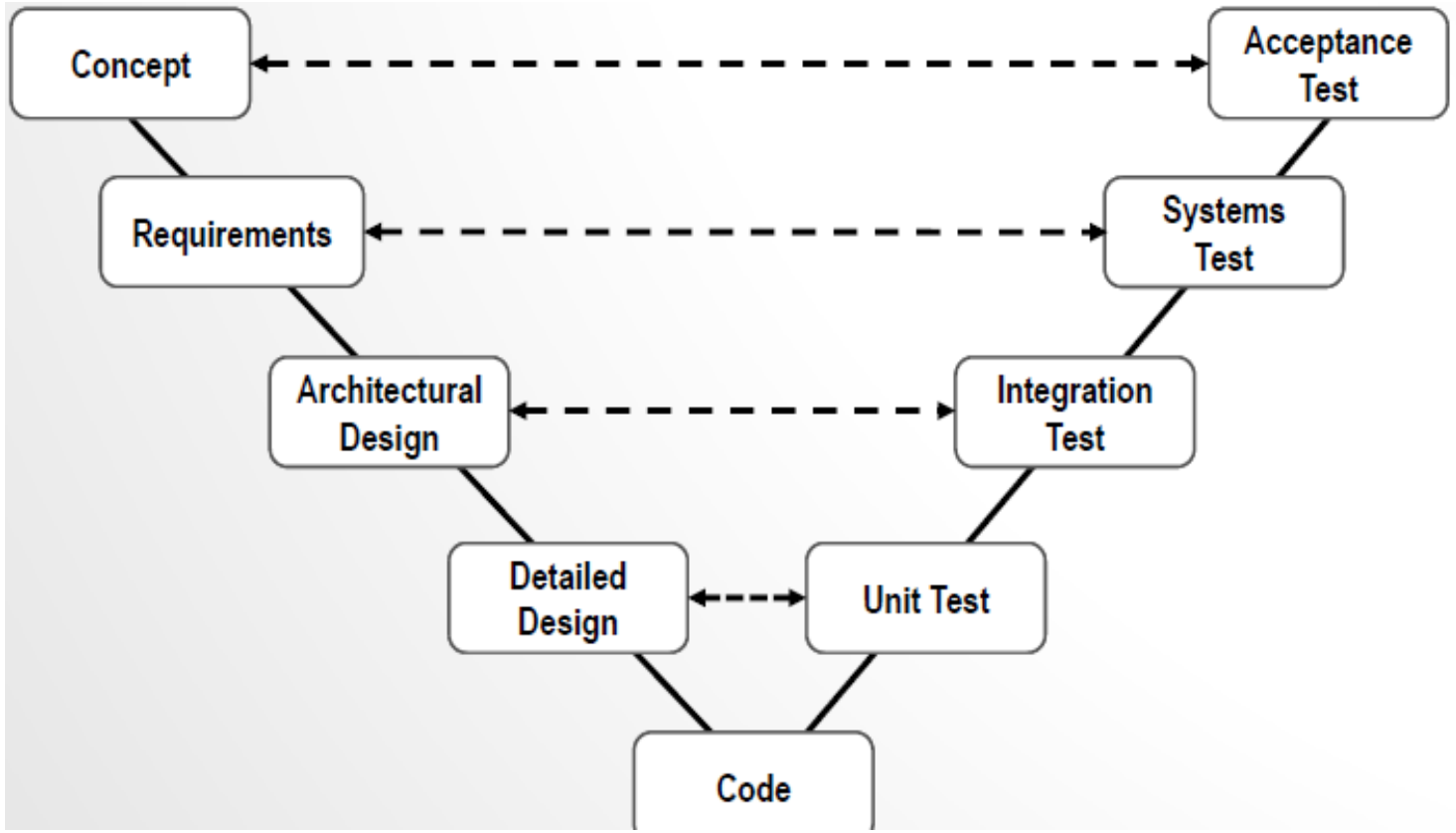
Advantages

- Simple and easy to understand and use
- Easy to manage due to the rigidity of the model
- Phases are processed and completed one at a time
- Documentation available at the end of each phase
- Works well for smaller projects where requirements are well understood and remain stable

Disadvantages

- Is difficult to accommodate change after the process in underway (One phase to be completed before moving on the next)
- Unclear requirements lead to confusion
- Client approval is in the final stage
- Difficult to integrate risk management due to uncertainty

V Model


Concept
Acceptance Test
Requirements
Systems Test
Architectural Design
Integration Test
Detailed Design
Unit Test
Code

