The Learning House

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Software Development Lifecycle Unit

Lesson 1 - SDLC Models

SOFTWARE GUILD

Objectives

- Understand the two main types of SDLC models and where they can/should be applied

Waterfall Method

- Idea for project
- All requirements are gathered and a specification is created
- Software is constructed to specification
- When construction is over, testing is done
- Bugs are fixed and the project is shipped
- Project go through this process **only once**

When is Waterfall appropriate

- When all requirements can be known up front
- When the requirement will not change
- When lives are on the line (aviation, medical devices, etc.)

Iterative Methods

- Idea for project
- Initial requirements gathered
- Iteration planned
- Iteration features developed and tested
- Iteration features delivered
- Rinse, repeat...

When is Iterative appropriate

- When all requirements can't be known upfront
- When requirements will change
- When no lives are on the line
- In other words...almost always...

Agile Approach

- Form of iterative development
- Many different flavors
- We'll cover the Big Ideas and roughly follow OpenUP

Agile Manifesto

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

Agile Principles

1. Customer satisfaction by rapid delivery of useful software
2. Welcome changing requirements, even late in development
3. Working software is delivered frequently (weeks rather than months)
4. Working software is the principal measure of progress
5. Sustainable development, able to maintain a constant pace
6. Close, daily cooperation between business people and developers

Agile Principles (con't)

7. Face-to-face conversation is the best form of communication (co-location)
8. Projects are built around motivated individuals, who should be trusted
9. Continuous attention to technical excellence and good design
10. Simplicity—the art of maximizing the amount of work not done—is essential
11. Self-organizing teams
12. Regular adaptation to changing circumstances

Key Concepts

- DRY - Don’t Repeat Yourself
- Build the simplest thing that could possibly work
- TDD - Test Driven Development
- Deliver production quality code in small, frequent iterations