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Agile Methodology

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What is Agile?

- Agile is a project management methodology that breaks down larger projects into smaller, manageable chunks known as iterations
- At the end of every iteration (which typically takes places over a consistent time interval), something of value is produced.
- The product that's produced during every iteration should be able to be placed into the world to receive feedback from stakeholders or users.
- Contrary to Waterfall project management, agile is strictly sequenced: you do not commence design until research is complete and development doesn't commence until all designs are signed off.
- With agile, developers, designers, and business people are simultaneously working together.

The Agile Life Cycle

- The objective of agile is to produce shorter product development cycles and deliver more frequent releases than the traditional waterfall management methodology.

- The shorter time frame lets project teams react to changes in a client's needs more effectively.

- You could use different agile management frameworks, with Kanban and Scrum being the most common ones. Whichever framework you choose, the entire agile methodology follows the same process, which entails:

    1. Project Planning
    2. Product Roadmap Creation
    3. Release Planning
    4. Sprint Planning
    5. Daily Meetings
    6. Sprint Review

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The Benefits of Agile

- Digital - Many companies are moving to the digital workplace, agile is an excellent fit for the organizations looking to transform the way they manage projects and operate in general.
- Speed to Market - To improve and streamline the development process in a bid to quickly identify and adjust for defects and issues.
- Flexibility - Offers a way for teams and developers to deliver a better project, faster, through short, iterative sprints/sessions.
- Risk Management
- Cost Control
- Quality

Diff between Agile and Waterfall

	Agile	Waterfall
Project Scope	works perfectly, even when the scope isn't defined in advance	works correctly when the scope is well-defined in advance
Project Team	small or mid-sized dedicated teams working in high coordination	large teams which decrease the coordination among members
Customers	customers to be available through the entire project	customers are only needed at milestones
Feature Prioritization	features are usually prioritized and issues dealt with according to their priorities	Features are never prioritized
Funding	works well by increasing the funding efficiency	works perfectly by minimizing fixed funding through the up-front contracts.
Project Changes	allows for intermittent changes during an ongoing process	doesn't allow changes in between the project process, and in case a mistake occurs, the project must begin from scratch

Scrum Framework

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About Scrum

- Scrum is a management framework for incremental product development using one or more cross-functional, self-organizing teams of about seven people each.
- It provides a structure of roles, meetings, rules, and artifacts. Teams are responsible for creating and adapting their processes within this framework.
- Scrum uses fixed-length iterations, called Sprints. Sprints are no more than 30 days long, preferably shorter. Scrum teams try to build a potentially releasable (properly tested) product increment every Sprint

Scrum Roles

- Scrum Development Team
- Product Owner
- Scrum Master

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Scrum Development Team

- Cross-functional (e.g., includes members with testing skills, and others not traditionally called developers: business analysts, designers, domain experts, etc.)
- Self-organizing / self-managing, without externally assigned roles
- Plans one Sprint at a time with the Product Owner
- Has autonomy regarding how to develop the increment
- Intensely collaborative
- Most successful when located in one team room, particularly for the first few Sprints
- Most successful with long-term, full-time membership. Scrum moves work to a flexible learning team and avoids moving people or splitting them between teams.
- 6 ± 3 members

Product Owner

- Single person responsible for maximizing the return on investment (ROI) of the development effort
- Responsible for product vision
- Constantly re-prioritizes the Product Backlog, adjusting any longterm expectations such as release plans
- Final arbiter of requirements questions
- Decides whether to release
- Decides whether to continue development
- Considers stakeholder interests
- May contribute as a team member

