Scrum and AMOS

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AMOS B02

Reminder on Commits to Repository

Don’t forget to sign-off and declare your co-authors, if any [1]

```
dirk@host$ git commit -a -m "Fixed problem
> Co-authored-by: Stefan Buchner <stefan.buchner@fau.de>”
> --signoff
```

[1] For more details, please see the slide deck AMOS B01 on Team and Tools

Agenda

1. The AMOS Process

Scrum in Student Projects

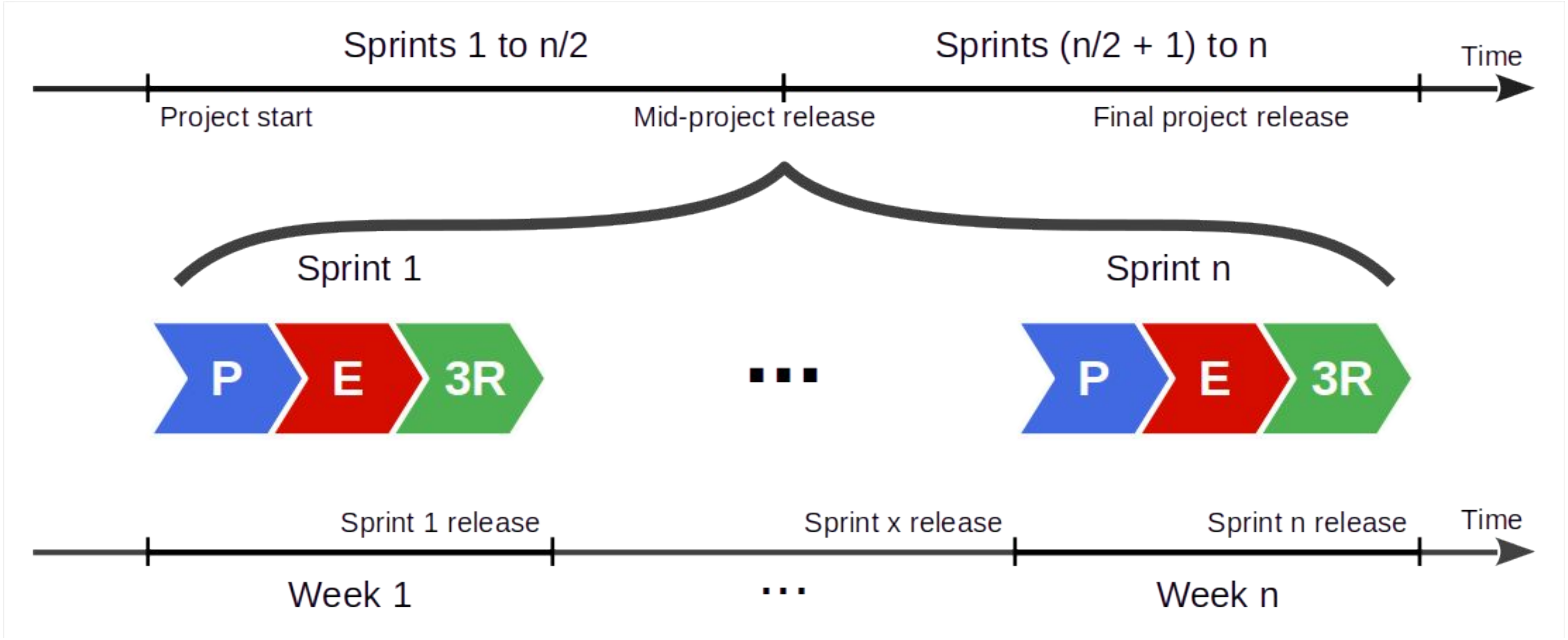
Challenges

- Widely differing abilities and experiences
- Not 100% on project, but in multiple courses
- Transient rather than persistent teams
- Not available at same place, not at same time
- Sometimes extrinsically motivated (grades)

Solutions

- Context-aware instantiation of framework
- Supporting teaching team, coaching

Overall AMOS Project Timeline



Time-boxed Sequence of Releases

A **release** is

- A named identifiable, consistent, and useful snapshot of the product

A **sprint release** is

- A release used to gather feedback from the industry partner to steer the project

