

Agile Development

Agile development is both engineering best practices as well as a business approach. Agile development arose from the popularization of OOP and the internet, the latter emphasized speed-to-market company growth.

Agile Practices

Manifesto

Agile focuses on:

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation
- Customer collaboration over contract negotiation
- Responding to change over following a plan

XP

Extreme Programming (XP) is an extreme approach to iterative development where many versions can be developed in a day and unit tests are very important!

XP's main principles are:

- Rapid Feedback
- Assume Simplicity
- Incremental Change
- Embracing Change
- Quality Work

XP practices

User Stories

XP focuses on the completion of user stories. User stories are functionality of the program, ex: user can add items to shopping cart. User stories are stored on a story card, which usually contains the story name, the description, acceptance criteria, who is working on it, and priority. Large user stories are called Epics, which are able to be broken down into smaller stories.

Simplicity

XP focuses on simple design where the system should be designed as simply as possible at any given moment.

Test Driven Development

XP is also focused on test driven development, where developers write tests before writing code. These tests are run when code is changed to ensure functionality is not broken.

Continuous Integration

Continuous integration (CI) refers to developers constantly adding and integrating new code / functionality into the system. Because XP also follows test driven development, these new integrations should come with their own unit tests and integrating code should not cause other tests to fail.

Refactoring

Refactoring refers to transformations of existing code in order to make the code simpler, more understandable, more flexible. This code be changes to class heirarchies, method / attribute names, etc.

Scrum

Scrum is based on iterative and incremental development. Scum is considered more conventional than XP, having projects split into iterations called sprints. A sprint will typically take 1-4 weeks.

A sprint consists of the following:

- Planning
 - Produce sprint goal and backlog
 - Kanban board :)
- Daily Scrum
 - 15 minute standup
 1. What did I do yesterday?
 2. What should I do today?
 3. Blocks discovered?
- Development
- Review

- 4 hour meeting at end of sprint
 - Dev Team demo
 - Review of timeline, budget, market
- Retrospective
 - Scrum team inspects itself and plans improvements
 - What went well?
 - What problems occurred?
 - What could improve?