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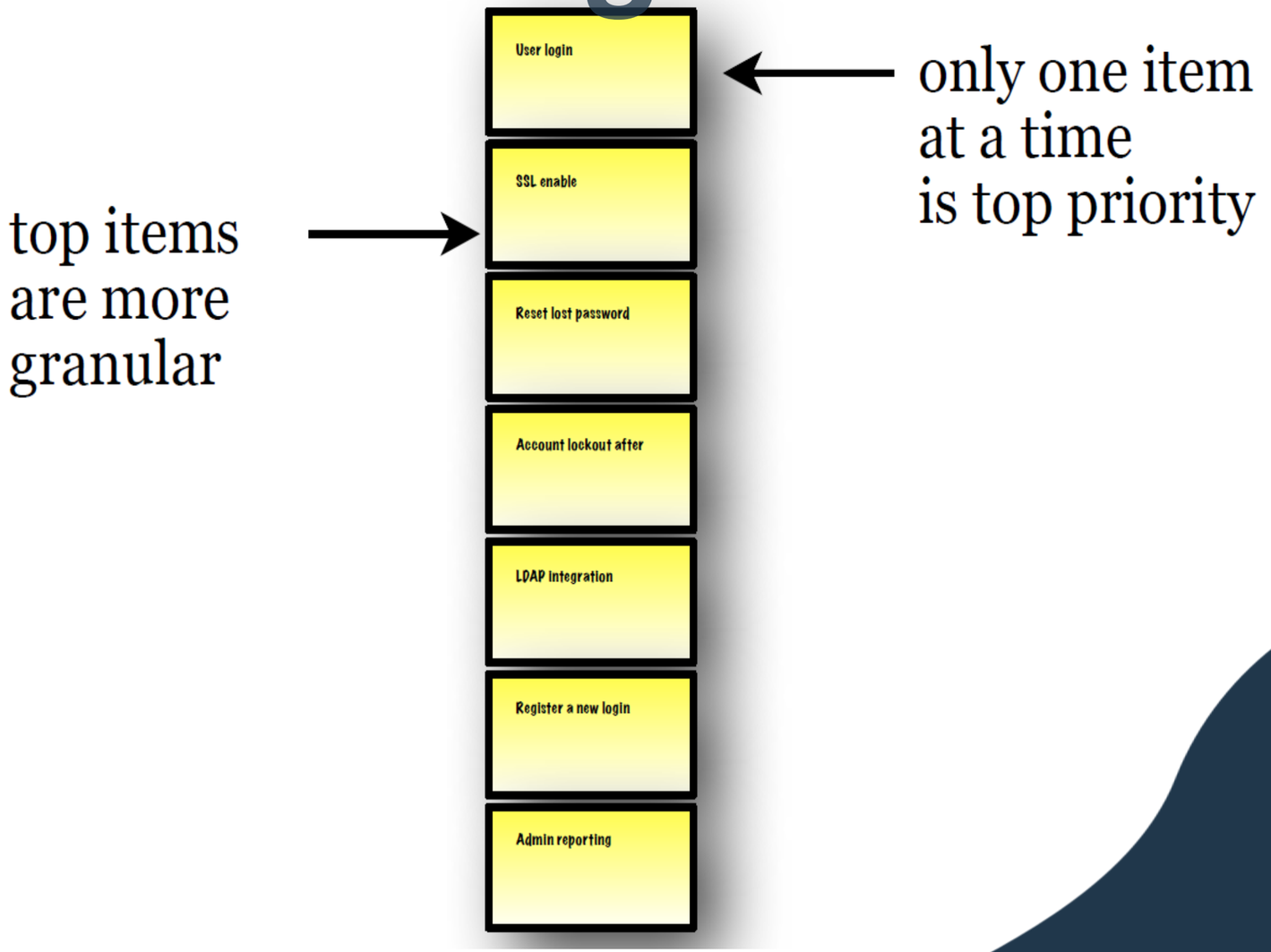
Scrum Master

- Works with the organization to make Scrum possible
- Ensures Scrum is understood and enacted
- Creates an environment conducive to team self-organization
- Shields the team from external interference and distractions to keep it in group flow (a.k.a. the *zone*)
- Promotes improved engineering practices
- Has no management authority over the team
- Helps resolve impediments

