AGILE MODEL

SCRUM

What is agile?

- Agile is a process that allows a team to more efficiently manage a project by breaking it down into several stages, each of which allows for consistent collaboration with stakeholders to promote steady improvements at every stage.

- In software development, agile practices involve discovering requirements and developing solutions through the collaborative effort of self-organizing and cross-functional teams and their customer/end user.

Some of the real life examples of agile model:

- Restaurant orders:
  - Preparation of some of the food before opening the shop (sprint planning)
  - continuous delivery of orders (adhoc stories)
  - number of successful orders (velocity)
- cricket team:
  - Run rate (velocity)
  - team (scrum team self sufficient)
  - over (sprint length)
  - captain/ coach (scrum master)

What are the 12 principles of agile?

- Customer satisfaction
- Early and continuous delivery
- Embrace change
- Frequent delivery
- Collaboration of businesses and developers
- Motivated individuals
- Face-to-face conversation
- Functional products
- Technical excellence
- Simplicity
- Self-organized teams
- Regulation, reflection and adjustment

Agile methodology

- Agile methodology is a type of project management process, mainly used for software development, where demands and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and their customers.

- Agile software development refers to a group of software development methodologies based on iterative development, where requirements and solutions evolve through collaboration between self-organizing cross-functional teams. Agile methods or Agile processes generally promote a disciplined project management process that encourages frequent inspection and adaptation, a leadership philosophy that encourages teamwork, self-organization and accountability, a set of engineering best practices intended to allow for rapid delivery of high-quality software, and a business approach that aligns development with customer needs and company goals.

Examples of Agile Methodology

- Agile **Scrum Methodology**.
- **Lean Software Development.**
- **Kanban.**
- **Extreme Programming (XP)**
- **Crystal.**
- **Dynamic Systems Development Method (DSDM)**
- **Feature Driven Development** (FDD)

Scrum

- The software development term **scrum** was first used in a 1986 paper titled "The New Product Development Game". The term is borrowed from rugby, where a **scrum** is a formation of players. The term **scrum** was chosen by the paper's authors because it emphasizes teamwork.
- Scrum is a subset of Agile. It is a lightweight process framework for agile development, and the most widely-used one.
- **Scrum** is an **agile** project management **methodology** or framework used primarily for **software** development projects with the goal of delivering new **software** capability every 2-4 weeks.

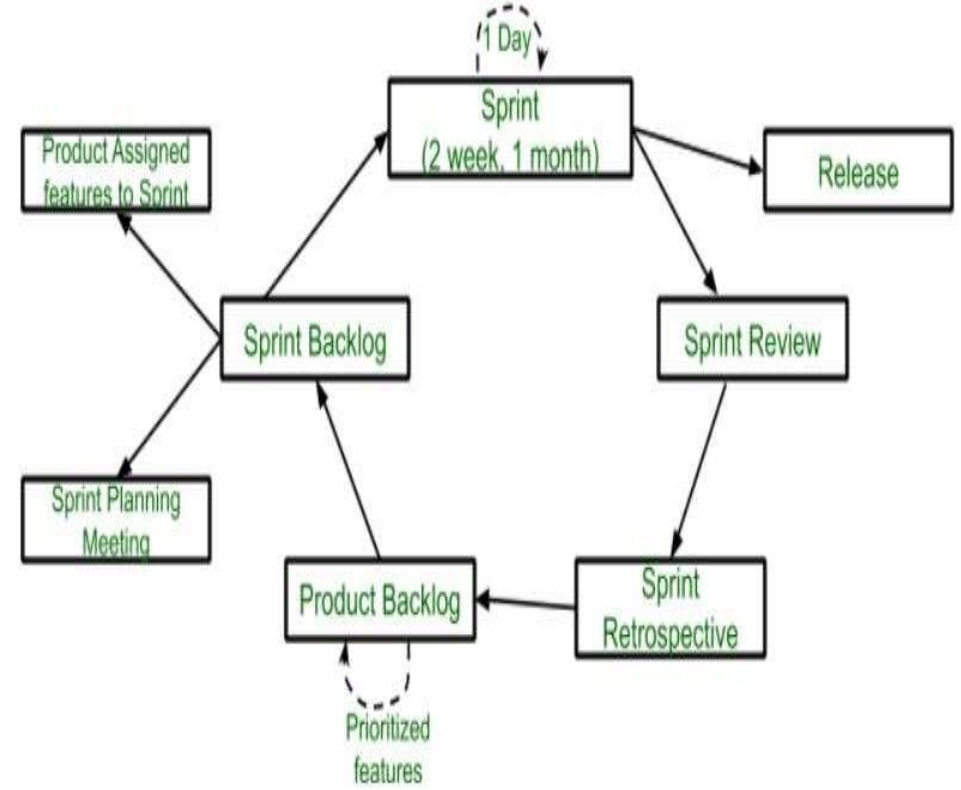
- Scrum is an agile framework for developing, delivering, and sustaining complex products, with an initial emphasis on software development, although it has been used in other fields including research, sales, marketing and advanced technologies.