A **project release** is

- A release that is deployed to production where it is supposed to perform its job

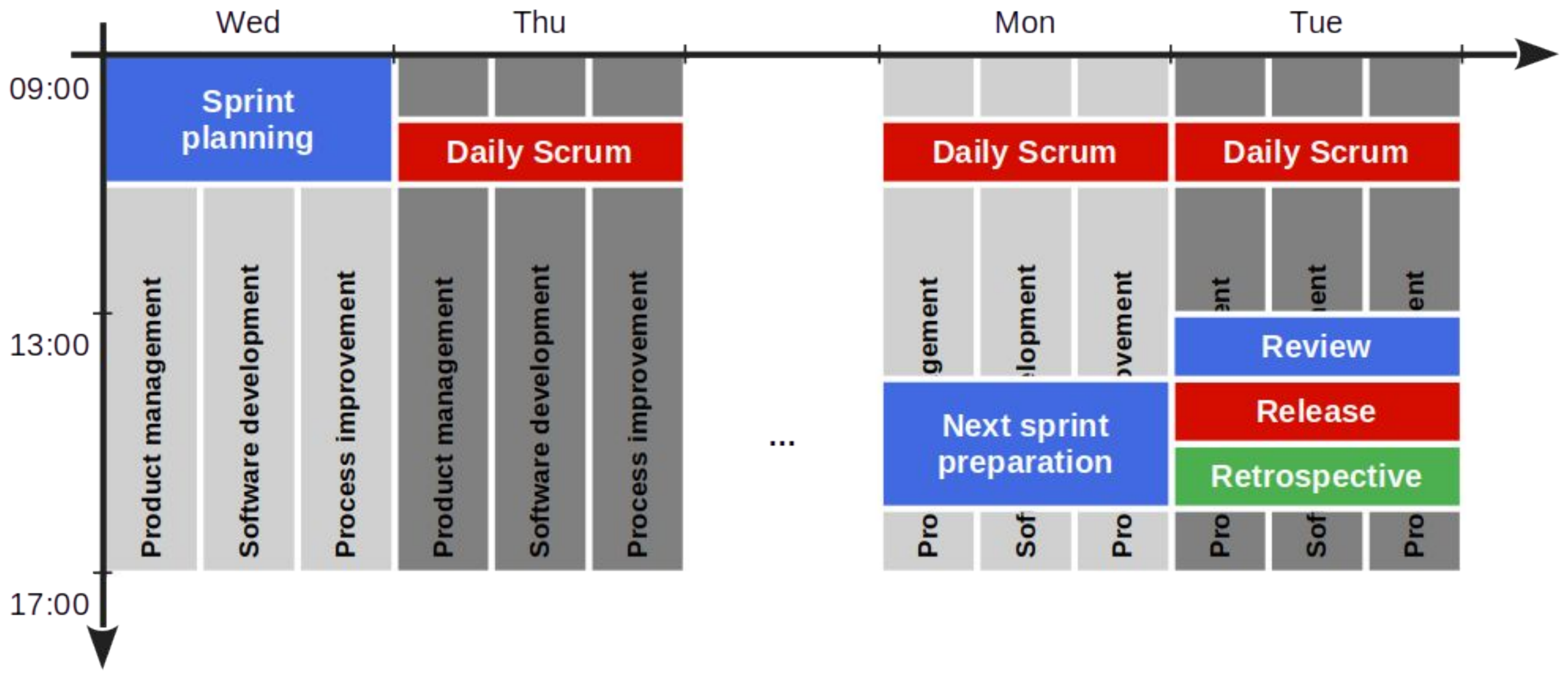
In the AMOS Project there are two releases (mid-project and final release)

