CLEMSON UNIVERSITY

CPSC 3720
Lesson 34

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School of COMPUTING

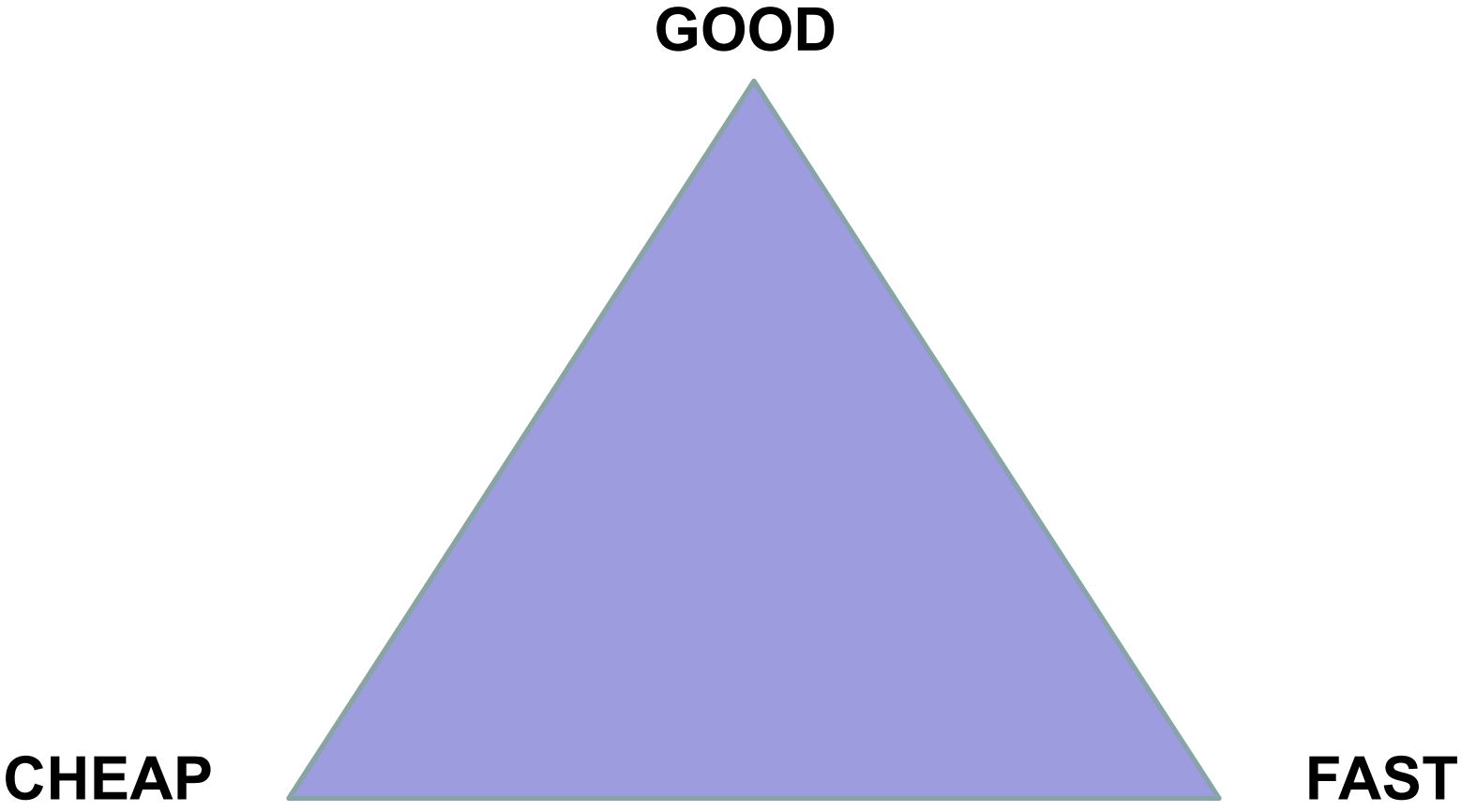
Don’t Go Dark

What does it mean to “Go Dark” in software and how do you avoid this?

How does Agile prevent going dark?

