SOFTWARE DEVELOPMENT FRAMEWORK WITH SCRUM

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Agenda

I. Scrum Framework

II. Scrum Roles

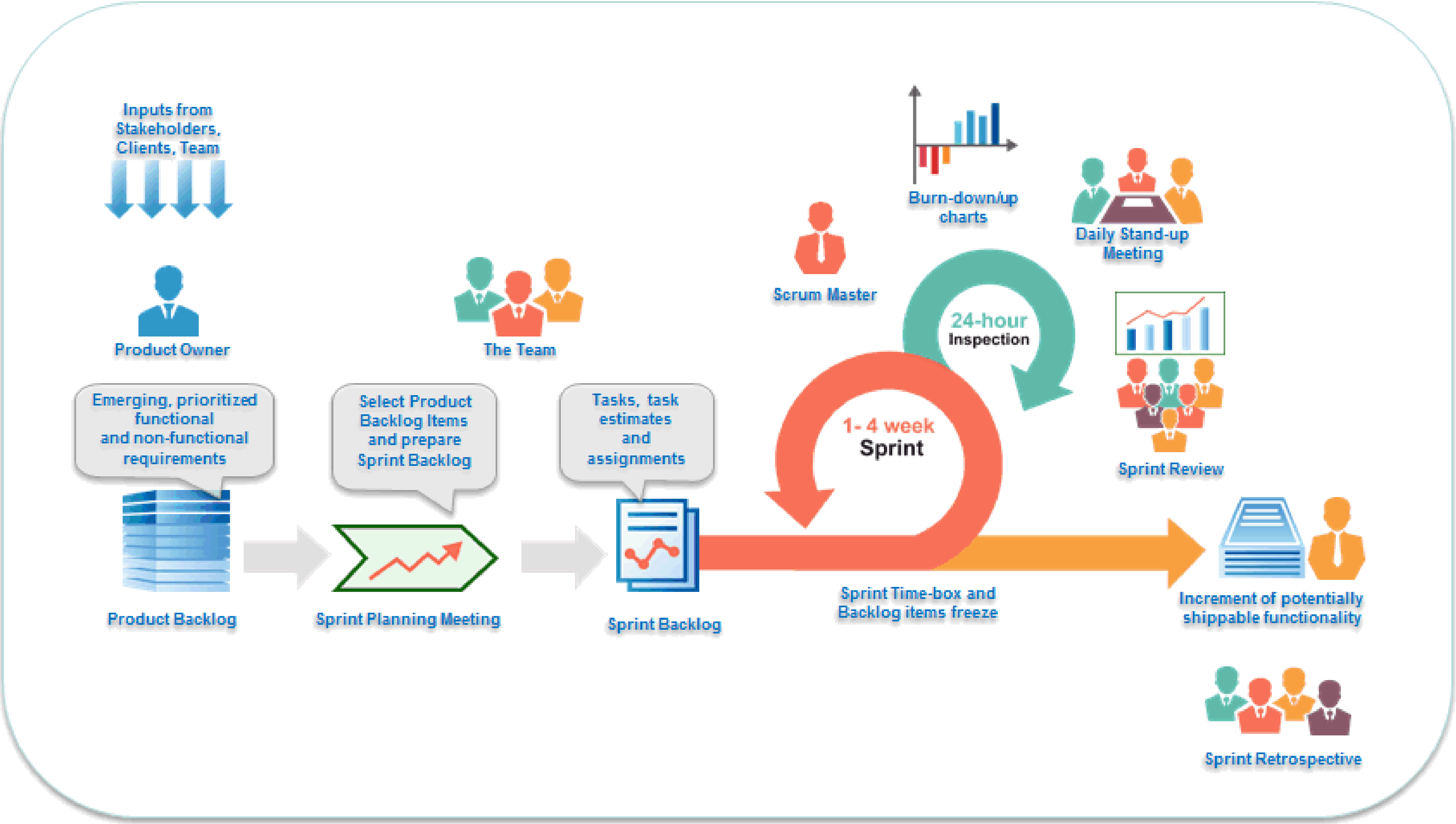
III. Scrum Terms

IV. Workshop

V. Q & A

Scrum Framework

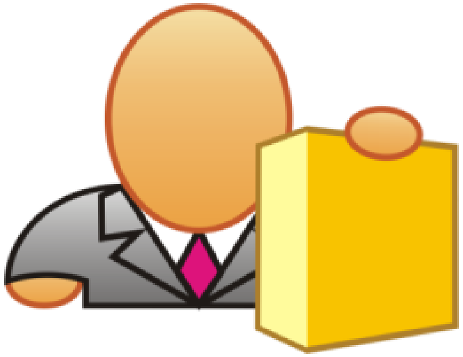
Scrum Overview


Inputs from Stakeholders, Clients, Team
Product Owner
The Team
Scrum Master
Burn-down/up charts
Daily Stand-up Meeting
24-hour Inspection
1- 4 week Sprint
Sprint Review
Emerging, prioritized functional and non-functional requirements
Select Product Backlog Items and prepare Sprint Backlog
Tasks, task estimates and assignments
Product Backlog
Sprint Planning Meeting
Sprint Backlog
Sprint Time-box and Backlog items freeze
Increment of potentially shippable functionality
Sprint Retrospective