Project Schedule

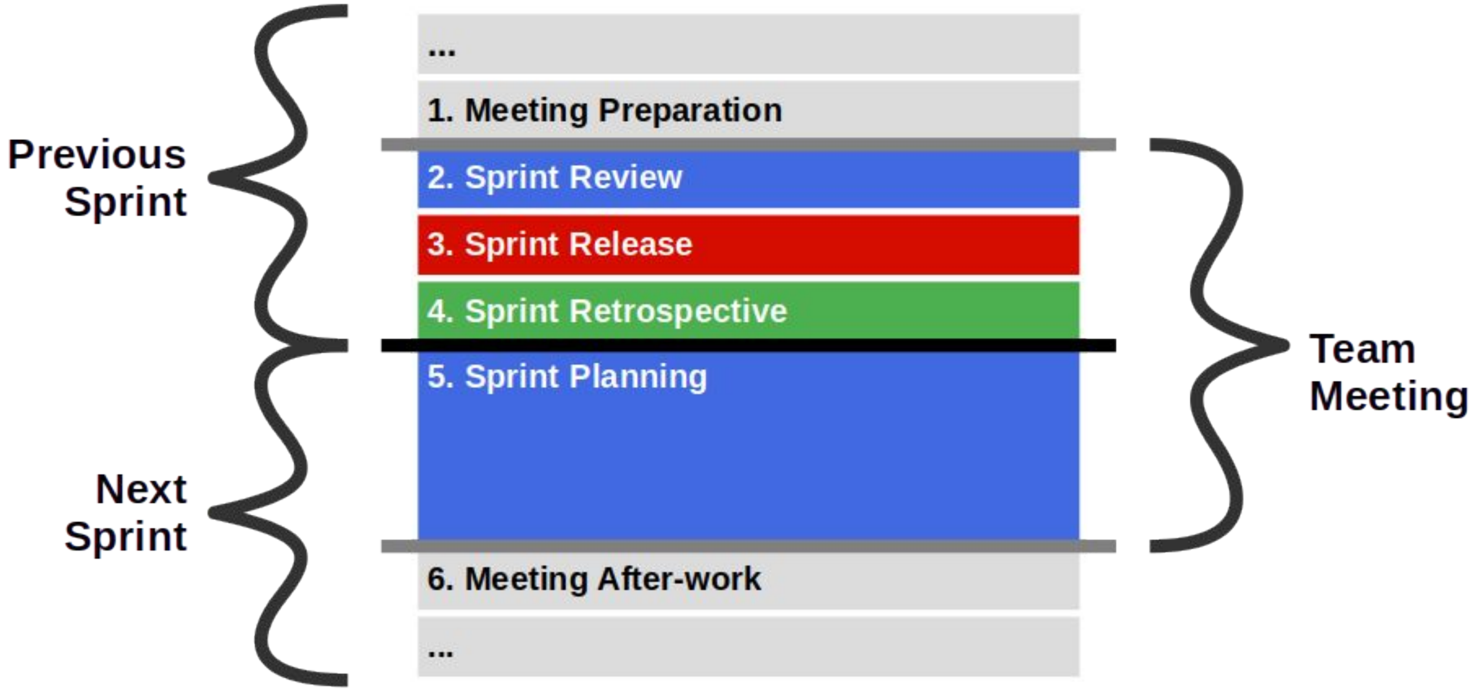
Please see the **Schedule** tab of the **Course Organization** doc

2. The Team Meeting

Logical Structure of a Scrum Sprint



The AMOS Team Meeting



1a. Meeting Preparation

Product owner

- Performs backlog grooming in a **next sprint preparation** meeting
  - Should include at least one developer (may want to plan this out)
- Ensures that the product backlog is ready for sprint planning
  - There are enough high-quality entries at least for the upcoming sprint
    - High-quality = meets INVEST criteria, explained later
  - Product backlog entries may be
    - New features, bug fixes, and refactorings

