CSE 435
Software Engineering

Sept 21, 2015
2.2 Software Process Models

Agile Methods

• Emphasis on flexibility in producing software quickly and capably

• Agile manifesto
  – Value individuals and interactions over process and tools
  – Prefer to invest time in producing working software rather than in producing comprehensive documentation
  – Focus on customer collaboration rather than contract negotiation
  – Concentrate on responding to change rather than on creating a plan and then following it
2.2 Software Process Models

Agile Methods: Examples of Agile Process

• Extreme programming (XP)
• Crystal: a collection of approaches based on the notion that every project needs a unique set of policies and conventions
• Scrum: 30–day iterations; multiple self-organizing teams; daily “scrum” coordination
• Adaptive software development (ASD)
2.2 Software Process Models
Agile Methods: Extreme Programming

- Emphasis on four characteristics of agility
  - Communication: continual interchange between customers and developers
  - Simplicity: select the simplest design or implementation
  - Courage: commitment to delivering functionality early and often
  - Feedback: loops built into the various activities during the development process
2.2 Software Process Models
Agile Methods: Twelve Facets of XP

- The planning game (customer defines value)
- Small release
- Metaphor (common vision, common names)
- Simple design
- Writing tests first
- Refactoring
- Pair programming
- Collective ownership
- Continuous integration (small increments)
- Sustainable pace (40 hours/week)
- On-site customer
- Coding standard
2.2 Software Process Models

Sidebar 2.2 When Extreme is Too Extreme?

• Extreme programming's practices are interdependent
  – A vulnerability if one of them is modified

• Requirements expressed as a set of test cases must be passed by the software
  – System passes the tests but is not what the customer is paying for

• Refactoring issue
  – Difficult to rework a system without degrading its architecture
“Homework” Activity

1. Waterfall, waterfall w/prototype, V model
2. Prototyping model
3. Operational specification, transformational model
4. phased development (incremental and iterative)
5. agile
2.7 What this Chapter Means for You

- Process development involves activities, resources, and product
- Process model includes organizational, functional, behavioral and other perspectives
- A process model is useful for guiding team behavior, coordination and collaboration
Project: Automotive Paint Defect Analysis

Think about:

• appropriate software process
• project planning and prediction
• risks
• requirements

BEFORE you think about:

• user interface
• data organization (implementation)