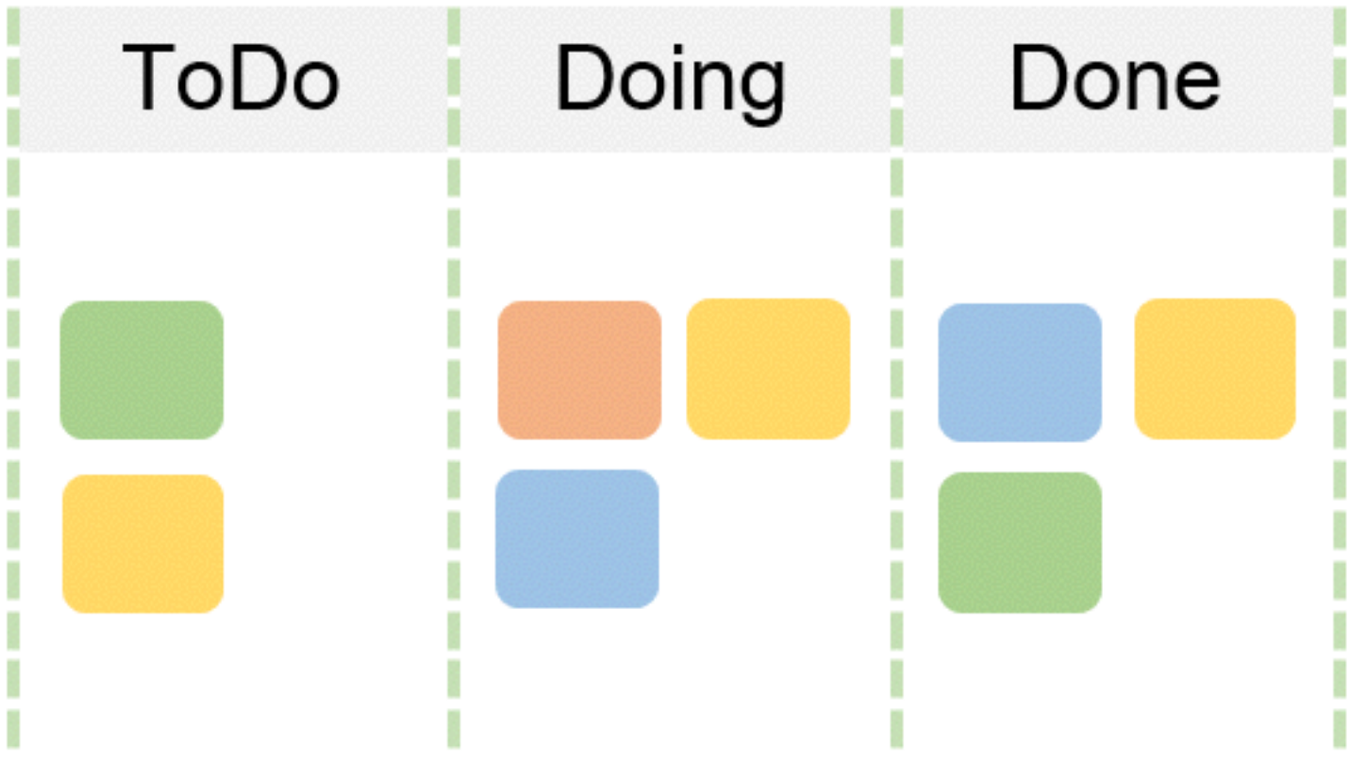
UNIVERSITAT DE BARCELONA

KANBAN



by Eloi Puertas

based on Oriol Pujol Software Engineering slides.

What is **Kanban**

- Kanban is an industrial technique for “pulling” work through its entire life-cycle, causing the work to flow more smoothly and at a higher rate.

- Kanban also shines a light on the activities that are normally hidden. This visibility is at two levels; for individual activities, and also over the lifecycle as a whole.

- The word “Kanban” is Japanese and means “Visual Card”.

The Role of **Kanban**

- Kanban is about improving business agility:
  - How often discussion customers take place?
  - How often does it takes to do something once we committed?
  - How often are we able to deploy a new feature?

Kanban gives us some **tools**: replenishment cadence, lead time, delivery cadence.

Goals of **Kanban**

- Minimize delays (waste)
- Improve quality
- Deliver early and often
- Balance demand and throughput
- Improve predictability
- Prioritize for outcome

Principles of Kanban

- **Visualize Work.**
- **Limit Work-In-Progress (WIP).**
- **Make Policies Explicit.**
- **Measure and Manage workflow.**

Kanban Lanes

The first step towards visualizing your workflow is to understand your current process:

Where is it now?

