Build a Strong MERN Foundation

Planning Projects with Agile

A Day in the Life of a MERN Stack Developer

John has decided to choose Agile methodology for his MERN stack projects.

To complete his project, he must learn the Agile methodologies that comprise a series of frameworks and principles and focus on delivering quality and value to the client and building a great team that is flexible and cohesive.

To achieve the above, he will learn a few concepts in this lesson that can help him to find a solution for the scenario.

Learning Objectives

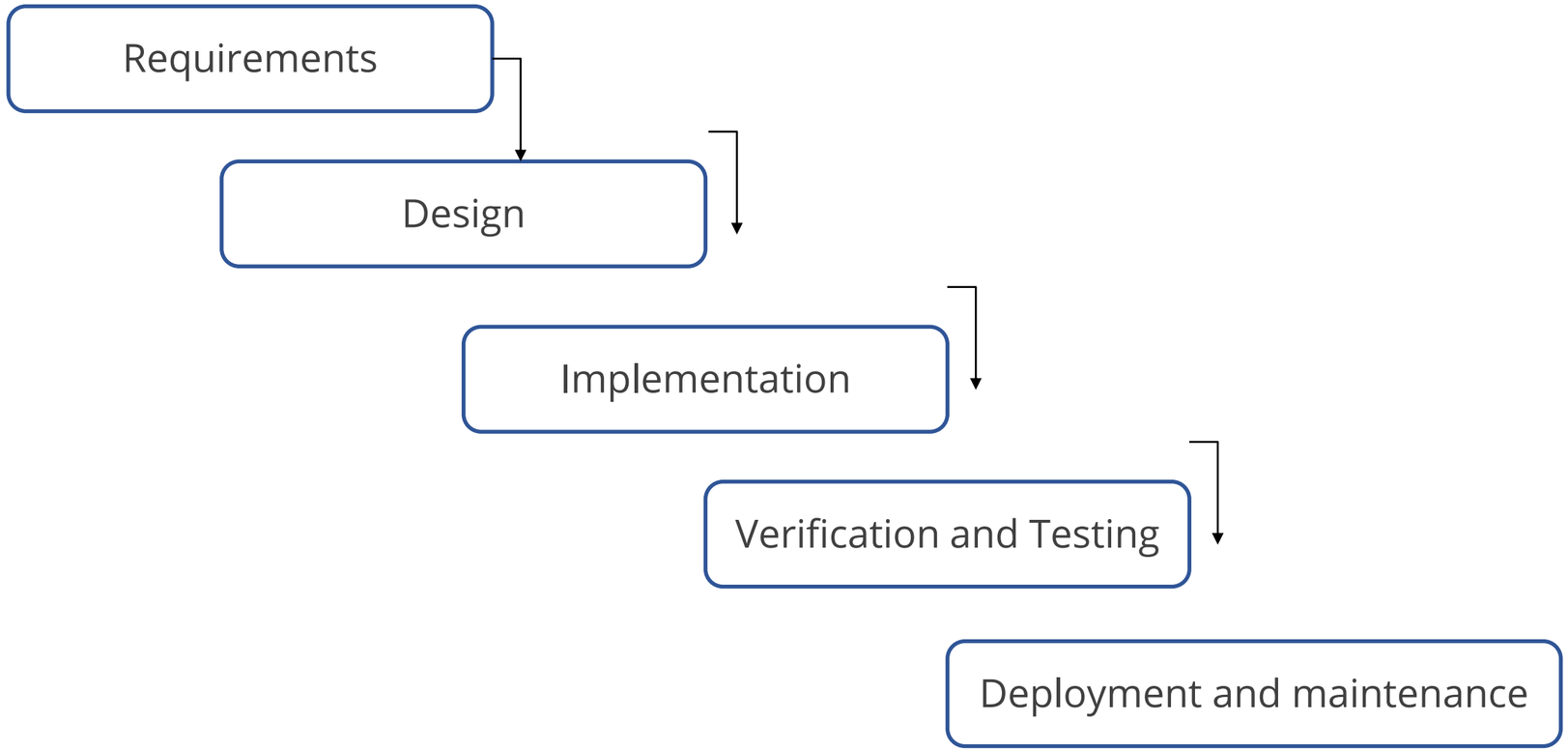
By the end of this lesson, you will be able to:

- Describe Agile methodology
- Comprehend Agile testing methodology
- Classify Waterfall and Agile approaches
- Describe Scrum roles, practices, and estimation

Introduction to Agile

Before Agile

The waterfall model divides project operations into sequential stages that are linearly passed down from one another, each of which is characterized by a specialization of duties and is dependent on the outputs of the previous phase.



Agile Methodology

Agile methodology is a practice that encourages continuous development and testing throughout the project's software development life cycle.

Both development and testing operations are concurrent under the Agile style of software testing.

Agile Methodology

The methodology process includes:

Source link: https://www.exaosis.com/Pages/SoftwareTestingQA/AgileTesting

Agile Testing Methodology

- Agile testing operates concurrently with development and incorporates testing tasks into the software development process.
- As a result, faults can be found earlier, and resources can be used more effectively.
- The goal of agile automation testing is to improve the effectiveness and efficiency of the software development process while maintaining quality, time, and resource consumption.

Agile Manifesto

According to the Agile Manifesto, there are four fundamental principles of Agile software development:

- People and their interactions over procedures and tools
- A functional program above thorough documentation
- A collaboration with the client over contract negotiations
- Responding to change over following a plan

Agile Methodology

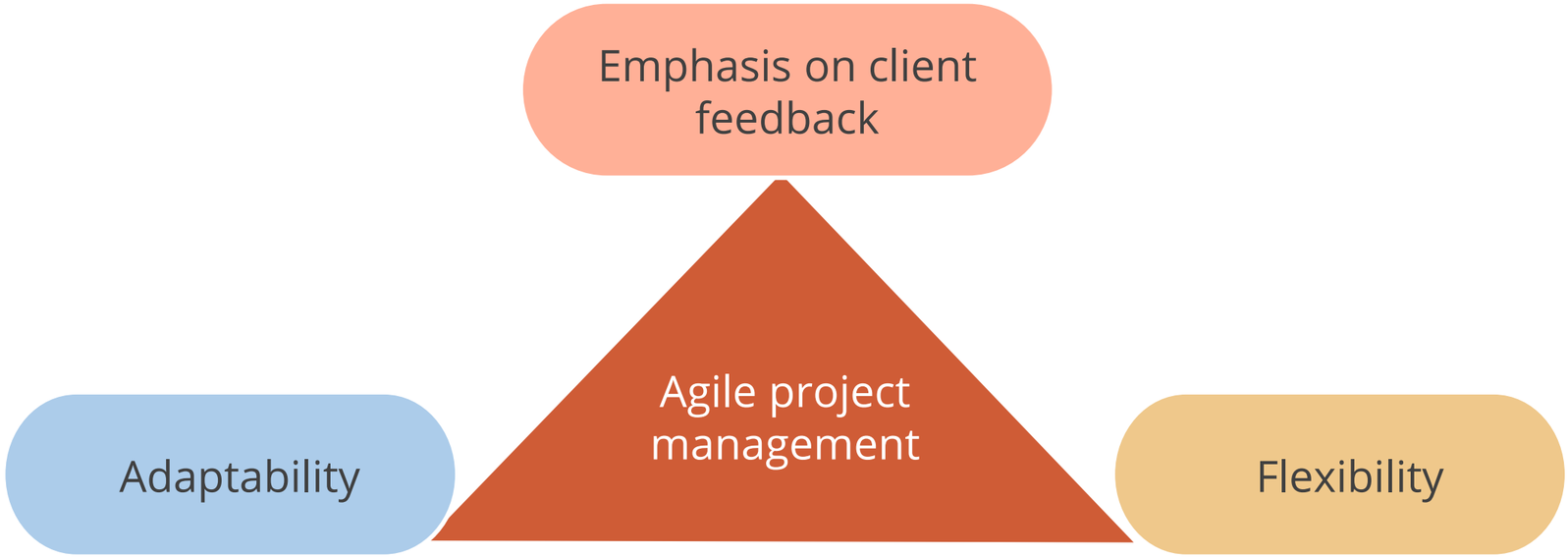
Agile project management is based on the idea that a project can be improved continually throughout its **life cycle** with changes being made **swiftly and appropriately.**

Agile project management techniques involve:

1. Active communication
2. Iterative development

Agile Methodology

Agile project management is among the most widely used methods because of its:



Differences Between Waterfall and Agile Approaches

Agile	Waterfall
The project development life cycle is split into sprints.	The software development process is divided into segments.
It uses an iterative and flexible process.	Waterfall is a rigid and sequential process.
Agile technique is well known for its adaptability.	Waterfall is a structured software development process; thus, it can be extremely rigid at times.