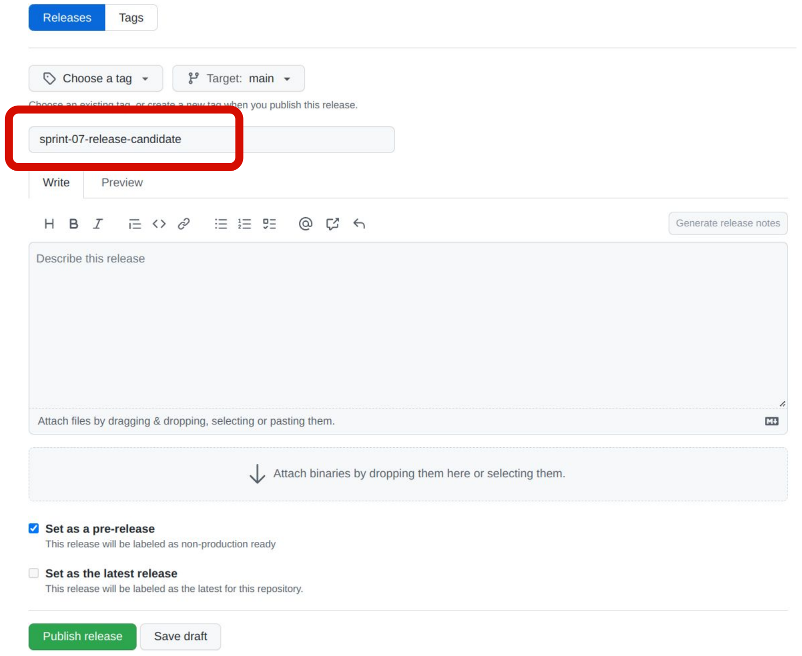
1b. Meeting Preparation

Release manager

- Ensures that a working demo system will be available
- Tags release candidate with **sprint-xx-release-candidate**
  - Where xx is your sprint number (see project schedule)

Tagging Release Candidates and Releases

Release candidate



Releases Tags

Choose a tag Target: main

Choose an existing tag, or create a new tag when you publish this release.

sprint-07-release-candidate

Write Preview

Generate release notes

Describe this release

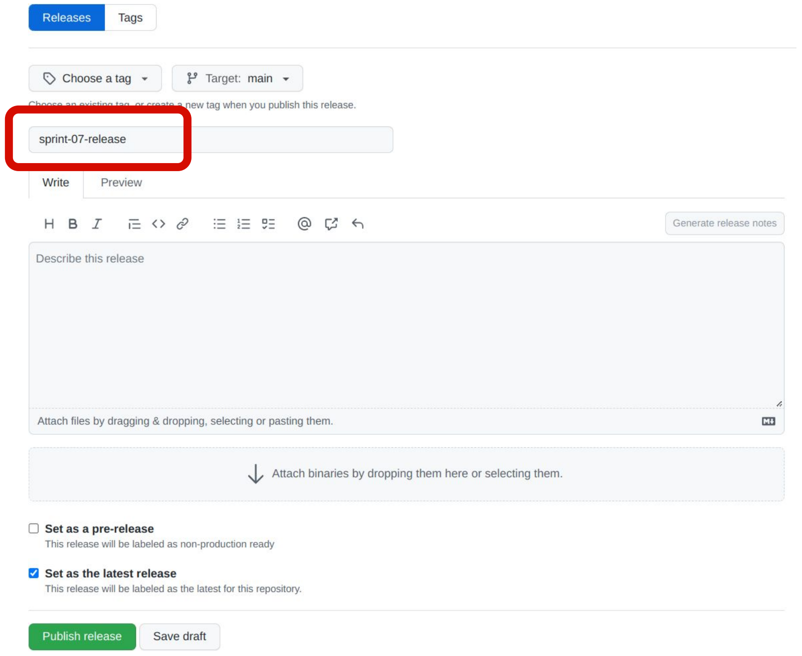
Attach files by dragging & dropping, selecting or pasting them.

Attach binaries by dropping them here or selecting them.

- [x] **Set as a pre-release**
  This release will be labeled as non-production ready
- [ ] **Set as the latest release**
  This release will be labeled as the latest for this repository.

Publish release Save draft

Release [1]



Releases Tags

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sprint-07-release

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- [ ] **Set as a pre-release**
  This release will be labeled as non-production ready
- [x] **Set as the latest release**
  This release will be labeled as the latest for this repository.

