Agile Development in Today’s Industry

Duke CS408 Session 2014
Agenda

- Introductions
- Agile Development Process
- Agile Development Exercise
- Informal Discussions
- Questions
Agile Methodologies

Agile software development is a group of software development methods based on iterative and incremental development, where requirements and solutions evolve through collaboration.

(because so many have suffered before you)

Agile Methods

- Scrum
- Rational Unified Process
- Crystal Clear
- Extreme Programming
- Adaptive Software Development
- Feature Driven Development
- Dynamic Systems Development Method (DSDM)
Agile Manifesto

A Statement of Values

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

http://www.agilemanifesto.org

Agilists value the things on the right, but value the things on the left more.

Agilists assume you **cannot** have all the requirements and a complete design up-front.
Scrum Development Process
# Roles, Artifacts, Meetings

## Roles
- **Product Owner**
  - Sets priorities
- **Scrum Master**
  - Manages process
  - Removes blocks
- **Team**
  - Develops product
- **Sponsors**
  - Observe
  - Advise

## Key Artifacts
- **Product Backlog**
  - List of requirements & issues
  - Owned by Product Owner
  - Anybody can add to it.
- **Sprint Goal**
  - One sentence summary
  - Declared by Product Owner
- **Sprint Backlog**
  - List of tasks
  - Owned by team
- **Blocks List**
  - List of blocks and unmade decisions
  - Owned by Scrum Master
- **Increment**
  - Version of product
  - Shippable, functional and tested

## Key Meetings
- **Sprint Planning Meeting**
  - Hosted by Scrum Master
  - Select highest priority items in backlog for the sprint backlog and declare sprint goal.
- **Daily Scrum**
  - Attend by all, but Stakeholder do not speak
  - Same time each day
  - Answer just three questions
    1. What I accomplished yesterday
    2. What I plan to do today?
    3. What’s blocking me?
- **Sprint Review**
  - Hosted by Scrum Master
  - Attended by all
  - Team demos increment
  - Hold retrospective
## Agile Scrum Development Exercise

<table>
<thead>
<tr>
<th>Duration</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Overview</td>
</tr>
<tr>
<td>10</td>
<td>Requirements</td>
</tr>
<tr>
<td>15</td>
<td>Sprint Planning for all 3 sprints</td>
</tr>
<tr>
<td></td>
<td>1) Estimation</td>
</tr>
<tr>
<td></td>
<td>2) Planning Wall – add to back log</td>
</tr>
<tr>
<td>5</td>
<td>Briefing – details on Sprint</td>
</tr>
<tr>
<td></td>
<td>Separate into Teams</td>
</tr>
<tr>
<td>15</td>
<td>Sprint – 1 (planning, implementation, review)</td>
</tr>
<tr>
<td>15</td>
<td>Sprint – 2 (planning, implementation, review)</td>
</tr>
<tr>
<td>15</td>
<td>Sprint – 3 (planning, implementation, review)</td>
</tr>
<tr>
<td>10</td>
<td>Debrief</td>
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</table>
Game Process

- Pre-game
  - Organize into teams
  - Review the process
  - Describe the project chartering
  - Build the backlog
  - Estimating

- Game
  - Plan the sprint
  - Sprinting
  - Review the sprint

- Post-game
  - Debriefing
Three Teams build one city

Commercial
- office buildings
- restaurants
- Gas stations

Government
- Power plant
- Clock tower
- Water tower

Residential
- Apartments
- Houses
- parks
- schools

One City
Team Roles

PM/Team Lead

Business Analyst

2 Fetchers

QA/Tester

Technical Lead

2 builders
### BACKLOG
- River: 2
- Park: 2
- Intersection: 1
- Church: 8

### PLANNING WALL

<table>
<thead>
<tr>
<th>Sprint</th>
<th>Team A</th>
<th>Team B</th>
<th>Team C</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>1-storey building 2</td>
<td>2-storey building 5</td>
<td>2-storey building 5</td>
</tr>
<tr>
<td></td>
<td>planned: 4 actual: 4</td>
<td>planned: 5 actual: 5</td>
<td>planned: 5 actual: 5</td>
</tr>
<tr>
<td>#2</td>
<td>school 1</td>
<td>hospital 2</td>
<td>kindergarten 5</td>
</tr>
<tr>
<td></td>
<td>planned: 5 actual:</td>
<td>planned: 5 actual:</td>
<td>planned: 4 actual:</td>
</tr>
<tr>
<td>#3</td>
<td></td>
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</tbody>
</table>
Client is the Product Owner

1. All teams will be building a single product – you are not competing, All working for the same vendor.
2. The product is a CITY with the features already listed.
3. The main building elements are LEGOs, though any other material can be used in addition for roads and landscapes.
4. The client/product owner is the main decision maker of the product – it is their city.
5. The client will be involved in the development process by being available to answer questions and provide feedback.
A Few Rules

- Building materials are in separate room
- Only 2 members from each team to collect materials at a time
- Only 2 members from each team to place pieces on the game board after product owner approval
- Team identifies which members are collecting materials and which are modifying the game board during planning.
- There will be a single landscape for both teams to build upon
- Teams will be evaluated based on customer satisfaction
Best Practice

- Many teams ONE city.
- Do the simplest thing that works.
- Don’t worry about the details until you have something built.
Questions ???
Appendix
Development Process

Pre-Project:
- Select high priority project

Planning:
- Project Charter
- Business Requirements
- Test Plan
- Use Case(s)

Update Backlog:

Iteration Planning:
- Architecture Review
- Usability Review
- Source Code Review

Daily Standups

Iteration Review:
- Iteration Retrospective
- User Guide

Release:
- Users accept application for production use
- Deployment Review
- Support Transition Review

Warranty Period:

Issue Management

Risk Management

- Projects are reviewed and prioritized
- Establish business case
- Define high-level scope
- Determine # FTEs and timeline for the proposed project
- Agree the vision
- Define high-level requirements
- Agree Problem Statement
- Assemble project team
- Initial release plan
- Develop Use Cases
- Get stakeholder buy-in
- Conduct kick-off meeting
- Create Project Charter
- Create JIRA Project
- Create Subversion entry
- Engage tech writer; support; testing; training; architecture; DBAs
- Populate initial set of stories in product backlog
- Conduct business process re-engineering
- Conduct analysis & design
- Prepare test plan
- Hardware purchased and installed
- Unit testing
- Automated system testing (TDD)
- Status updates from PM
- Prepare installation instructions
- Develop training materials
- Prepare user documentation
- User beta testing after each iteration
- Define user acceptance test scenarios for each story in product backlog
- Complete support transition checklist
- Product is deployed to the production environment
- Production use
- Transition to Production Support
- Subset of development team supports application
- Define lessons learned
Kanban Board
Agile is...