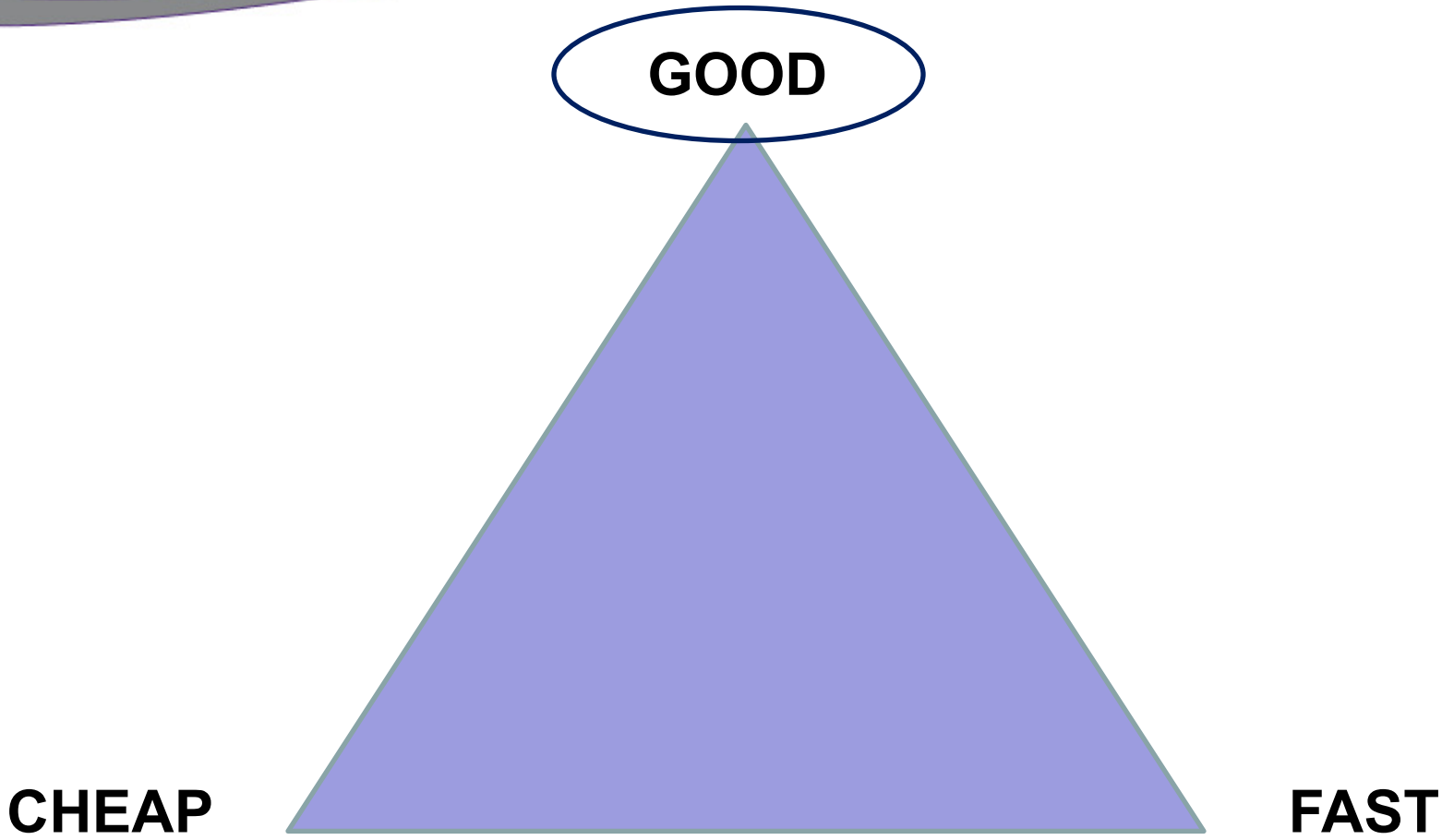
- Agile focuses on creating plans that:
  - **Are highly honest and visible**
  - Focus on customer value in the shortest amount of time
  - Allow you to change course
  - **Enable frequent progress reviews with each sprint**

Software Planning Triangle



Pick any two…

Software Planning Triangle



Pick any two…

Good Software

DISCUSSION:

What is "good" software?

and

How do you deliver "good" software?

