Agile Software Development

L05 – Scrum

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Agenda

• Recap
• Exam warm-up
• ASD with Scrum
• Scaling Scrum
Recap

• Software development processes, agile terminology
• Current state of Agile worldwide
• Test-driven Development (TDD)
• Handling requirements in ASD
  • Writing user stories
• Organizing User Stories
• Refactoring and Code smells
Agenda

• Recap
• Exam warm-up
• ASD with Scrum
• Scaling Scrum
Exam warm-up

• **Kahoot!**

• Exam-like questions

• **Multiple choice:**
  - only one answer is correct

• Participation is optional

• Nicknames are allowed
Agenda

• Recap
• Exam warm-up
• **ASD with Scrum**
• Scaling Scrum
Agile Software Development with Scrum

• An article published in Harvard Business Review (1986) is the inspiration for the Scrum framework.

• Ken Schwaber and Jeff Sutherland co-present Scrum at the OOPSLA Conference
What is Scrum?

• Scrum is a **process framework** used to manage **product development** and other knowledge work

• Scrum is **empirical** → it provides a means for teams to:
  • establish a hypothesis of how they think something works,
  • try it out,
  • reflect on the experience, and
  • make the appropriate adjustments

• Scrum is structured in a way that allows teams to **incorporate practices from other frameworks**
When is Scrum applicable?

- **Cross functional team** is working in a product development setting.
- There is a **non trivial amount of work** that lends itself to being split into more than one 2 – 4 week iteration.
Scrum roles

Product Owner:
Owns “what” is desired
and “why” it’s desired

ScrumMaster:
Keeper of
Scrum Process,
facilitator

Scrum Delivery Team:
Owns “how” and “how quickly”
work is delivered

Direct communication encouraged
Scrum phases

• **Pregame:**
  - **Planning:** Definition of a **new release** based on currently known backlog, along with an **estimate** of its schedule and cost
  - New system → conceptualization and analysis
  - Existing system → limited analysis
  - **Architecture:** Design how the backlog items will be implemented. This phase includes **system architecture** modification and **high level design**

• **Game:**
  - **Development Sprints:** Development of **new release functionality**, with **constant respect** to the variables of time, requirements, quality, cost, and competition
  - Interaction with these variables defines the end of this phase

• **Postgame:**
  - **Closure:** Preparation for release, including final documentation, pre-release staged testing, and release
The Scrum framework

- Controlling and Monitoring Sprint Work
  - Product Increment
  - Product Integration

- Daily Scrum 24 HS
  - Feedback
  - Self-reflection
  - Celebration
  - Improvements

- Closing the Sprint
  - Building of Product Backlog
  - Configuration of development environment
  - Distribution of workstations

- Organizing and Preparing User Stories
  - As an User I want --
  - As an User I want --
  - As an User I want --

- Planning the Sprint Backlog
  - Sprint Backlog
  - Planning Poker

- Delivering the Product

Product Owner

Scrum Master & Scrum Team

Agile Coach

MTAT.03.293 Agile Software Development | © Ezequiel Scott 2019
As a user, I can cancel a reservation.

- Verify that a premium member can cancel the same day without a fee.
- Verify that a non-premium member is charged 10% for a same-day cancellation.
- Verify that an email confirmation is sent.

* Must take less than 1 second
Agile Estimating and Planning

Size $\rightarrow$ Calculation $\rightarrow$ Duration

300 kilograms $\rightarrow$ Velocity = 20 $\rightarrow$ 300$\div$20 = 15 iterations
Story points

• How long a User Story will take to develop (effort)

• Influenced by:
  • Complexity
  • Risk
  • Uncertainty
How to determine story points?

• One popular alternative is **Planning Poker**

• **Scrum poker or planning poker** is a consensus based, gamified technique to estimate the complexity and effort of a software feature.

• All the team members discuss using **cards**

• The dialogue improves **accuracy** (Hoest and Wohlin 1998)

• Different **scales** can be used
  
  • Fibonacci (e.g. 1, 2, 3, 5, 8, 13, 20, ...)
  
  • T-shirt sizes (XS, S, M, L, XL)
Planning Poker

Online version: https://scrumpoker.online/
Building a Release Plan

The allocation of User Stories to iterations is done according to story points, velocity and sprint goals.
The Scrum framework

- Product Increment
- Product Integration
- Feedback
- Self-reflection
- Celebration
- Improvements
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- Configuration of development environment
- Distribution of workstations

Product Owner:
- As an User I want
  - As an User I want
  - As an User I want

Closing the Sprint

Organizing and Preparing User Stories

Planning the Sprint Backlog

Delivering the Product

Controlling and Monitoring Sprint Work

Daily Scrum 24 HS

Sprint Backlog
Planning Poker
## Daily Scrum

<table>
<thead>
<tr>
<th>Story</th>
<th>To Do</th>
<th>In Process</th>
<th>Done</th>
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<tbody>
<tr>
<td>As a user, I...</td>
<td>Code the...</td>
<td>Figure out how...</td>
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<tr>
<td>As a novice user, I</td>
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Daily Scrum

- Ensure that all members **self-assign** at least one task
- Produce high quality code
- Document as necessary
- Keep in mind the **Sprint Goal**
- The team works to achieve a **product increment**
Daily meetings

• On each day of a sprint, the team holds a daily scrum meeting
• They are strictly time-boxed to 15 minutes
• All team members are required to attend scrum meetings

Daily meeting

✓ What did you do yesterday?
✓ What will you do today?
✓ Are there any impediments in your way?

https://www.agilealliance.org/daily-scrum-is-it-a-waste-of-time/
Daily meetings

- **On each day of a sprint**, the team holds a daily scrum meeting.
- They are strictly **time-boxed** to 15 minutes.
- All team members are required to attend scrum meetings.
- **Some improvements** →

(Downey and Sutherland, 2013)

The Scrum framework
Sprint Review

• Prepare a demo to validate the customer’s User Stories
• Ensure that the product works under acceptable conditions
• Receive and leverage the feedback on the increment
Sprint Retrospective

• Each team holds a private meeting

• Reflect on what happened along the sprint

• Each team member is asked to identify specific things that the team should:
  ✓ Start doing (AN IMPROVEMENT)
  ✓ Stop doing (THE BAD)
  ✓ Continue doing (THE GOOD)

• The result is at least one action item included on the following Sprint’s Sprint Backlog
Agenda

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Scaling Scrum

• Why scale?
  • We need to go faster?
  • Do we have a lot of people?
• We scale **to get more done in a given timeframe**
• It doesn’t mean to add more people necessarily

• Different approaches:
  • **Scrum of Scrums**
  • NEXUS
  • ...
Scrum of Scrums
NEXUS framework
What’s next?

• Lecturer: Orlenys López-Pintado

• Behaviour Driven Development (BDD)/Test-Driven Development (TDD) for Phoenix