Scrum Artifacts

Product Backlog

- Force-ranked (prioritized) list of desired functionality
- Visible to all stakeholders
- Any stakeholder (including the Team) can add items
- Constantly re-prioritized by the Product Owner
- Constantly refined by the Scrum Team
- Items at top should be smaller (e.g. smaller than 1/4 of a Sprint) than items at bottom



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Product Backlog Item (PBI)

- Describes the what more than the how of a customer-centric feature
- Often written in User Story form
- Has a product-wide definition of done to prevent technical debt
- May have item-specific acceptance criteria
- Effort is estimated by the Development Team, ideally in relative units (e.g., story points)

Sprint Backlog

- A Sprint in Scrum is a short period of time wherein a development team works to complete specific tasks, milestones, or deliverables.
- Sprints, also referred to as “iterations,” essentially break the project schedule into digestible blocks of time in which smaller goals can be accomplished.
- Consists of selected PBIs negotiated between the team and the Product Owner during the Sprint Planning Meeting
- No changes are made during the Sprint that would endanger the Sprint Goal
- Initial tasks are identified by the team during Sprint Planning Meeting
- Team will discover additional tasks needed to meet the Sprint Goal during Sprint execution
- Visible to the team
- Referenced during the Daily Scrum Meeting

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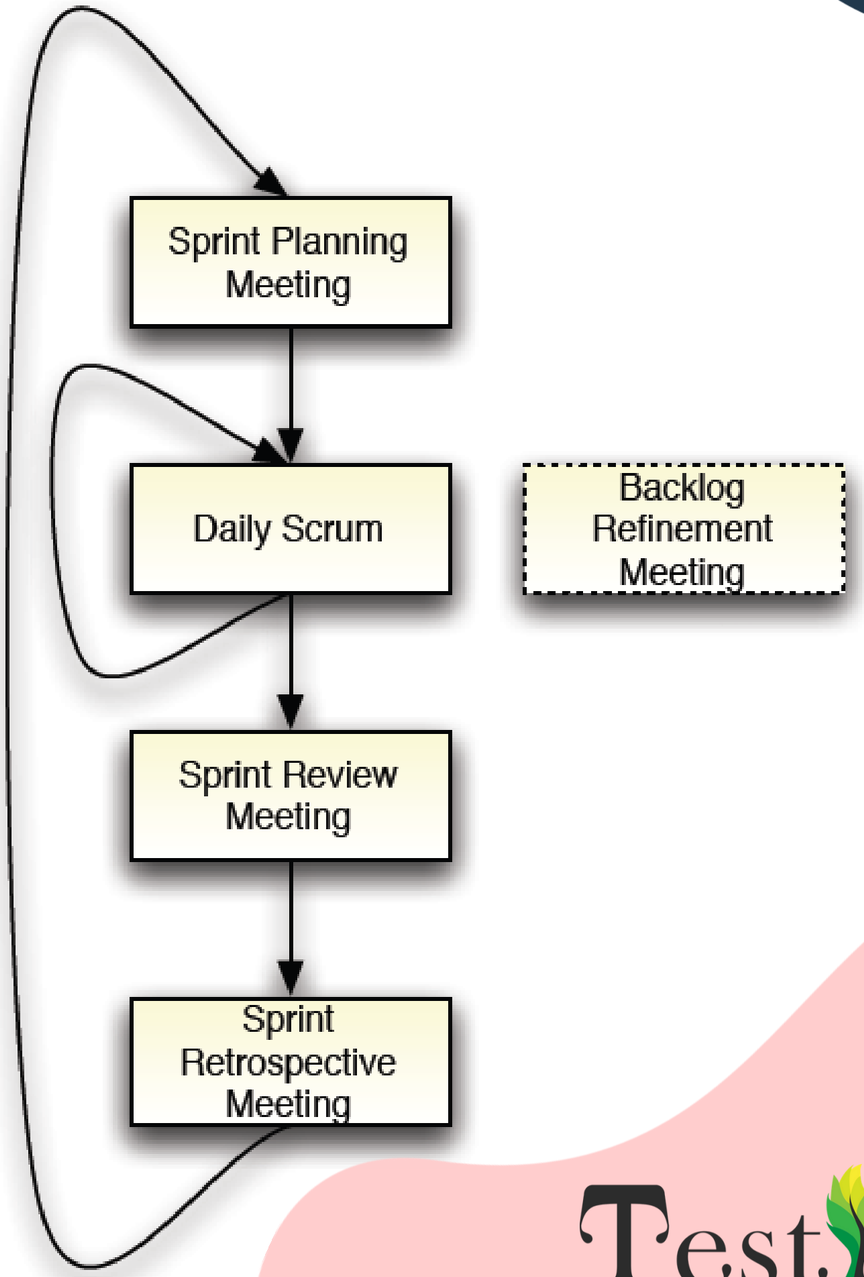
Scrum Meetings