Good Software means focusing on the ”ilities”

- Usability
- Maintainability
- Performance (or Perform-ability)
- Scalability
- Extensibility
- Security
- Portability (if delivered on-prem)
- Reliability and/or Availability
- Internationalize-ability
- Interoperability
- Audit-ability
- Administrability
- Configurability

TCO total cost of ownership

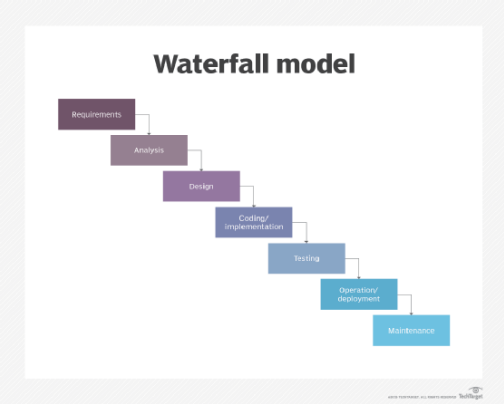
Good Software through Testing

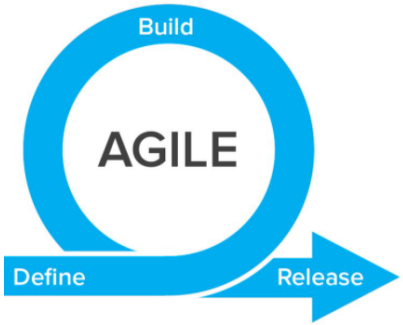
- **Functional Testing: (alpha beta functional)**
  - **Unit Testing:** code working properly
  - **Functional testing:** doing what you said it would do
  - **System and Integration testing:** does it all work together
  - **Exploratory Testing:** testing on the fly
  - **Regression Testing:** Tests to ensure that new functionality did not break existing functionality (can also be used for non-functional testing)

- **Usability Testing:**
  - **Alpha/Beta testing:** usability tests for customers
  - **Usability Studies:** observe customers using the software software or mocks

- **Non-functional Testing:**
  - **Recovery testing:** forces software to fail and verify that recovery is (ala Chaos Monkey) properly performed
  - **Security testing:** ensure protection mechanisms built into a system will, in fact, protect it from improper penetration
  - **Stress or soak testing:** executes system in a manner that demands resources in abnormal quantity, frequency, or volume
  - **Performance Testing:** test the run-time performance of software within the context of an integrated system

Testing – Waterfall vs. Agile

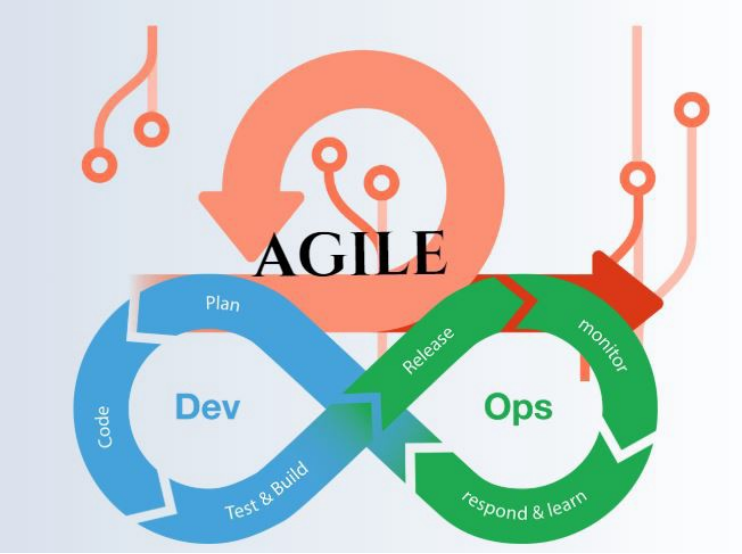




- Functional Testing at the end of development cycles
- Testing Teams usually separate organizations from development
- Regression testing for each release
- More manual testing

- Testing during each sprint and in parallel
- Scrum teams own responsibility for quality
- Regression testing ongoing
- Increased need for automation

Testing – DevOps



- "Shift Left" and Test-Driven Development (TDD)
- More blur between Dev and Test roles
- Automation is ESSENTIAL

Class Updates

- Sprint 2 due today
- Reading for Monday in Canvas
- TDD Deeper Dive and Sprint 3 Kickoff Monday
- Quiz 4 due on Tuesday night (opens Sunday)
- Sprint 2 Reviews will be Wed/Fri next week (will send out schedule)