Agile scrum methodology

- Agile scrum methodology is a project management system that relies on incremental development.
- Each iteration consists of two- to four-week sprints, where each sprint's goal is to build the most important features first and come out with a potentially deliverable product.
- More features are built into the product in subsequent sprints and are adjusted based on stakeholder and customer feedback between sprints.
- Whereas other project management methods emphasize building an entire product in one iteration from start to finish, agile scrum methodology focuses on delivering several iterations of a product to provide stakeholders with the highest business value in the least amount of time.
- Scrum methodology benefits: 1. Encourages products to be built faster, since each set of goals must be completed within each sprint's time frame. 2. It also requires frequent planning and goal setting, which helps the scrum team focus on the current sprint's objectives and increase productivity.

Lifecycle of Scrum:

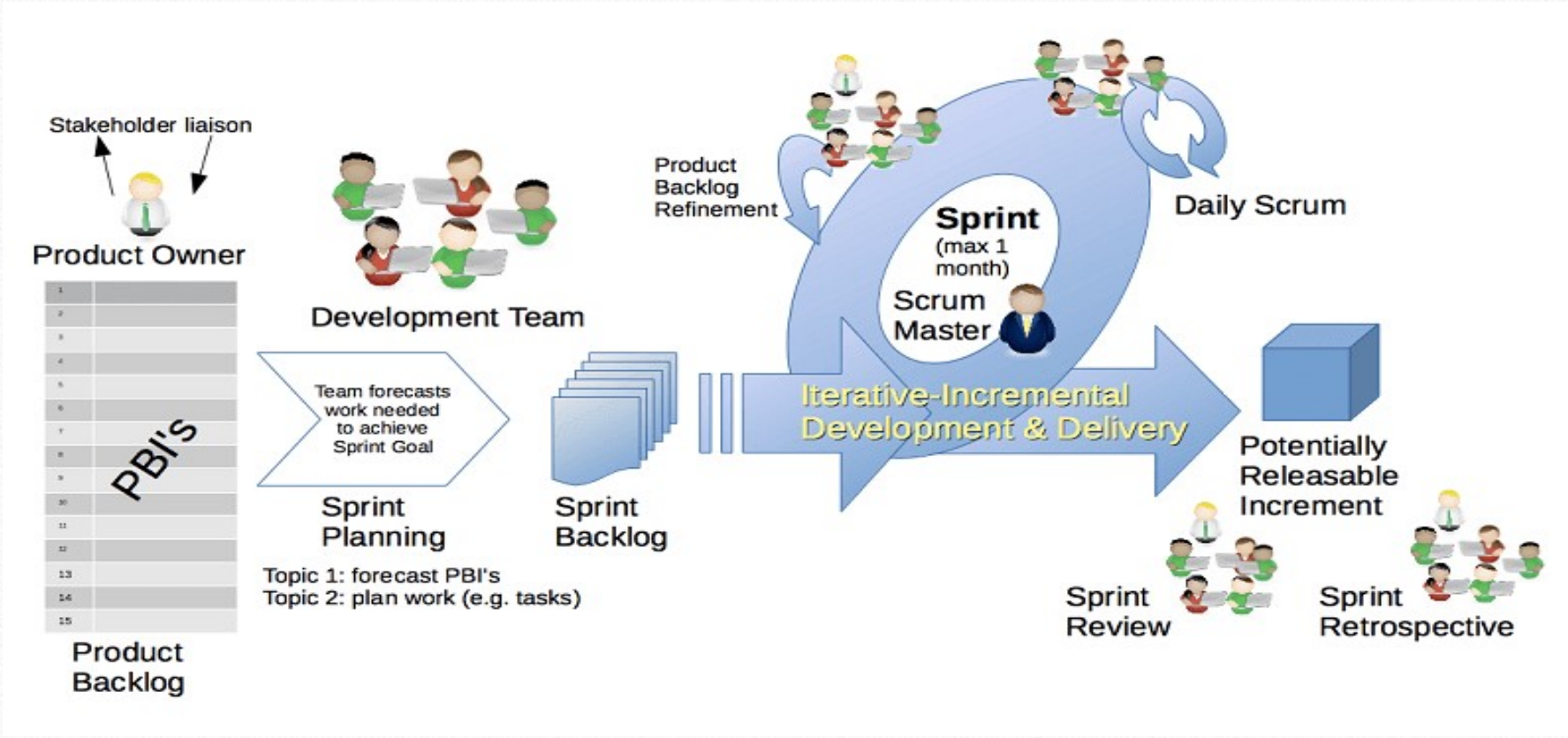
- **Sprint:**
  A Sprint is a time-box of one month or less. A new Sprint starts immediately after the completion of the previous Sprint.
- **Release:**
  When the product is completed then it goes to the Release stage.
- **Sprint Review:**
  If the product still have some non-achievable features then it will be checked in this stage and then the product is passed to the Sprint Retrospective stage.
- **Sprint Retrospective:**
  In this stage quality or status of the product is checked.
- **Product Backlog:**
  According to the prioritize features the product is organized.
- **Sprint Backlog:**
  Sprint Backlog is divided into two parts Product assigned features to sprint and Sprint planning meeting.