Differences Between Waterfall and Agile Approaches

Agile	Waterfall
Agile can be thought of as a collection of many projects.	The development of software is done as one project.
Agile is an adaptable strategy that allows for changes in project development requirements during the development as well.	Once the project development begins, there is no way to change the specifications.

Approaches of Agile

The different approaches of Agile are:

source: https://ifulltest.github.io/en/posts/different-agile-methodology/

Scrum

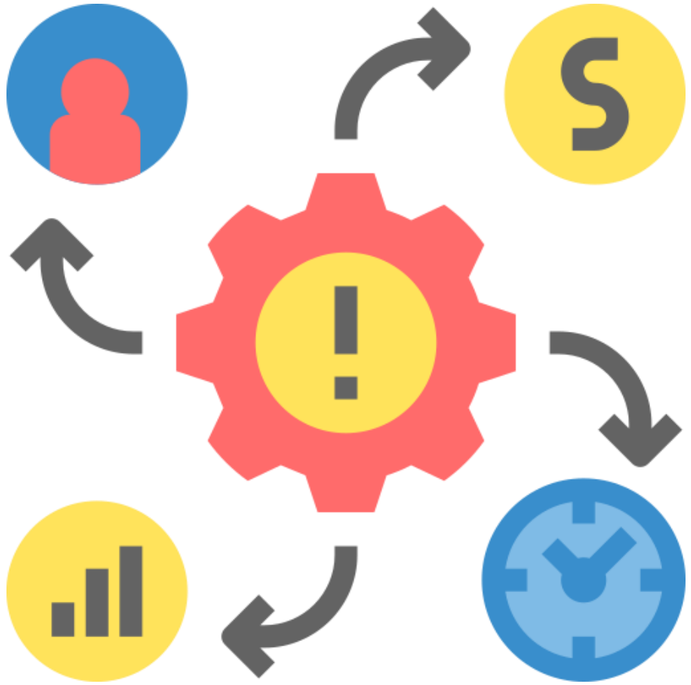
Scrum

Scrum is a methodology for addressing complex adaptive challenges while producing high-value solutions in a productive and creative manner.

Scrum is neither a process nor a technique for creating goods. It provides a framework within which multiple processes and techniques can be used.

Scrum

Scrum displays the relative effectiveness of user’s product management and development techniques, enabling organizations to improve.



Scrum Roles

The Scrum team consists of three roles :

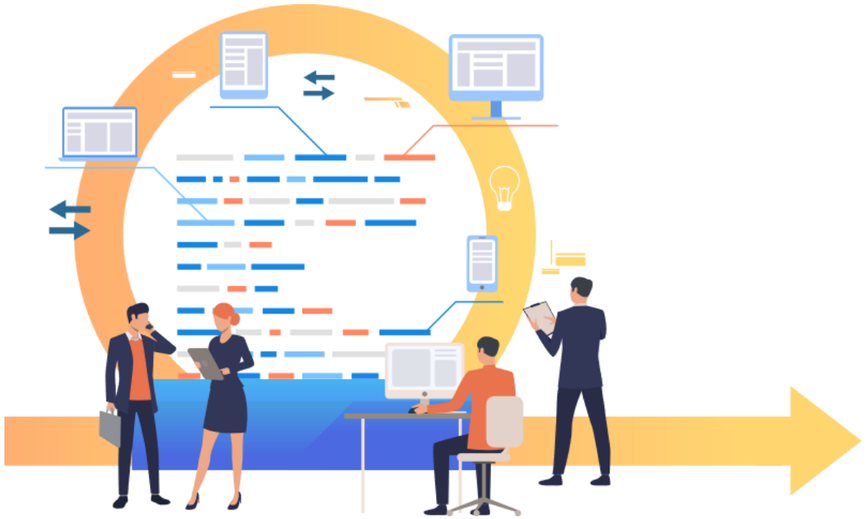
A Scrum Master

A Product Owner

The Team

Scrum Master

A Scrum Master ensures that a scrum team maintains scrum values that are achievable. This implies that they keep the team on track, schedule and lead meetings, and help resolve any roadblocks.



Scrum masters may potentially play a bigger role inside an organization, assisting in the implementation of scrum principles.

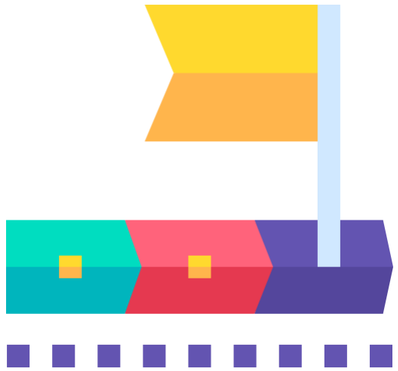
Scrum Master

A scrum master will have the following responsibilities:

1. Get rid of roadblocks to productivity
2. Organize sprint planning sessions
3. Conduct retrospective reviews
4. Conduct daily Scrum meetings
5. Communicate with stakeholders

Product Owner

A product owner ensures that the scrum team is aligned with the broader product goals to which they are contributing.



They are aware of the product's business requirements, such as client expectations and market trends.

Product Owner

The following are the duties that product owners have:

Increasing value of the work

Setting the team's product vision

Ensuring that the team is focused on meeting product requirements by communicating and assessing progress

Contacting the external stakeholders and communicating their needs to the team

The Team

The team is cross-functional and self-organizing. This implies that the team will include analysts, designers, developers, testers, and others as needed and appropriate for the project.

The Team

Cross-functional teams have all the skills needed to complete the task without relying on anyone outside the team, saving time and effort.

The team concept in scrum is designed to enhance flexibility, innovation, and productivity.

The Team

The team is tasked with the following:

Support sprint planning and target setting

Contribute knowledge to the programming, design, or improvement of products

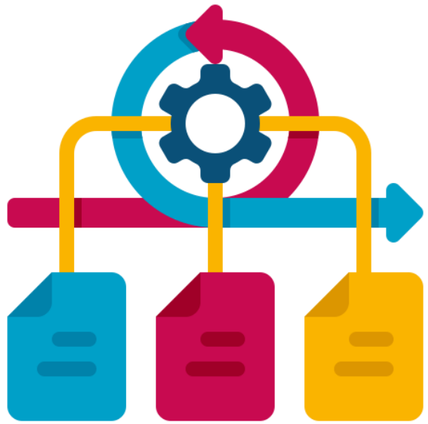
Determine the best development strategies using data

Include testing products and prototypes, as well as other methods

Scrum Practices

Scrum Practices

Whether it is a product owner, scrum master, or team member, there are some best practices that assist in increasing productivity and putting the team on the path to the completion of any projects.