Publish release Save draft

[1] Do not rename release candidate

2a. Sprint Review

Release manager

- Checks-out fresh code base using release candidate tag
- Compiles, builds, and runs tests for release candidate
- Deploys release candidate to test environment

The release manager does not run the review

2b. Sprint Review

Product owner

- Walks through “Awaiting review” column item by item
  - Asks developer to demo item under review
    - Insists that developer shows, not just tells
  - Checks fulfillment of acceptance criteria
  - Checks fulfillment of definition of done, if required
  - Checks other criteria incl. logging output for problems
  - If successfully implemented
    - Moves item to feature archive
    - Asks developers about real size, add it to the item
  - If not successfully implemented
    - Moves item back to product backlog

2c. Sprint Review

Software developer (individually)

- Is called upon by product owner for backlog item
  - Demos backlog item as requested by product owner
  - Answers questions about item design and implementation
  - Provides real size as determined after implementation

Only talking, not showing, is not acceptable

- The product manager needs to insist on showing not just talking
- If a developer only talks, product owner and developer failed

3a. Sprint Release

Product owner

- Decides whether release candidate should be released
  - Only in case of significant regression should you not release
  - Later in the course you will use a definition of done
  - Specifics depend on type of release
- Consults with software developers if necessary

3b. Sprint Release

Release manager

- If the release candidate is to be released
  - Deploys sprint release to operations environment
  - Tags release with **sprint-xx-release** where xx is your sprint number
- If there is a change log (optional)
  - Updates change log with release information

4a. Sprint Retrospective

Scrum Master

- Reviews this sprint’s impediments and improvements
  - Reports on progress
  - Reviews remaining problems
- Performs roll call, asks:
  - What has gone well?
  - What hasn’t gone well?
  - What can we do better?
- Puts new impediments and improvements into imp-squared backlog

4b. Sprint Retrospective

Everyone

- Answers to happiness index

5a. Sprint Planning

Product owner

- Reprioritizes product backlog items, if necessary, on-the-fly
- Works through top-prioritized backlog items one-by-one until finished
    - For each product backlog item, explains it, asks developers to estimate and commit
    - You are finished, if the team does not want to take on more backlog items

5b. Sprint Planning

Software developers (as team)

- Estimate size of each backlog item using planning poker
- After planning, commit to backlog items in sprint backlog

Story Points

Story points

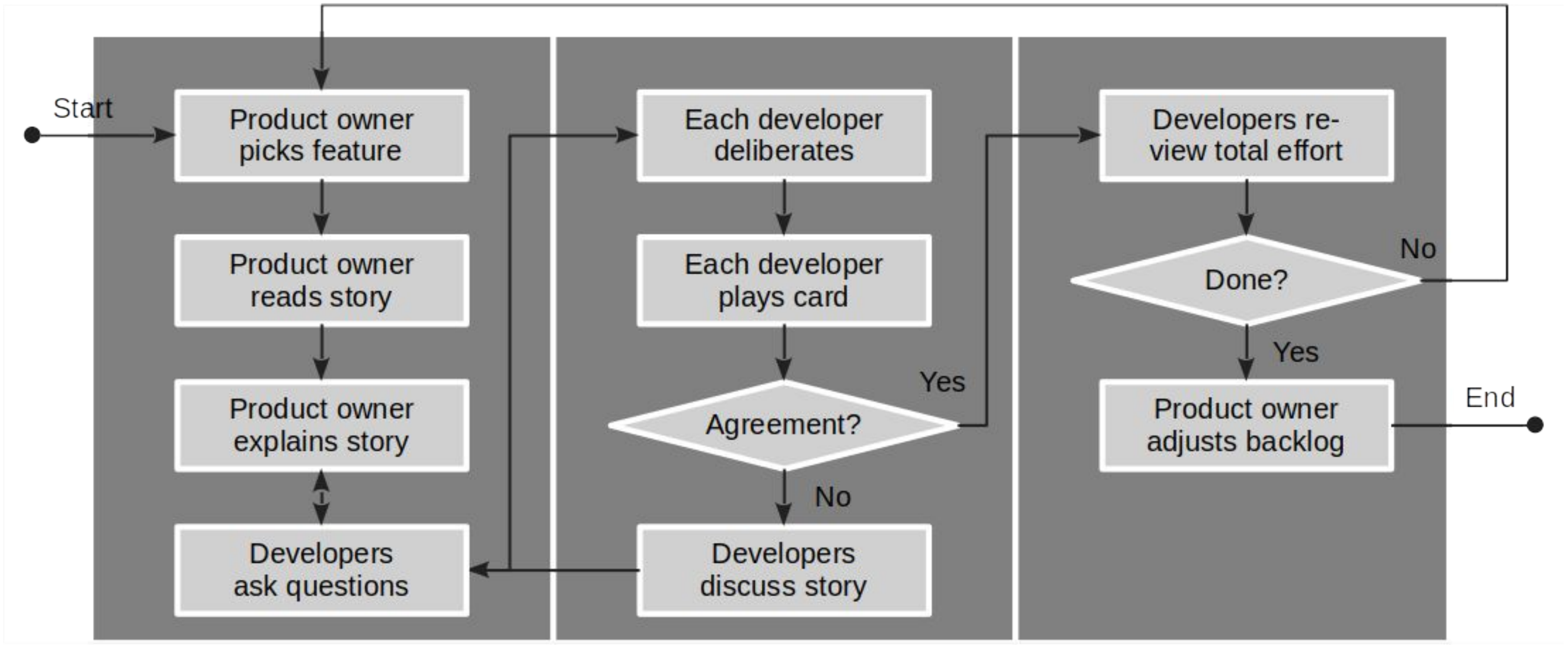
- Is an arbitrary numeric measure of size of a given backlog item

