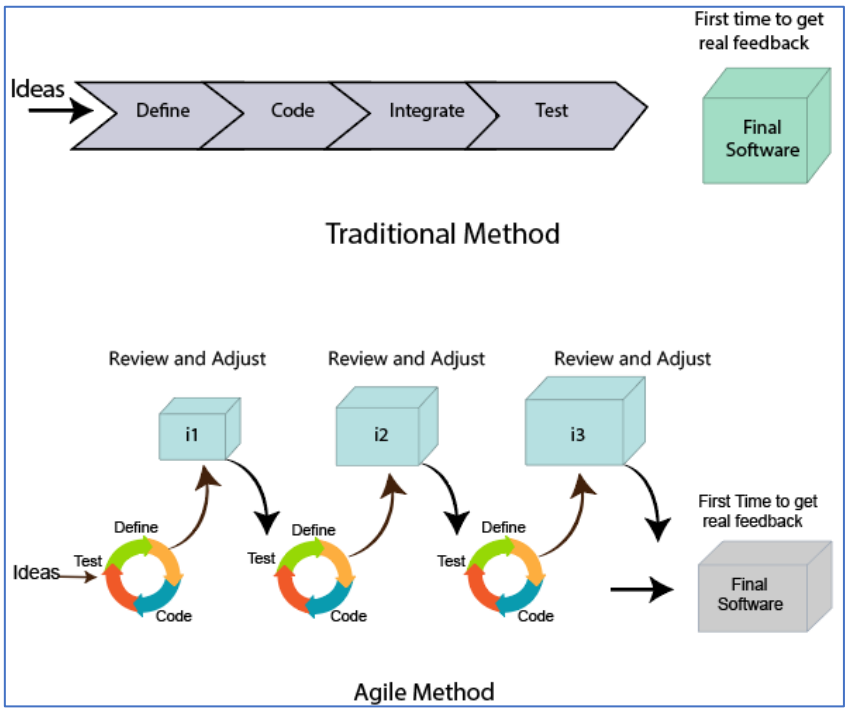
What is Agile Methodology?

An agile methodology is an iterative approach to software development. Each iteration of agile methodology takes a short time interval of 1 to 4 weeks. The agile development process is aligned to deliver the changing business requirement. It distributes the software with faster and fewer changes.

The single-phase software development takes 6 to 18 months. In single-phase development, all the requirement gathering and risks management factors are predicted initially.

The agile software development process frequently takes the feedback of workable product. The workable product is delivered within 1 to 4 weeks of iteration.



Roles in Agile

There are two different roles in a Agile methodology. These are the Scrum Master and Product Owner.

1. Scrum Master

The Scrum Master is a team leader and facility provider who helps the team member to follow agile practices, so that the team member meets their commitments and customers requirements. The scrum master plays the following responsibilities:

- They enable the close co-operation between all the roles and functions.

- They remove all the blocks which occur.
- They safeguard the team from any disturbances.
- They work with the organization to track the progress and processes of the company.
- They ensure that Agile Inspect & Adapt processes are leveraged correctly which includes
    - Planned meetings
    - Daily stand-ups
    - Demo
    - Review
    - Retrospective meetings, and
    - Facilitate team meetings and decision-making process.

2. Product Owner

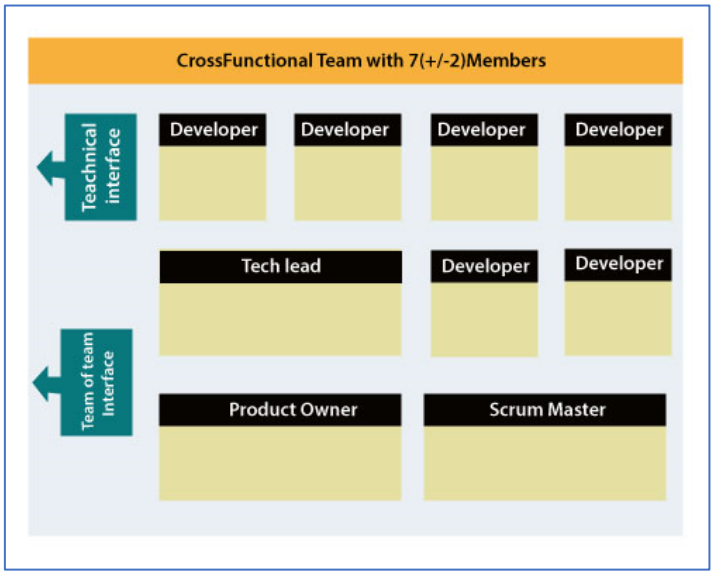
The Product Owner is one who runs the product from a business perspective. The Product Owner plays the following responsibilities:

- He defines the requirements and prioritizes their values.
- He sets the release date and contents.
- He takes an active role in iteration and releasing planning meetings.
- He ensures that the team is working on the most valued requirement.
- He represents the voice of the customer.
- He accepts the user stories that meet the definition of done and defined acceptance criteria.

Cross-functional team

Every agile team contains self-sufficient team with 5 to 9 team members. The agile team contains 3 to 4 developers, 1 tester, 1 technical lead, 1 scrum master and 1 product owner.

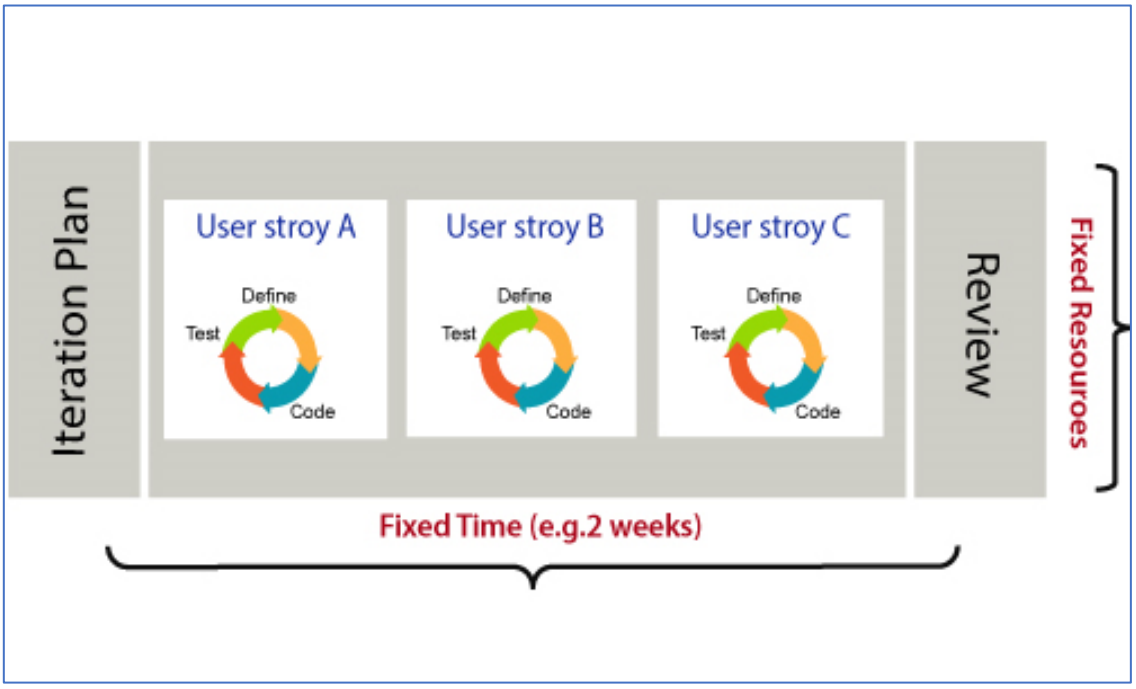
The Scrum master and Product owner are considered as a part of Team Interface, on the other hand remaining members are the part of Technical Interface.



How an Agile Team plan their work?

An Agile methodology is not a specific set of ceremonies or specific development techniques. Rather, it is a group of methodologies that demonstrate a commitment to tight feedback cycles and continuous improvement. An Agile team works in iterations to deliver the customer requirement, and each iteration takes 10 to 15 days. However, the original Agile Manifesto didn't set the time period of two-week iterations or an ideal team size.

