



Agile Session 2



Did you finish
the Agile (Scrum & Kanban)
pre-class activity?



Students choose an option



How the customer explained it



How the Project Leader
understood it



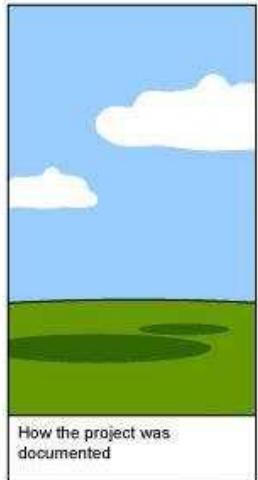
How the Analyst designed it



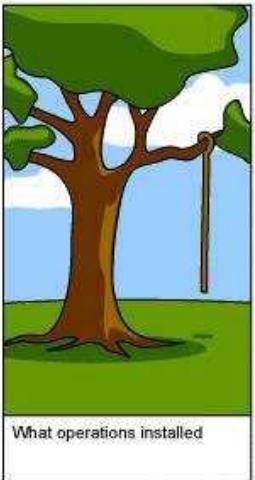
How the Programmer wrote it



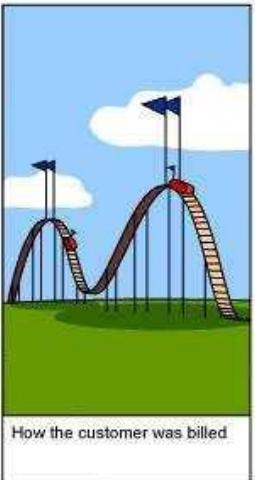
How the Business Consultant
described it



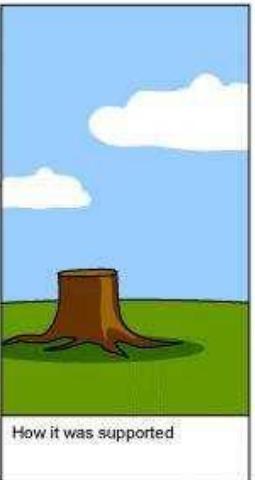
How the project was
documented



What operations installed



How the customer was billed



How it was supported

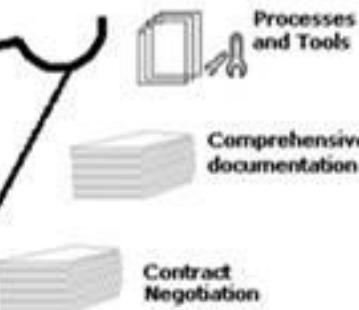


What the customer really
needed

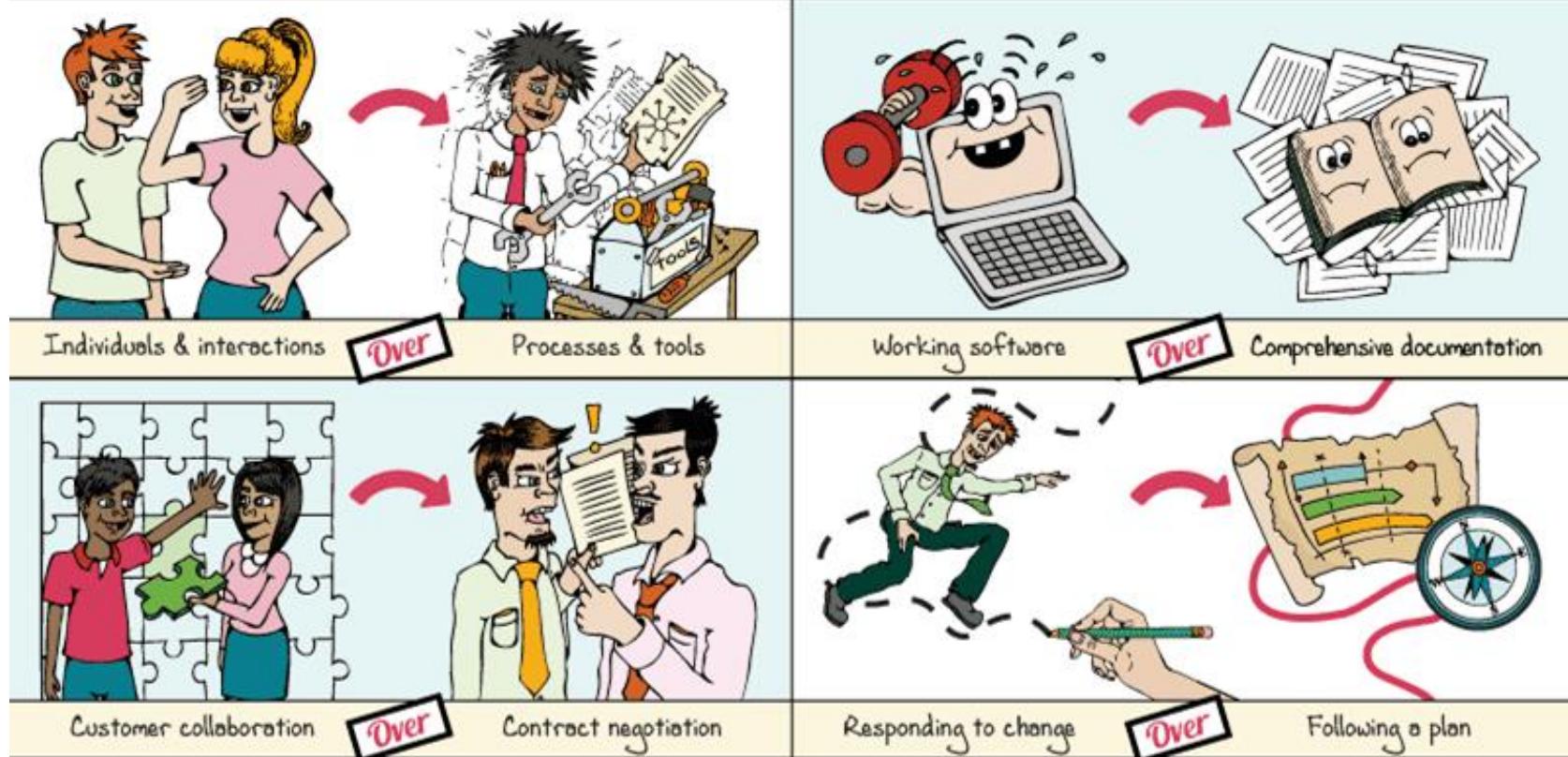
SDLC Models

Traditional Development

Agile Development

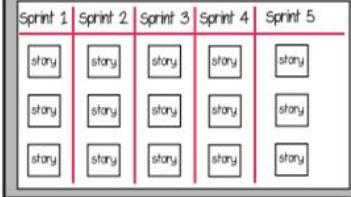
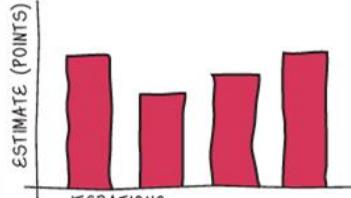


The Four Values of the Manifesto

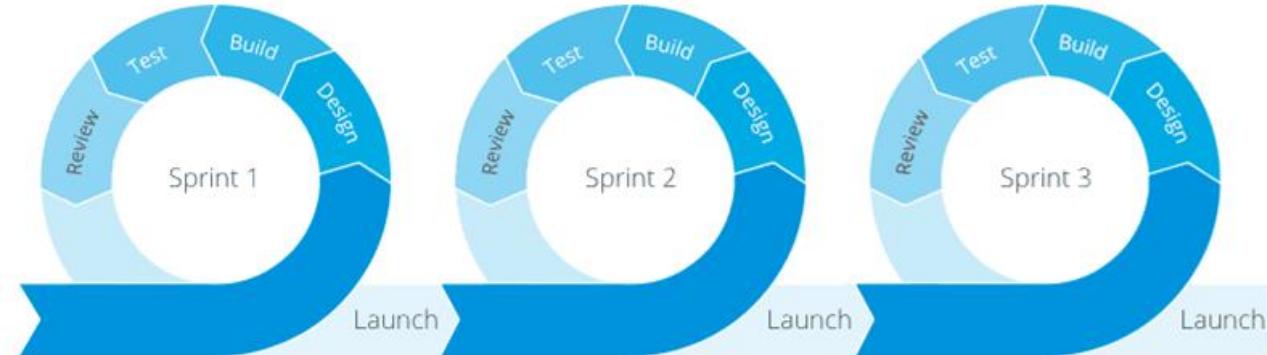


That is, while there is value in the items on the right, we value the items on the **left more**."

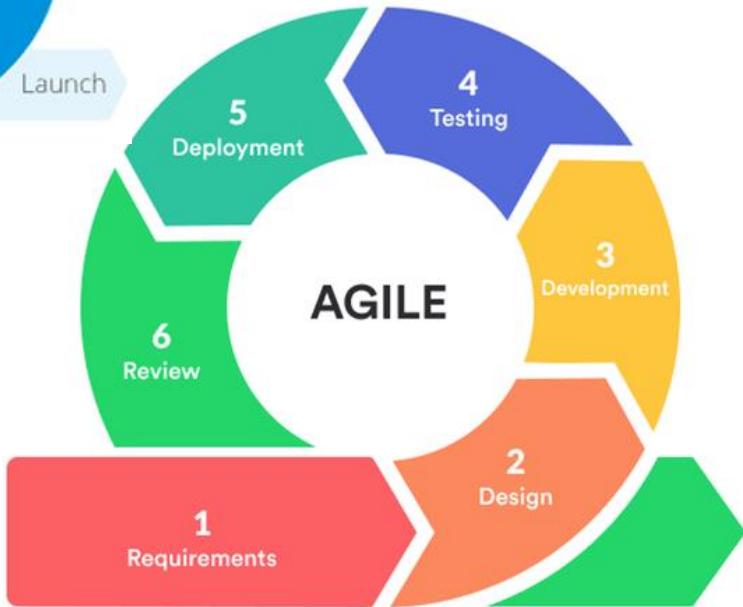
12 Agile Principles

<p>1 Satisfy the customer</p> 	<p>2 Welcome change</p> 	<p>3 Deliver frequently</p> 	<p>4 Work together</p> 
<p>5 Trust and support</p> 	<p>6 Face-to-face conversation</p> 	<p>7 Working software</p> 	<p>8 Sustainable development</p> 
<p>9 Continuous attention</p> 	<p>10 Maintain simplicity</p> 	<p>11 Self-organizing teams</p> 	<p>12 Reflect and adjust</p> 

Agile Model



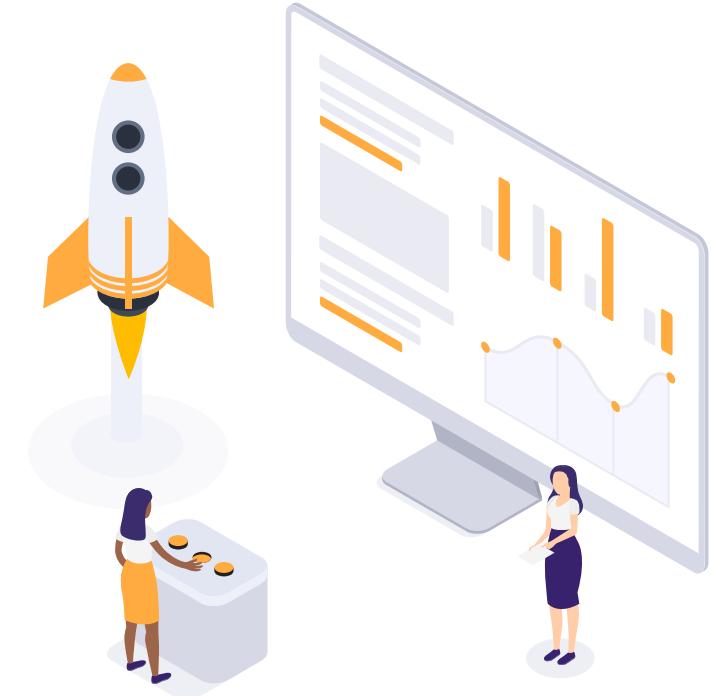
Each iteration lasts from 1 - 3 weeks



Agile Vs Traditional SDLC Models

Agile	Waterfall
<ul style="list-style-type: none">● Continuous cycles● Small, high-functioning, collaborative teams● Multiple methodologies● Flexible/continuous evolution● Customer involvement	<pre>graph TD; Requirements[Requirements] --> Design[Design]; Design --> Implementation[Implementation]; Implementation --> Verification[Verification]; Verification --> Maintenance[Maintenance]</pre> <ul style="list-style-type: none">● Sequential/linear stages● Upfront planning and in-depth documentation● Contract negotiation● Best for simple, unchanging projects● Close project manager involvement

Agile Methods



Agile Methods

Agile is an umbrella under which many specific methodologies have been developed and are thriving.

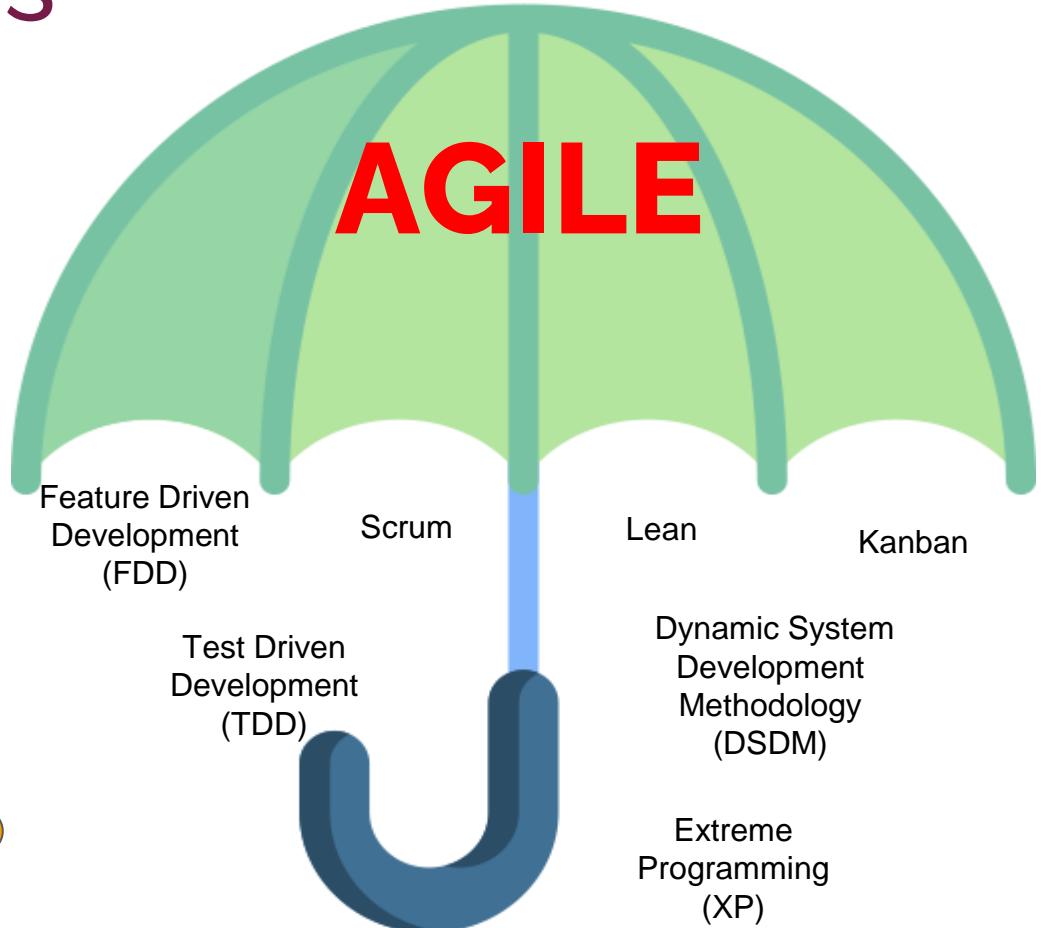
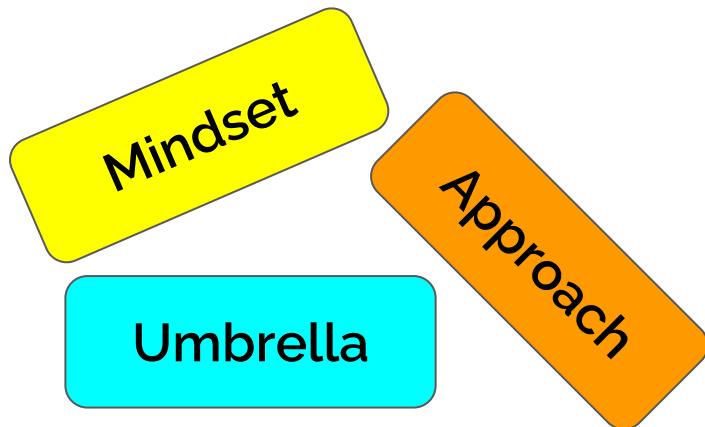


Table of Contents



► SCRUM

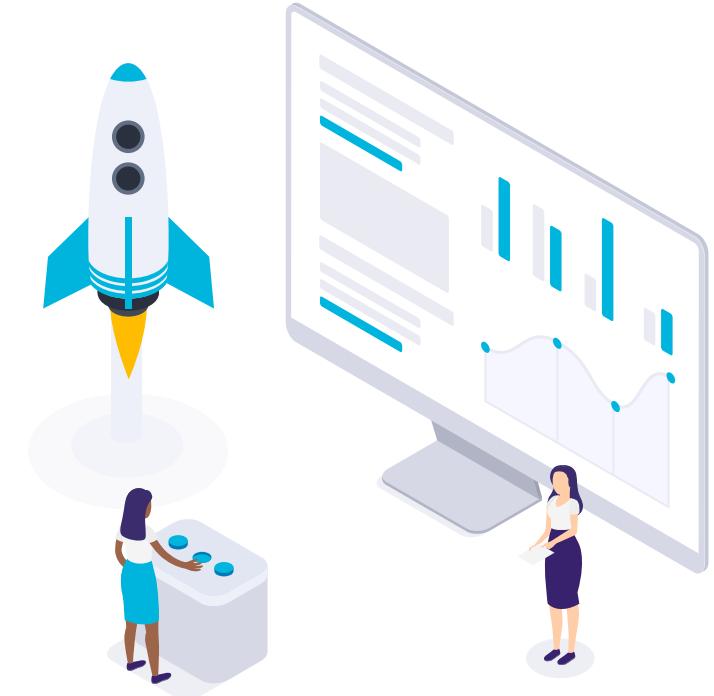
- ▶ Scrum Overview
- ▶ Scrum Roles
- ▶ Epic, User Story and Task
- ▶ Scrum Artifacts
- ▶ Scrum Ceremonies

► KANBAN

- ▶ Kanban Overview
- ▶ Kanban Board
- ▶ Principles of Kanban
- ▶ Practices of Kanban
- ▶ Kanban vs Scrum



SCRUM



What is Scrum?



A framework within which people can address complex adaptive problems, while productively and creatively delivering products of the highest possible value.



Lightweight



Simple to understand

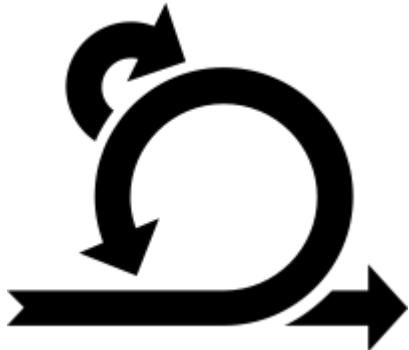


Difficult to master

What is Scrum?

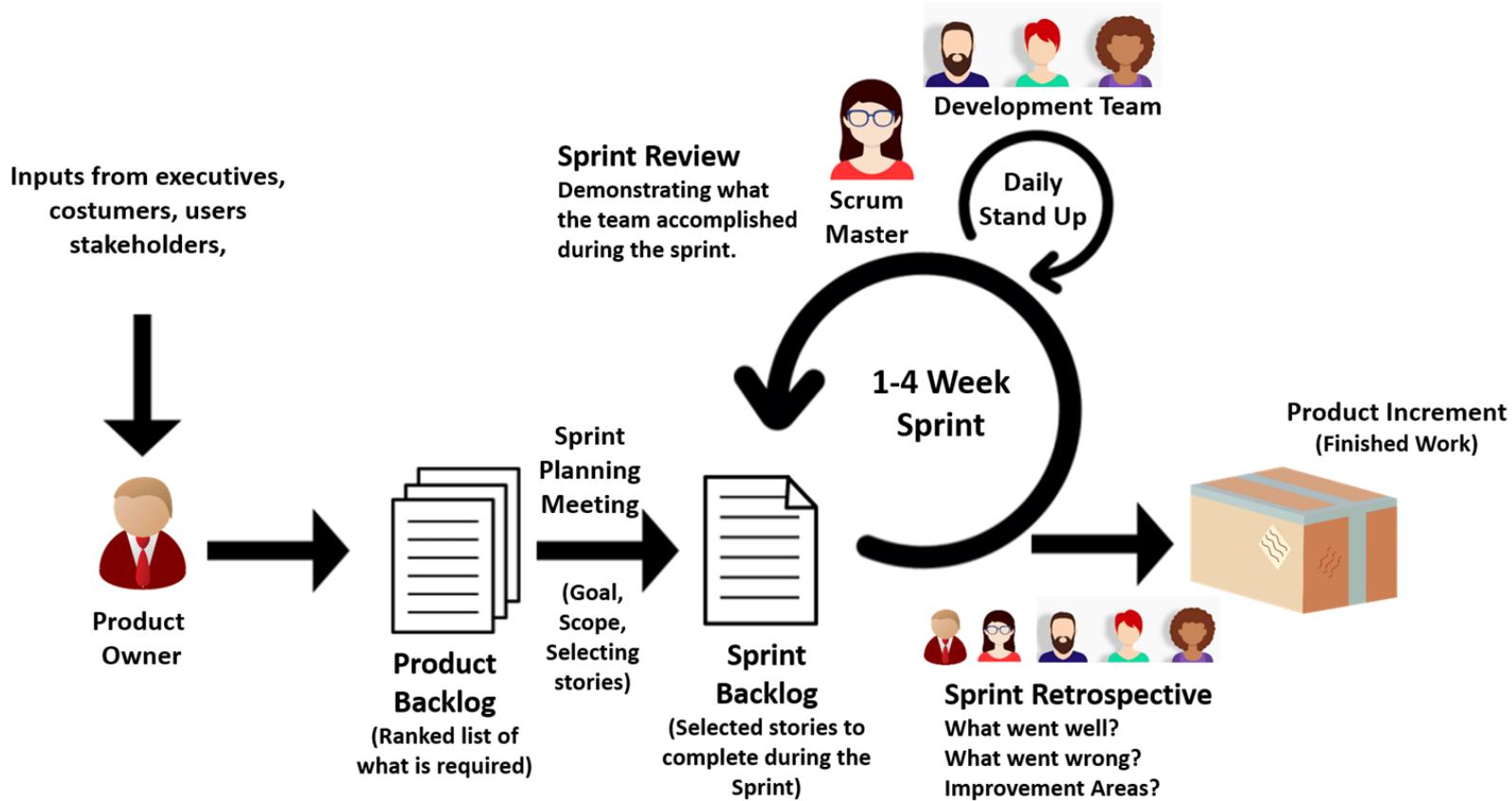


Scrum emphasizes delivering business value frequently through short iterations known as sprints.