Scrum is a project management framework - not a full-fledged methodology

Product Owner

- Define the features of the product
- Decide on release date and content
- Be responsible for the profitability of the product (ROI)
- Prioritize features according to market value
- Adjust features and priority every iteration, as needed
- Accept or reject work results



Common Mistakes

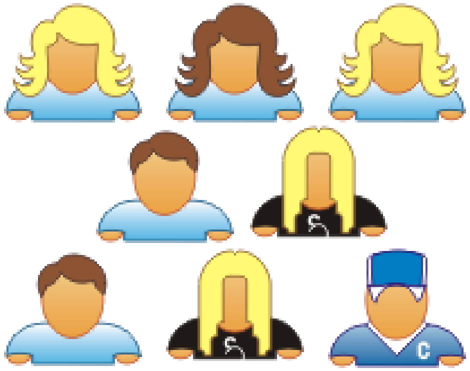
- The Underpowered Product Owner
- The Overworked Product Owner
- The Partial Product Owner
- The Distant Product Owner
- The Product Owner Committee

Scrum Master

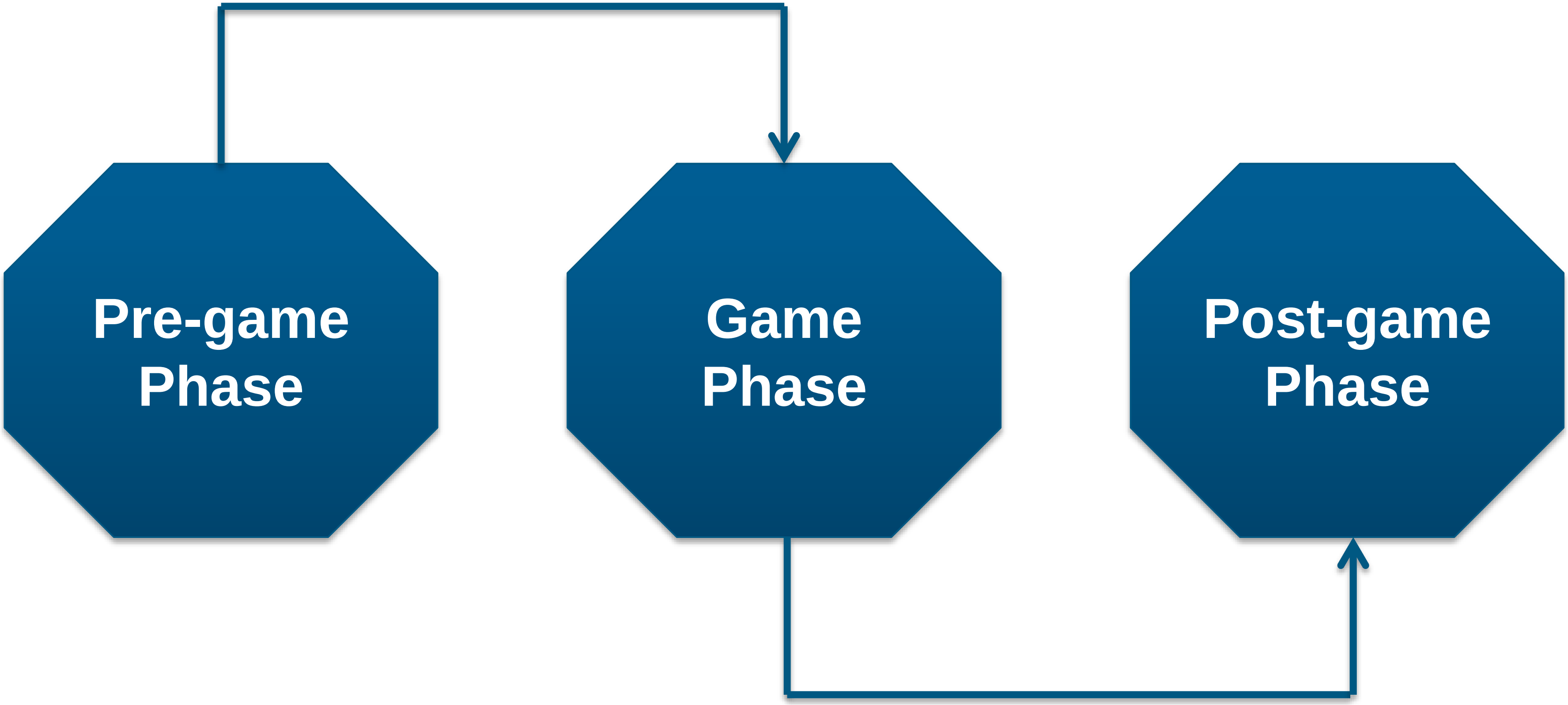
- Represents management to the project
- Responsible for enacting Scrum values and practices
- Removes impediments
- Ensures that the team is fully functional and productive
- Enable close cooperation across all roles and functions
- Shields the team from external interferences