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Sprint Planning Meeting

- The Product Owner, ScrumMaster, and Dev Team plan each Sprint at the very start of the Sprint
- The meeting is timeboxed to 2 hours x the weeks in the Sprint (=4 hour timebox for 2-week Sprints)
- The plan they create is known as the Sprint Backlog
- Scrum doesn't specify how to plan a Sprint — it's up to the ScrumMaster, Dev Team, and Product Owner to find the most effective way to do it
- By experimenting from Sprint to Sprint, we discover...
  - How detailed and firm the requirements need to be to get started
  - What unit to use in estimating, how fine-grained the estimates need to be, and how much buffer we need to put in
  - How detailed a task breakdown our Dev Team needs, in order to work effectively during a Sprint

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Daily Scrum Meeting

- Purpose
  - Enable the Dev Team to give each other a brief daily update
  - Enable the Dev Team to make any blocks visible to everyone

- Daily, the Dev Team stands in a circle and reports:
  - “Since yesterday I did…”
  - “By tomorrow I will try to do…”
  - “My blocks are…” (or “I have no blocks”)

- 15-minute timebox
  - During meeting: everyone listens, no discussion
  - After meeting is done: further discussion as needed

- Product Owner can attend, but must not interfere
- ScrumMaster makes note of the blocks
- After Daily Scrum, ScrumMaster helps remove blocks, and people can meet in smaller groups to discuss issues

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Product Backlog Refinement

- Product Owner, Dev Team, and ScrumMaster take time in each Sprint to look at the upcoming Product Backlog Items (User Stories) which will be worked on in next 2-3 Sprints
- Take large upcoming Product and split them into smaller slices; ideally, small enough that 1-2 people could completely finish them in 3-4 days (“1-2-3-4”)
- Get a more detailed shared understanding of the requirements for the upcoming Product Backlog Items (User Stories)
- No fixed format, timing, or timebox
- Try starting with a 2-hour session for Product Owner, Dev Team, and ScrumMaster halfway through the Sprint

Sprint Review

- Purpose: Inspect and Adapt the Product
- Meeting at the end of the Sprint (timeboxed to 1 hour x the number of weeks in the Sprint)
- The PO, SM, Dev Team, and stakeholders get “hands on” with what the Dev Team has produced in the Sprint
  - We inspect the quality, and whether it is “done”
  - We inspect whether it truly serves customer needs
  - We try to find improvements to make in the future (Product Owner adds these on the Product Backlog)
- Get real-world customers or end-users to attend and give hands-on feedback

Sprint Retrospective

- Purpose: Inspect and Adapt Our Practices
- Last activity in each Sprint (timeboxed to 1 hour x the number of weeks in the Sprint)
- The PO, SM, and Dev Team talk about what they experienced and observed during the Sprint, both positive and negative
- They create a specific plan of action for improving their practices in the next Sprint
- Probably the single most important practice in Scrum. The Scrum Team does this every Sprint!

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