- I am working on it, so I would say “it is in **development**”
- It is finished but it has not been tested yet so I would say “It is waiting for **testing**”

In development

Kanban Lanes

The first step towards visualizing your workflow is to understand your current process:

Where will it go?

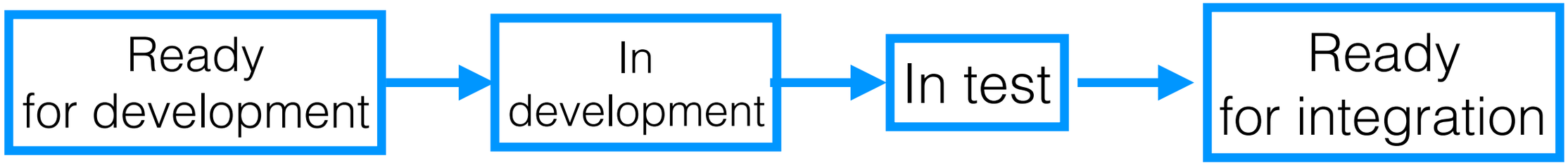
- When I am done it will be ready to **test**.
- After I am done it will be tested and ready for **integration**.

Kanban Lanes

The first step towards visualizing your workflow is to understand your current process:

Where was before?

- The business annalist has it before me but I have not started with it yet, so I would say it is done with analysis or ready for development



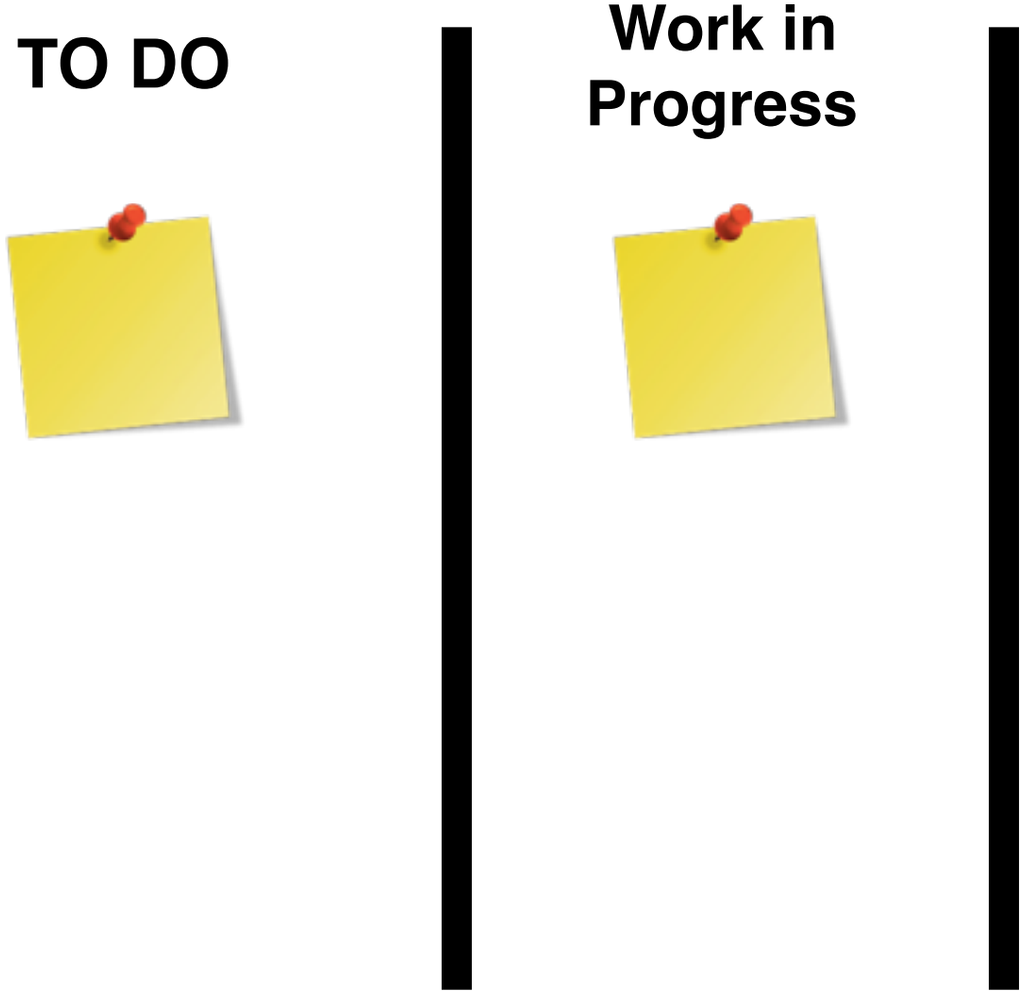
Kanban Lanes

- Lanes describes actions
- Cards describes things that have value and teams deliver (US, Tasks)