Team

- Typically 5-9 people
- Ideally, team should be co-located
- Cross-functional:
  - Programmers, testers, user experience designers, etc.
- Members should be full-time
  - May be exceptions (e.g., database administrator)
- Teams are self-organizing
  - Ideally, no titles but rarely a possibility
- Membership should change only between sprints



Scrum Framework



Pre-game Phase

Game Phase

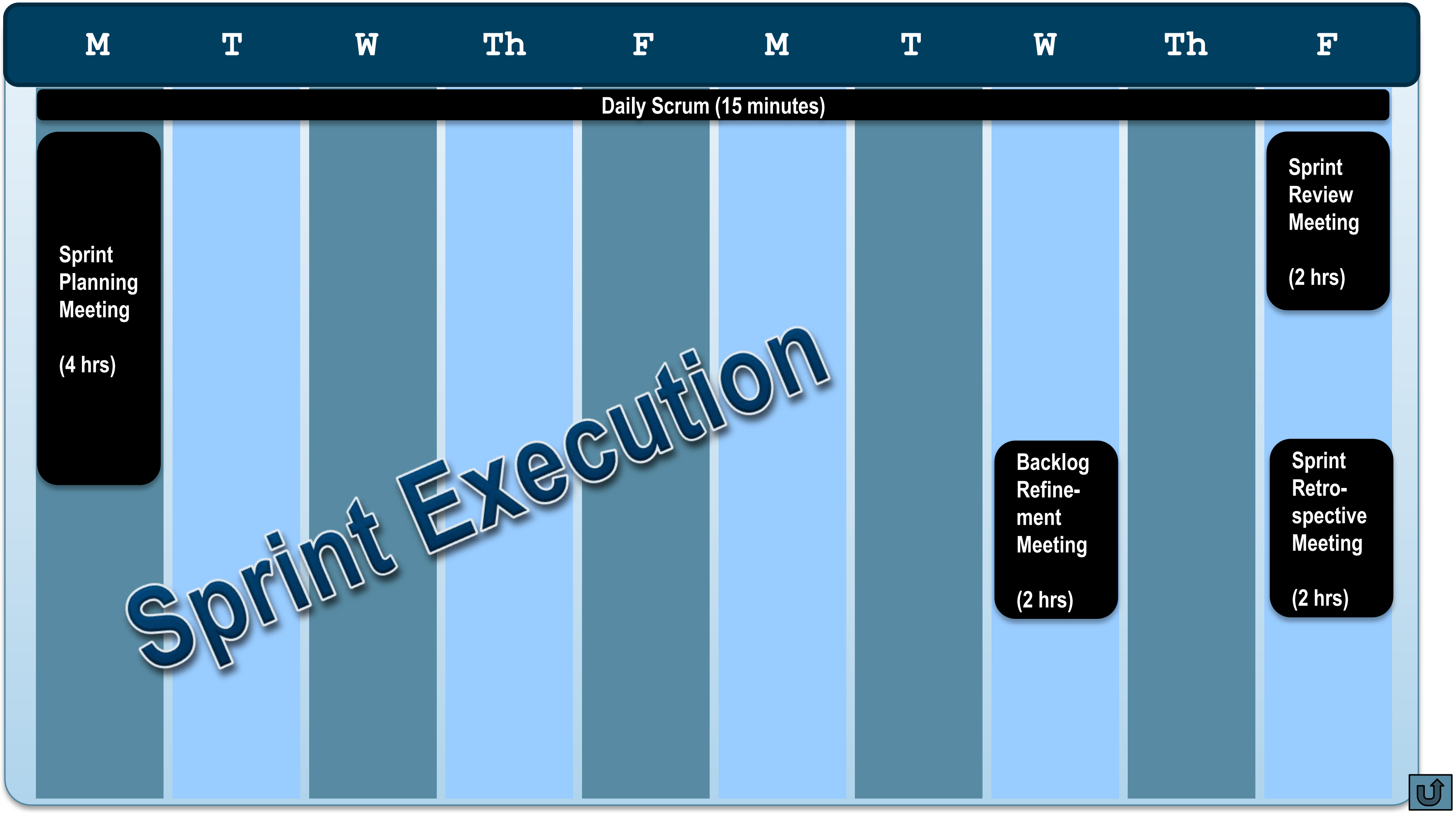
Post-game Phase

Pre-game Phase

- At the start of a new Scrum project, some initial planning and design must take place in order to define a project goal and product backlog for the project
- There are three major activities
  - Establishing the project goal
  - Establishing product requirements
  - Creating the product backlog

Game Phase

- The game phase refers to the Sprint, or development, phase



M T W Th F M T W Th F

Daily Scrum (15 minutes)

Sprint Planning Meeting

(4 hrs)

Sprint Execution

Backlog Refinement Meeting

(2 hrs)

Sprint Review Meeting

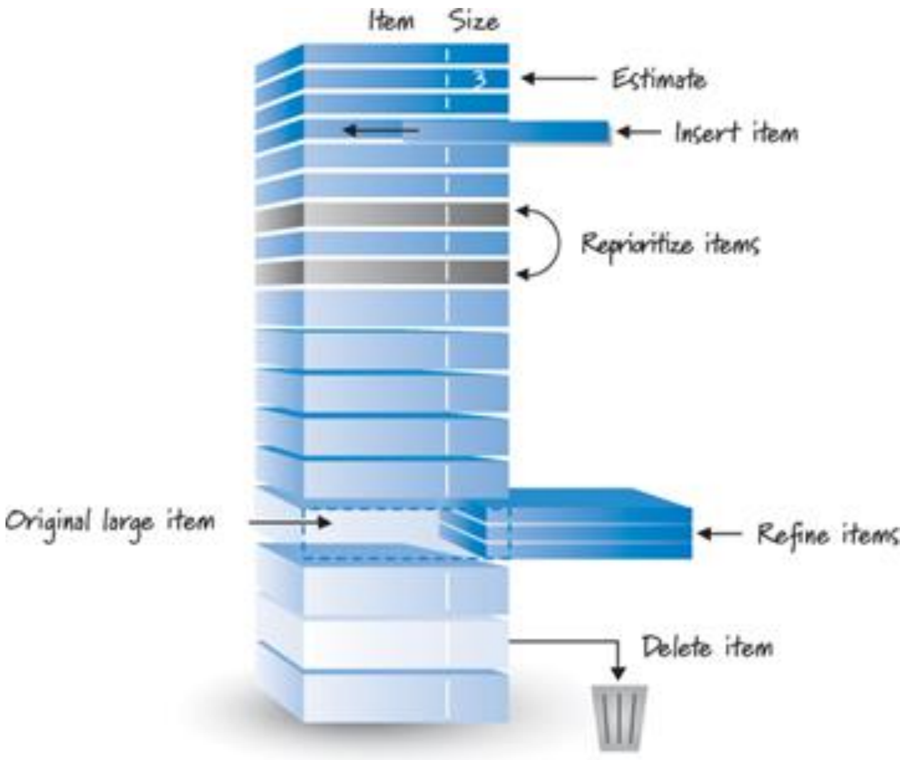
(2 hrs)

Sprint Retrospective Meeting

(2 hrs)

Backlog Refinement Meeting

- Purpose
  - Ensure the team and Product Owner have the same understanding of the items that are going to be developed in the next two or three Sprints
- When
  - Before new development work starts
- Participants
  - Product Owner
  - Scrum Master
  - Team



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Backlog Refinement Meeting…

- Actions
  1. Product Owner presents any new items requested by the customers
  2. Team captures requirements to the product backlog in term of user stories
  3. Product Owner prioritizes product backlog items
  4. Team and Product Owner refine product backlog items from top-down
  5. Newly added/refined items are sized/re-sized using Planning Poker technique
- Output
  - Refined, prioritized, and estimated (in Story Points) product backlog items
  - Definition of Done
  - Understanding of requirements

Planning Poker Technique

- Planning Poker technique is used to estimate the size of tasks and then user stories
- In order to play Planning Poker, the following is needed:
  - The list of features to be estimated
  - Decks of numbered cards
  - A typical deck has cards showing the Fibonacci sequence: 0, 1, 2, 3, 5, 8, 13, 21, 34, 55, ? (Don’t know), ∞ (Too large, need to break down into smaller items)