Each user requirement is a planned based and their backlog prioritization and size. The team decides, how much scope they have and how many hours available with each team to perform their planed task.



What is a user requirement?

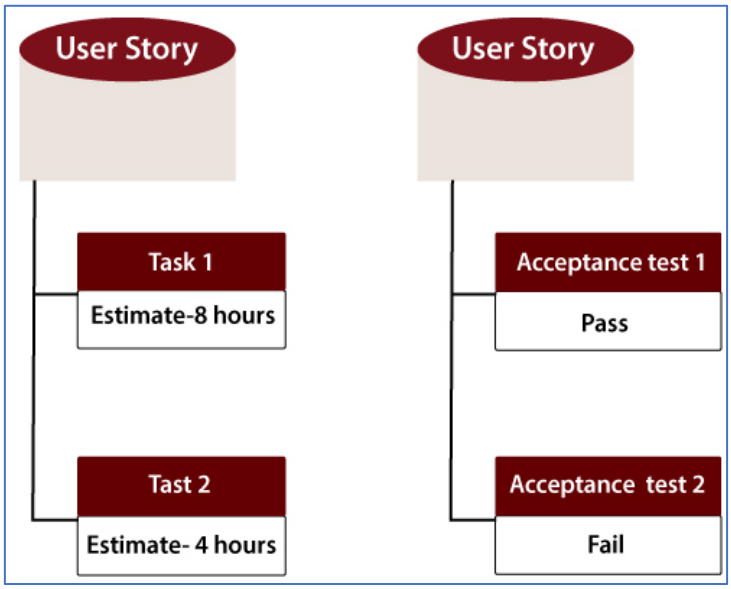
The user requirement defines the requirements of the user in terms of functionalities. There may be of two types of functionalities.

- As a <User Role> I want <Functionality> so that <Business Value>
- In order to <Business value> as a <User Role> I want <Functionality>.

During software release planning, a rough estimate is given to a user requirement using relative scale points. During iteration planning, the requirement is broken down into tasks.

Relation between User requirement and Task

- User requirement talks about what is to be done. It defines the needs of users.
- Task talks about how it is to be done. It defines how functionality is implemented.
- User requirements are implemented by tasks. Every requirement is gathering as the task.
- User requirement is divided into different tasks when it is planned in current iteration.
- User tasks are estimated in hours based, generally it is between 2 to 12 hours.
- Requirements are validated using acceptance test.



When the requirement is completed

The Agile team decides the meaning of task done. There may be different criteria for it:

- When the entire task (development, testing) is completed.
- When all the acceptance tests are running and are passed.

- When no defects found.
- Product owner has accepted the requirement.
- When the software product is delivered to the end user.

What is Software Acceptance Criteria?

Acceptance Criteria is defined as the functionality, behavior, and performance required by a product owner. It defines what is to be done so that the developer knows when a user requirement is complete.

What is scrum?

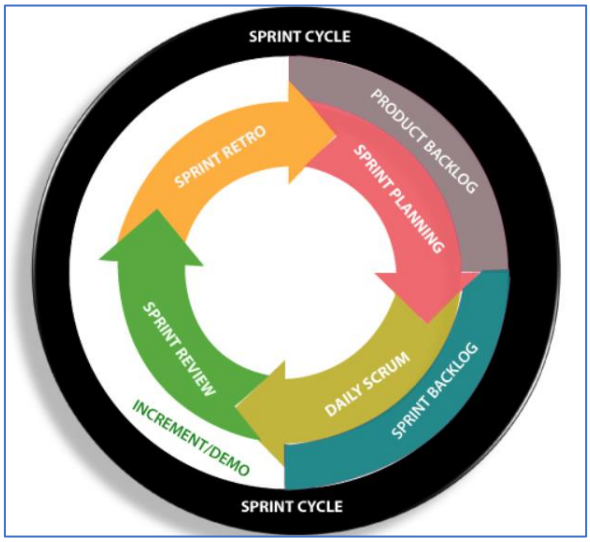
Scrum is a framework that helps agile teams to work together. Using it, the team members can deliver and sustain the complex product. It encourages the team to learn through practice, self-organize while working on the problem. Scum is a work done through the framework and continuously shipping values to customers.