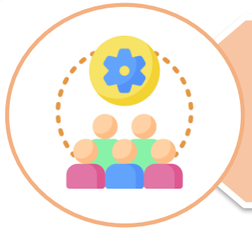


Scrum Practices

The practices include three ways:

- Teamwork and meeting
- Planning and estimation
- Backlog management

Teamwork and Meetings



Create a product backlog with the help of stakeholders

Include all stakeholders in scrum meetings

Avoid reorganizing teams

Work on developing the team

Scrum Estimation

Estimates and Planning

Keep stakeholders informed during the estimation process

Plan a new sprint only when the queue has enough items

Define the objectives

Schedule daily risk mitigation plan

Backlog management

Keep the sprint and product backlogs distinct

Use approaches for task prioritization

Work with a scrum board

Scrum Estimation

Scrum estimates the difficulty of each user story. A specific scale is employed to evaluate the degree of difficulty.

Project planning

Cooperation

Workflow Process

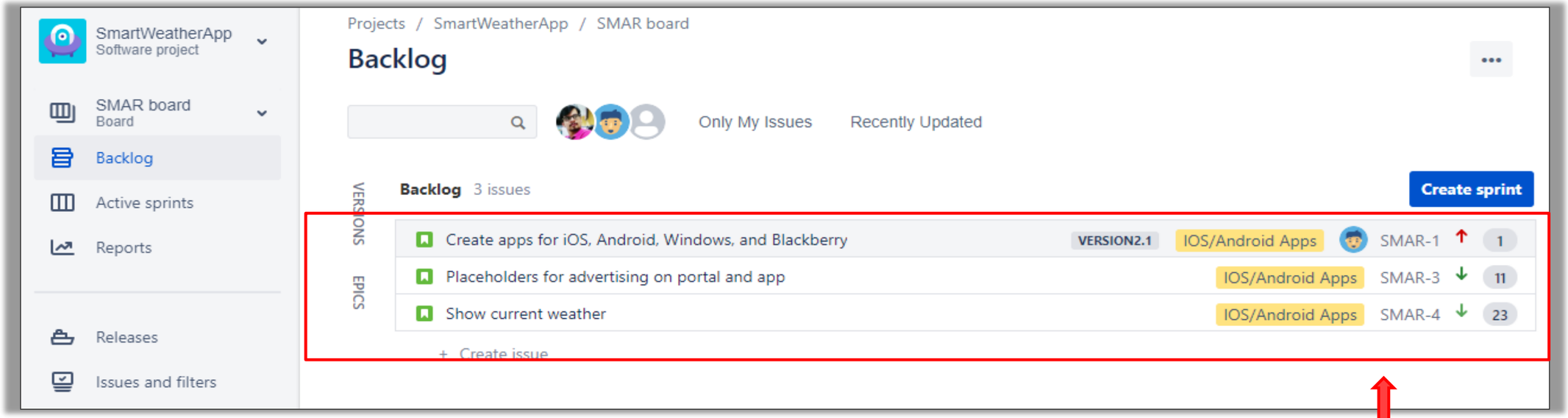
Scrum Estimation

In scrum estimation, a variety of scales are employed. Some examples are as follows:

1. Planning Poker
2. T-Shirt Sizes
3. Large or Uncertain or Small
4. The Bucket System
5. Dot Voting

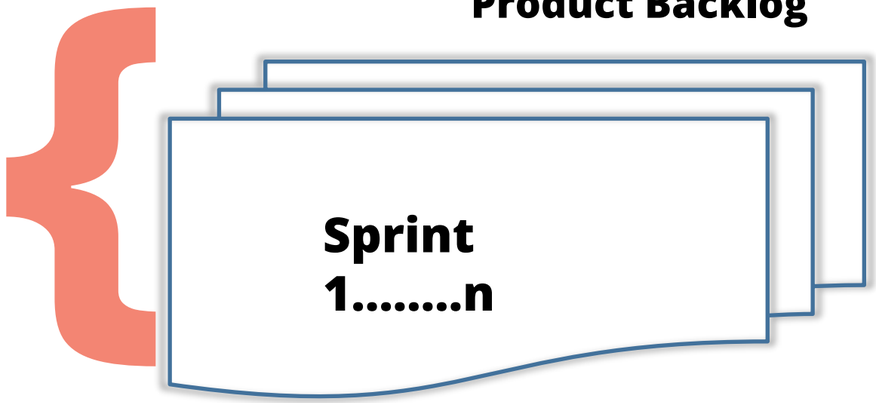
Product Backlog

Product backlog is an ordered list of tasks to be done in the product.



Product Backlog

- It is a single source of requirements to be added to a product.
- It is a living document.
- Tasks are prioritized and ordered accordingly.
- The product owner is responsible for the backlog.



User Stories

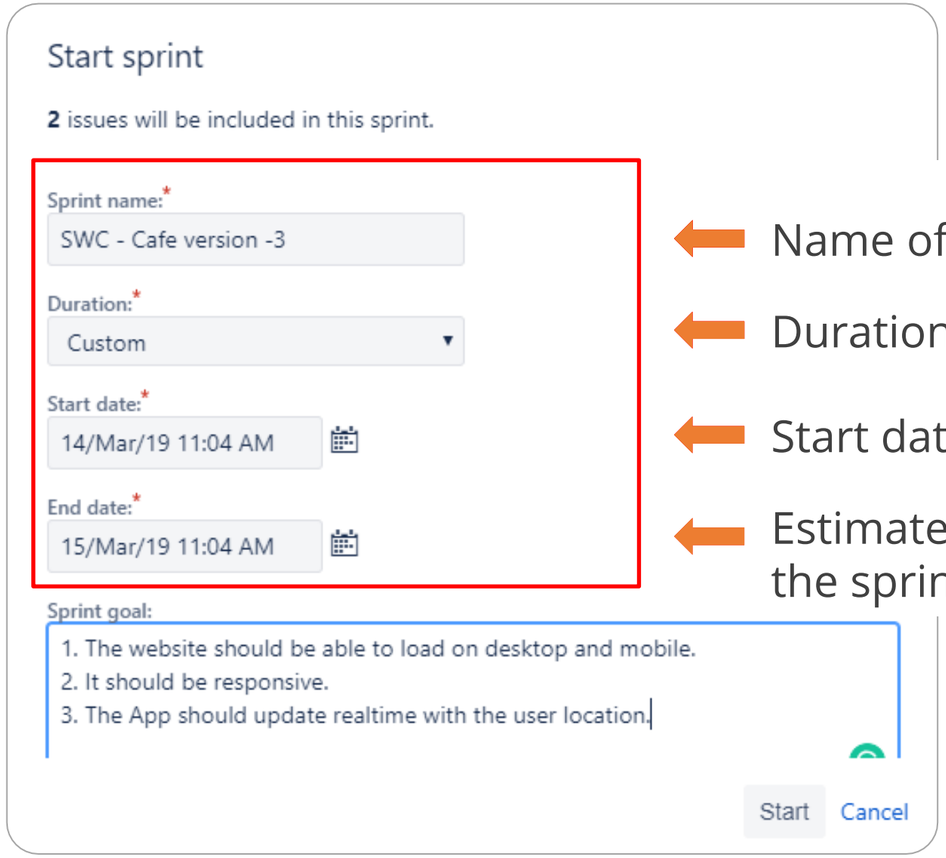
The purpose of a user story is to describe the task which will deliver a particular value to the customer.

User stories should include:

- An identifier and a name
- A description
- An estimated value
- An estimated effort
- Associated risks, dependencies, and acceptance tests

Sprint Backlog

The sprint backlog is a list of tasks identified by the Scrum team which must be completed within the estimated time, also known as a sprint. It is maintained by the development team.