Planning Poker Technique…

1. Product Owner explains user stories
2. The Scrum Master facilitates the process and keeps an eye on "anchoring" in discussions
3. Each player estimates relative size and complexity (not effort)
4. Size is estimated by comparing user stories
5. Each player throws card
6. Lowest and highest bidder discuss their reasoning
7. Replay until bids converge to one number and it is the size of the story
   - Maximum up to three rounds
   - If no result after three rounds, majority rules

Sprint Planning Meeting

- Purpose
  - Determine what product functionality the team will work on
- When
  - Conducted before the sprint
- Participants
  - Product Owner
  - Scrum Master
  - Team

Sprint Planning Meeting…

- Actions
  1. Product Owner presents top priority items from product backlog to the team
  2. The team selects as many items as they can handle in the next sprint based on their capacity
  3. The team breaks items down into sprint tasks and estimate them based on performance of previous sprints
  4. Product Owner and the team work together to come up with a sprint goal
- Output
  - Sprint backlog with tasks and estimated effort
  - Sprint goal

Daily Scrum Meeting

- Each day during a Sprint, the team hold a Daily Scrum Meeting (or stand-up) with specific guidelines:
  - All members of the development team come prepared with the updates for the meeting
  - The meeting starts precisely on time even if some development team members are missing
  - The meeting should happen at the same location and same time every day
  - All are welcome, but normally only the core roles speak
  - 15-minute time limit

Daily Scrum Meeting…

- During the meeting, each team member answers three questions
  - What have you done since yesterday?
  - What are you planning to do today?
  - Any impediments/stumbling blocks?
    - *Any impediment/stumbling block identified in this meeting is documented by the Scrum Master and displayed on the scrum board*
    - *No detailed discussions shall happen in this meeting*
- Burndown chart is updated by the Scrum Master

Sprint Review Meeting

- Purpose
  - Sprint Review provides an inspection of project progress
  - Based on the inspection, adaptations can be made to the project
- When
  - Conducted at the end of every sprint
- Participants
  - Product Owner
  - Scrum Master
  - Team
  - Stakeholders

Sprint Review Meeting…

- Actions
  1. The team presents the product increment that they have built to stakeholders (management, customers and users) and the Product Owner
  2. Any items which are not completed during the Sprint should not be shown and are returned to the product backlog.
  3. Stakeholders and the Product Owner decide on what's “done”, what's “not done”, and what's to do next
- Output
  - Acceptance or rejection of Product Owner / stakeholder about the product increment
  - Incomplete items are returned to product backlog

Sprint Retrospective Meeting

- Purpose
  - Discuss the just ended Sprint and determine what need to be changed to improve the team in the next Sprint
- When
  - Conducted at the end of every sprint and after a Sprint Review Meeting
- Participants
  - Product Owner
  - Scrum Master
  - Team

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Sprint Retrospective Meeting…

- Actions
  1. All team members reflect on the past Sprint
  2. Make continuous improvements
  3. Two main questions are asked in the Sprint retrospective
     a. What went well during the Sprint?
     b. What could be improved in the next Sprint?
- Output
  – Lessons learnt and adapted

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Engineering Activities

- During the sprint execution, normal development activities are taken place such as analysis & design, coding, testing, deployment, etc.
- Following practices may also help the team in development
  - Pair Programming
  - Simple Design
  - Refactoring
  - Test Driven Development
  - Continuous Integration