It is the most frequent software that is used by the development team. Its principle and lessons can be applied to all kinds of teamwork. Its policy and experiences is a reason of popularity of Scrum framework. The Scrum describes a set of tools, meetings, and roles that help the teams structure. It also manages the work done by the team

Scrum and agile are not the same thing because Scrum focused on continuous improvement, which is a core foundation of agile. Scrum framework focuses on ongoing getting work done.

What are sprints?

With scrum, a product is built in a series of repetition called **sprints**. It breaks down big complex projects into bite-size pieces. It makes projects more manageable, allows teams to ship high quality, work faster, and more frequently. The sprints give them more flexibility to adapt to the changes.
Sprints are a short, time-boxed period for Scrum team that works to complete a set amount of work. Sprints are the core component of Scrum and agile methodology. The right sprints will help our agile team to ship better software.



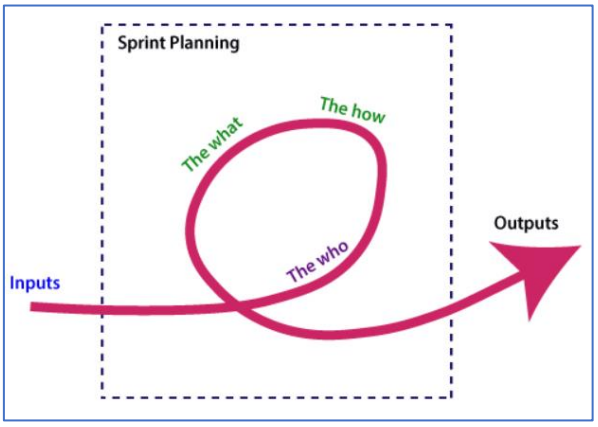
What is sprint plan?

Sprint plan is an action in Scrum that kicks off the sprint. The primary purpose of sprint plan is to define what can deliver in the sprint. It also focuses on how the work will be achieved. It is done in combination with the whole Scrum team members.

The sprint is a set of the period where all the work to be done. Before we start the development, we have to set up the sprint. We need to describe how long time is required to achieve the sprint goal and where we are going to start.

Factors affecting Sprint planning

- **The What:** The product owner describes the goal of the sprint and the backlog items which contribute to achieve that goal.
- **The How:** Agile development team plans its necessary work on how to achieve and deliver the sprint goal.
- **The Who:** The product owner defines the goal based on the value that the customers seek. And the developer needs to understand how they can or cannot deliver that goal.
- **The Inputs:** The product backlog provides the list of input stuff that could potentially be part of the current sprint. The team looks over the existing work done in incremental ways.
- **The Outputs:** The critical outcome of sprint planning is to meet described team goal. The product set the goal of sprint and how they will start working towards the goal.



What is the product backlog?

A product backlog is a registered list of work for the development team. It is driven from the roadmap and its requirements. The essential task is represented at the top of the product backlog so that the team member knows what to deliver first. The developer team doesn't work through the backlog from the product owner's side and product owner doesn't push the work to the developer team. The developer team pulls work from the product backlog.

The factors that influence a product owner's prioritization

- Priority of customer
- Importance of getting feedback
- Relative implementation difficulty
- Symbiotic relationships between work items

What is Kanban?

Kanban is a popular framework which is used to implement agile software development. It takes real time communication of capacity and complete transparency of work. The work items are represented in a kanban board visually, allowing team members to see the state of every piece of work at any time.

Boards

The kanban board is the agile project management tool that designed the necessary visualized work, limited work-in-progress, and maximizes flow (or efficiency). It uses cards, columns, and provides continuous improvement to help technology and service teams who commit the right amount of work and get it done.

Kanban	Scrum

Kanban is an ongoing process.	Scrum sprints have a start and stop dates
Kanban has no formal roles.	Role is clearly defined of each team in the scrum (product owner, development team, and scrum master). Both teams are self-organized.
A kanban board is used throughout the lifecycle of a project	Scrum board is cleared and recycled after each sprint.
This board is more flexible with regards to tasks and timing. Its task can be reprioritized, reassigned, or updated as needed.	This board has the number of tasks and a strict deadline