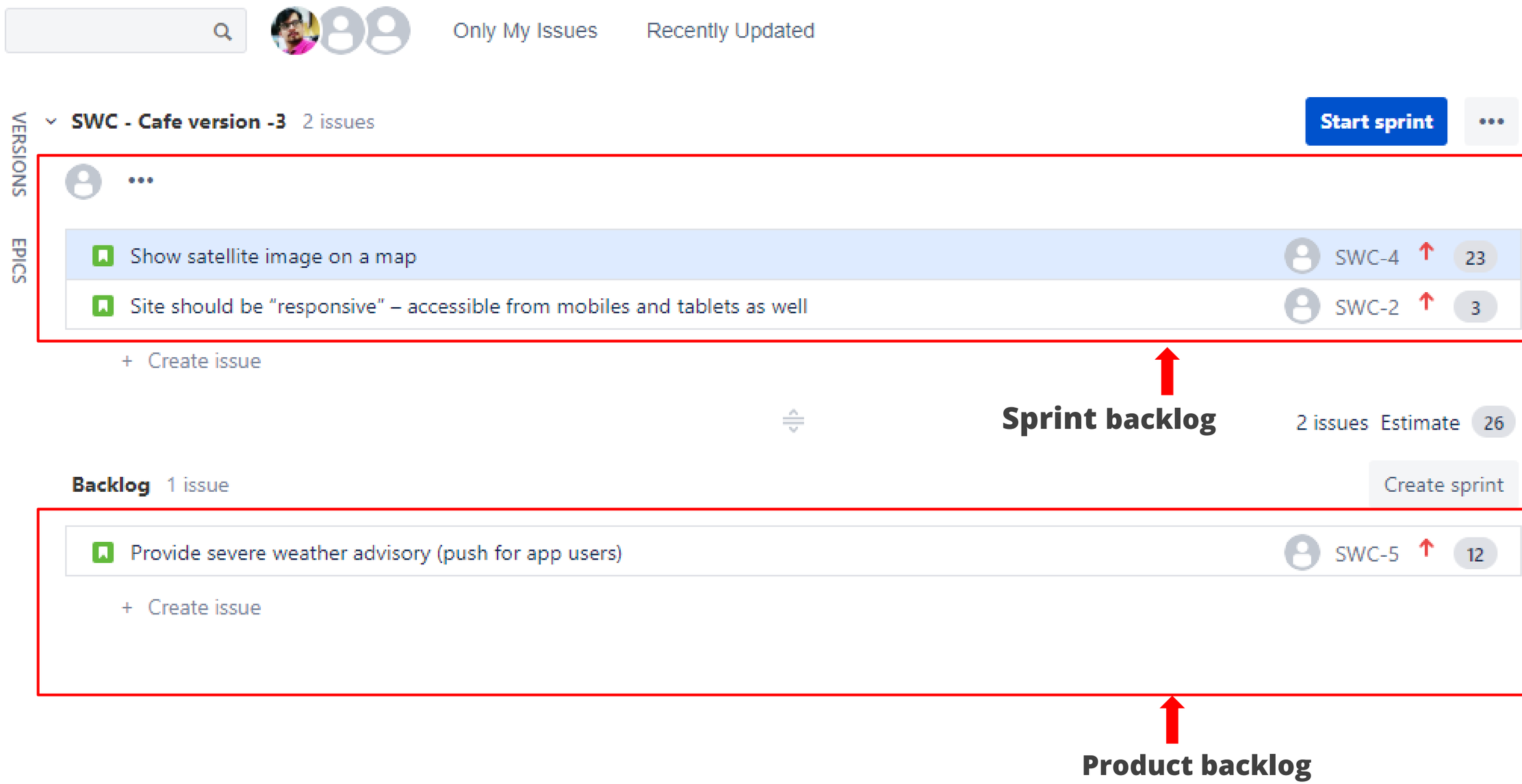
Name of the sprint

Duration of the sprint

Start date of the sprint

Estimated end date of the sprint

Sprint Backlog



Timeboxing

The goal of timeboxing is to define and limit the amount of time dedicated to a task.

Benefits:

Efficient development process

Less overheads

High velocity for teams

Definition of Done

A checklist of things that must be verified before an item or a story is marked as completed. It evolves as the Scrum team matures. It can be applied to:

- A user story
- A sprint
- A release
- A project

Scrum Planning

Planning Layers and Product Roadmaps

Strategy

Executives define and govern the execution of the strategic goals.

Portfolio

The product offerings are established considering the vision of the executives.

Product

Each Scrum team sets a product vision and outlines the roadmap for the projects.

Planning Layers and Product Roadmaps

Daily

The Scrum team meets every day for a status update and makes a plan-of-action for the next twenty-four hours.

Sprint

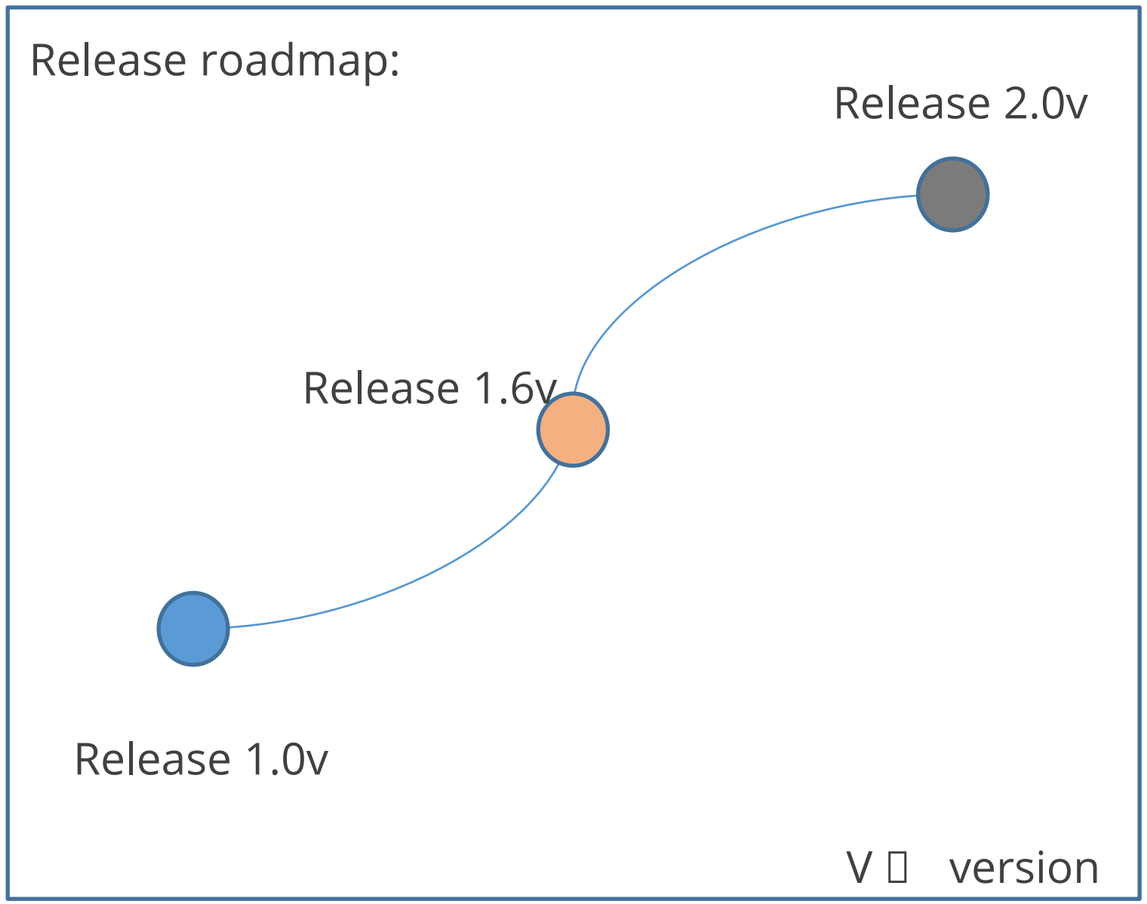
The Scrum team determines the user stories that can be completed within the sprint.