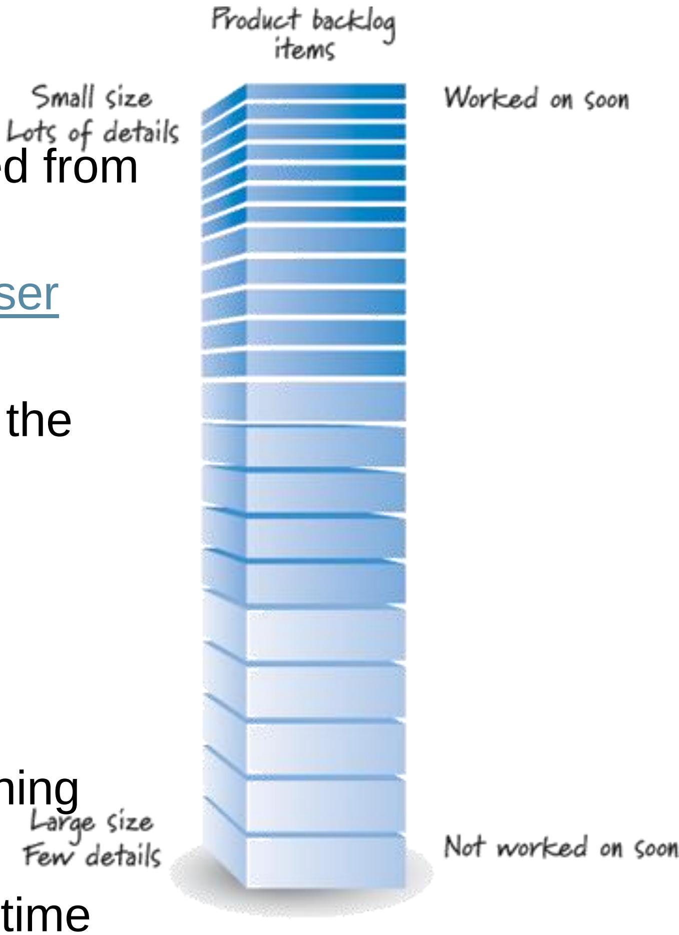
Post-game Phase

- This phase is all about preparing for release, including final documentation, pre-release staged testing, and release

Scrum Terms

Product Backlog

- What
  - The initial user stories in product backlog are derived from product vision
  - A list of all desired work on the project in terms of user stories
  - Prioritized by the product owner and reprioritized at the start of each sprint
- Who
  - Managed by Product Owner
- When
  - Initial product backlog should be ready at the beginning of the project
  - Backlog items are updated frequently during the lifetime of the project



User Story

- A convenient format for expressing the desired business value for many types of product backlog items
- Typically expressed in a format such as

As a <user role> I want to achieve <goal> so that I get <benefit>

Sample

As a customer representative I want to search for my customers by their first and last name to find those I like to get in touch with

User Story…

- **I.N.V.E.S.T** Criteria – Method for determining if a user story is ready to be slotted into a sprint
  - **Independent** – The story can be worked on and completed independently from other stories
  - **Negotiable** – The implementation details are not included in the story (left to the team to decide how it will be technically implemented)
  - **Valuable** – The story has a high degree of business value relative to most others remaining on the product backlog
  - **Estimable** – The story can be estimated in relative Level of Effort
  - **Small** – The story is not too large to be completed in a sprint, or too small to be its own story
  - **Testable** – The story can be definitively tested to determine measurable success

Story Point

- A measure of the relative size of product backlog items that takes into account factors such as complexity and physical size
- Determined by using Planning Poker Technique

Definition of Done

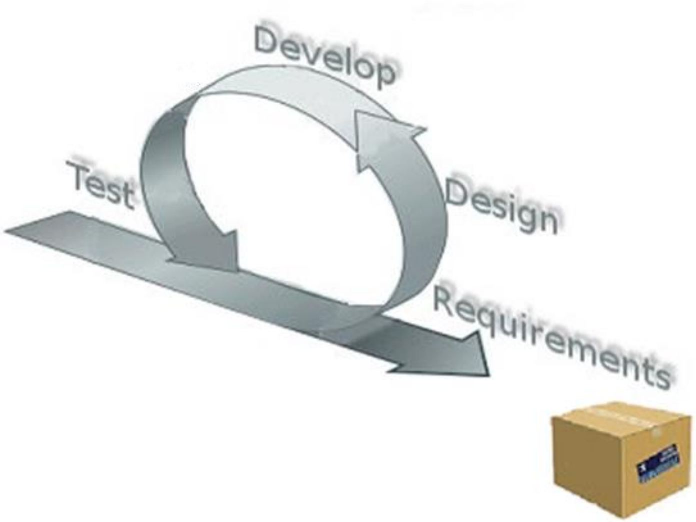
- A list of criteria which must be met before a product increment “often a user story” is considered “done”
- Failure to meet these criteria at the end of a sprint normally implies that the work should not be counted toward that sprint's velocity

Sample

- Code complete
- Code committed
- Code reviewed
- Unit tests written and passing
- Deployed to system test environment and passed system tests
- Passed UAT and signed off