How Scrum Works

- In a rugby scrum, all the players literally put their heads together. When it comes to software development, a scrum can be characterized by developers putting their heads together to address complex problems.
- Scrum software development starts with a wish list of features —a product backlog. The team meets to discuss:
  - The backlog.
  - What still needs to be completed.
  - How long it will take.
- Scrum relies on an agile software development concept called sprints:
  - Sprints are periods of time when software development is actually done.
  - A sprint usually lasts from one week to one month to complete an item from the backlog.
  - The goal of each sprint is to create a saleable product.
  - Each sprint ends with a sprint review.
  - Then the team chooses another piece of backlog to develop — which starts a new sprint.
  - Sprints continue until the project deadline or the project budget is spent.
- In daily scrums, teams meet to discuss their progress since the previous meeting and make plans for that day.
  - The meetings should be brief — no longer than 15 minutes.
  - Each team member needs to be present and prepared.
- The ScrumMaster keeps the team focused on the goal.

How Scrum Works



Introduction to Scrum Terms

- **Scrum team:**
  - A typical scrum team has between five and nine people, but Scrum projects can easily scale into the hundreds.
  - This team does not include any of the traditional software engineering roles such as programmer, designer, tester or architect.
  - Everyone on the project works together to complete the set of work they have collectively committed to complete within a sprint.
  - Scrum teams develop a deep form of camaraderie(தோழமை) and a feeling that "we're all in this together."

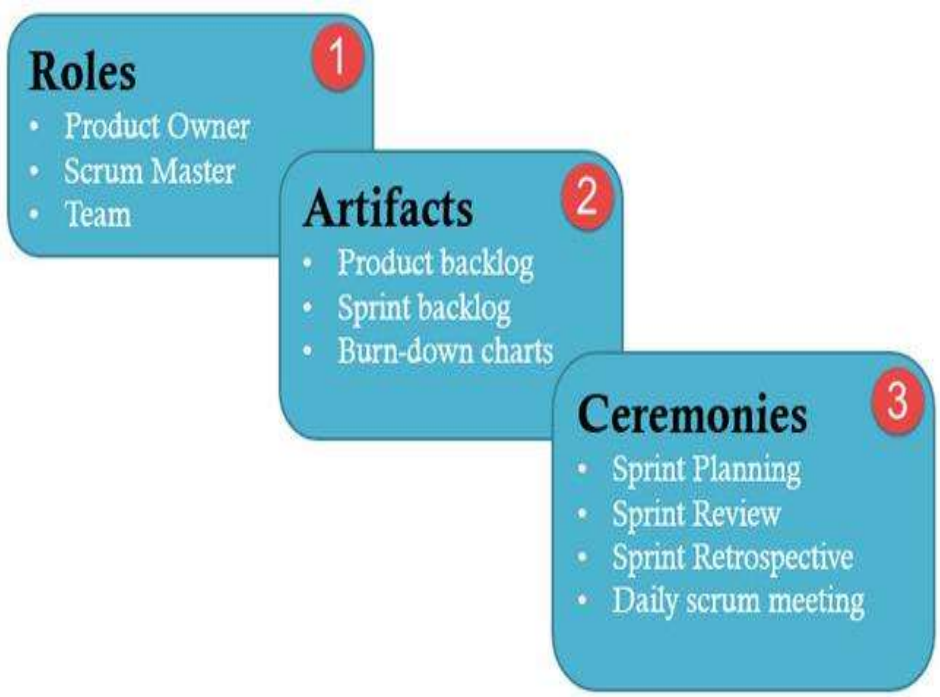
Who is in the Scrum?/Scrum Terms

- **Product owner:** The product owner is the project's key stakeholder and represents users, customers and others in the process. The product owner is often someone from product management or marketing, a key stakeholder or a key user.
- **Scrum Master:** The Scrum Master is responsible for making sure the team is as productive as possible. The Scrum Master does this by helping the team use the Scrum process, by removing impediments to progress, by protecting the team from outside, and so on.
- **Product backlog:** The product backlog is a prioritized features list containing every desired feature or change to the product.
  - product backlog is a list of desired features for the product.
  - The sprint backlog is a list of tasks to be completed in a sprint.