Release

The Scrum teams group product backlog items into smaller releases.

Releases Supporting Product Roadmaps

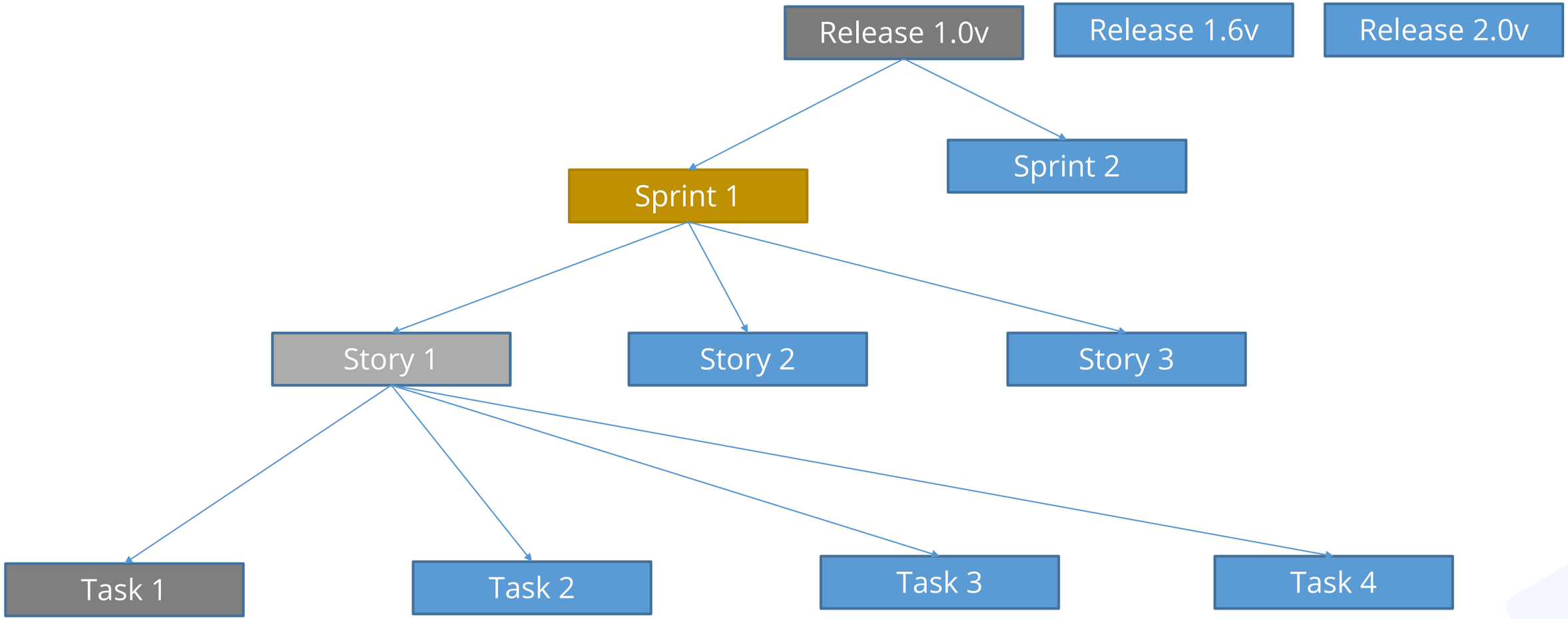
A prioritized backlog of product features must match the product roadmap.



Example:

- First version is available to all the registered members
- Second version is available to premium members only
- Third version is available to all the members

Releases Supporting Product Roadmaps



Sprint Planning and Objectives

Scrum projects can be accomplished through:

- Themes and epics
- Releases
- Sprints
- User stories

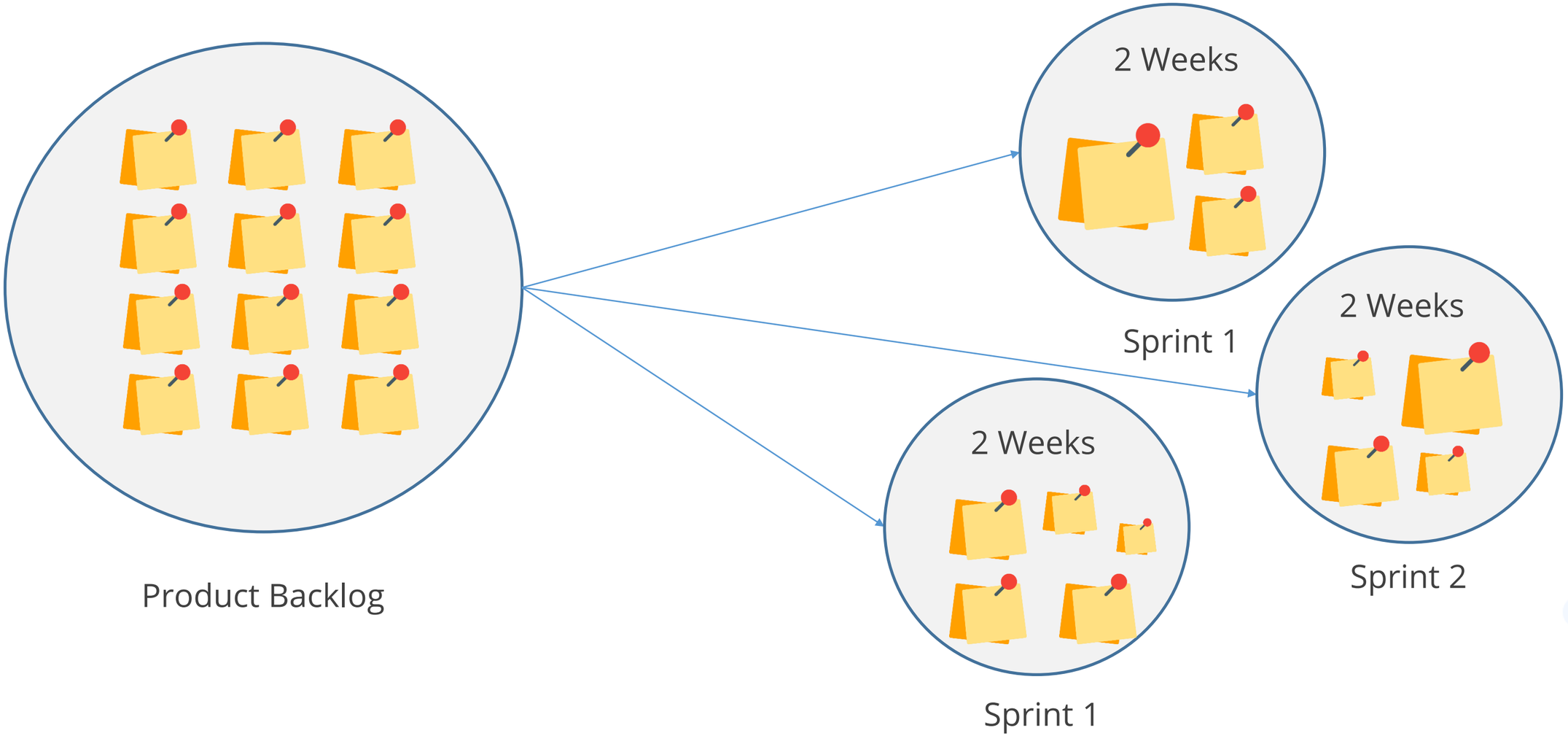
Sprint planning meeting is attended by the Scrum team which consists of:

- Scrum master
- Product owner
- Development team
- End users and executives (optional)

Small Projects	Large Projects
Three to six sprints	More than six sprints
Six to twelve weeks	More than six months
Single team	Multiple teams
Story level: • Release • Sprint	Story level: • Business area • Theme or Epic • Features

Sprint Planning and Objectives

Each sprint planning is scheduled to last two hours for each week of the sprint's duration.