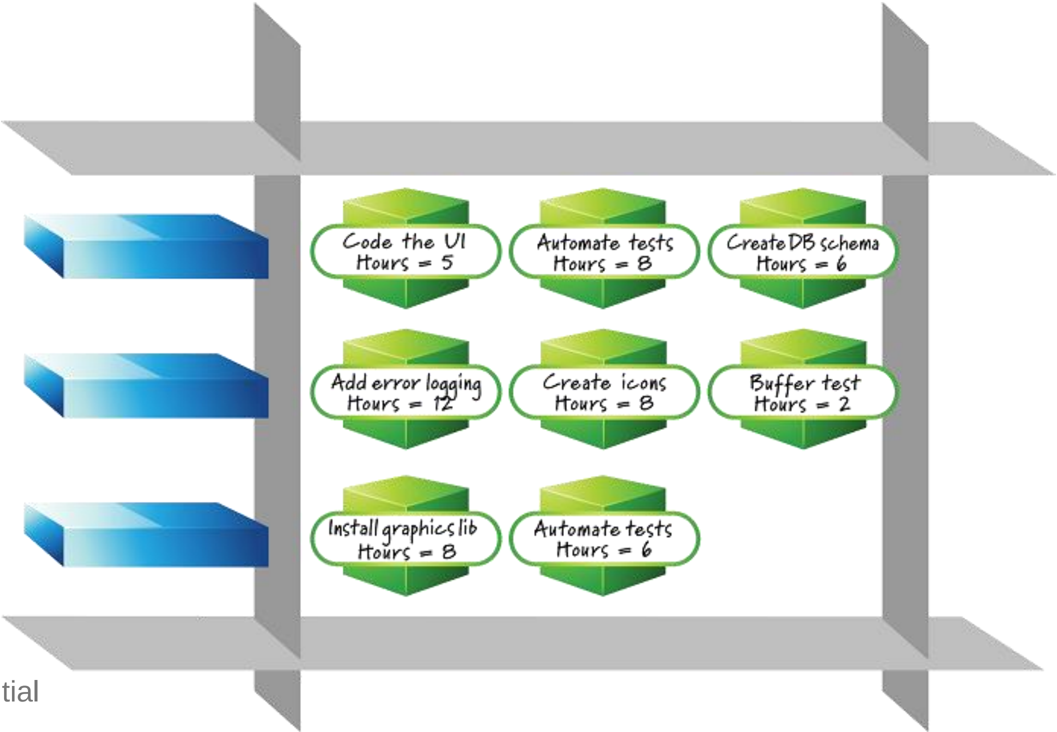
Sprint

- The basic unit of development in Scrum
- Time-boxed: fixed period of time
- Sprint cycle varies from 1 to 4 weeks
- A potentially shippable software is delivered at the end of each sprint
- For each sprint, the should be a sprint goal



Sprint Backlog

- Contains stories with the highest priority from the product backlog
- Amount of stories depends on capacity (velocity)
- For each story, tasks are added and estimated by hours
- The estimated work remaining is updated daily
- Any team member can add, delete, or change tasks within the sprint backlog



Sprint Goal

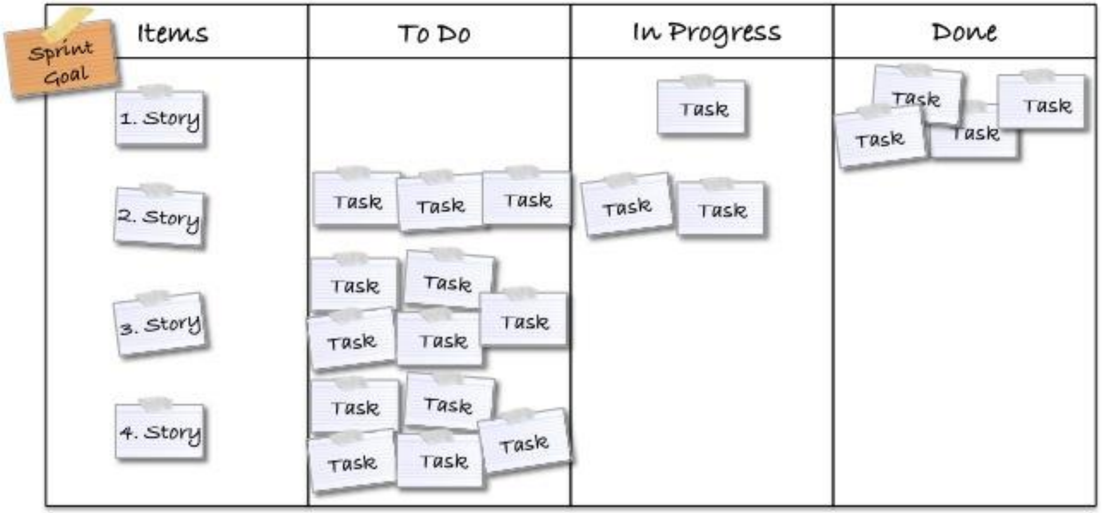
- A short expression of the purpose of a Sprint, often a business problem that is addressed
- Functionality might be adjusted during the Sprint in order to achieve the Sprint Goal

Sample

- In this sprint, we will allow users to log-in to the site, retrieve a forgotten password, and manage their own profile
- In this sprint, we will implement basic shopping cart functionality including add, remove, and update features
- In this sprint, we will integrate VISA payment gateway into our billing module