- **Sprint planning meeting:** At the start of each sprint, a sprint planning meeting is held, during which the product owner presents the top items on the product backlog to the team. The Scrum team selects the work they can complete during the coming sprint. That work is then moved from the product backlog to a sprint backlog, which is the list of tasks needed to complete the product backlog items the team has committed to complete in the sprint.
- **Daily Scrum:** Each day during the sprint, a brief meeting called the daily scrum is conducted. This meeting helps set the context for each day's work and helps the team stay on track. All team members are required to attend the daily scrum.
- **Sprint review meeting:** At the end of each sprint, the team demonstrates the completed functionality at a sprint review meeting, during which, the team shows what they accomplished during the sprint. Typically, this takes the form of a demonstration of the new features, but in an informal way; for example, PowerPoint slides are not allowed. The meeting must not become a task in itself nor a distraction from the process.
- **Sprint retrospective:** Also at the end of each sprint, the team conducts a sprint retrospective, which is a meeting during which the team (including its ScrumMaster and product owner) reflect on how well Scrum is working for them and what changes they may wish to make for it to work even better.
- Each of the Scrum terms has its own page within the Scrum section, so be sure to check out all the pages in the navigation.

Key Features of Scrum Methodology

- Scrum has a short fixed schedule of release cycles with adjustable scope known as **sprints** to address rapidly changing development needs. Each release could have multiple sprints. Each Scrum Project could have multiple Release Cycles.
- A repeating sequence of **meetings, events, and milestones**
- A practice of testing and implementing new requirements, known as **stories**, to make sure some work is released ready after each sprint



Who can benefit from scrum?

- While scrum can benefit a wide variety of businesses and projects, these are the most likely beneficiaries:
- **Complicated projects**: Scrum methodology is ideal for projects that require teams to complete a backlog.
- **Companies that value results**: Scrum is also beneficial to companies that value results over the documented progress of the process.
- **Companies that cater to customers**: Scrum can help companies that develop products in accordance with customer preferences and specifications.

What are the benefits of agile scrum methodology?

- Here are some of the collective benefits of agile scrum methodology:
- Flexibility and adaptability
- Creativity and innovation
- Lower costs
- Quality improvement
- Organizational synergy
- Employee satisfaction
- Customer satisfaction

Benefits of Scrum

- Rugby players try to gain control of the ball in the scrum and move it downfield. Software developers use scrum to move their projects quickly. And the benefits trickle down to software developers:
- Developers who want the freedom to make decisions thrive in scrum teams. Team morale tends to be high.
- Each sprint produces a product that is ready for market even though the project is ongoing. The highest priority requirements are addressed first so a high-quality, low-risk product can be on the market.
- The incremental process shortens the time to market by about 30 percent to 40 percent. Because the product owner is part of the scrum team, requirements can be delivered as they are needed.
- Scrum projects often realize a higher return on investment (ROI). This is attributed to:
  - Decreased time to market.
  - Early and regular feedback that prompts course corrections early when they are less costly.
  - Defects that are fewer and less costly.
  - Projects failing early and quickly when it's less costly.
- Reviewing each sprint before the team moves on to the next sprint spreads testing throughout development.
- Project focus and goals can change with evolving business goals.

Disadvantages of Scrum

- While a rugby scrum may get rough and bloody, software developers shouldn't have to worry about that. Nonetheless, scrum is not for all developer teams or software development projects. There are disadvantages to implementing scrum projects:
- There is a danger of scope creep if stakeholders keep adding functionality to the backlog. This could be encouraged by the fixed deadline.
- Scrum works best with small teams of experienced software developers. They need to be able to work quickly.
- Scrum teams do not work well when the scrum master micromanages their work.
- Losing any team members can hurt the progress of the project.

Scrum Best Practices

- Teamwork wins rugby games and helps software developers create quality products. To get the best quality out of scrum:
- Define requirements just in time to keep product features as relevant as possible.
- Test and incorporate product owner feedback daily.
- Sprint reviews with stakeholders need to be regular.
- The scrum team needs to use the sprint retrospectives to improve how they work.
- Conduct face-to-face conversations to reduce miscommunications.
- Trust the teams to do the best job possible.
- Allow the teams to self-organize around people's skills, work styles and personalities.
- Don't burn out the team members. Respect the balance between their personal and professional lives to ease stress.