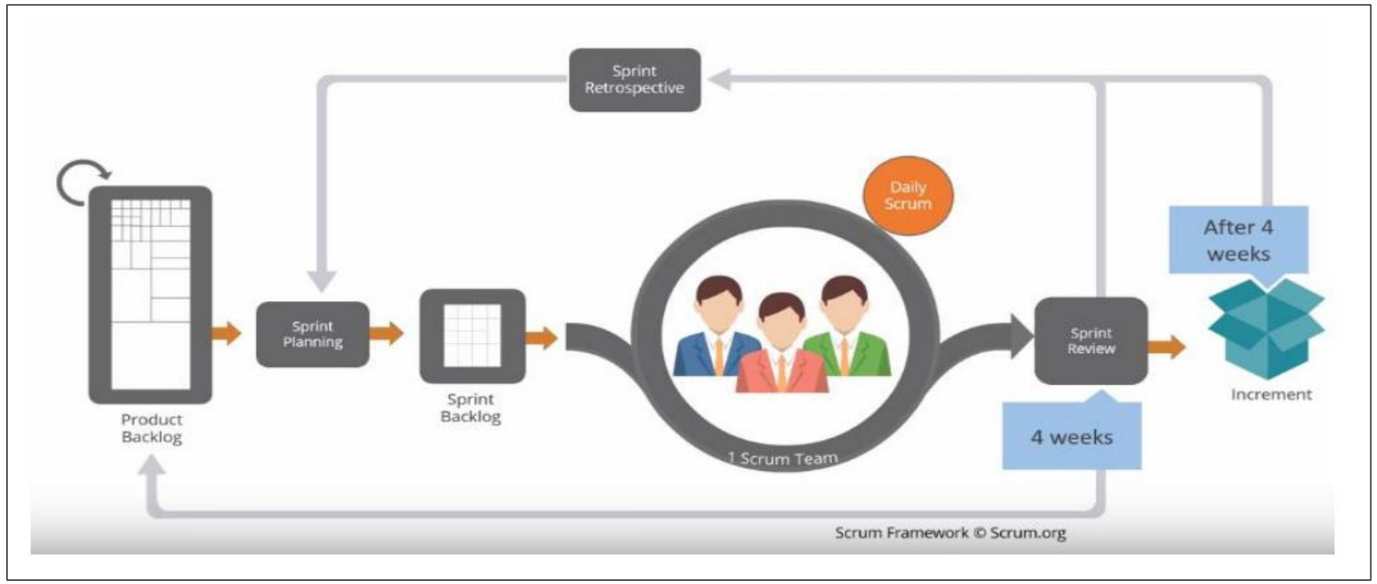


Sprint Planning Meeting

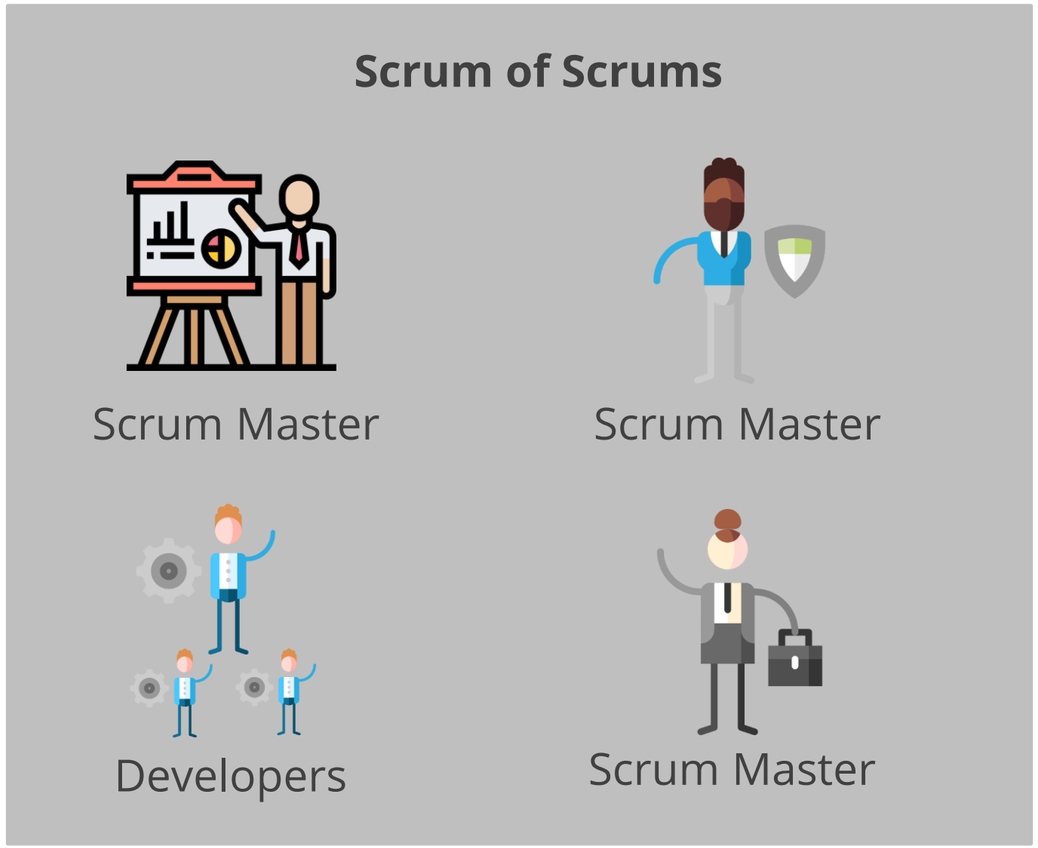
Inputs from stakeholders

Product owner prioritizes the product backlog

Release plan followed by sprint planning



Scrum of Scrums



- Scrum of Scrums is a scaling mechanism.
- The Scrum masters and developers need to deliver the Scrum of Scrums collaborative which is the Definition of Done. They meet and communicate to discuss:
  - The impediments
  - Progress
  - Cross-team coordination

Scrum Events

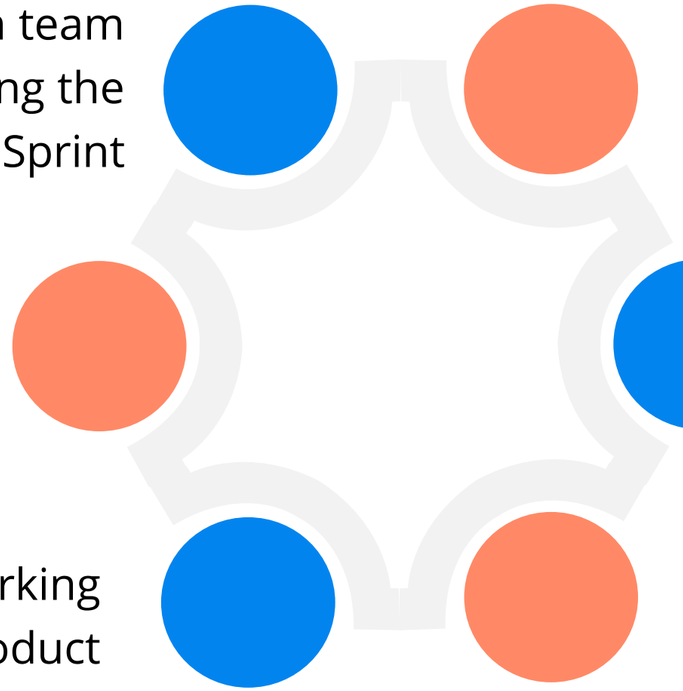
Sprint Review Meeting

The Scrum Master should start scheduling the sprint review meeting.

