

Terminology

8-29-2011

Opening Discussion

- Questions about the course?
- Who added?!?
- Student presentations

Software Lifecycle

- Requirements/Analysis
- Design
- Implementation
- Testing
- Deployment
- Maintenance

Agile Programming

- Approaches to software that are well removed from the waterfall.
- Different steps happen continuously, all the time.
- Lots of different agile approaches.
- XP was the big one that made it popular.

Manifesto for Agile Software Development

- We are uncovering better ways of developing software by doing it and helping others do it.
- Through this work we have come to value:
 - **Individuals and interactions** over processes and tools
 - **Working software** over comprehensive documentation
 - **Customer collaboration** over contract negotiation
 - **Responding to change** over following a plan
- That is, while there is value in the items on the right, we value the items on the left more.

XP

- Pair programming
 - Collective code ownership
 - Uniform coding standards
- Automated testing
- Small releases
- Continuous integration
- Stories
- Incremental development

Reliability

- Maintain a certain level of performance for specific conditions.
- Things that help:
 - Programming languages developments
 - Code reviews
 - Testing

Testing

- Executing software to find failures.
- A defect is the algorithmic cause of failure.

Failure

- A situation in which the behavior of the executing software is different from expectation.



FAILURE

WHEN YOUR BEST JUST ISN'T GOOD ENOUGH.

Testing

- A test case some input values and expected output values for a unit.
- A test suite is a collection of test cases.
- You can test manually or using an automatic tool.
- Automatic tools support regression testing.
- Test code should be simple so that it is unlikely to have bugs.

JUnit

- Testing framework for Java.
 - Works for Scala too.
- Makes it easy to label methods as tests.
- Put in various asserts to check that outputs match expectations.

Maintainability

- The capability of the software product to be modified.
 - Analyzability
 - Capability to be diagnosed for deficiencies or failures, or identify parts of modification.
 - Changability
 - Capability to enable specific modifications.
 - Stability
 - Ability to avoid effects from modification.
 - Testability
 - Capability to be tested.

Flexibility

- Capability to add or enhance functionality by adding units, not modifying existing units.

Closing Comments

- ACM meeting across the hall at 4:00.