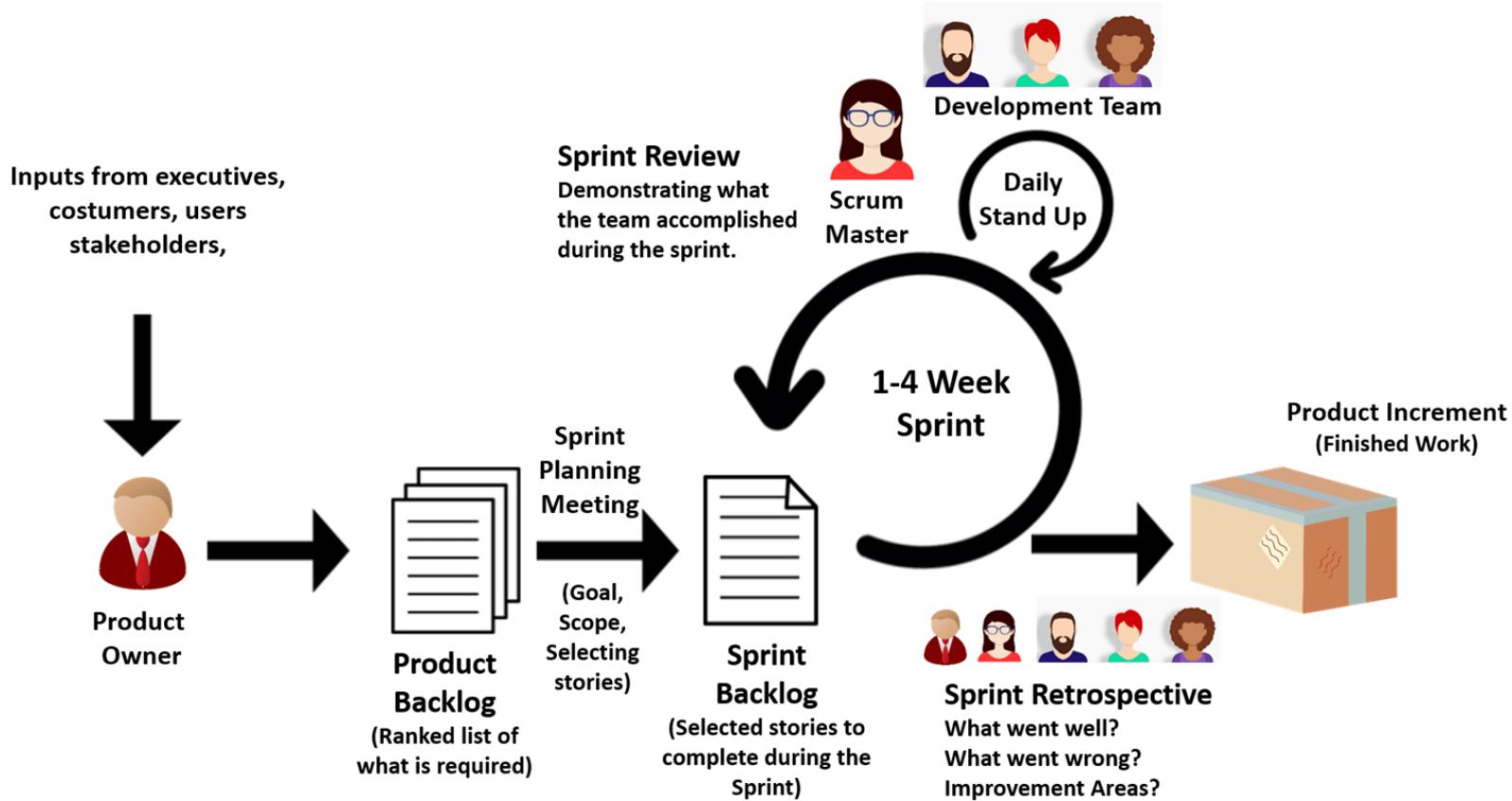


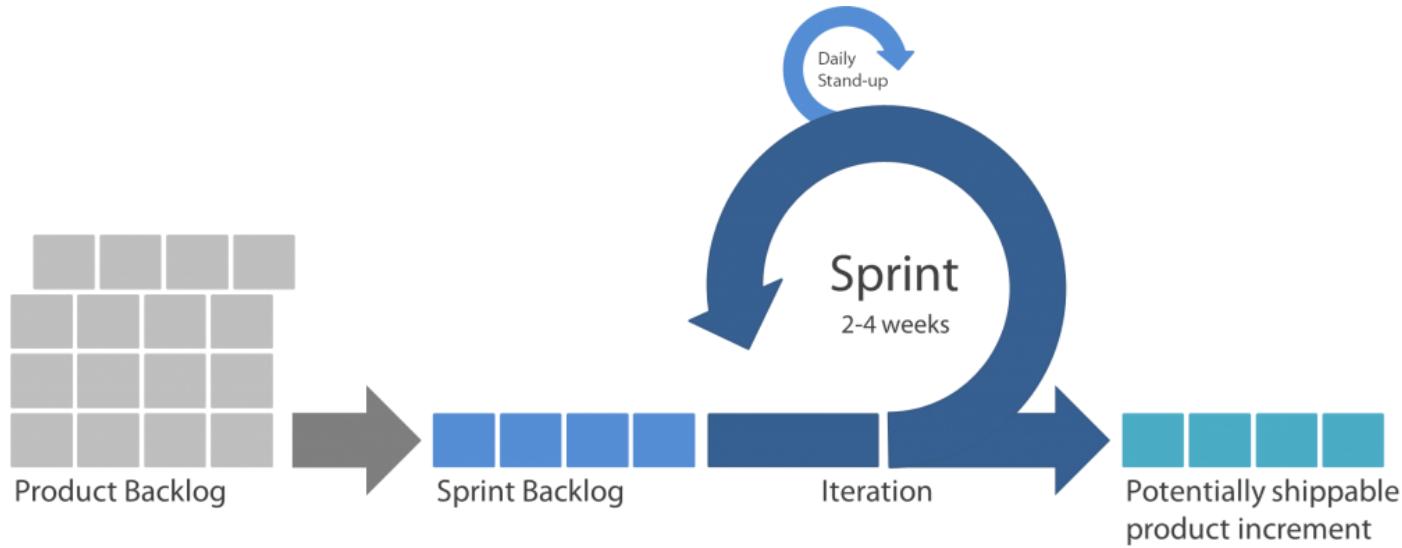
This gives visibility to the work that's being done and creates opportunities for feedback.

Scrum Framework



Scrum Framework

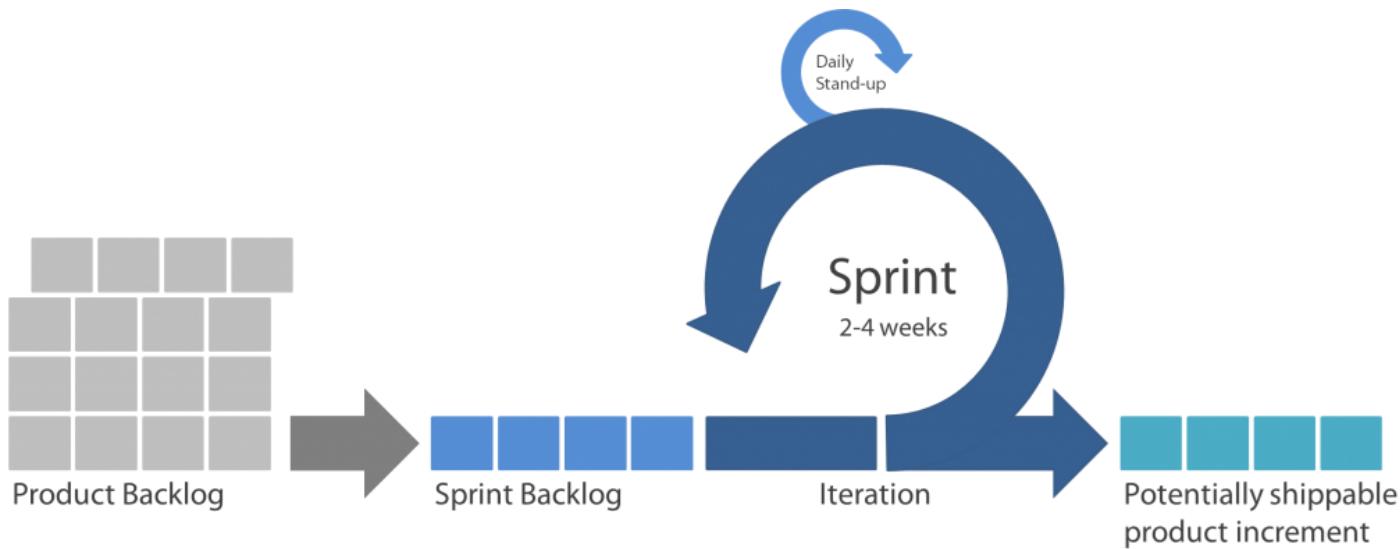




Scrum projects are divided into:



Students choose an option

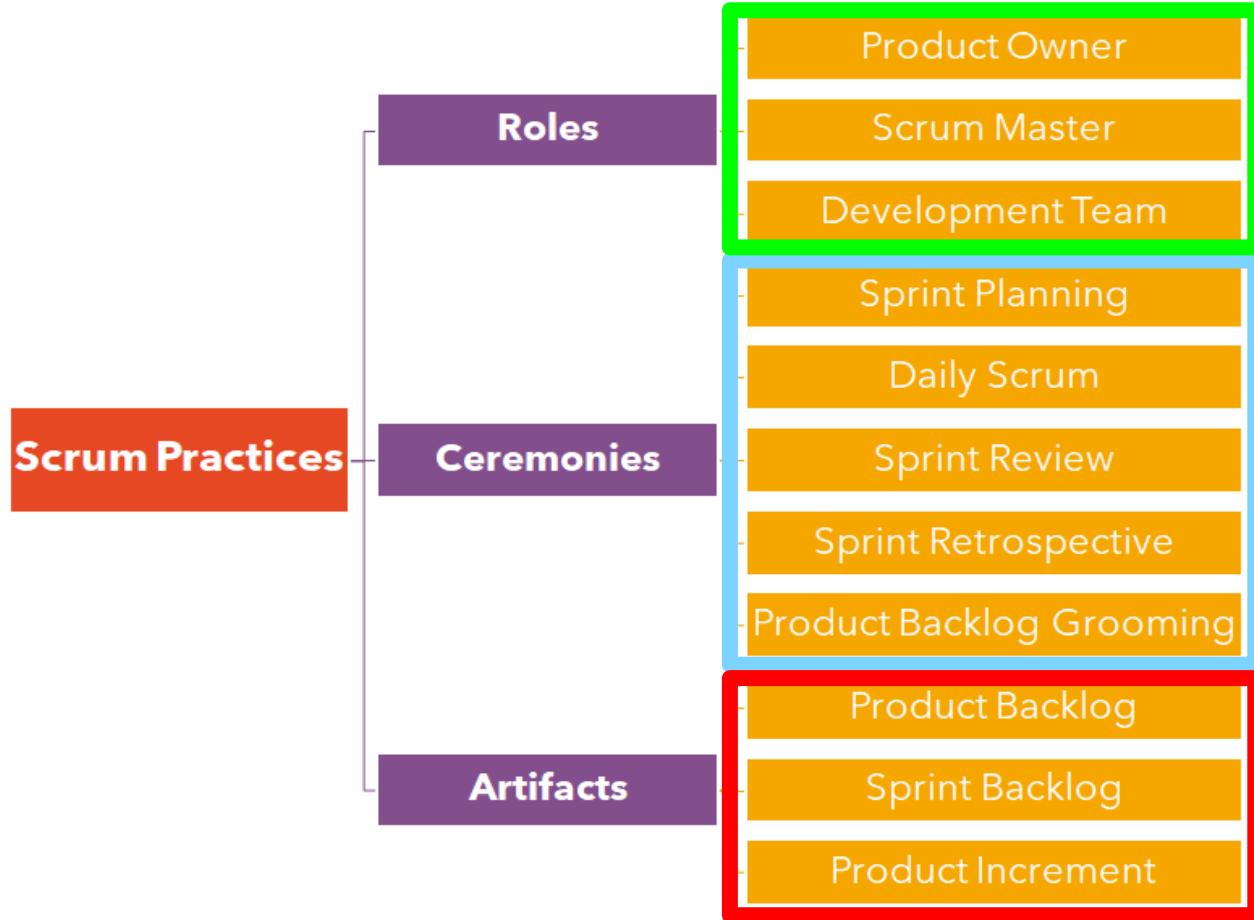


What is Scrum?



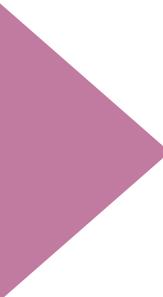
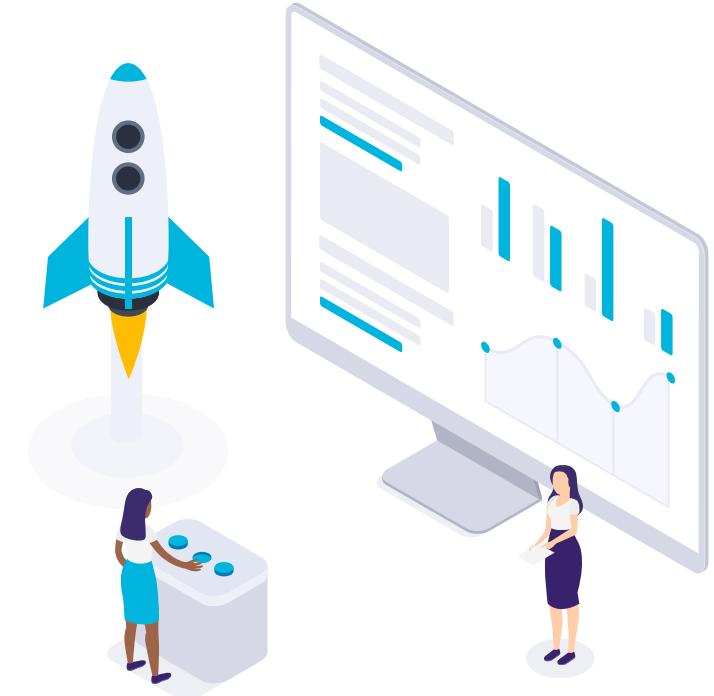
Students choose an option

Scrum Practices

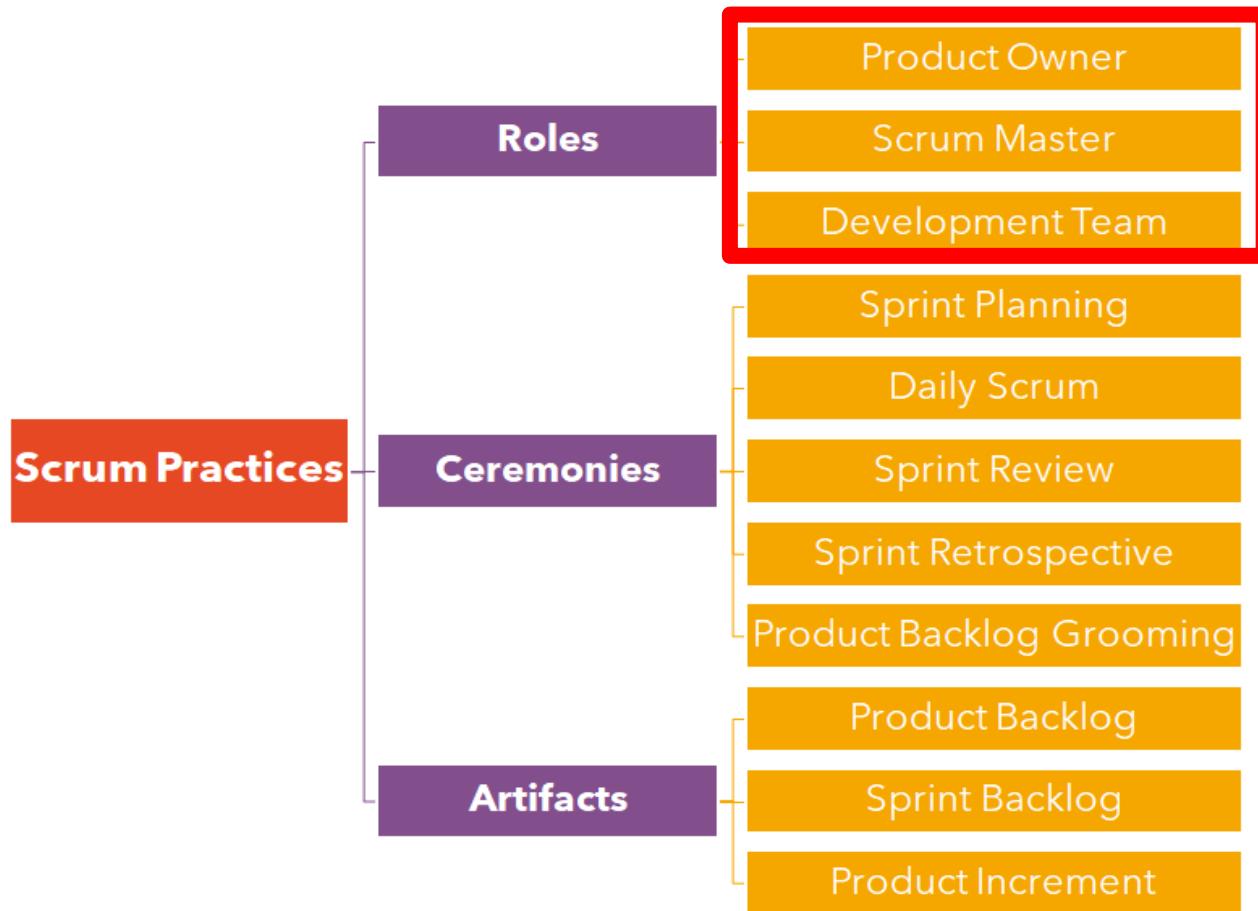




Scrum Roles



Scrum Practices



Scrum Roles



Product Owner



Responsible for the project's success by defining the project vision, requirements, and priorities

Scrum Master



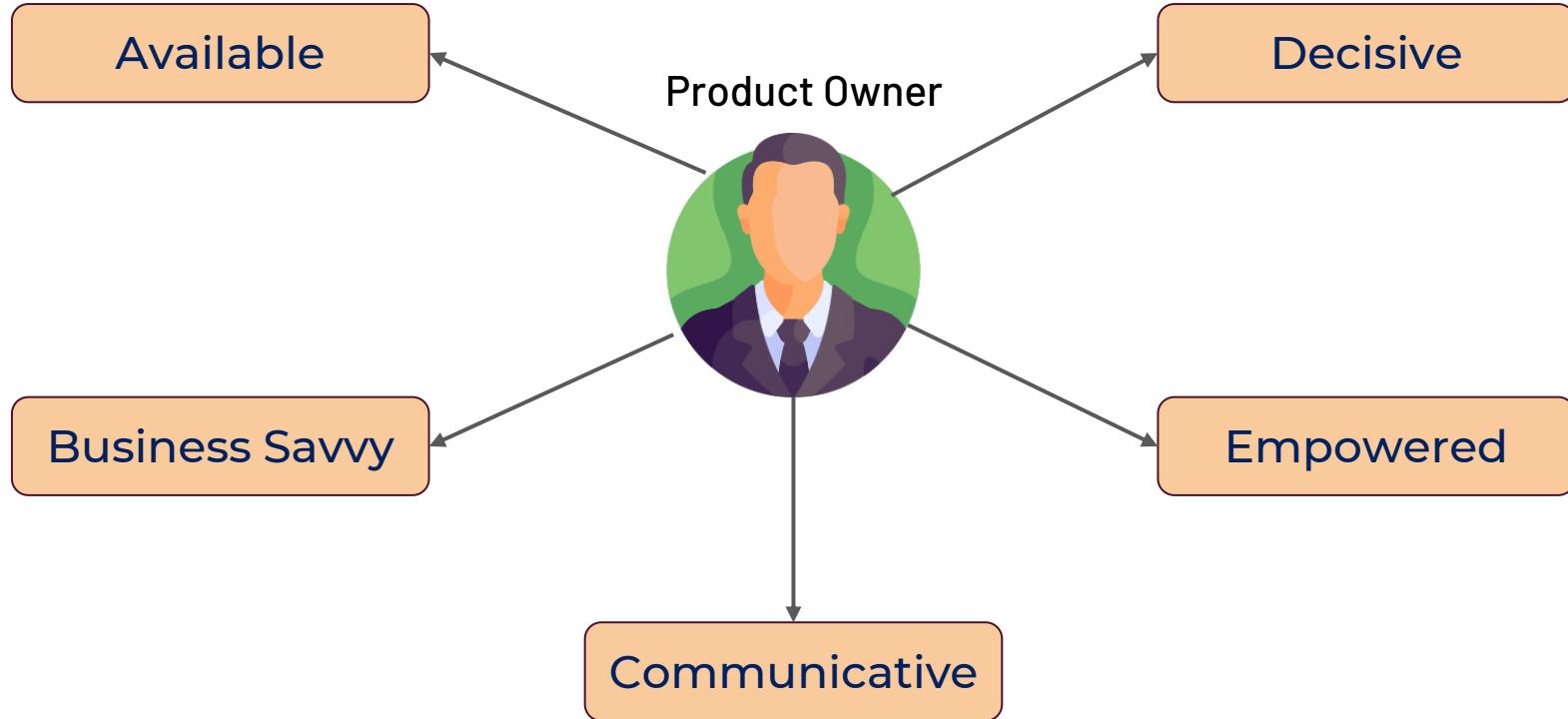
Accountable to the team to remove impediments that will prevent them from achieving the goals of the Product Owner

