Agile Software Development in Today’s Industry

CompSci 408 - Fall 2014

Professors: Robert Duvall, Ajay Patel, Salman Azhar
(rcd@cs, ajay.patel, azhar@cs)
Overview

• Introduction

• Software Development Methodologies

• Agile Methodology

• Project Management Phases
Introduction

• My background

• Course to simulate a software consulting firm.

• What you, the student, should expect from this course.
Software Development Methodologies

- Waterfall
- Iterative Waterfall
- Agile - Scrum
Waterfall Methodology
Iterative Waterfall Methodology
Agile Methodology

Scrum

- Plan
- Build
- Test
- Review
- Plan
- Build
- Test
- Review
- Plan
- Build
- Test
- Review
- Plan
- Build
- Test
- Review

Review  Deploy

Review  Deploy
Agile Approach

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

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

 Individuals and interactions  
 over processes and tools

 Working software  
 over comprehensive documentation

 Customer collaboration  
 over contract negotiation

 Responding to change  
 over following a plan
Scrum

• Scrum is an **iterative** and incremental agile framework for managing software projects.

• The focus is on **delivering** tested, independent, valuable, **small features**.

• This **diversifies risk** so if one feature does not go as planned it should not impact another feature.
Roles

• **Product Owner**
  • a stakeholder representing the customer

• **Development Team**
  • responsible for delivery

• **Scrum Master**
  • accountable for removing impediments so the team delivers the sprint goal/deliverables

• **Test and Evaluation Team**
  • responsible for finding, documenting, and reporting all bugs or defects to the rest of the team.
Sprint

• A sprint is the basic unit of development in Scrum.
  • Incremental feature development.
  • Specific duration normally one week to one month.

• Each sprint is preceded by a planning meeting
  • Identify tasks and estimate commitment for the goal
  • Review progress and learn lessons from sprint
Sprint Process

• During each sprint
  • the team creates finished portions of a product
  • the feature set that goes into a sprint come from the product backlog
    • which is an ordered list of requirements.

• The backlog items for a sprint’s goals are determined during the sprint planning meeting.
  • The Product Owner choses the highest priority items and gets agreement from the team
Overview

• **Team Roles & Responsibilities**
• **Goal** for First Client Meeting
Team Roles & Responsibilities

• Project Manager & Team Lead

• Business Analyst

• Technical Lead

• Quality Assurance (Test) Lead
Role: Project Manager & Team Lead

- Maintains project milestones & timelines
- Manage JIRA (Tasks, Agile Board & Sprints)
- Primary contact for team
- Insures team has necessary resources (tools/access/info).
- Communicate project deliverables (to instructors).
Role: Business Analyst

- Primary client contact
- Coordinates client meetings
- Manages requirements
- Represents/understands client needs.
- Manages Confluence (organize, publish client info, document meeting minutes)
Role: Technical Lead

- Provides technical direction in terms of:
  - solution platform (iOS, Android, Web)
  - database, languages, etc.
  - toolkits
  - design patterns.
Roles: Quality Assurance (Test) Lead

• Plans and implements testing to insure adequate quality.
RECAP: Team Roles & Responsibilities

• Project Manager & Team Lead
  • Maintains project milestones & timelines
  • Manage JIRA (Tasks, Agile Board & Sprints)
  • Primary contact for team
  • Insures team has necessary resources (tools/access/info).
  • Communicate project deliverables (to instructors).

• Business Analyst
  • Primary client contact, coordinates client meetings
  • Manages requirements, represents/understands client needs.
  • Manages Confluence (organize, publish client info, document meeting minutes)

• Technical Lead
  • Provides technical direction in terms of solution platform (iOS, Android, Web), database, languages, toolkits, design patterns.

• Quality Assurance (Test) Lead
  • Plans and implements testing to insure adequate quality.
Goal for First Client Meeting
(Project Initiation/Planning)

• Establish project team
  • Client stakeholders
  • Student Team: BA, PM, QA, TL (email instructors by Sep 5 8am)

• Establish communication
  • Primary client contact & student contact (BA)
  • Tools for Collaboration (Confluence)

• Understand project purpose & scope

• Schedule next meeting

• Document meeting minutes.
  • date/time, attendees, discussion topics, issues, action items
RECAP

• **Team** Roles & Responsibilities

• **Goal** for First Client Meeting
OVERVIEW: Expectations

- **Student Team** Expectations
- **Client** Expectations
Your Expectations of the Client

• The client is your **customer**
  • You are providing a service to them.

• The client decides the **features, functionally and behavior** of the software.
Student Team Expectations of Student Team

- **Satisfy** the client… They are your customer.
- **Schedule meetings** with client with sufficient **notice**.
  - Be accommodating.
- **At least 2 team members** attend every client meeting.
- **Use Confluence** (Wiki) to collaborate with client.
  - Document requirements, project timeline with milestones, meeting minutes, user documentation, training material.
- **Manage client expectations** of project deliverables.
- **Be organized and prepared** when meeting with the client.
  - The better organized you are and your ability to convey project ambiguity the more productive you will be.
- **Hold the client accountable** for their deliverables in the most **business professional** (polite) way
Project Communication

• Communication on project issues/guidance/deliverables: CompSci408s@cs.duke.edu
Clients’ Expectations

• Introduction

• What to expect
  • Prototype versus software ready for users.
Clients’ Expectations

• **Expected of Client**
  
  • *Meet with student team weekly* if possible (some can be remote).
  
  • *Two in-class meetings for Alpha and Beta releases.*
  
  • **Consistent representation:**
    
    • Have at least *one person* (same person) who understands the requirements & attends every meeting with the student team.
  
  • Students have about *8-10 weeks* of coding time so define the project *scope* accordingly and know what you want.
  
  • Be *organized* and be *prepared* when meeting with the student team.
  
  • Due to the time frame try to *minimize changes* to the requirements.
  
  • Hold the student team *accountable* for their deliverables.
  
  • *We’ll need about 10 users* for user *testing*.
  
  • Prepare your *IT group* to maintain the software and host the solution.
RECAP

• **Student Team** Expectations
• **Client** Expectations
Questions ???