Properties

- Is a measure of size, not of effort or duration
- Measured in non-linear increments, forcing choice
- Is socially agreed upon, depends on team estimation history
- Is independent of a particular person (and their skills)
- Is mapped to time using the team's velocity (development speed)

Points	Meaning
0	No size
1	Trivial size
2	Small size
3	Medium size
5	Large size
8	Very large size
13	Too large (size)

Sprint Planning with Planning Poker [1]


Start
Product owner picks feature
Product owner reads story
Product owner explains story
Developers ask questions
Each developer deliberates
Each developer plays card
Agreement?
Yes
No
Developers discuss story
Developers re-view total effort
Done?
No
Yes
Product owner adjusts backlog
End

[1] A simple planning poker cards replacement can be found in your planning document

6a. Meeting After-work

Product owner

- Updates planning document to consistent state
  - Cleans up product and sprint backlog
  - Ensures feature archive is current

6b. Meeting After-work

Software developer (as team)

- Plan programming tasks (1 feature = 1+ tasks)
  - Agree on which developer(s) work(s) on which tasks
  - If pair programming, ensure you document the pair

6c. Meeting After-work

Scrum Master

- Works on impediments and improvements during sprint
- Documents resolutions in imp-squared backlog

An Efficient Team Meeting Takes 90 Min. (or Less)

#	Section	Duration
1	Meeting preparation	-
2	Sprint review	~35%
3	Sprint release	~5%
4	Sprint retrospective	~20%
5	Sprint planning	~40%
6	Meeting after-work	-

3. Bill of Materials

Bill of Materials [1]

A **bill of materials** (of some artifact) is

- A linear list of materials (the parts) constituting the artifact (the whole)

A bill of materials can contain any kind of material

- Not just software

If purely software, the bill of materials is also called the

- Software bill of materials (SBOM)

[1] German: Stückliste

Software Bill of Materials (SBOM)

For each dependency, provide this (recommended, not required) information

Field	Name	Example
1	Context	com.google.code.gson
2	Name	gson
3	Version	2.3.1
4	License	Apache-2.0
5	Comment (optional)	Pulled from Maven Central

Regular Deliverable: Software Bill of Materials

Please initialize your software bill of materials and keep it up-to-date

- You can limit this to your first-level dependencies

You can use a tool, e.g. a build tool plugin to generate the SBOM

Please update every time you change your dependencies

4. Software Architecture

Agile Architecture?!