Development Team



Team comprises 3-9 people, with a mix of roles, and self-organizes to determine how to best meet the goals of the Product Owner

Product Owner



Product Owner



Clearly expressing Product Backlog items



Ordering the items in the Product Backlog to best achieve goals and missions



Optimizing the value of the work the Development Team performs



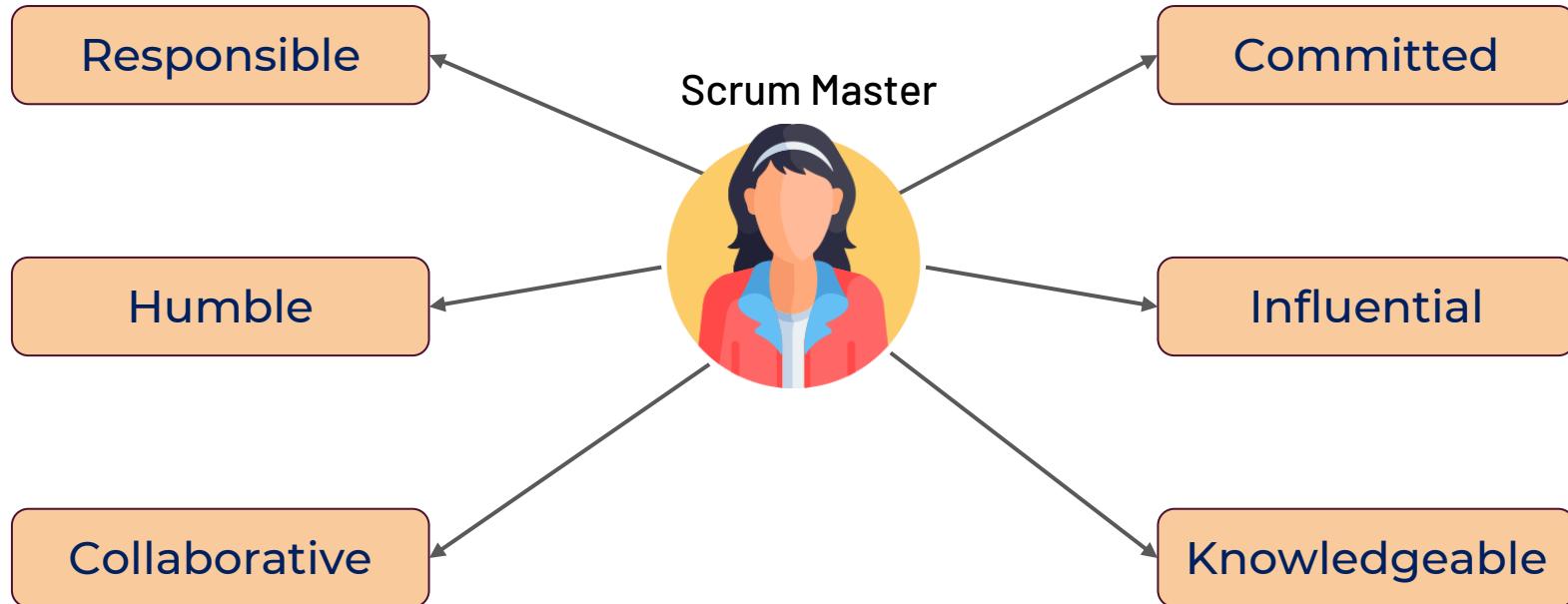
Ensuring that the Product Backlog is visible, transparent, and clear to all, and shows what the Scrum Team will work on next



Ensuring the Development Team understands items in the Product Backlog to the level needed

Scrum Master

The Scrum Master is responsible for promoting and supporting Scrum



Scrum Master

Scrum Master Service to the Product Owner

-  Ensuring that goals, scope, and product domain are understood
-  Finding techniques for effective Product Backlog management
-  Helping the Scrum Team understand the need for clear and concise Product Backlog items
-  Understanding product planning in an empirical environment
-  Ensuring the Product Owner knows how to arrange the Product Backlog to maximize value
-  Understanding and practicing agility
-  Facilitating Scrum events as requested or needed

Scrum Master

Scrum Master Service to the Development Team



Coaching the Development Team in self-organization and cross-functionality



Helping the Development Team to create high-value products



Removing impediments to the Development Team's progress



Facilitating Scrum events as requested or needed



Coaching the Development Team in organizational environments in which Scrum is not yet fully adopted and understood



What is the role of the Scrum Master?



Students choose an option



Which one looks at the project from the customer's perspective?

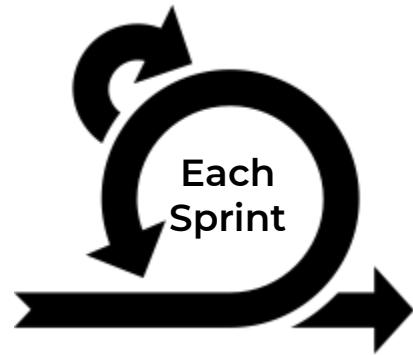


Students choose an option

Development Team

The Development Team consists of professionals who do the work of delivering a potentially releasable Increment of “Done” product at the end of each Sprint.

Development Team



Product Increment



Development Team



They are self-organizing.



Development Teams are cross-functional.



Scrum recognizes no titles for Development Team members.

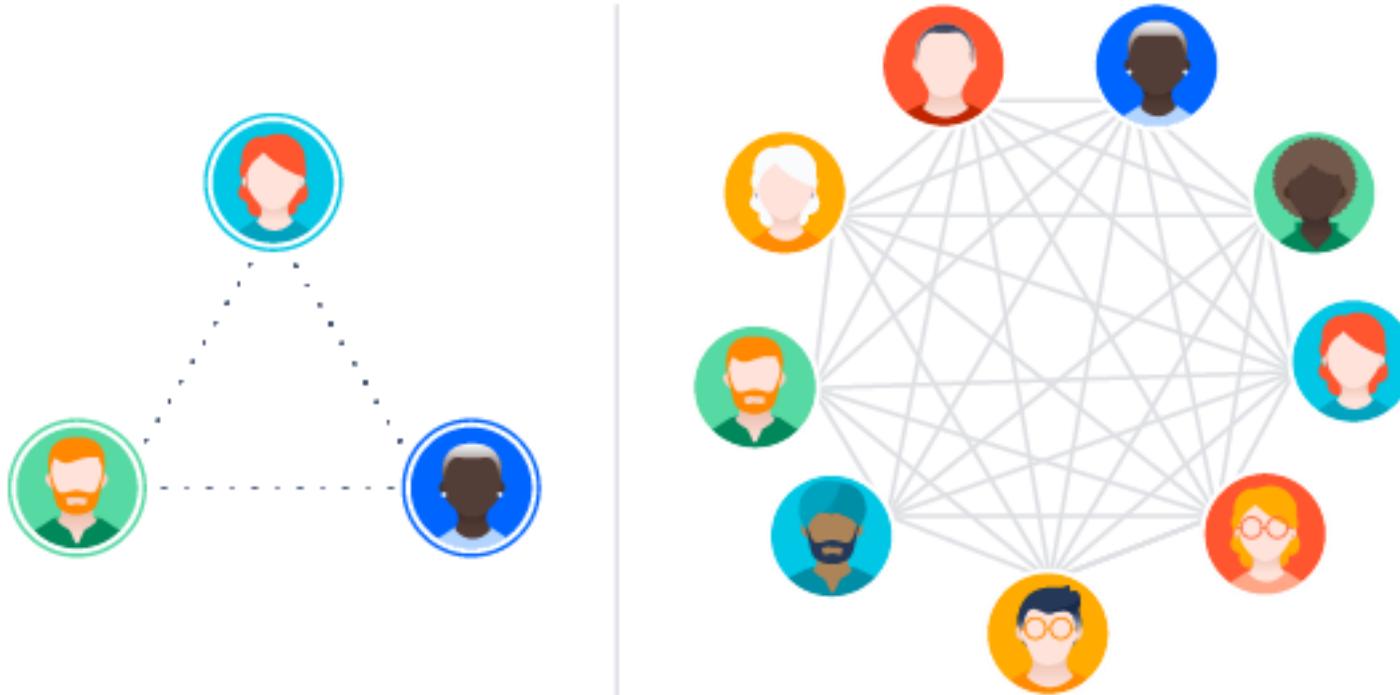


Scrum recognizes no sub-teams in the Development Team.



Accountability belongs to the Development Team as a whole

Team Size vs. Coordination

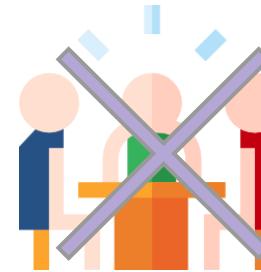
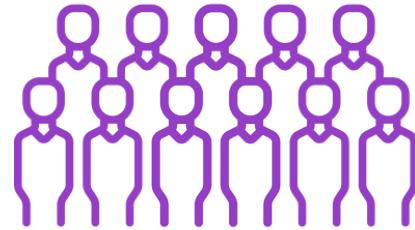


Development Team Size

Small Team



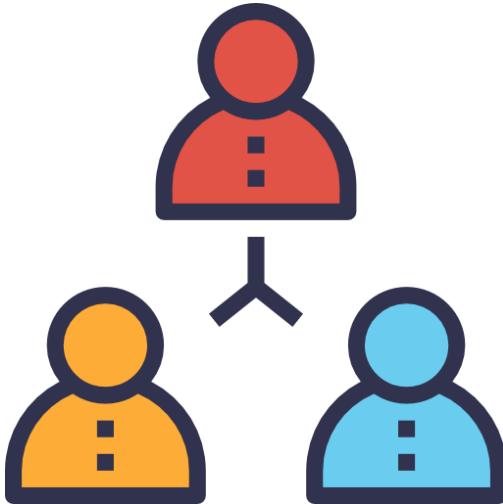
Large Team



3-9 Members



Coordination
Product Increment



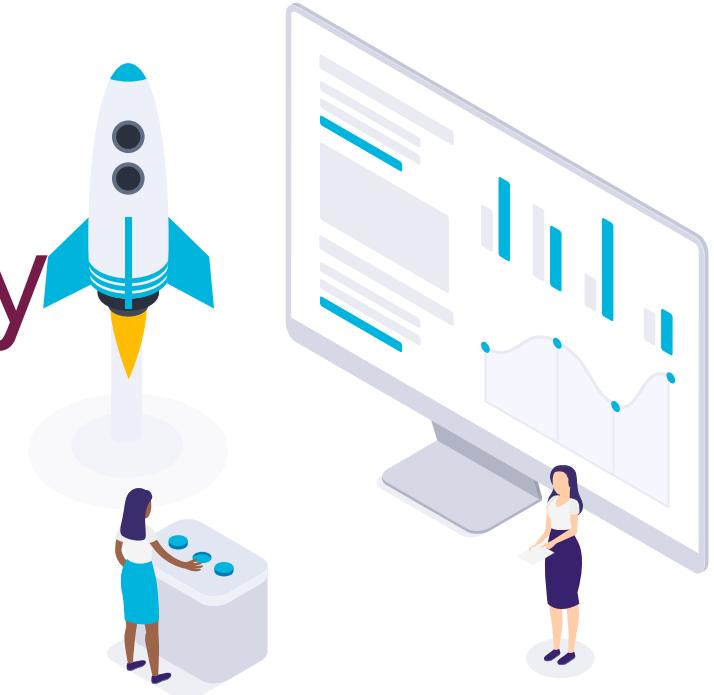
What do we mean by a cross-functional Development Team?



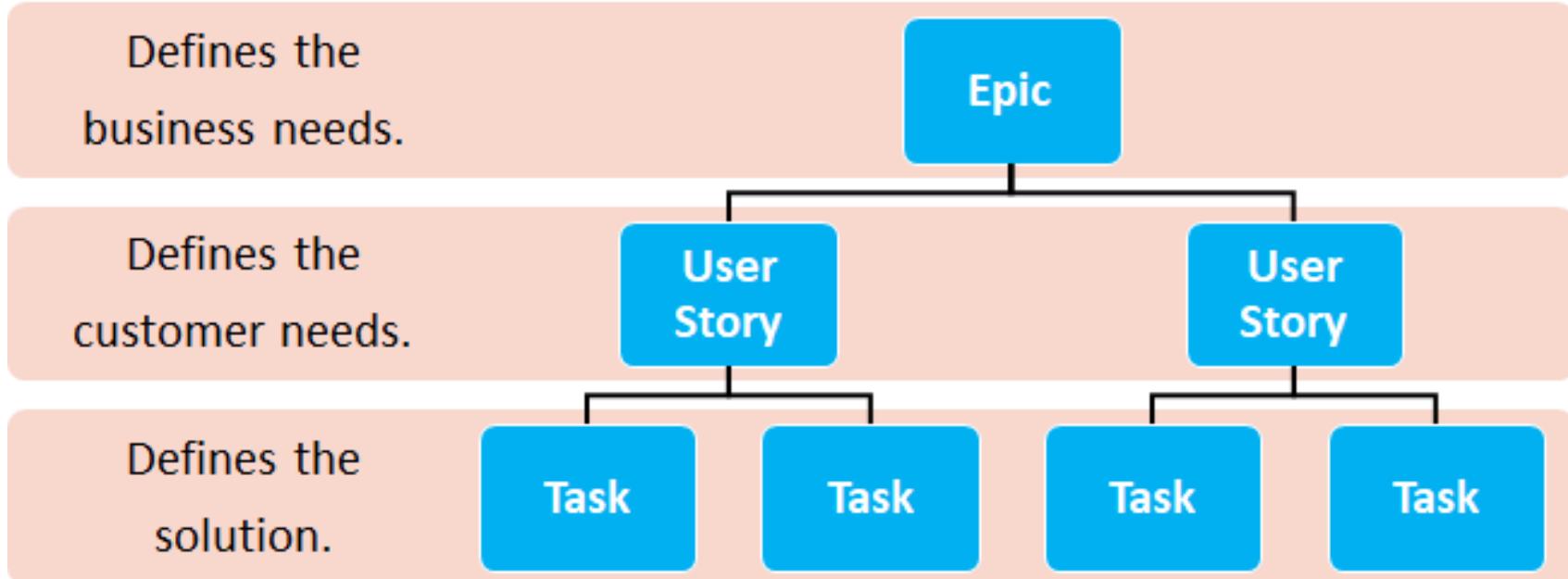
Students choose an option



Epic, User Story and Task



Epic, User Story and Task



Epic



- Big chunk of work.
- Few lines of description.
- More than one sprint to complete.

Examples of Epics:

- As a bank, we want a facial recognition system in our branches.
- As the marketing department, we want a mobile application and a website to reach more customers.

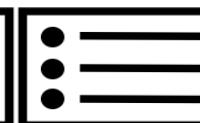
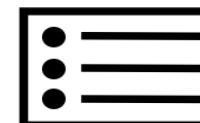
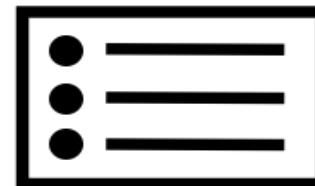
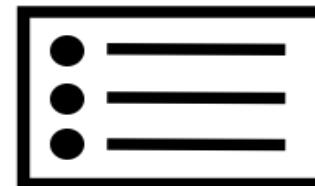
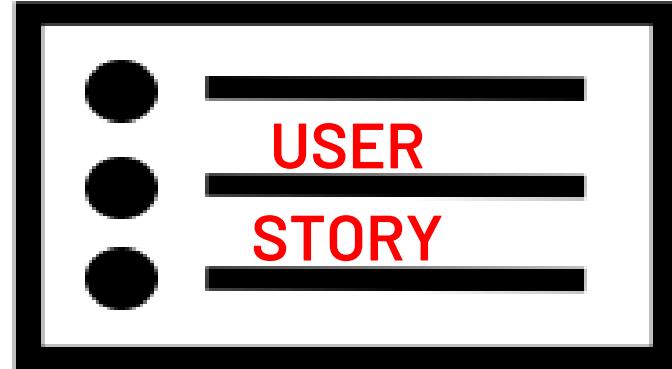
User Story



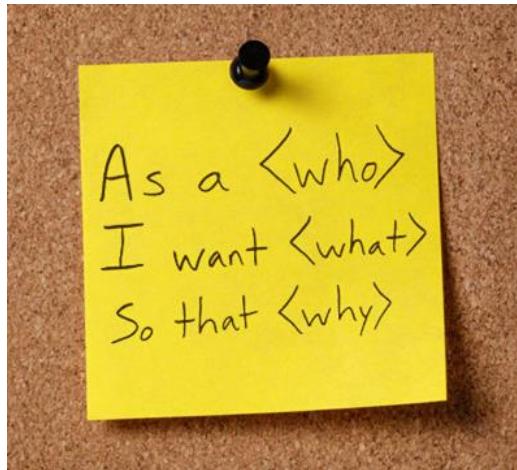
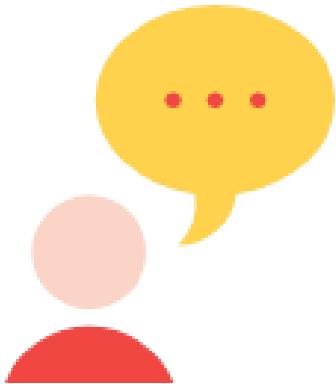
Customers



Users



User Story

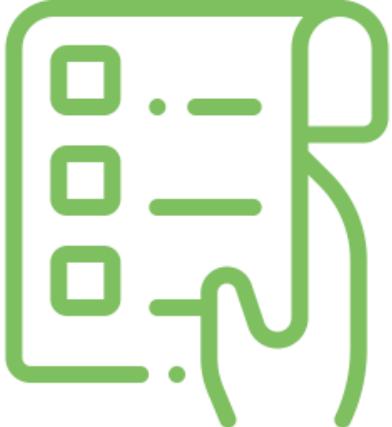


- User Needs.
- Few lines of description.
- Deliver during a sprint.

Examples of User Stories:

- As a registered user, I want to add items to the cart so that I can purchase multiple items at once.
- As a student, I want to apply for the exam online so that I can save time.