Sprint Review Meeting

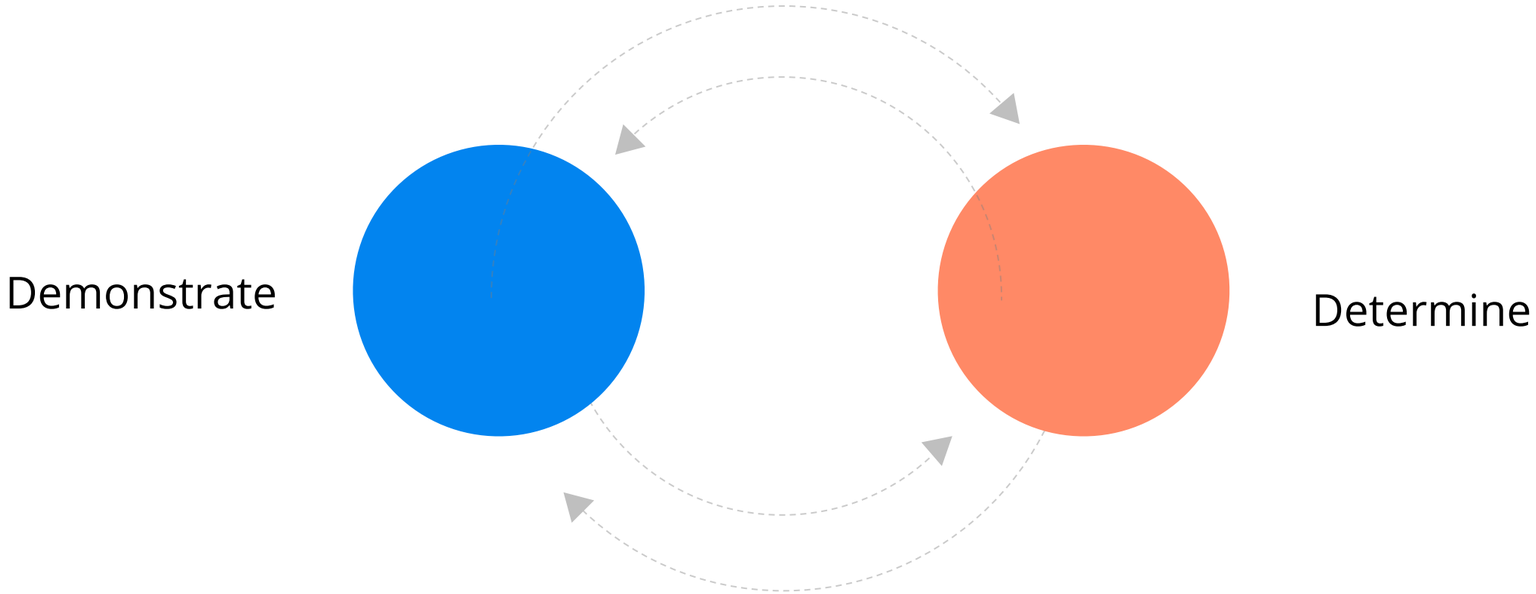
The Sprint review:

- is a meeting where the Scrum team assess what has been finished during the Sprint
- is not a review meeting
- is conducted once the Sprint is finished
- Involves sharing data
- Demonstrates the working product
- is held to get some input just as a guarantee



Sprint Review Meeting

It is usually held toward the end of every Sprint to ensure that it meets the objectives.



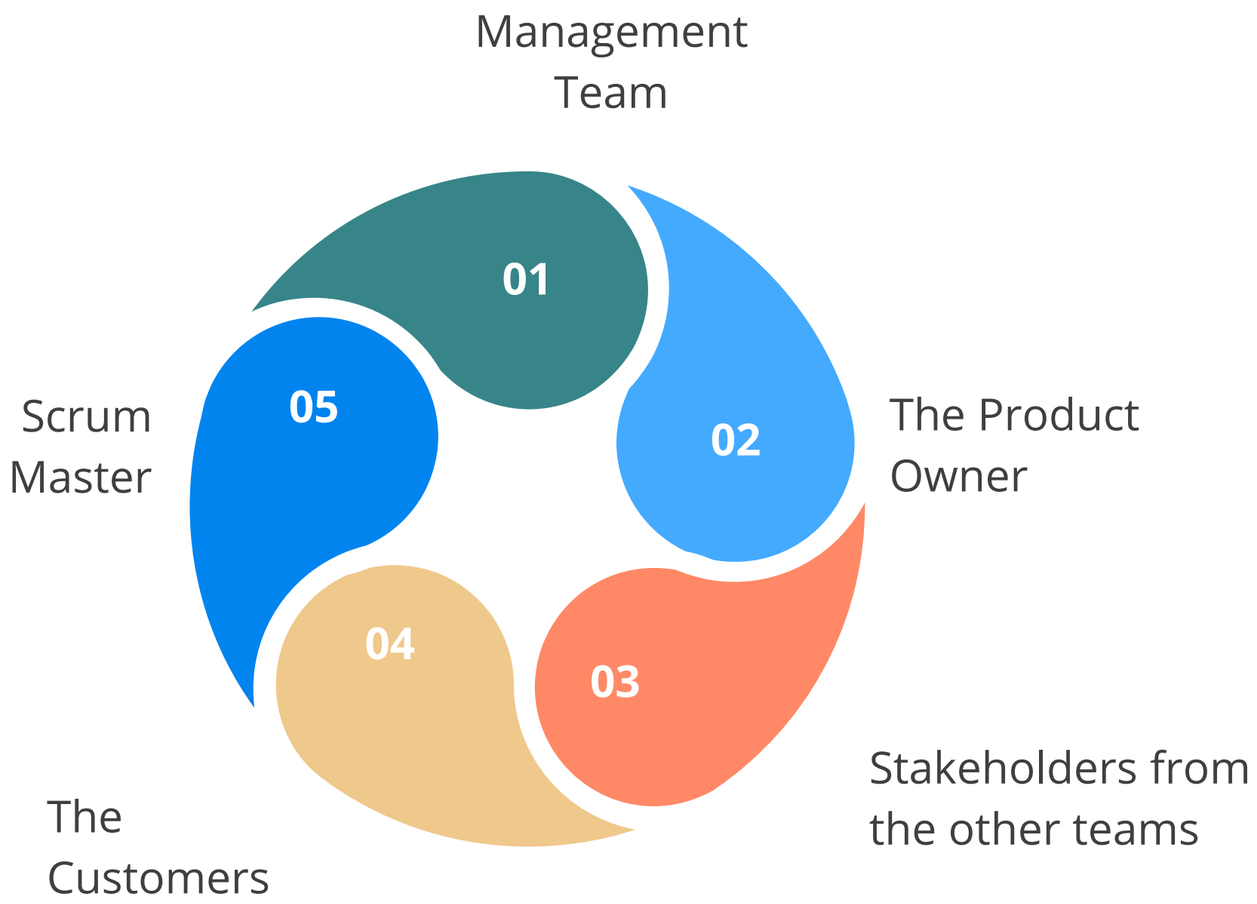
Sprint Review Meeting

The team shows the partners what has been achieved during the review by exhibiting the recently planned elements.