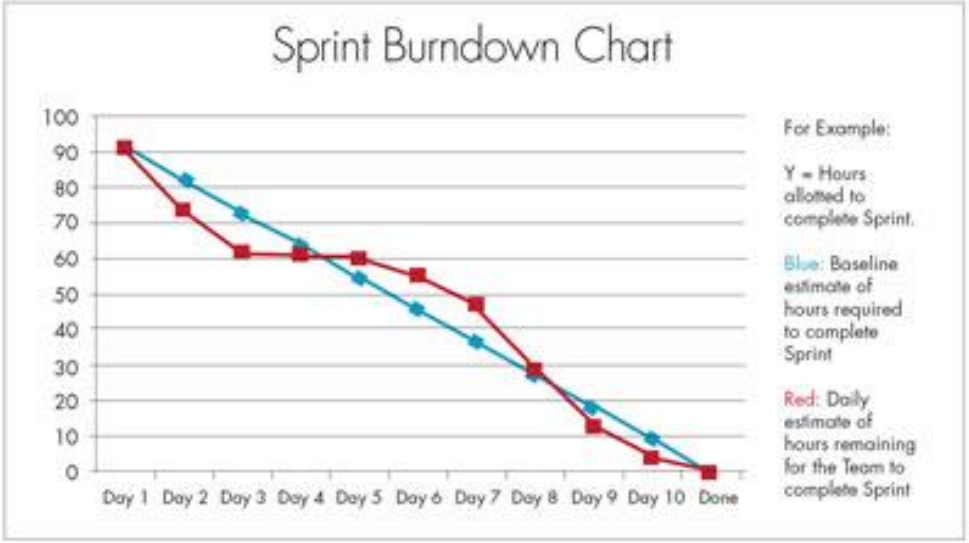
Scrum Board

- Contains all stories/tasks needed to complete the sprint goal
- Maintained by Team, monitored by Scrum Master
- At a minimum, contains:
  - Categories for Not Started, In Progress, Done
  - Other categories: On Hold, Removed, Ready to Test, Verify…
  - Copy of Sprint Burndown
- Serves as a manual “dashboard” for Team status and progress



Burndown Chart

- Visualizes completed vs. remaining works for each sprint, release, or the whole product
- Can be shown in story points unit or ideal days
- Shows actual work remaining, plus slope of ideal time remaining (estimated)
- Data gathered daily by team reporting status
- Maintained by Scrum Master



For Example:

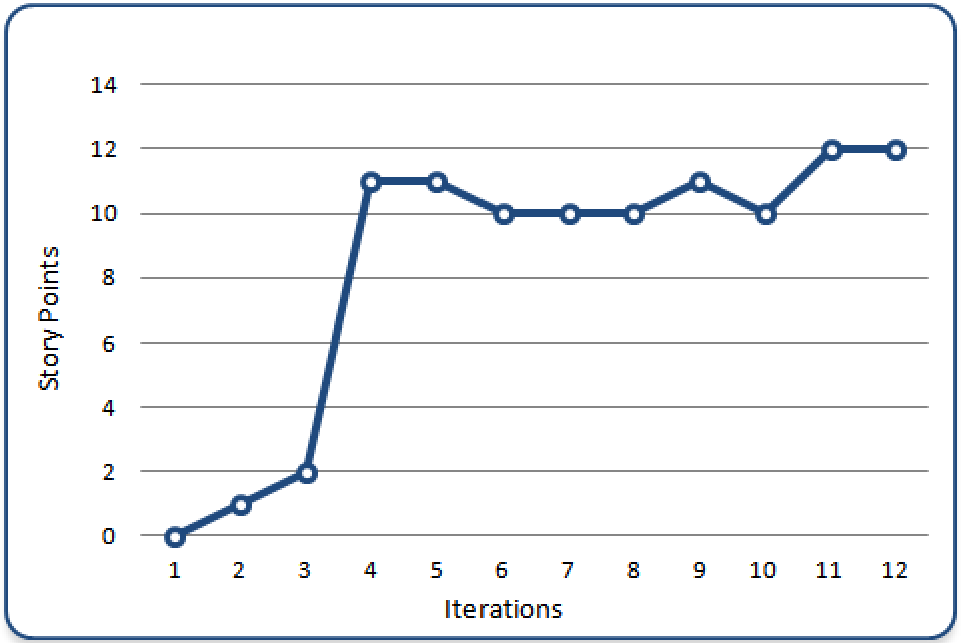
Y = Hours allotted to complete Sprint.

Blue: Baseline estimate of hours required to complete Sprint

Red: Daily estimate of hours remaining for the Team to complete Sprint

Capacity (Velocity)

- An indicator of how much work the team can do in a sprint



Q & A

Thank You

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