Task



- Represents a technical activity

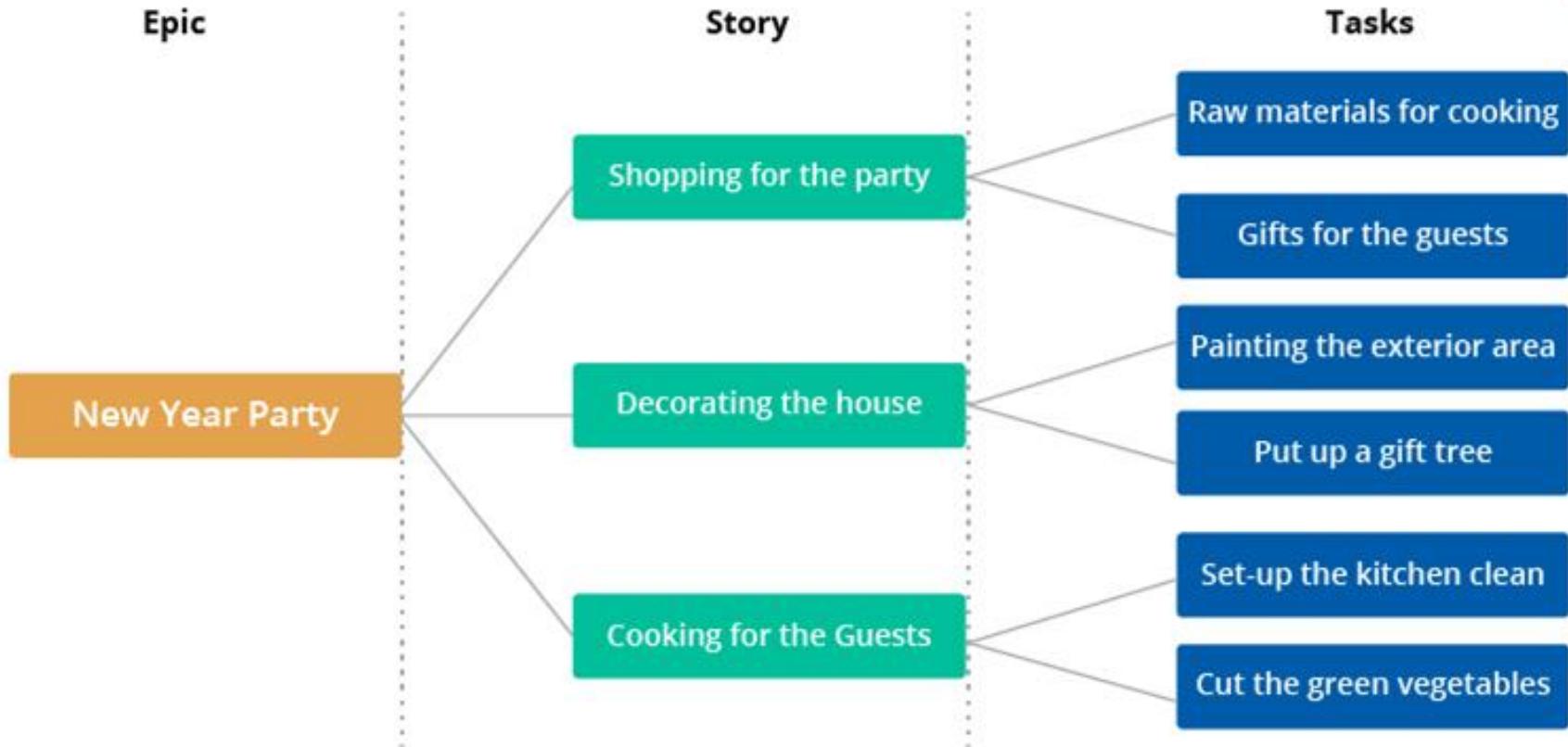
- Description of individual work item

- Created by anyone

Examples of Tasks:

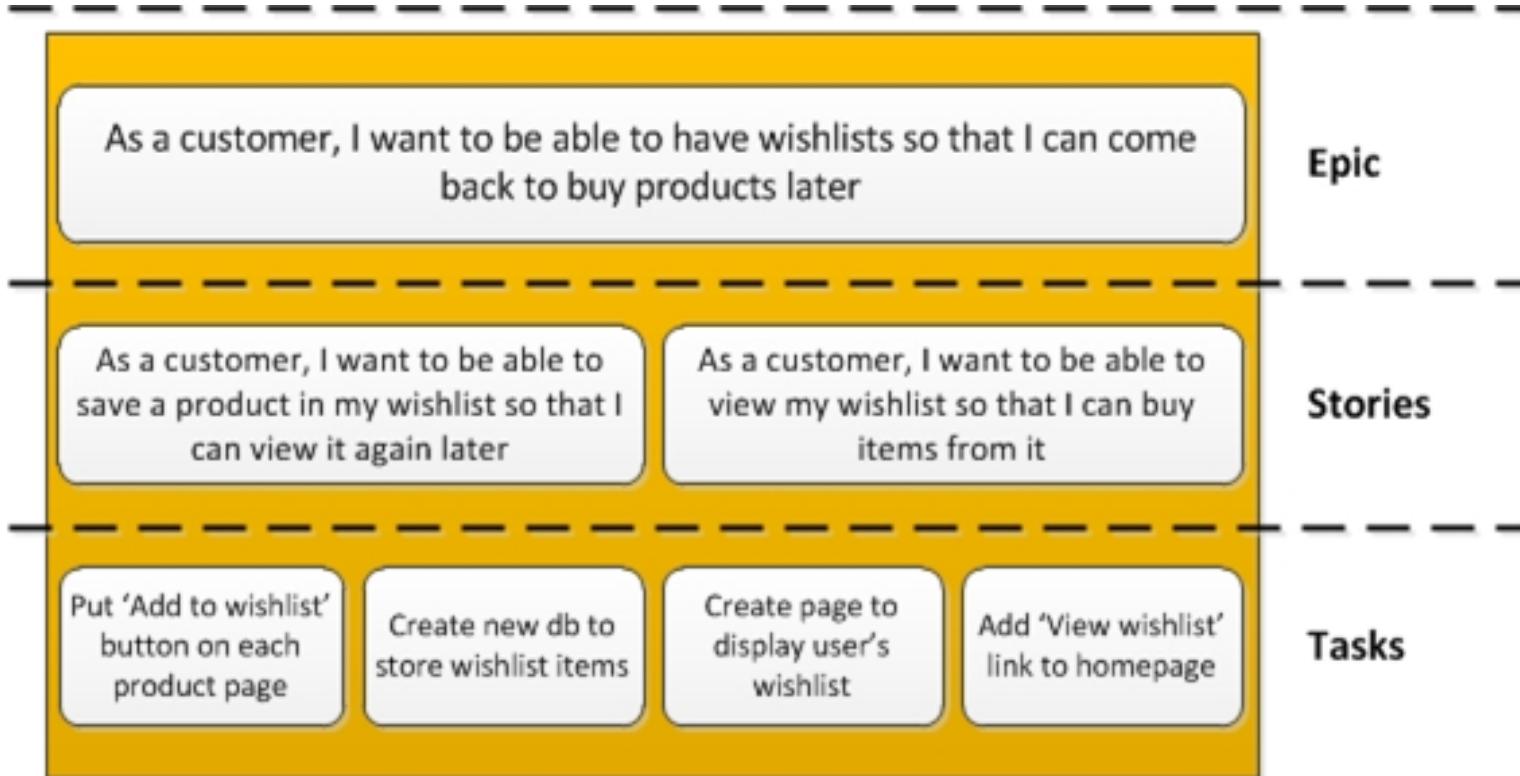
- Redesign a single web page
- Create a new logo
- Perform usability testing

Epic, User Story and Task



Epic, User Story and Task

- Ecommerce website
 - Customer wants a wishlist section



Estimation



T-Shirt Sizing



Story Points

1, 2, 3, 5, 8, 13, 21

Estimation



Story Points Estimation Cheat Sheet

How much is known about the task	Everything	Almost everything	Something	Almost nothing	Nothing	Nothing
Dependencies	None	Almost none	Some	Few	More than few	Unknown
How much work effort	Less than 2 hours	Half a day	Up to two days	Few days	Around a week	More than one week
Story Points	1	2	3	5	8 Should be split into smaller items	13 Must be split into smaller items

Estimation



Planning Poker



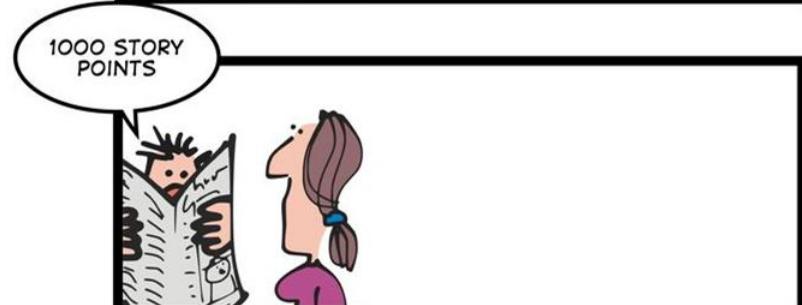
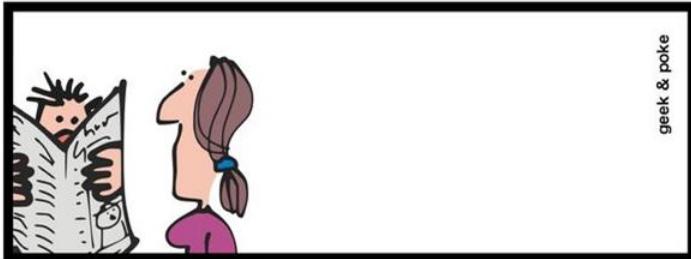
Estimation

Planning Poker





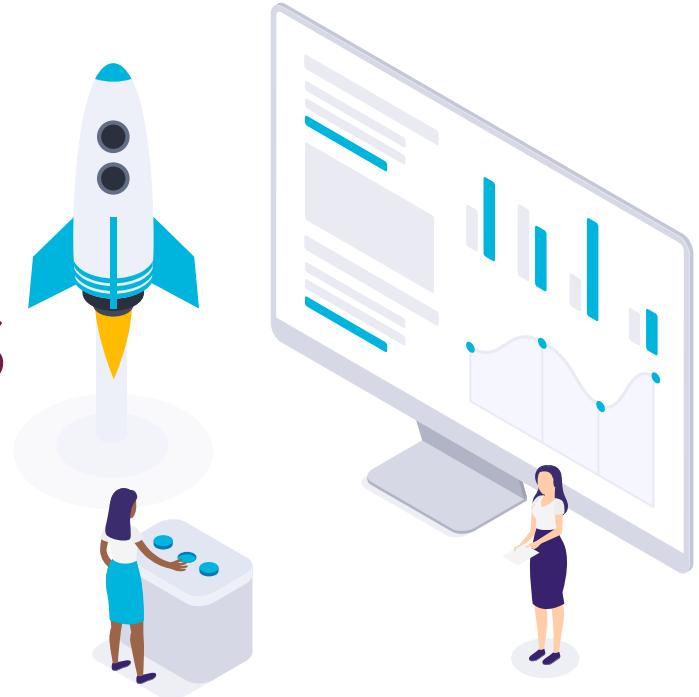
Which one is NOT
relative estimation of
story?



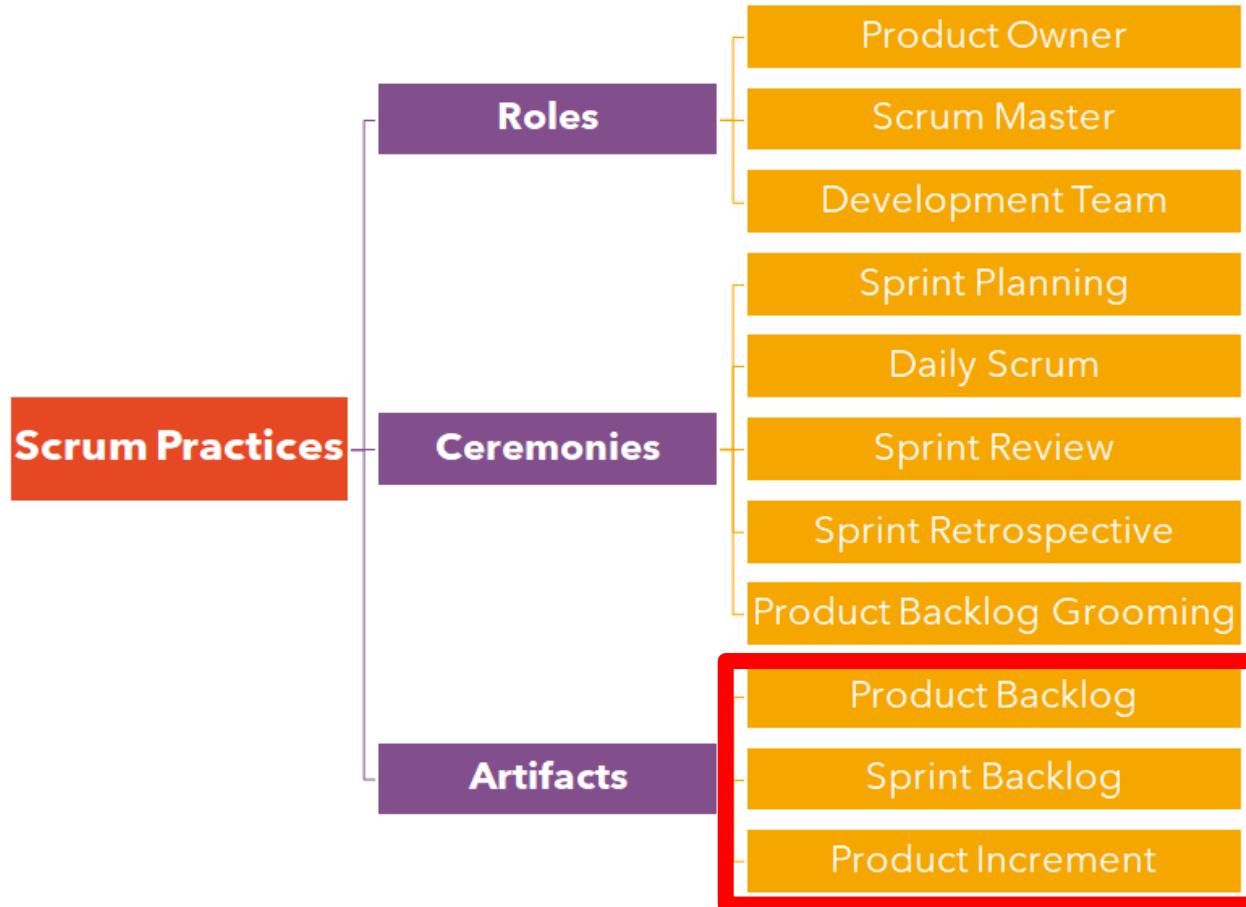
Students choose an option



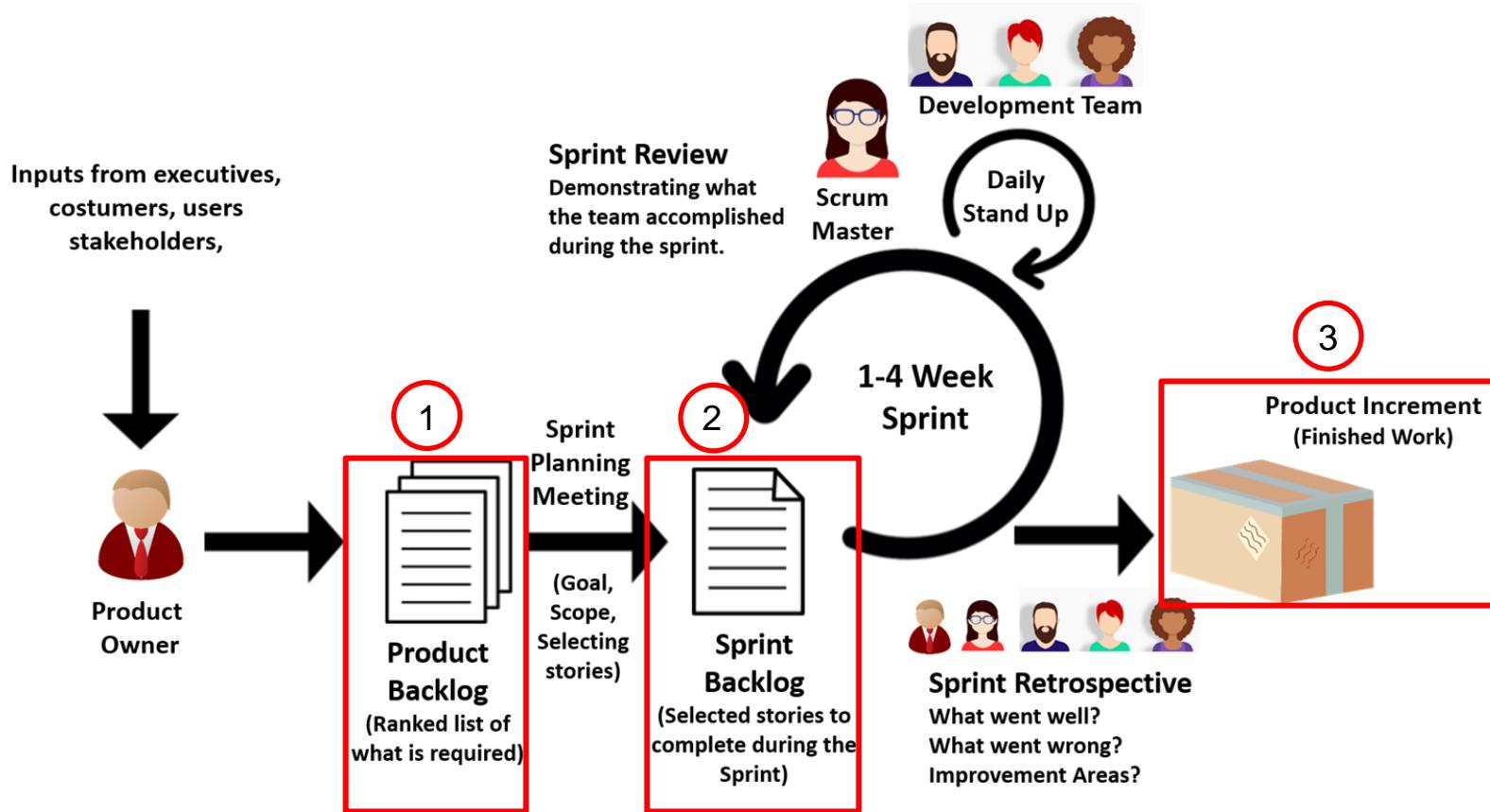
Scrum Artifacts



Scrum Practices



Main Scrum Artifacts



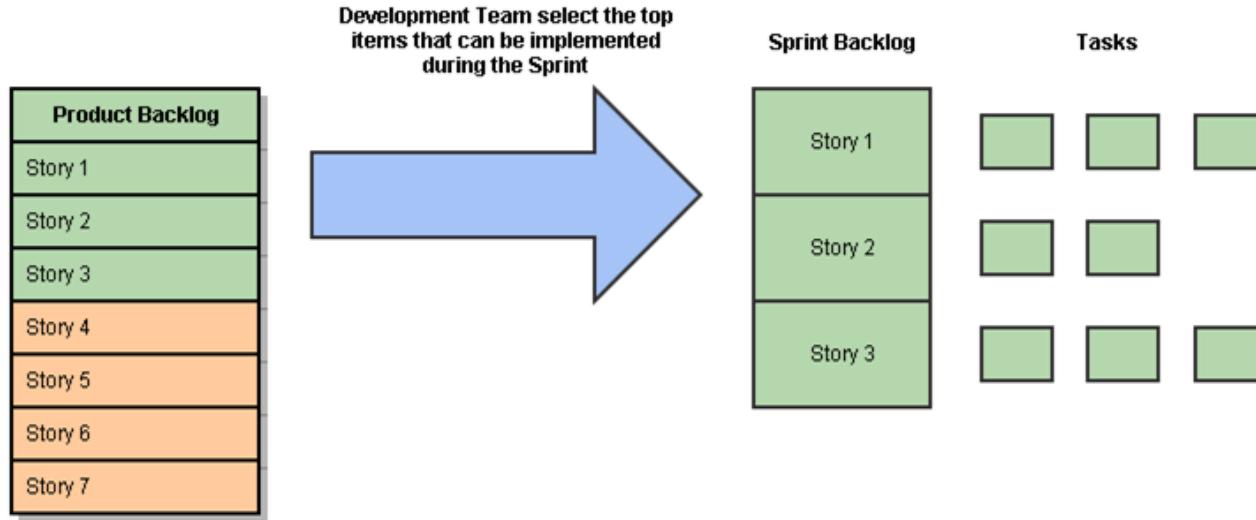
Product Backlog



User story	Story point(s)	Priority
As a user, I am able to search for documents so I can find them more easily	2	1
As a site visitor, I can compare different types of accounts to see which account type suites me best	1	2
As a user, I can submit questions through the website so I know how to better use the product	1	3
As a site visitor, I am shown what I can do in the product so I know whether or not this product will fill my needs	2	4
As a user, I want to be able to retrieve documents that were deleted so I can reclaim documents that were deleted on accident	3	5
As a site visitor and user, I can sign up for newsletters to remain up to date on the product	2	6
As a user, I am notified when a new feature is released so I know what is possible	1	7
As a user, I can change my user name if desired	3	8
As an admin, I need the ability to update which team a user belongs to so I can make sure all teams are up to date	3	9
As a user, I can enable spell check so I can be confident my final document has no spelling errors	4	10

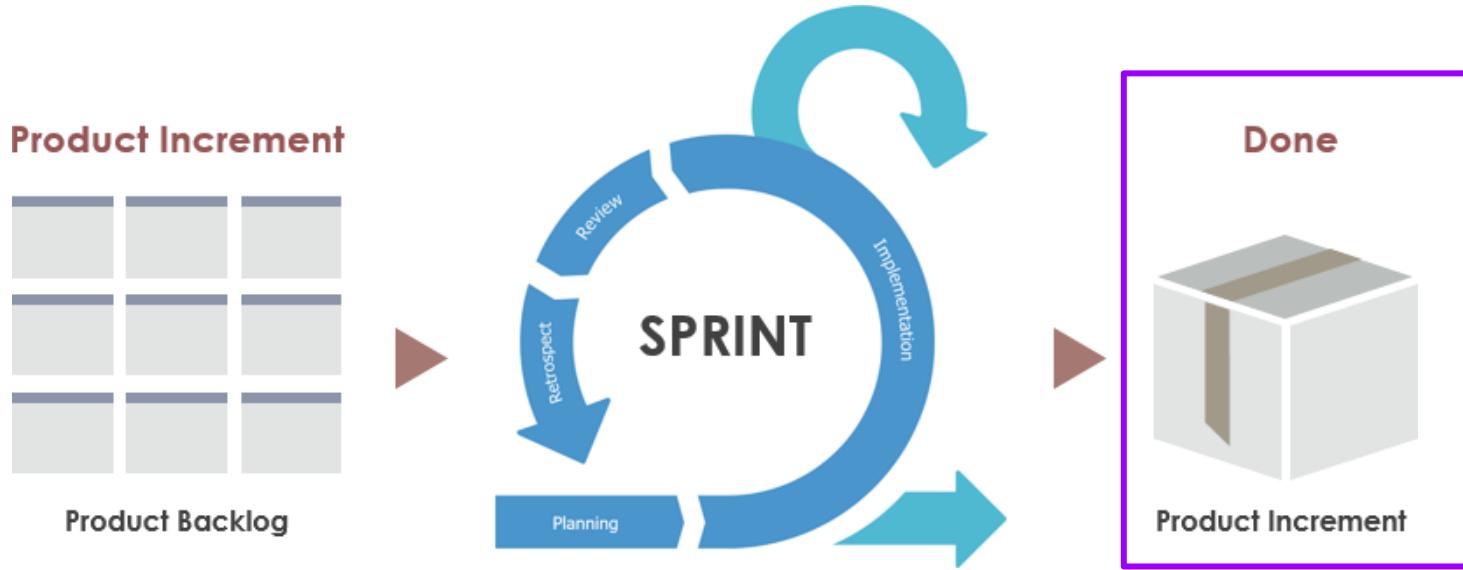
- Ordered list of everything
- List of prioritized items
- Product Owner is responsible
- Dynamic
- Should be refined regularly