Agile methods eschew detailed planning

- The proof of the software is in the feedback of the customer

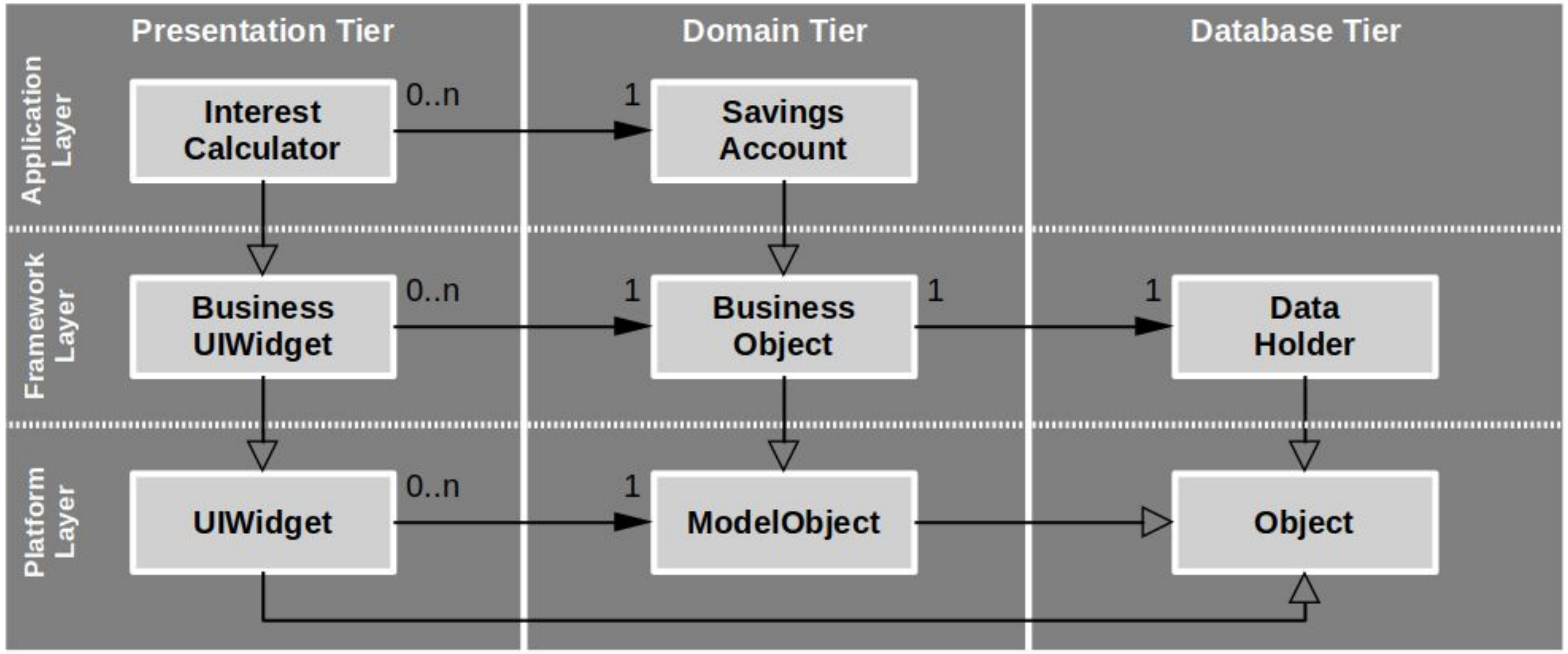
Software architecture is the overall design of a system

- Including static (structural) and dynamic aspects
- Covering everything of wide impact to the system
- Ignoring everything with limited (localized) impact

Agile software architecture is software architecture that

- Emerges from risk-adjusted planning / visibility
- Delays architectural investment to the last minute

Runtime Objects / Tiers vs. Code / Layered Architecture



One-time Deliverable: Architecture Description

Provide a description of the initial planned architecture including (at a minimum)

1. The runtime architecture
2. The code (static) architecture
3. The tech stack you are building on

Feel free at the end of the project to review planning with reality

Summary

1. The AMOS process
2. The team meeting
   - Meeting preparation
   - Sprint review
   - Sprint release
   - Sprint retrospective
   - Sprint planning
3. Bill of materials
4. Software architecture

Thank you! Any questions?

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