Projects like PowerPoint are forbidden, and a planning time is set.

Sprint Review Meeting

There is an interruption or significant diversion for the team.



Sprint Retrospective

A Scrum review can be planned for as long as sixty minutes, which is usually quite adequate.

The Scrum Master

The Product Owner

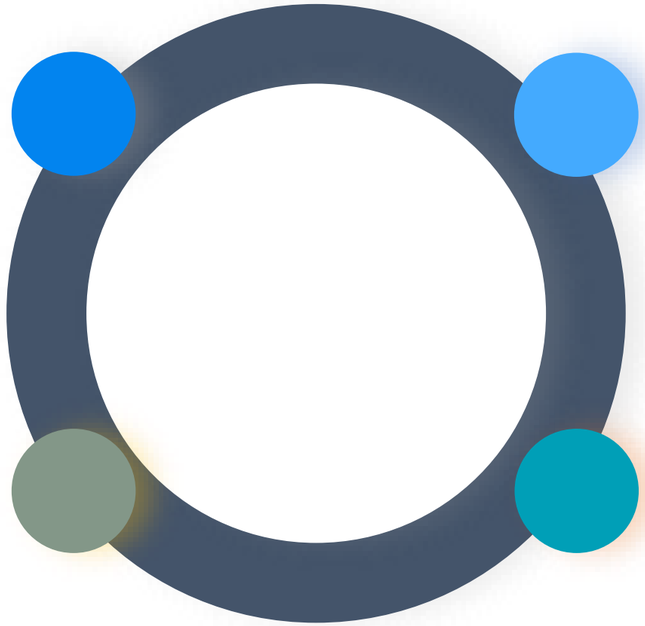
An intriguing issue might come up and the review could take essentially longer.

Sprint Retrospective

During the Sprint retrospective meets, the team answers questions like:

What are the bad aspects of the Sprint?

What lessons did they learn from the Sprint?



What are the good aspects of the Sprint?

What can be done better in the next Sprint?

Backlog Refinement

The product owner and the development team work together to guarantee that things on the product backlog are:

- Perceived the same way by being thoroughly involved
- Gauged for the intricacy and exertion of their execution
- Requested by their need as far as business worth and effort required

Backlog Refinement

Backlog Refinement is tied with the aspects of:

The work it will take to carry it out

What a product will and won't do

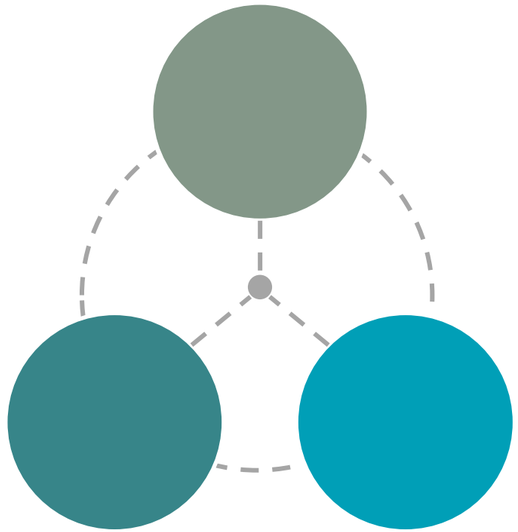
The request wherein the user will do that

Backlog Refinement

Advantages of Backlog refinement are as follows:

It keeps the product backlog zeroed in clean, and significant.

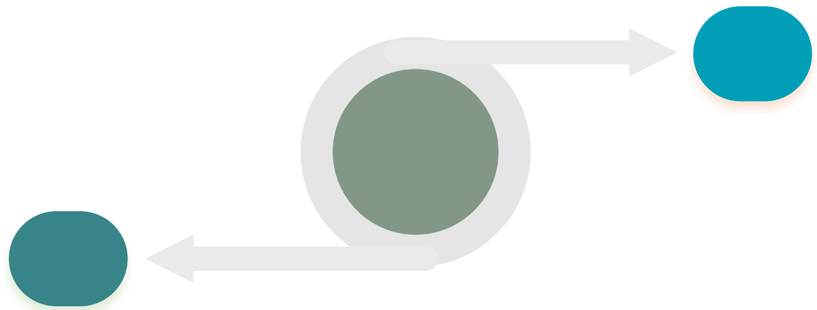
It works on the proficiency of the Sprint Planning meeting.



It helps to make a common perspective inside the Scrum team and the partners.

Backlog Refinement

Build-up refinement is bound to make a common perspective on the pros and cons of the product.



On a continuous premise

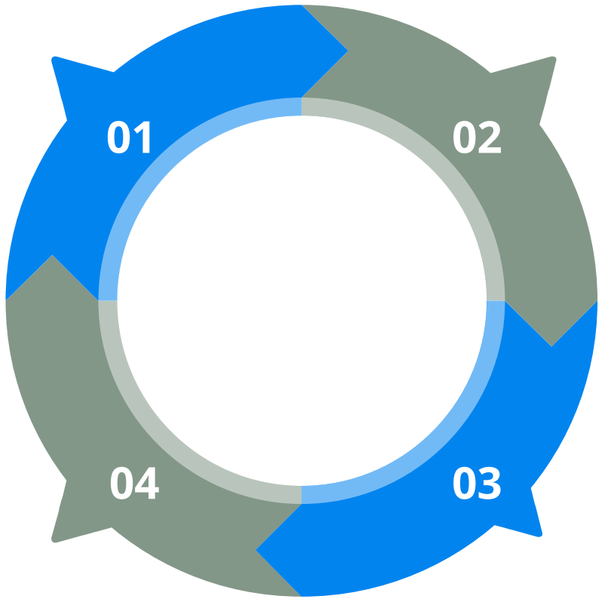
Through story mapping

Backlog Refinement

It includes developing lucidity and forestalling misconception by adding subtleties in an execution arrangement, such as:

Requirements

Edge cases



Models

Acknowledgement

Backlog Refinement

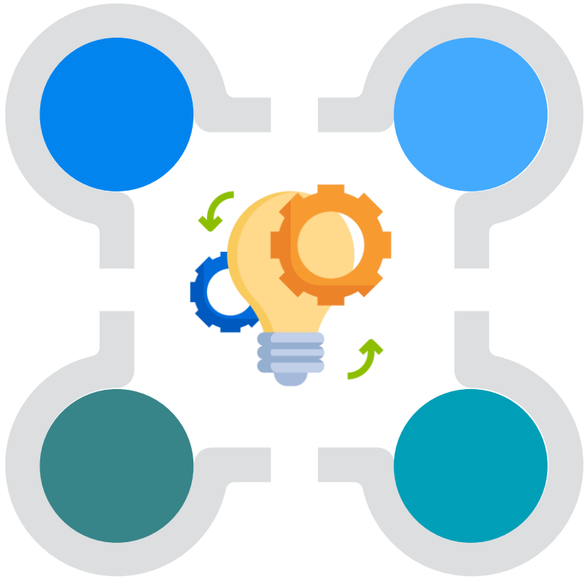
Modest things are more engaged and reasonable and are more straightforward to measure.

Backlog Refinement

Estimating things, including:

Focusing

Concentrating



Re-measuring

Recognizing

Key Takeaways

- Agile methodology is a practice that encourages development and testing throughout the project's development life cycle.
- Agile project management methodologies like Scrum give teams a framework for incremental delivery while emphasizing effective planning, teamwork, and continuous improvement.
- Scrum is a methodology for addressing complex adaptive challenges while producing high-value solutions in a productive and creative manner.
- Scrum estimates the difficulty of each user story. A specific scale is employed to evaluate the degree of difficulty.

Thank You