Sprint Backlog



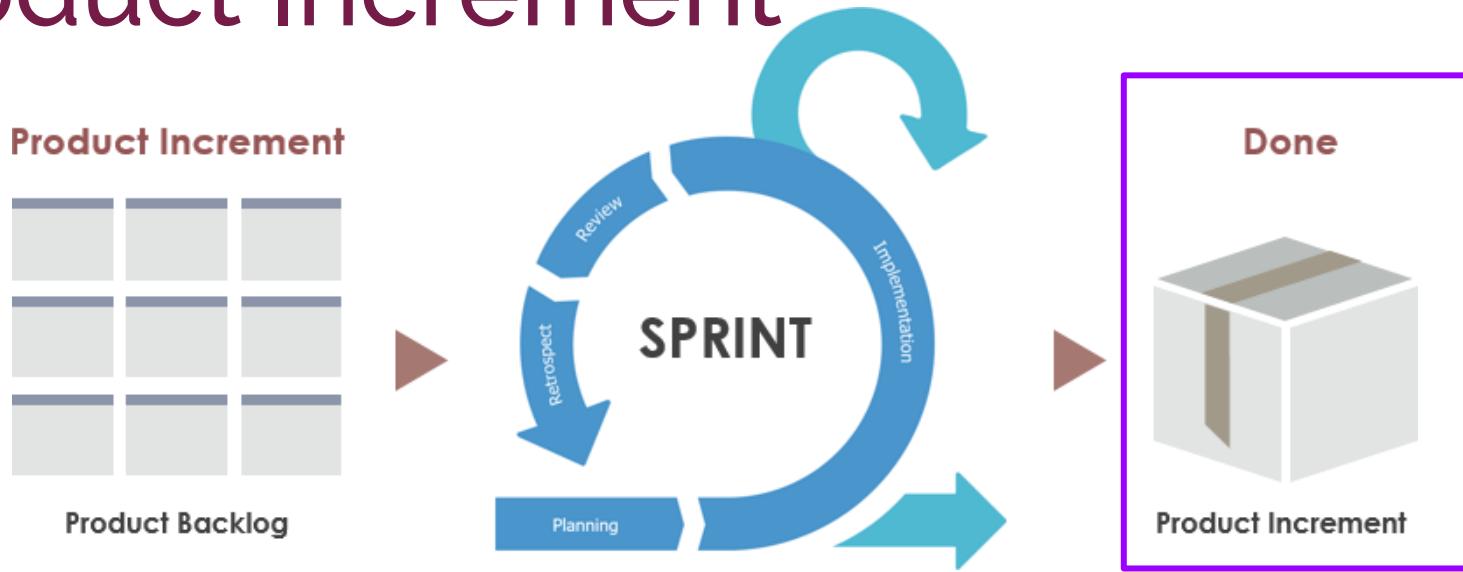
- The set of Product Backlog items selected for the Sprint
- A plan for delivering the product Increment and realizing Sprint Goal
- Highly visible, real-time picture of the work

Product Increment



- The sum of all the Product Backlog items completed during a Sprint and the value of the increments of all previous Sprints.
- At the end of a Sprint, the new Increment must be “Done”.
- The increment must be in useable condition regardless of whether the Product Owner decides to release it.

Product Increment



Definition Done		Status
Tests written and passing		<input checked="" type="checkbox"/>
Continuous Integration build passing		<input checked="" type="checkbox"/>
Cross-browser testing done on current top 5 browsers according to analytics		<input checked="" type="checkbox"/>
Mobile testing done on current top 3 mobile devices according to analytics		<input type="checkbox"/>
Code coverage is at least 80%		<input type="checkbox"/>
Code reviewed		<input checked="" type="checkbox"/>
Documentation updated		<input type="checkbox"/>
Acceptance criteria met		<input checked="" type="checkbox"/>



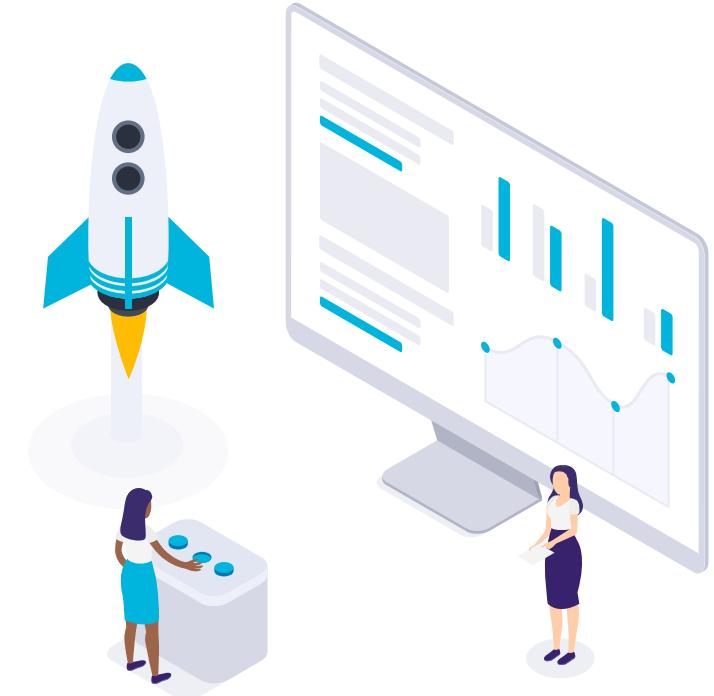
Who prioritizes the product backlog items?



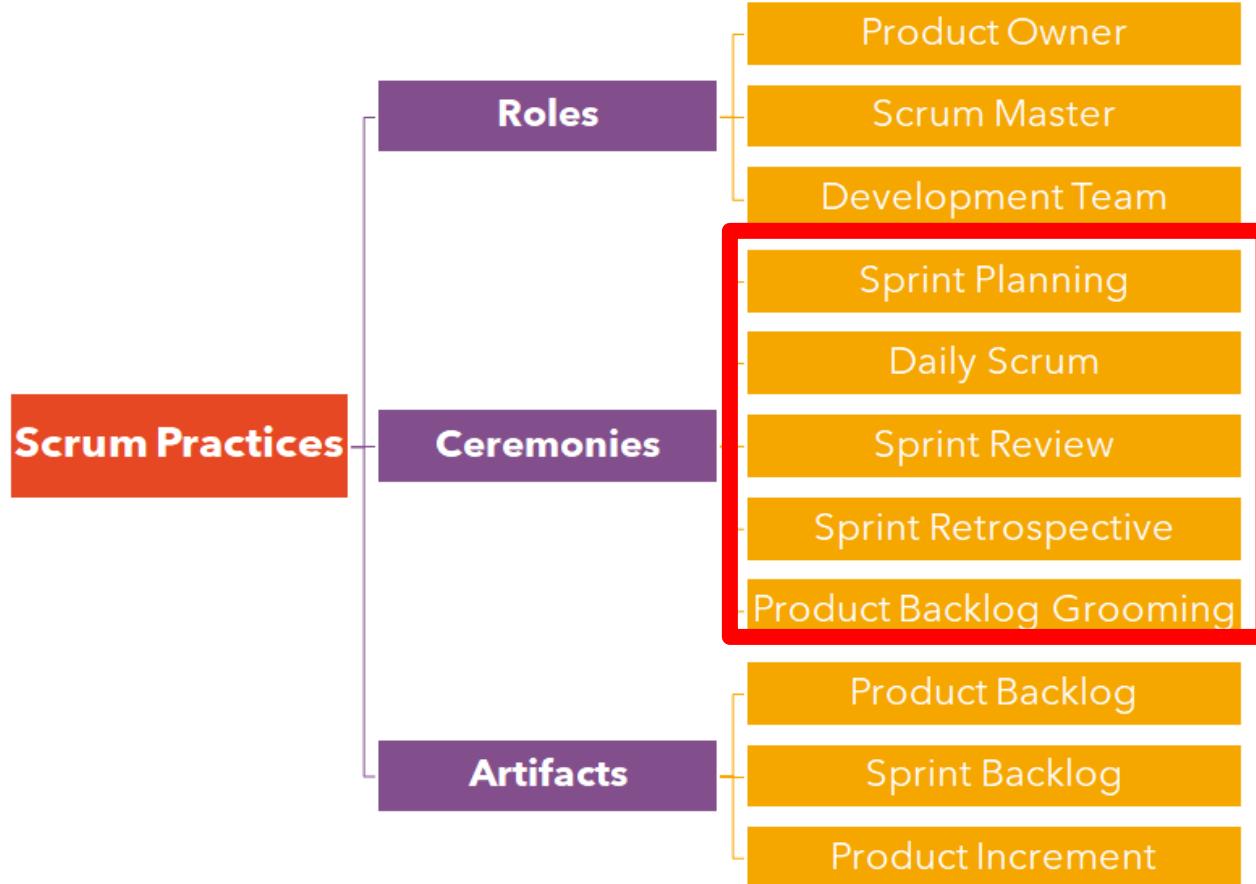
Students choose an option



Scrum Ceremonies



Scrum Practices



Scrum Meetings

Sprint Planning

Determine what work will be completed in the upcoming sprint based on the backlog.

Daily Standup

A 15-minute meeting for team to share what they did yesterday, what they'll do today, and blockers.

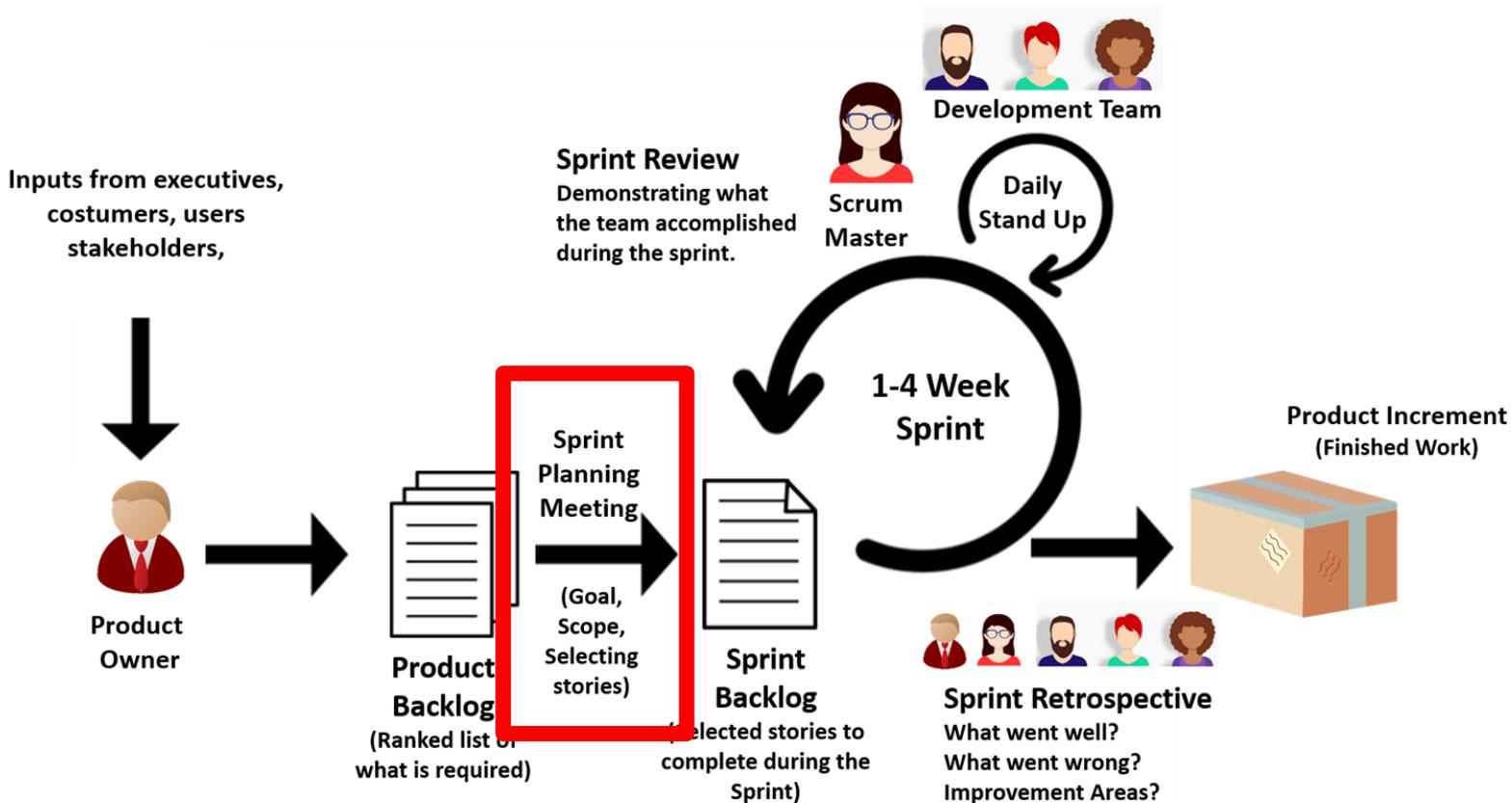
Sprint Review

Share work completed in the sprint and get feedback from stakeholders.

Retrospective

Reflect on what did/did not go well in the previous sprint and identify improvements.

Sprint Planning



Sprint Planning



Determine what work will be completed in the upcoming sprint based on the backlog.

- Ensure all user stories in the backlog are ready for development.
- Assign points to user stories to indicate the level of effort.
- Agree on what work will be done and by whom.

The screenshot shows a Jira backlog interface with three main sections: Sprint 2 Issues, Backlog, and Create Sprint.

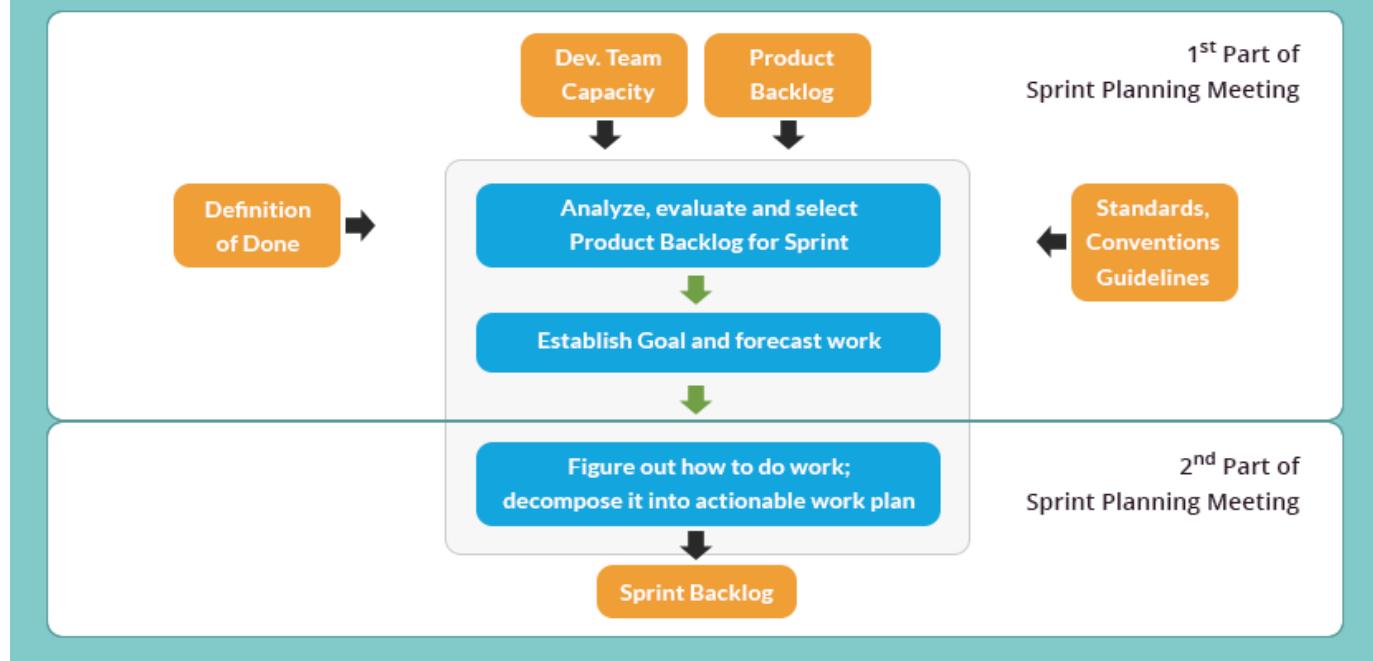
Sprint 2 Issues: A header with "Sprint 2 0 issues" and "Start Sprint". Below it is a message: "Plan a sprint by dragging the sprint footer down below some issues, or by dragging issues here". A "Create Issue" button is at the bottom.

Backlog: A header with "Backlog 36 issues" and "Create Sprint". Below it is a list of user stories:

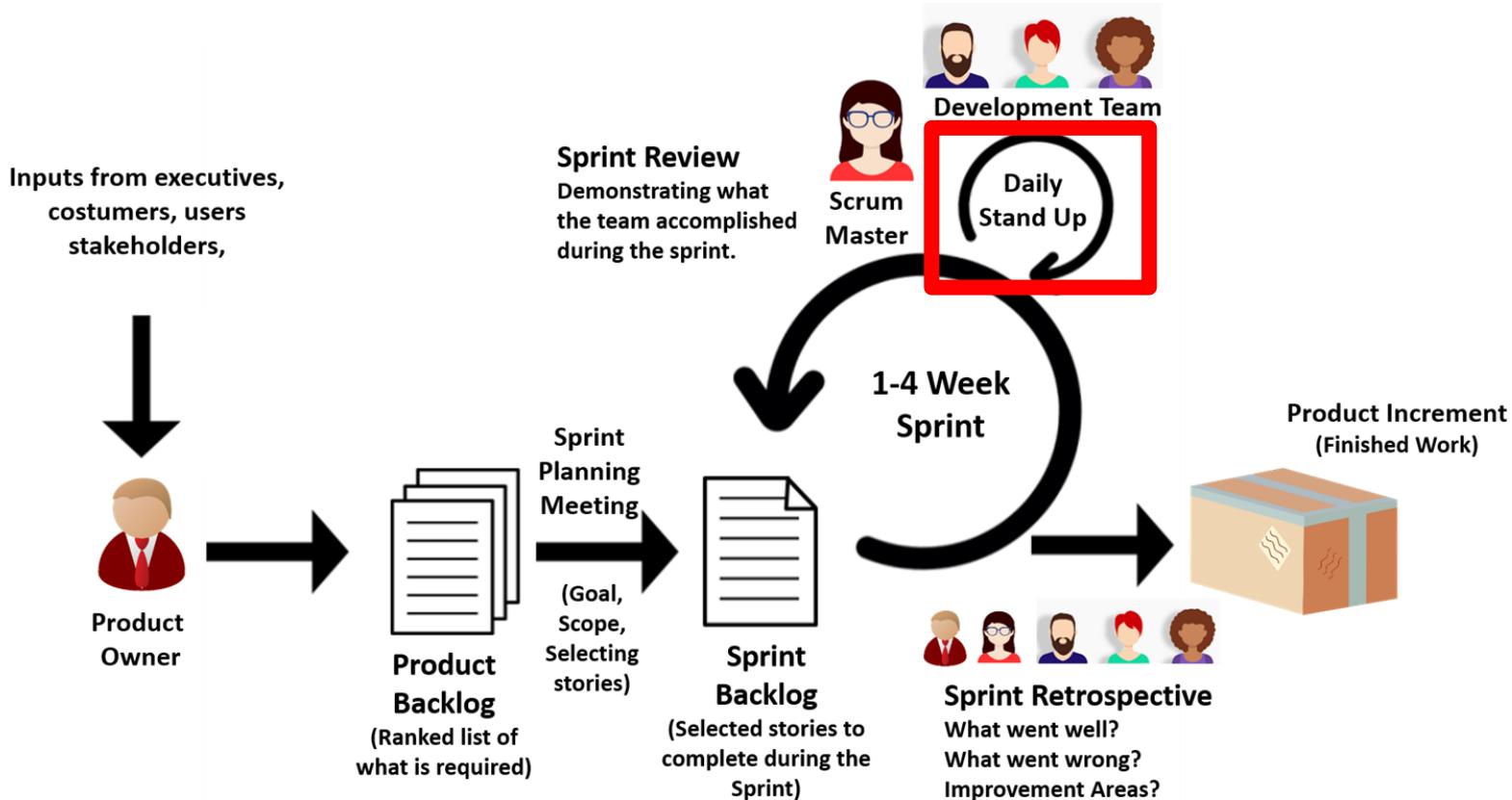
- TIS-45 Update LocalTransportController to handle 3.0 Large Team Support
- TIS-42 Extend booking experience in UI to includ 3.0 Large Team Support
- TIS-43 Extend booking experience in UI to includ 3.0 Large Team Support
- TIS-40 Update FlightController to handle multiple 3.0 Large Team Support
- TIS-44 Reward Customers an extra 5-10% when 3.0 Large Team Support
- TIS-39 Update UI controls on travel booking page 3.0 Large Team Support
- TIS-25 Engage Jupiter Express for outer solar 3.0 Space Travel Partners
- TIS-27 Add Phobos and Delmos Tours as a Pr 3.0 Space Travel Partners
- TIS-21 Create Email Campaign for Saturn Sum 2.2 Space Travel Partners

Sprint Planning

Determine what work will be completed in the upcoming sprint based on the backlog.