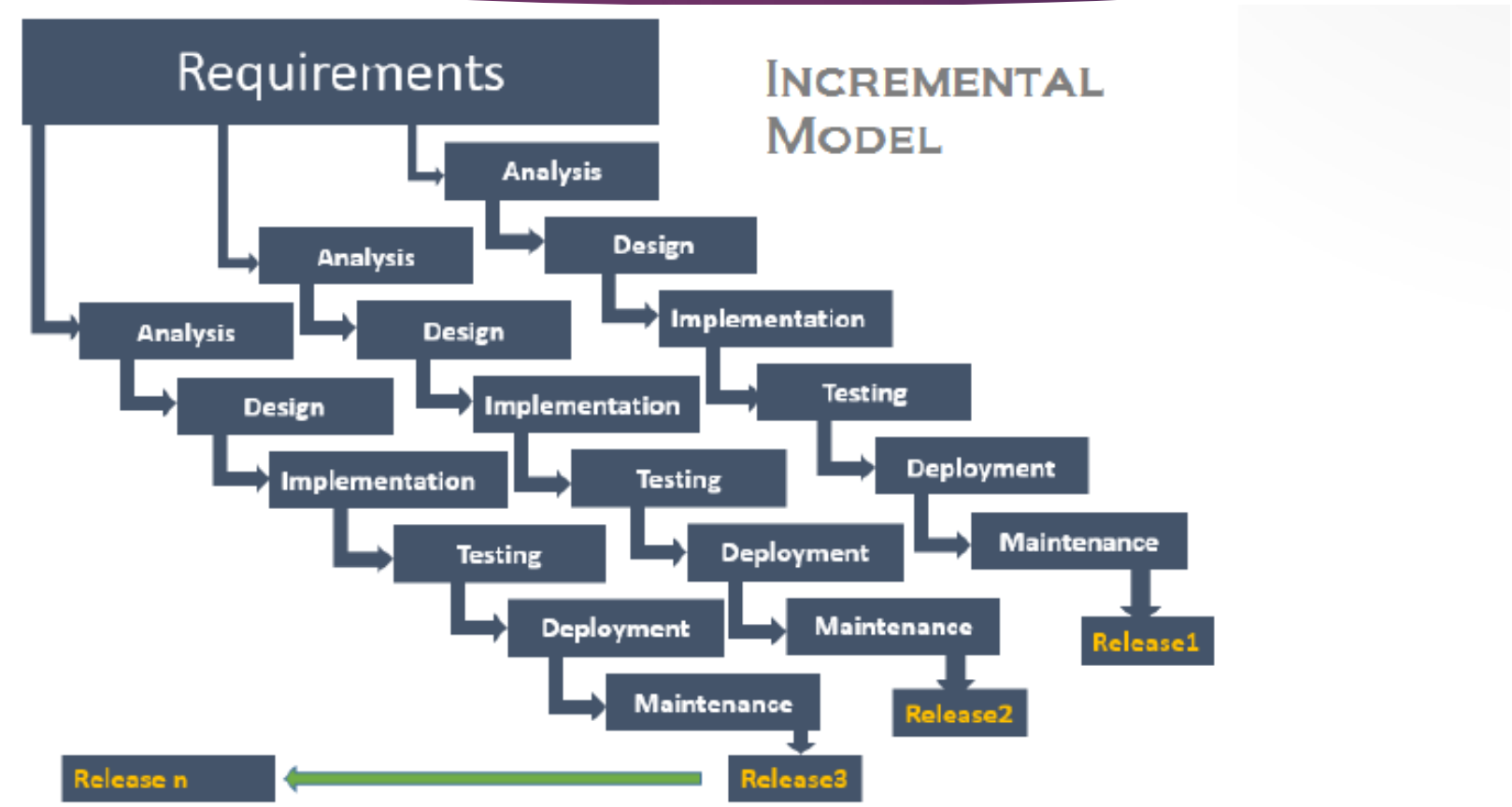
Advantages

- Simple and easy to use
- Each phase has specific deliverables and well-defined objectives and goals
- High chance of success over waterfall model due to the development of test plans early on during life cycle
- Works well for small projects when requirements are easily understood

Disadvantages

- Very rigid process like the waterfall model
- Little flexibility and adjusting scope is difficult and expensive
- Software is developed during implementation phase, so early prototypes of the software are produced
- Model doesn't provide a clear path for problems found during testing phase

Incremental Model



http://testingfreak.com/incremental-model-software-testing-advantages-disadvantages-incremental-model/

Advantages

- Each release delivers an operational product
- Less costly to change the scope/requirements
- Customers can respond to each build
- Initial product delivery is faster
- Customers get important functionality early
- Easier to test and debug during smaller iterations

Disadvantages

- More resources may be required
- More management attention is required
- Defining increments may require definition of the complete system [requirements]
- Programming pairs is costly
- Each phase of an iteration is rigid with no overlaps
- Problems may occur at the time of final integration

And many other models

- Spiral Model
- Win-Win Spiral Model
- Big Bang Model
- Agile model
- Rapid Application Development Model

What is important?

- **Documentation:** Requirement gathering and specification, use of software project management tool like trello.
- **Design:** Use low fidelity wireframing tool like balsamiq and high-fidelity wireframing tool like Adobe XD
- **Implementation:** Follow best practices of programming like

1. Object Oriented Principles [OOP]
2. Software Patterns
3. Layouts

Team (Together Everyone Achieve More)

- A **team is two or more** independent individuals consciously working together to achieve a common objective
- **Teams exist** because few individuals poses all the knowledge, skills, abilities needed to accomplish all tasks
- **Mutual accountability**

Characteristics of Effective Teams

- Productivity
- Better communication
- Moral
- Support
- Creativity
- Quality decision

THE UNIVERSITY OF MELBOURNE

Thank you