**Product Owner:**

Responsibilities:

Defines the vision for the product.

Manages the Product Backlog, ensuring it is well-defined, prioritized, and communicated to the Development Team.

Acts as a bridge between stakeholders and the Development Team.

Makes decisions regarding the product features, release dates, and deliverables.

Ensures that the team delivers value to the business.

**Scrum Master:**

Responsibilities:

Facilitates Scrum ceremonies and ensures they are productive.

Removes impediments that hinder the Development Team’s progress.

Ensures the team adheres to Scrum principles and practices.

Coaches the team on Agile practices.

Shields the team from outside distractions and interference.

**Development Team:**

Responsibilities:

Self-organizes to complete the work defined in the Sprint Backlog.

Delivers potentially shippable increments at the end of each Sprint.

Collaborates with the Product Owner to understand the requirements and priorities.

Participates in Scrum ceremonies and continuously improves their processes.

Responsible for the quality of the product they deliver.

Scrum Artifacts

**Product Backlog:**

A prioritized list of everything that might be needed in the product.

Managed and owned by the Product Owner.

Items can include features, functions, requirements, enhancements, and fixes.

Constantly evolving with new items being added, removed, or reprioritized.

**Sprint Backlog:**

A subset of the Product Backlog items selected for the current Sprint, plus a plan for delivering them.

Owned by the Development Team.

Includes tasks required to turn Product Backlog items into a “Done” increment.

Reflects the Development Team’s forecast of what can be achieved during the Sprint.

Scrum Ceremonies

**Sprint Planning:**

Occurs at the start of each Sprint.

The entire Scrum Team collaborates to define the work for the Sprint.

The Development Team forecasts the work they can complete.

Results in a Sprint Goal and a Sprint Backlog.

Daily Standup (Daily Scrum):

A short, time-boxed meeting (typically 15 minutes) held every day of the Sprint.

The Development Team discusses what was done yesterday, what will be done today, and any impediments.

Helps synchronize activities and create a daily plan.

**Sprint Review:**

Held at the end of each Sprint.

The Development Team demonstrates the work done to stakeholders.

Feedback is gathered and the Product Backlog is updated.

Celebrates the work completed and shows progress towards the Product Goal.

**Sprint Retrospective:**

Held after the Sprint Review and before the next Sprint Planning.

The Scrum Team reflects on the past Sprint to improve processes.

Identifies what went well, what didn’t, and how to make improvements.

Results in actionable steps for continuous improvement.

**Agile Planning and Estimation**

**Agile Planning:**

Involves breaking down the work into smaller, manageable pieces.

Focuses on delivering value incrementally and iteratively.

Uses time-boxed iterations (Sprints) for planning and execution.

**Estimation:**

Helps the team predict how much work can be done in a Sprint.

Common techniques include using story points, planning poker, and T-shirt sizes.

Agile Planning Techniques

**Backlog Grooming (Refinement):**

Regularly updating and refining the Product Backlog.

Ensures backlog items are well-defined and prioritized.

Involves the Product Owner and the Development Team.

Helps prepare for future Sprints.

**Story Points:**

A unit of measure for expressing the overall effort required to implement a user story.

Reflects the complexity, risk, and effort.

Helps in estimating and comparing the relative size of tasks.

Often determined through techniques like planning poker.

These roles, artifacts, ceremonies, and planning techniques form the core framework of Scrum, facilitating effective team collaboration and continuous delivery of value.