Daily Standup



Daily Standup



A 15-minute meeting for team to share what they did yesterday, what they'll do today, and blockers.

- 15 minutes max: Additional conversations can happen after standup.
- Happen on a daily basis during a sprint.
- Everyone answers three questions.

1. What did I do yesterday?
2. What will I do today?
3. What blockers do I have?



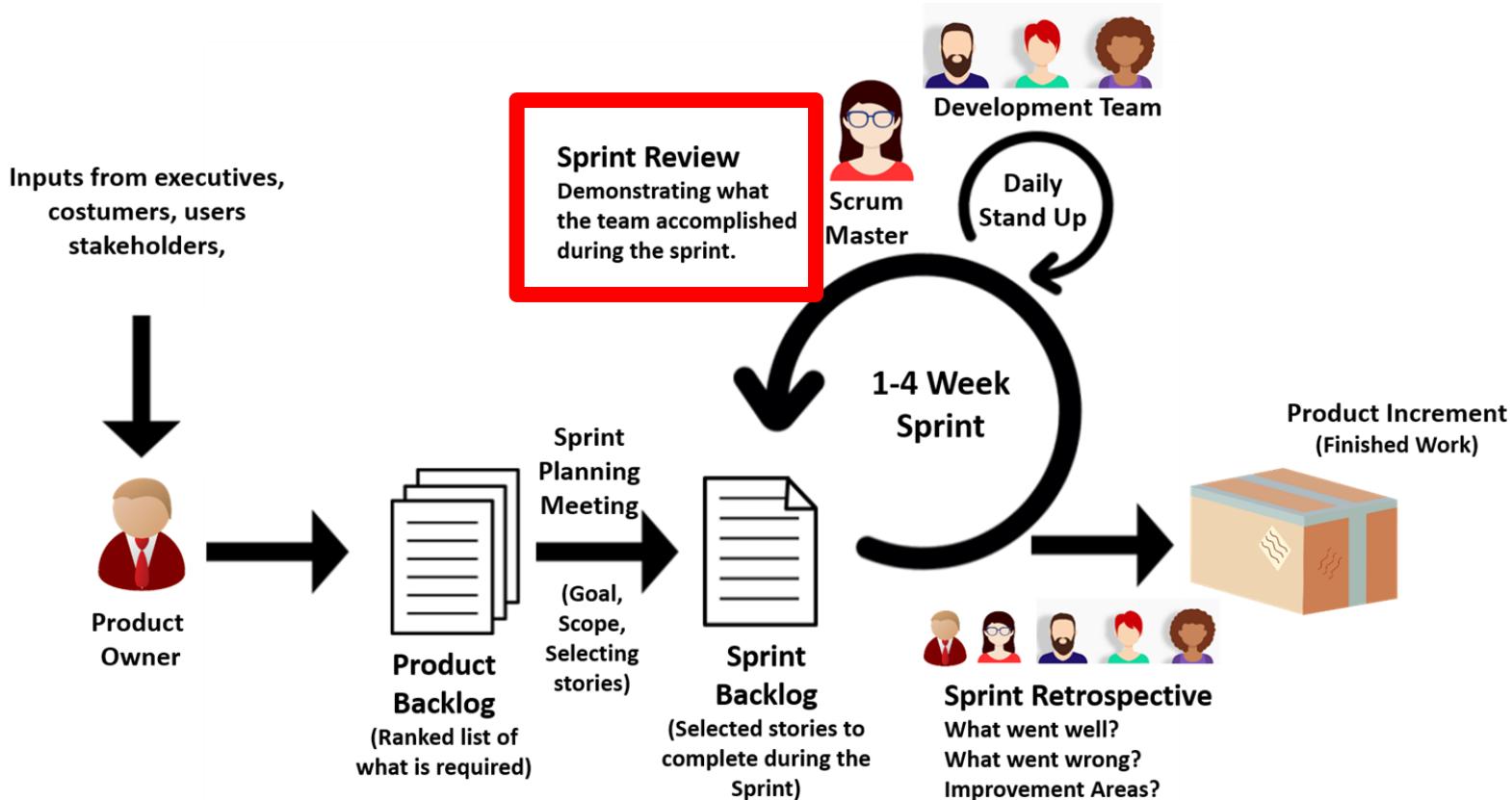


Who should necessarily attend the Daily Standup meeting?



Students choose an option

Sprint Review



Sprint Review

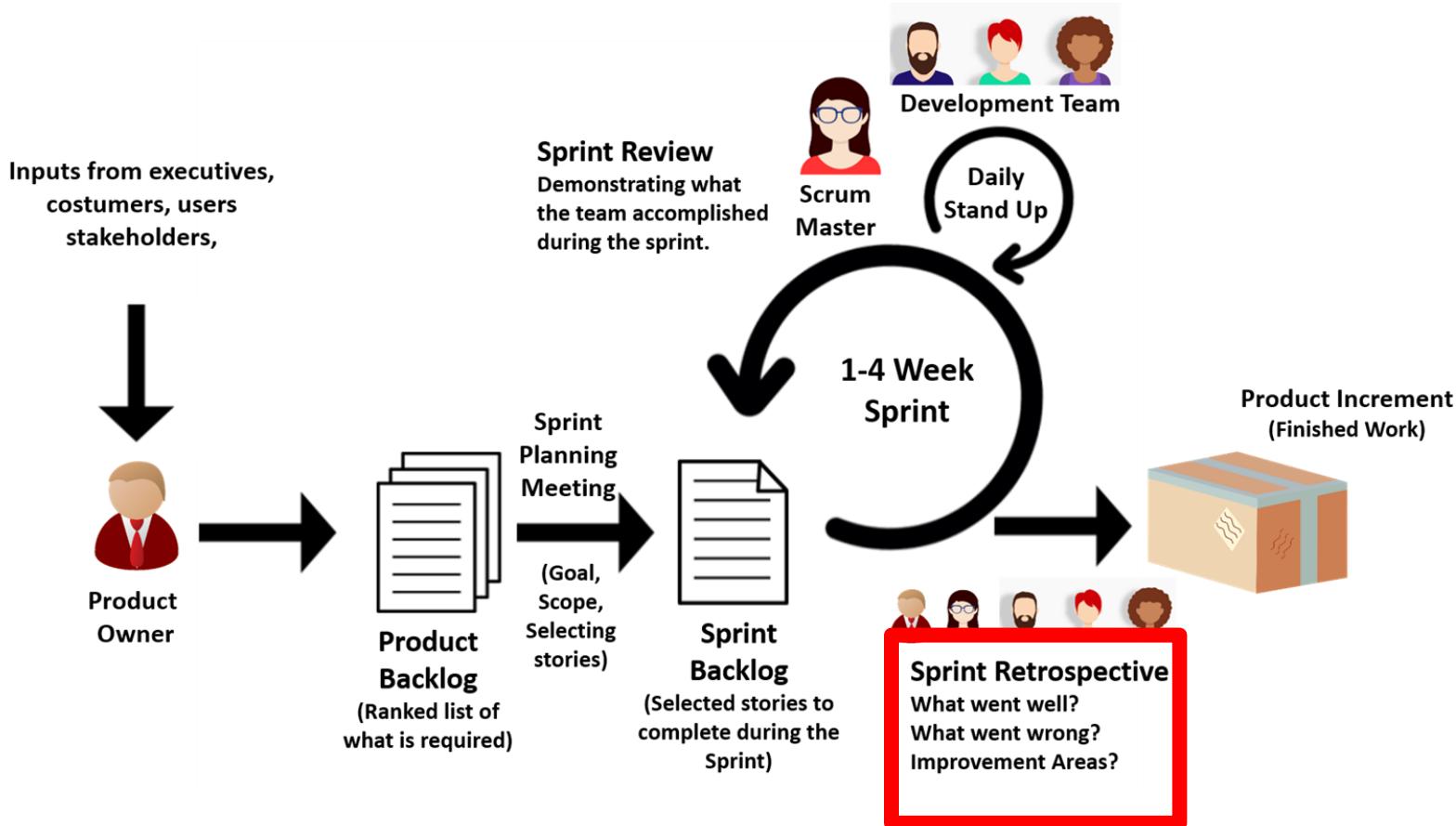


Share work completed in the sprint and get feedback from stakeholders.

- Team members share the work that they completed in the sprint.
- Stakeholders share feedback that's incorporated into future sprints.
- Celebrate progress and achievements.



Sprint Retrospective



Sprint Retrospective



Reflect on what did/did not go well in the previous sprint and identify improvements.

- Opportunity for the Scrum Team to inspect itself.
- Learnings are incorporated into future sprints.
- Make it more effective and enjoyable for the next Sprint.

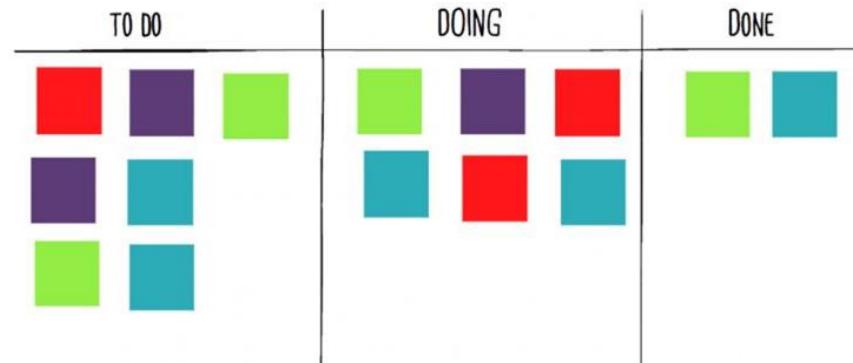
1. What went well?
2. What didn't go well?
3. What can we do differently?





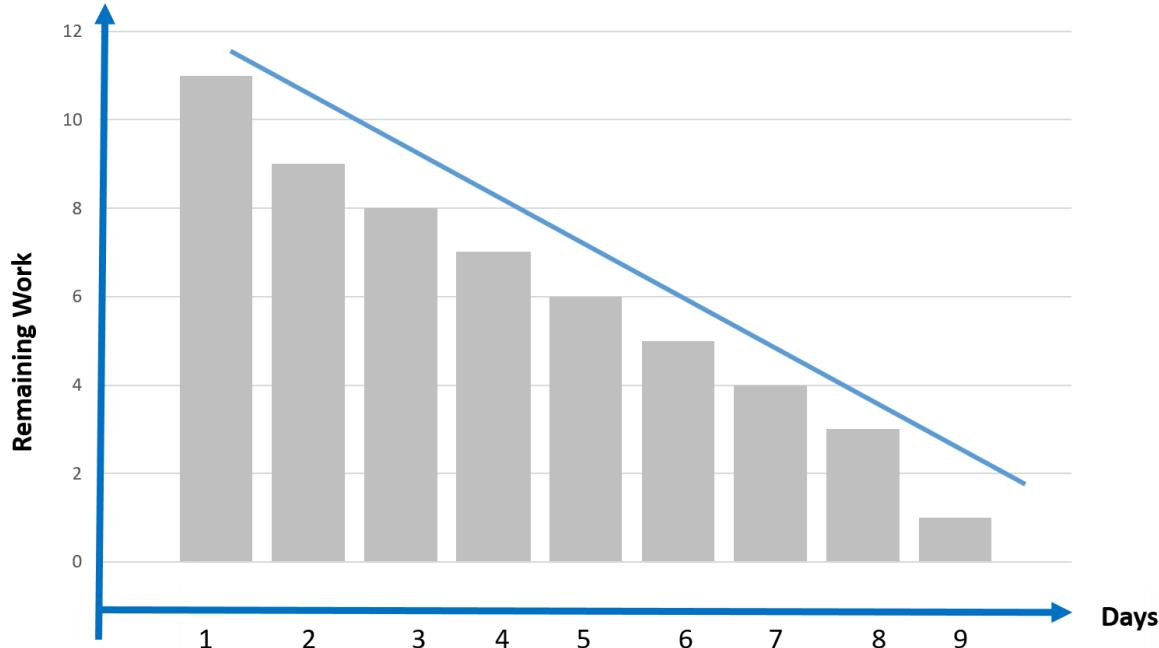
What happens when
all the Sprint Items
cannot be completed?

Sprint Backlog



Students choose an option

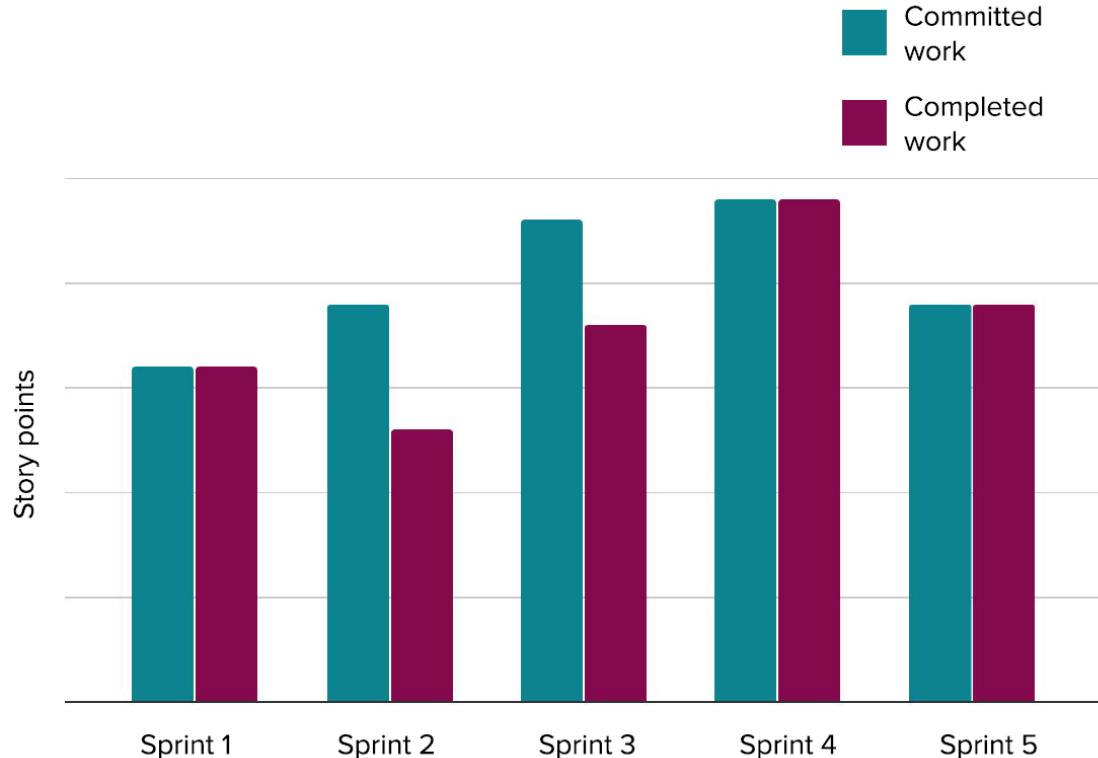
Burndown Chart



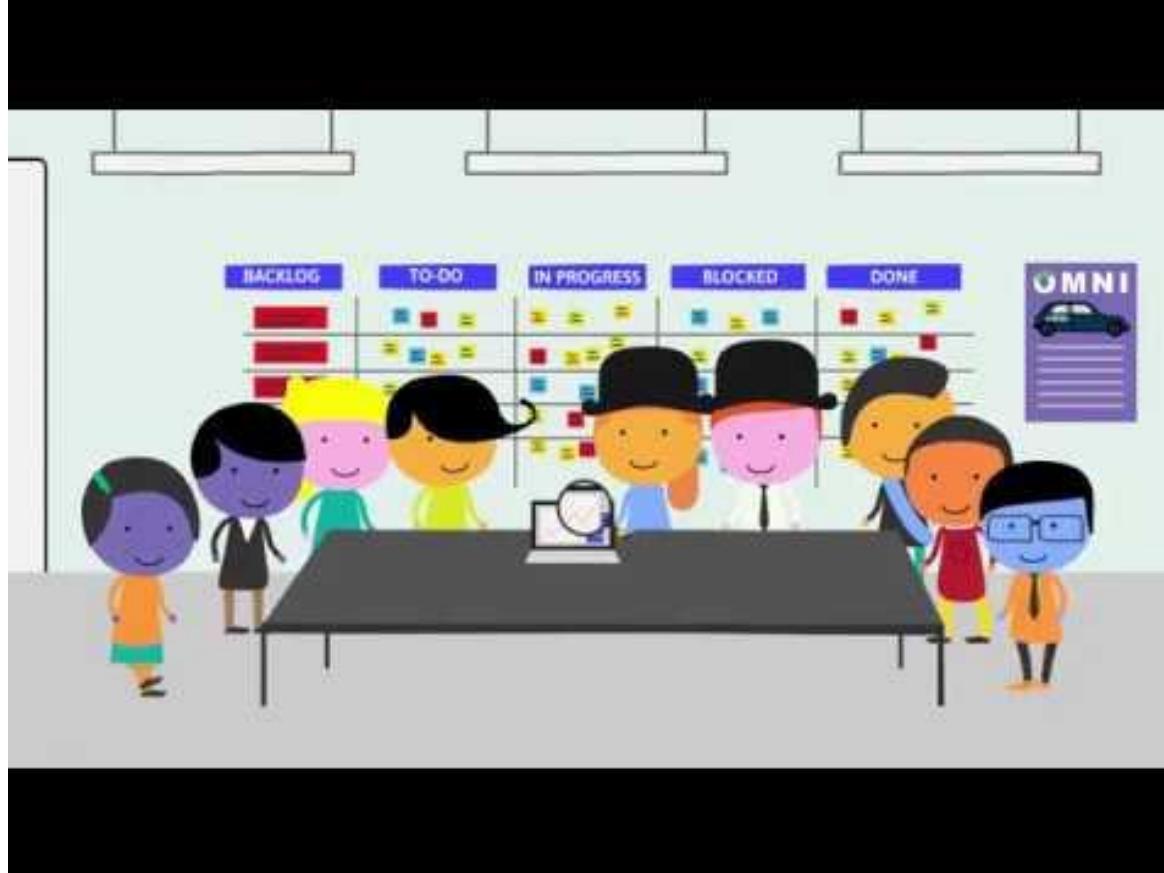
- Graphical demonstration of remaining work versus time.

Velocity Chart

- How much work is completed in each sprint.



A Brief Overview





KANBAN





► KANBAN

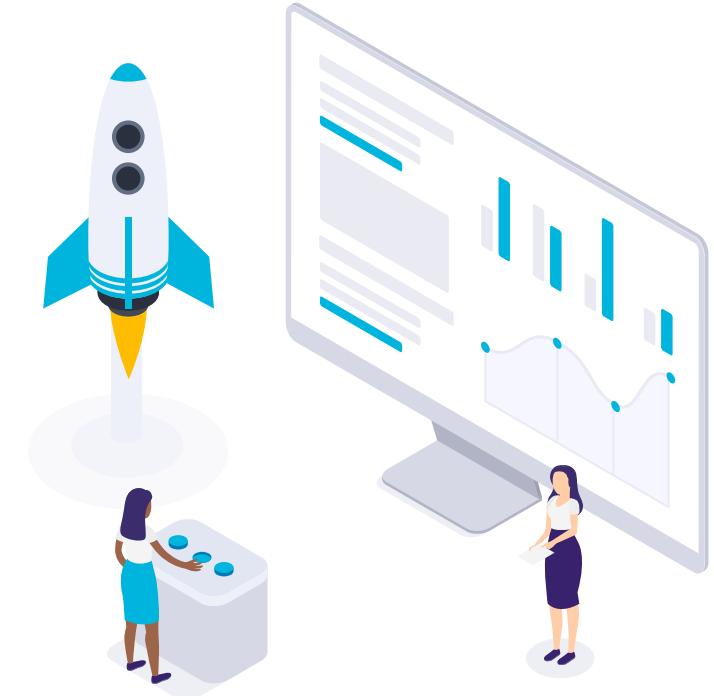
- ▶ Kanban Overview
- ▶ Kanban Board
- ▶ Principles of Kanban
- ▶ Kanban vs Scrum





1

Kanban Overview





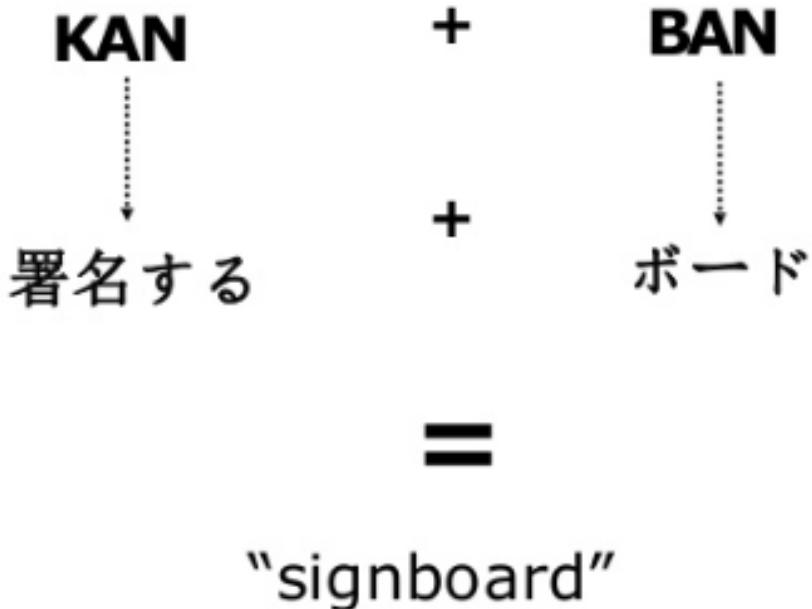
The word kanban is Japanese and roughly translated means “card you can see.”



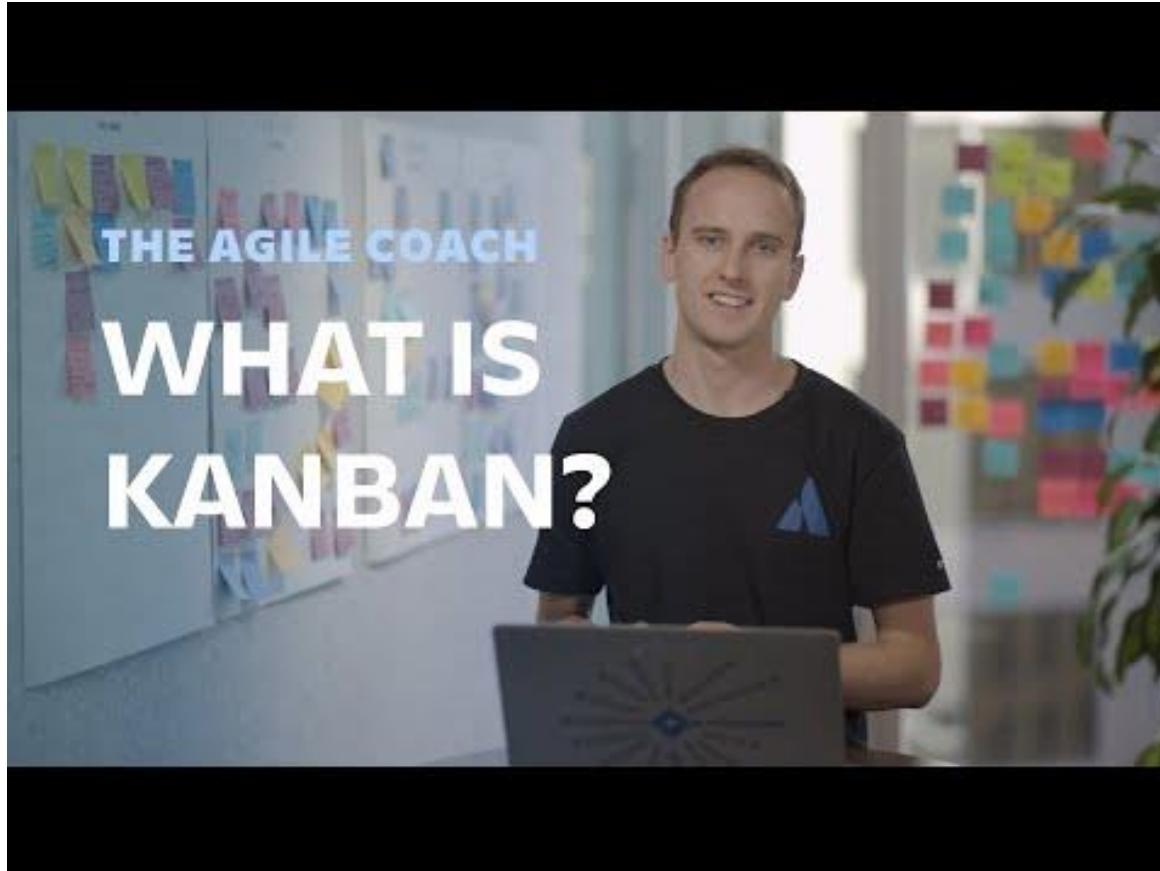
Students choose an option

What is Kanban?

Kanban is a fusion word with Japanese roots. The word “kan” means visual, and the meaning of the word “ban” is card.



What is Kanban?

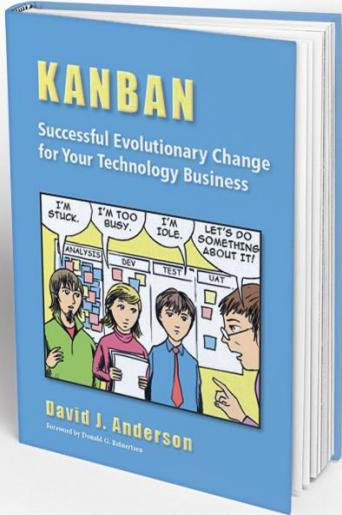


A Brief History on Kanban



- ▶ Dates back to the 1940s
- ▶ Toyota updated its production method based on the model that supermarkets use to manage stocks on shelves
- ▶ To monitor capacity levels in real-time, the company started using a card called "kanban" between different production teams

Kanban in Software Development



- ▶ In 2004, David J. Anderson introduced the idea of using the kanban concept for software development
- ▶ In 2010 he wrote a book named "Kanban: Successfully Evolutionary Change for your Technology Business "
- ▶ Kanban's use in software development begins after these attempts by David J. Anderson.

Kanban

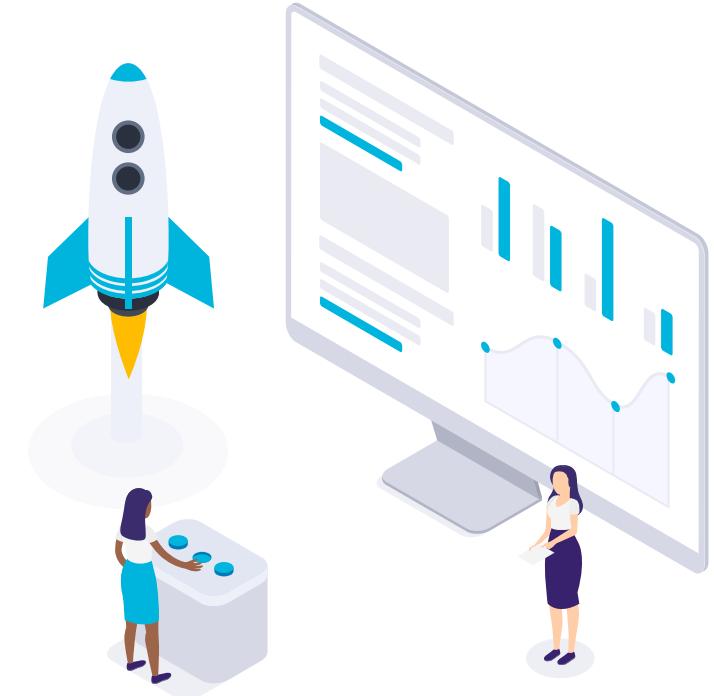


- No certain time limits in kanban
- Flexible in deadlines for the tasks
- No certain roles like:
 - a. product owner,
 - b. scrum master
 - c. development team



2

Kanban Board



Kanban Board



To Do

Ongoing

Review

Done

To Do	Ongoing	Review	Done

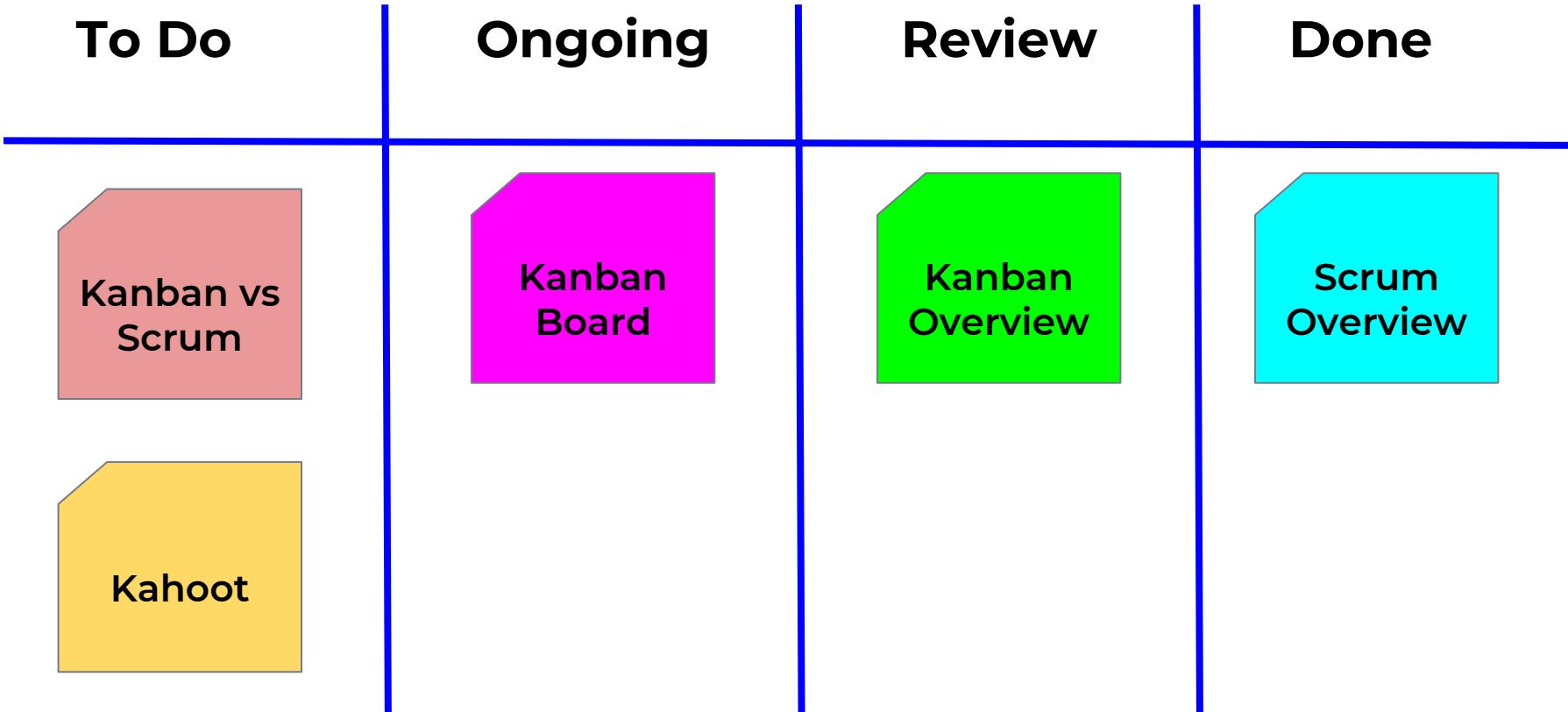
Kanban Board



To Do	Ongoing	Review	Done
Kanban vs Scrum	Kanban Board	Kanban Overview	Scrum Overview
Kahoot			

Kanban Board

PULL SYSTEM



Kanban Board

PULL SYSTEM

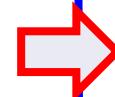
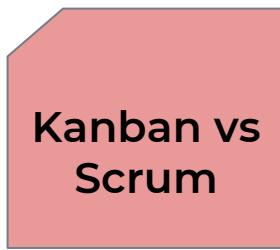


To Do

Ongoing

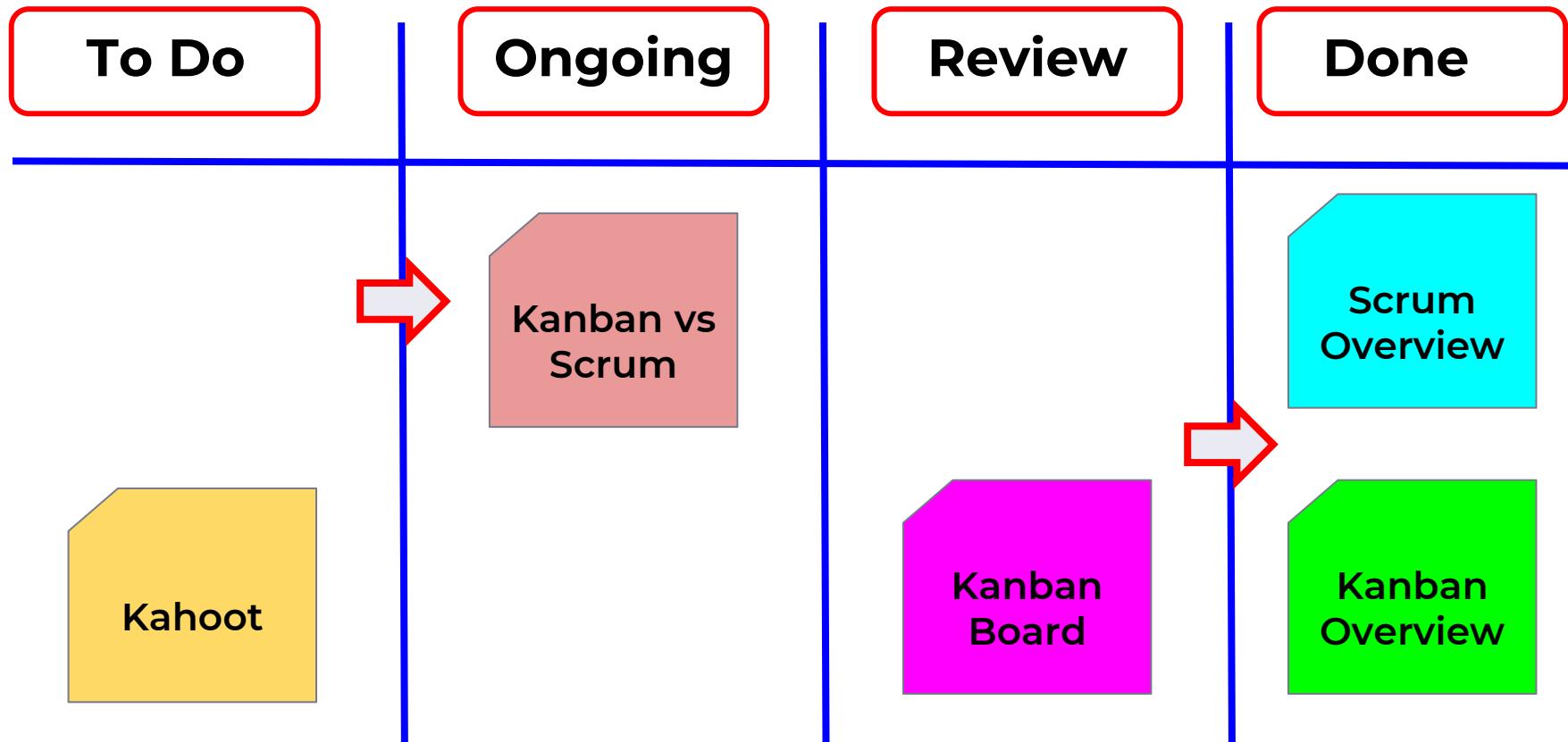
Review

Done



Kanban Board

WORKFLOW



Kanban Board

CARDS

Whiteboard

Status Total Hours Remaining Reset Board Add Action

Planned (37)	In Progress (32)	On Hold (3)	Complete (27)	Cancelled (1)
306	108	18	0	0
PAN:5791 A: Build Framework M: Build P: NGP: Website Build 27/11/2017 27/11/2017 6.00 0.00 0.00%	PAN:5641 A: (1) Design Wireframes M: Design P: Nitro: Website Build 23/10/2017 23/10/2017 6.00 0.00 0.00% PAN:6068 A: Build Framework M: Build P: Site Seeker: Website Bu... 4/12/2017 6/12/2017 6.00 0.00 0.00%	PAN:5642 A: (2) Design Wireframes M: Design P: Nitro: Website Build 23/10/2017 23/10/2017 6.00 0.00 0.00% PAN:5951 A: Build Page Content M: Build P: Law In Order: Webs... 5/12/2017 5/12/2017 6.00 0.00 0.00%	PAN:4437 A: Backlog P: Agile Project Templ... 18/05/2017 18/05/2017 4.00 0.00 100.00% PAN:5794 A: Deliver Training M: Deliver P: NGP: Website Build 8/12/2017 8/12/2017 4.00 0.00 100.00% PAN:6100 A: Design UI M: Design P: CI Event: Website Bu... 18/12/2017 19/12/2017 8.00 0.00 0.00%	PAN:5983 A: Build Page Content M: Build P: Time Point: Websit... 5/12/2017 5/12/2017 6.00 0.00 0.00%
PAN:5819 A: Build Framework M: Build P: NIIMBL: Website B... 27/11/2017 27/11/2017 6.00 0.00 0.00%	PAN:6218 A: Design UI M: Design P: CI Event: Website Bu... 18/12/2017 19/12/2017 8.00 0.00 0.00% PAN:5640 A: Design UI M: Design P: Nitro: Website Build 23/10/2017 23/10/2017 6.00 0.00 0.00%	PAN:4433 A: Sprint 1 P: Agile Project Templ... 18/05/2017 18/05/2017 8.00 0.00 100.00% PAN:4432 A: Design Wireframes M: Sprint 1 P: Agile Project Templ... 18/05/2017 18/05/2017 8.00 0.00 0.00%		
PAN:5792 A: Build Page content M: Build P: NGP: Website Build 27/11/2017 29/11/2017 6.00 0.00 0.00%				
PAN:5981 A: Design UI M: Design P: Time Point: Websit... 28/11/2017 29/11/2017 6.00 0.00 0.00%				

SMS Inbox

Roles

- Agata Norris
- Amy Lee
- Andrea Flott
- Blake Johnston
- Carey Bonn
- Chris Woolcott
- Colin Johnson

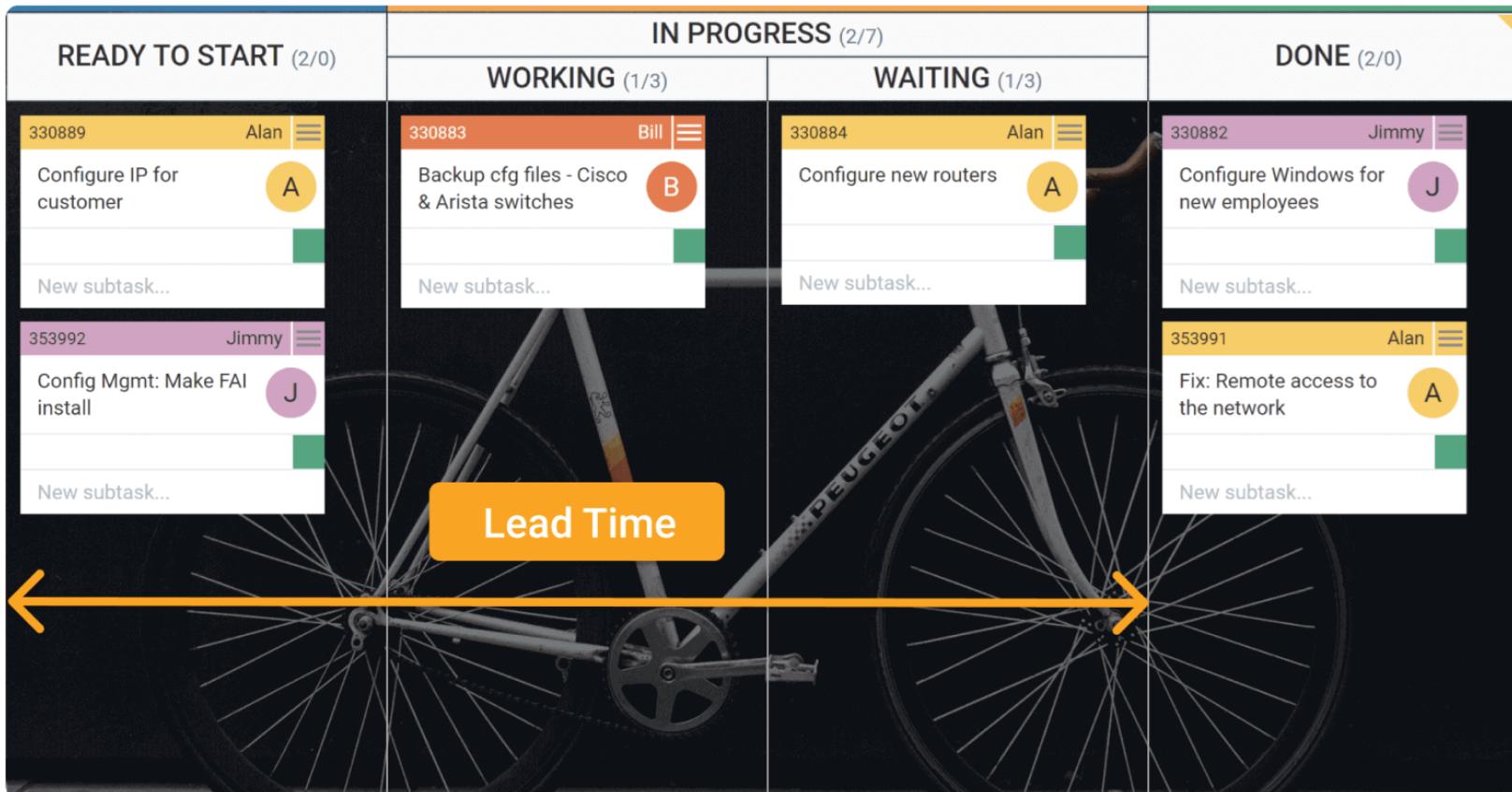


It is the period between creating a task in your workflow and its final departure from the kanban board.

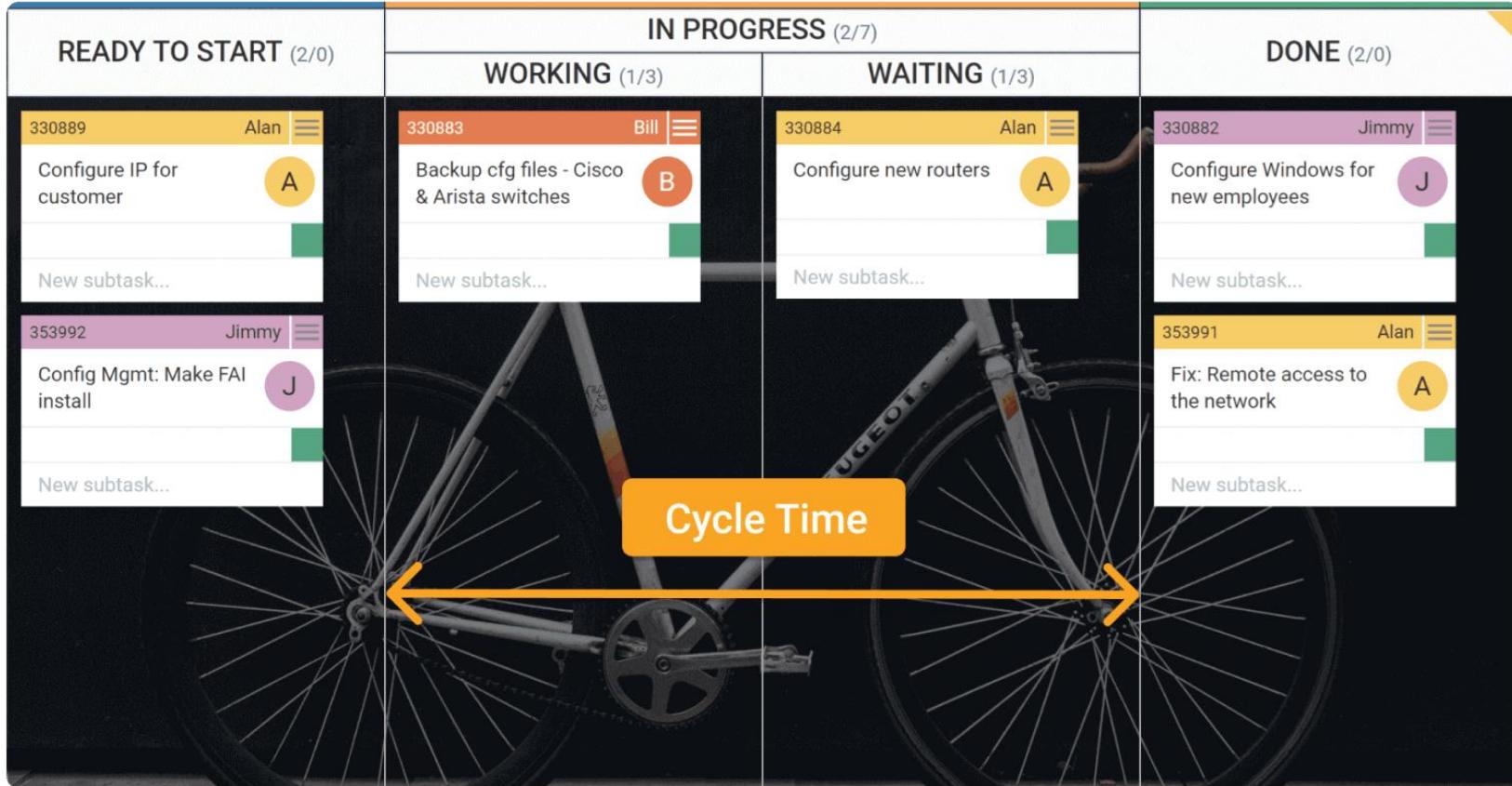


Students choose an option

Lead Time



Cycle Time





The image is a word cloud centered around the term "kanban". The words are arranged in a circular pattern, with "kanban" being the largest and most central word. Other prominent words include "time", "production", "scrum", "process", "lean", "technology", "management", "leadership", "organization", "reminder", "desk", "software", "progress", "method", "system", "supply", "efficiency", "model", "loops", "flow", "change", "startup", "japan", "user", "manufacturing", "inventory", "kaizen", "project delivery", "feedback", "board", "improvement", "management", "development", "agile", "plan", and "scheduling". The words are colored in various shades of brown, tan, and yellow, and their sizes vary to represent their importance in the context of kanban.

Kanban has 4 principles and
6 core practices.



Students choose an option

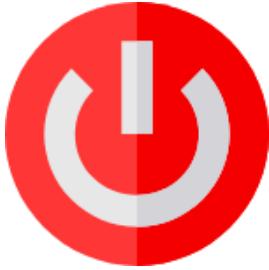


3

Principles of Kanban



Principles of Kanban

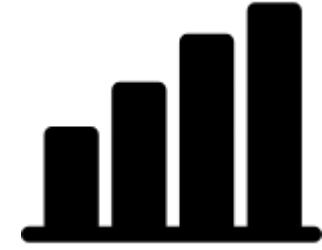


Start with what
you are doing
now

Agree to pursue
incremental

Initially respect
current roles

Encourage
leadership at all
levels



Start With What You Are Doing Now



- First Principle

- Do not make instant changes to the existing setup or process
- Kanban must be directly applied to the existing workflow
- Necessary changes should be made slowly and gradually

Agree to Pursue Incremental

- Second Principle



- Make minor incremental changes rather than major changes
- Major changes lead to resistance within the team

Initially Respect Current Roles

- **Third Principle**



- You do not need to modify your existing roles and functions that perform well
- The team will coordinate and implement the necessary changes to the roles and titles

Encourage Leadership At All Levels



- **Fourth Principle**

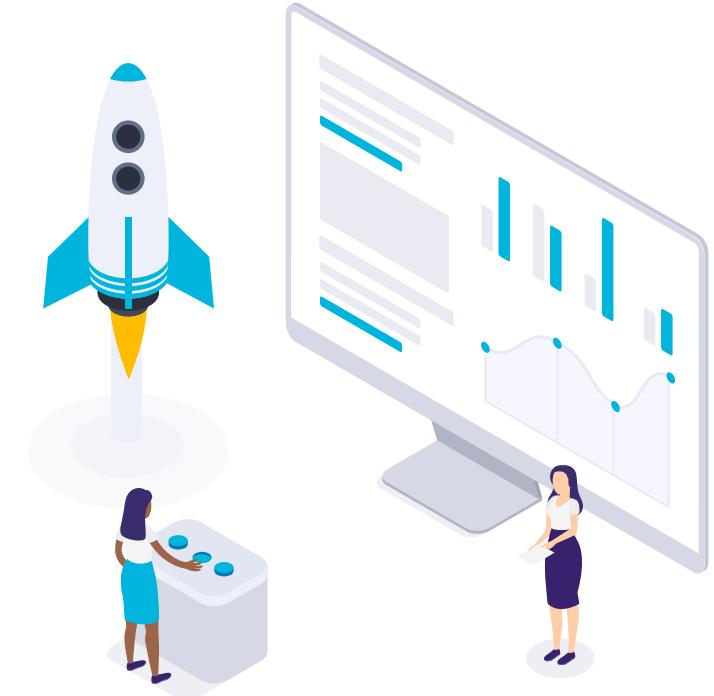


- Constant improvement at all levels of the organization is encouraged
- It is desirable that all team members produce ideas and show leadership

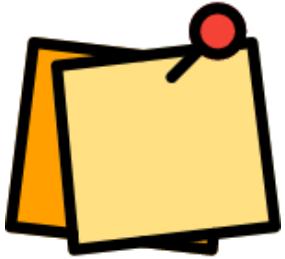


4

Practices of Kanban



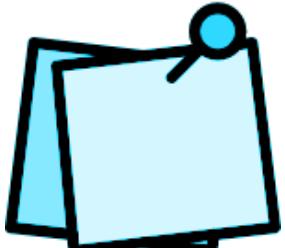
Practices of Kanban



Visualizing
the Workflow

Limit Work
in Progress
(WIP)

Managing Flow



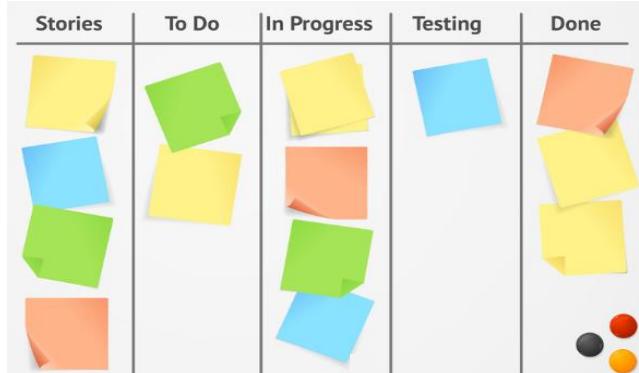
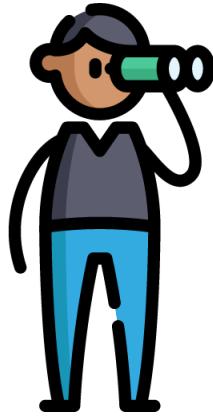
Making Process
Policies Explicit

Implementing
Feedback Loops

Evolving
Experimentally



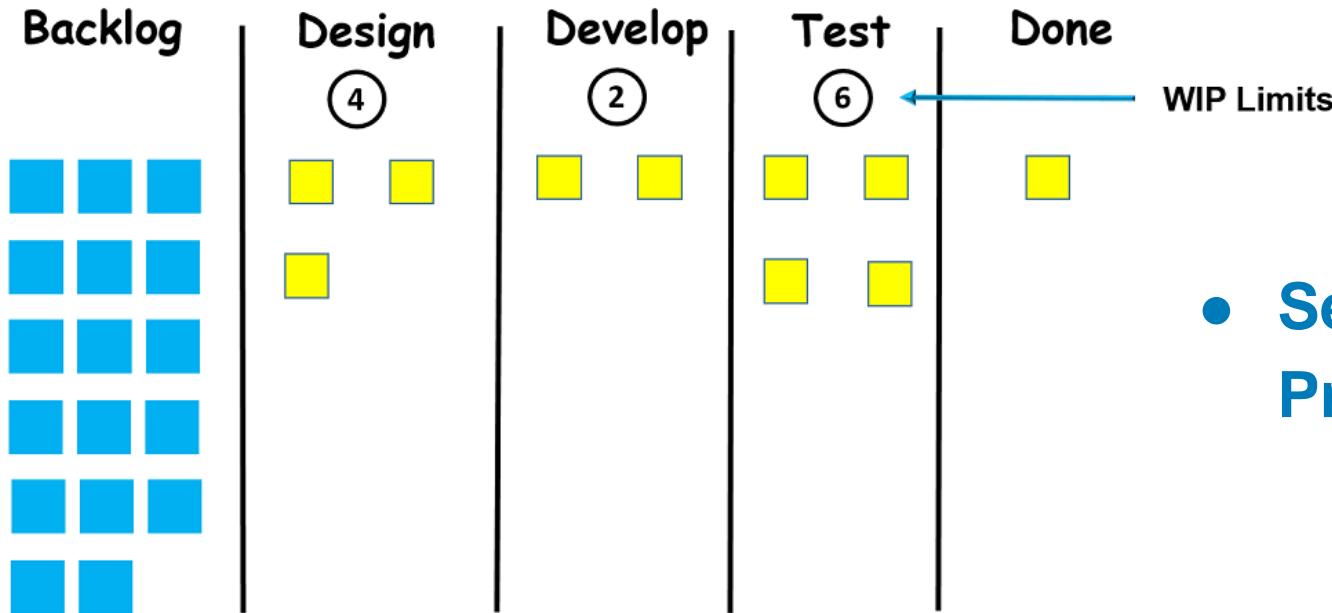
Visualizing the Workflow



- **First Practice**

- Visualization is the first step to start with Kanban
- When you visualize the process, it can be seen what you and your team are currently doing

Limit Work in Progress (WIP)



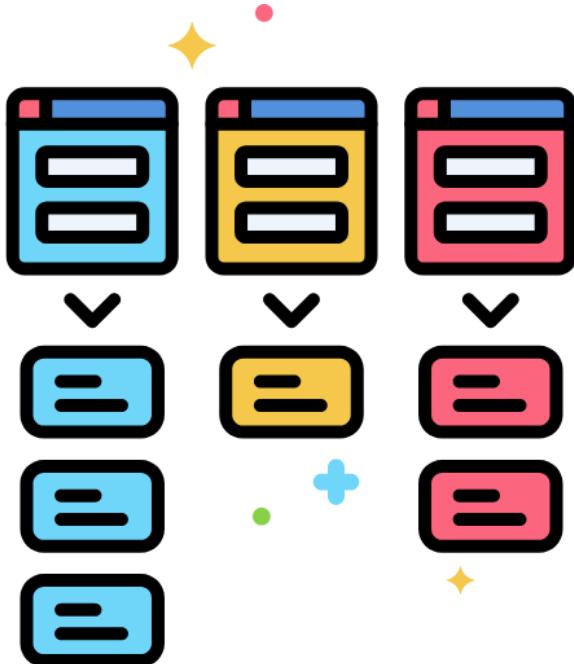
- **Second Practice**

- When you assign a limit to each column, your team doesn't work more than they can handle

Managing Flow

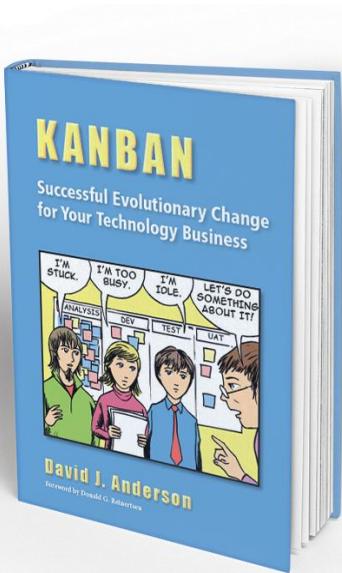


- **Third Practice**



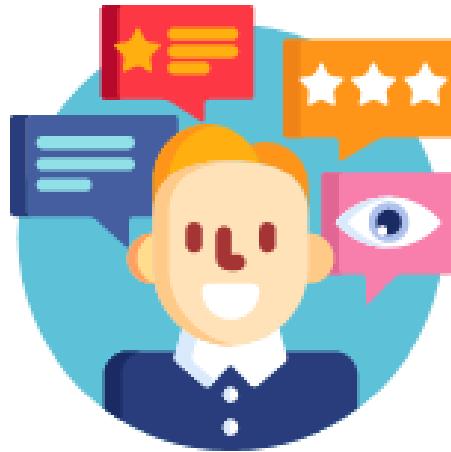
- As you manage the flow and improve it, your team's pace becomes more predictable
- This makes it easy for you to make commitments to your customers

Making Process Policies Explicit



- Fourth Practice
- Being explicit allows the team to follow the process easily and make proposals for the improvements
- Team members who are not clear about the existing process can not improve the system

Implementing Feedback Loops

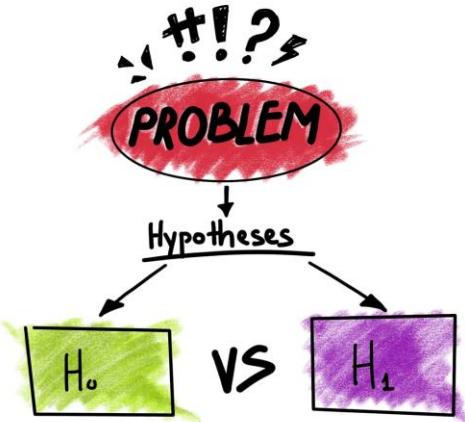


- **Fifth Practice**

- You should know what your customers and the end-users think.
- Automated continuously running tests are preferred as they shorten feedback loops.

Evolving Experimentally

● Sixth Practice

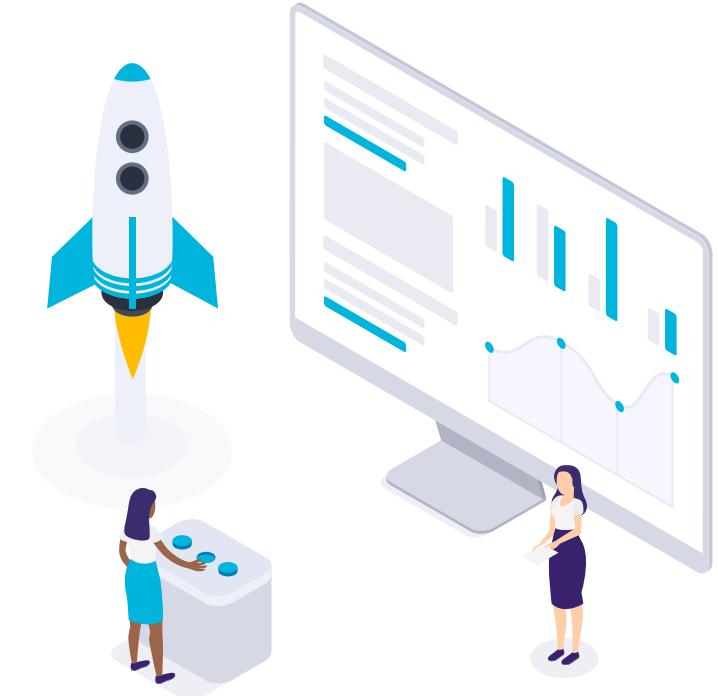


- Kanban encourages you to use scientific methods like you form a hypothesis and test it
- By using hypothesis testing, you can assess whether a change helps you improve or not
- Then you make a decision about whether to try some other solutions or to keep the current status



5

Kanban vs. Scrum



Comparing Kanban with Scrum

	Scrum	Kanban
Model	Time-based (<i>e.g. biweekly sprints</i>)	Event-based (<i>continuous deliver</i>)
Planning	Sprint planning	Just-in-time planning
Limiting factor	Sprint capacity limit	Work in Progress (WiP)
Metrics	Velocity	Cycle/Lead time
Task estimation	Must be done before each sprint	Flexible (<i>can be done at any time</i>)

Comparing Kanban with Scrum

SCRUM	KANBAN
 Work is done within time-boxed sprints, generally of 2-4 weeks. The goal is to produce a potentially shippable product after each sprint.	 There are no fixed-length sprints. Instead teams pull tasks from a prioritized backlog of things that need to be done.
 Product is released on a particular cadence, which is determined by the sprints' length. So a team may release after 3 sprints, or every 6 weeks.	 Releases occur continuously, or whenever there is a shippable product created.
 There's a heavy focus on cross-functionality. Teams have no specified roles; everyone is a "marketer."	 Team members can specialize and pull tasks related to their area of expertise, but too much specialization will reduce a team's effectiveness.
 Sprint kickoffs, daily standups, sprint reviews, and sprint retrospectives are vital rituals within the Scrum process.	 There is an emphasis on continually improving processes, but no standardized regular meetings or rituals.

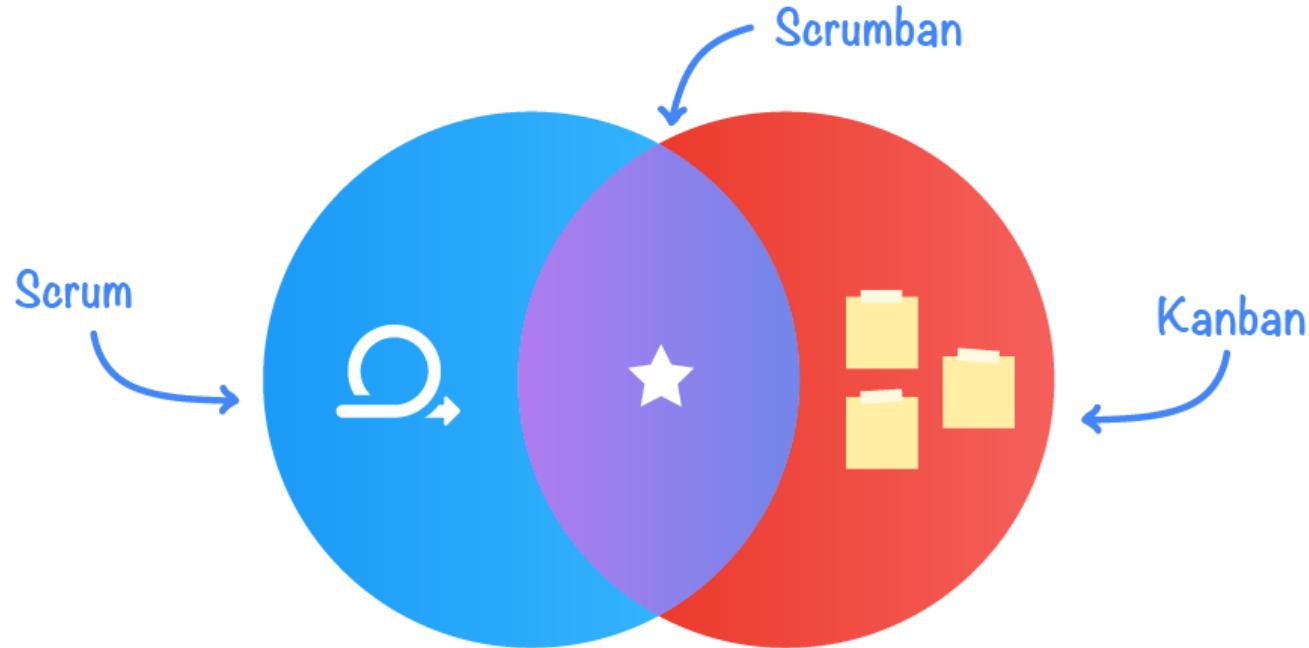


Which statement cannot
be said while comparing
Kanban with Scrum?



Students choose an option

Scrumban





It is the period between creating a task in your workflow and its final departure from the kanban board.



Students choose an option



Which project management tool are you familiar with?



Students choose an option

How well did you like this lesson?



Students, drag the icon!



Pear Deck Interactive Slide
Do not remove this bar

Kahoot!





THANKS!

Any questions?