Ready for development	**In development**	**In test**	**Ready for integration**
			

Basic Layout

- Any project can be reduced to



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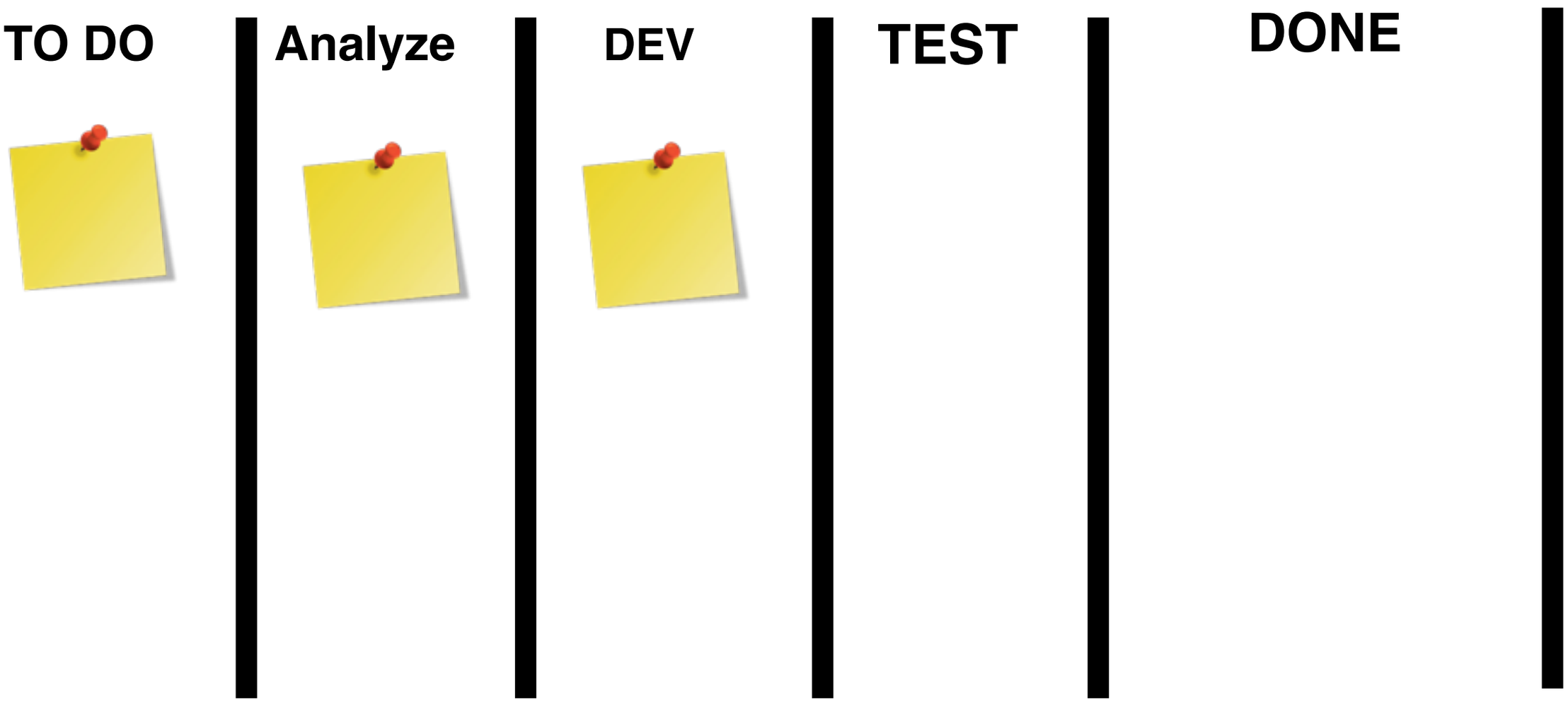


Do your kanban **wall**!

For each issue/task write down the answer to the following questions

- What type of work is it?

- Where is it now?
- Where was it before I took it?
- Where will it go once finished my work?

Limit your work in progress

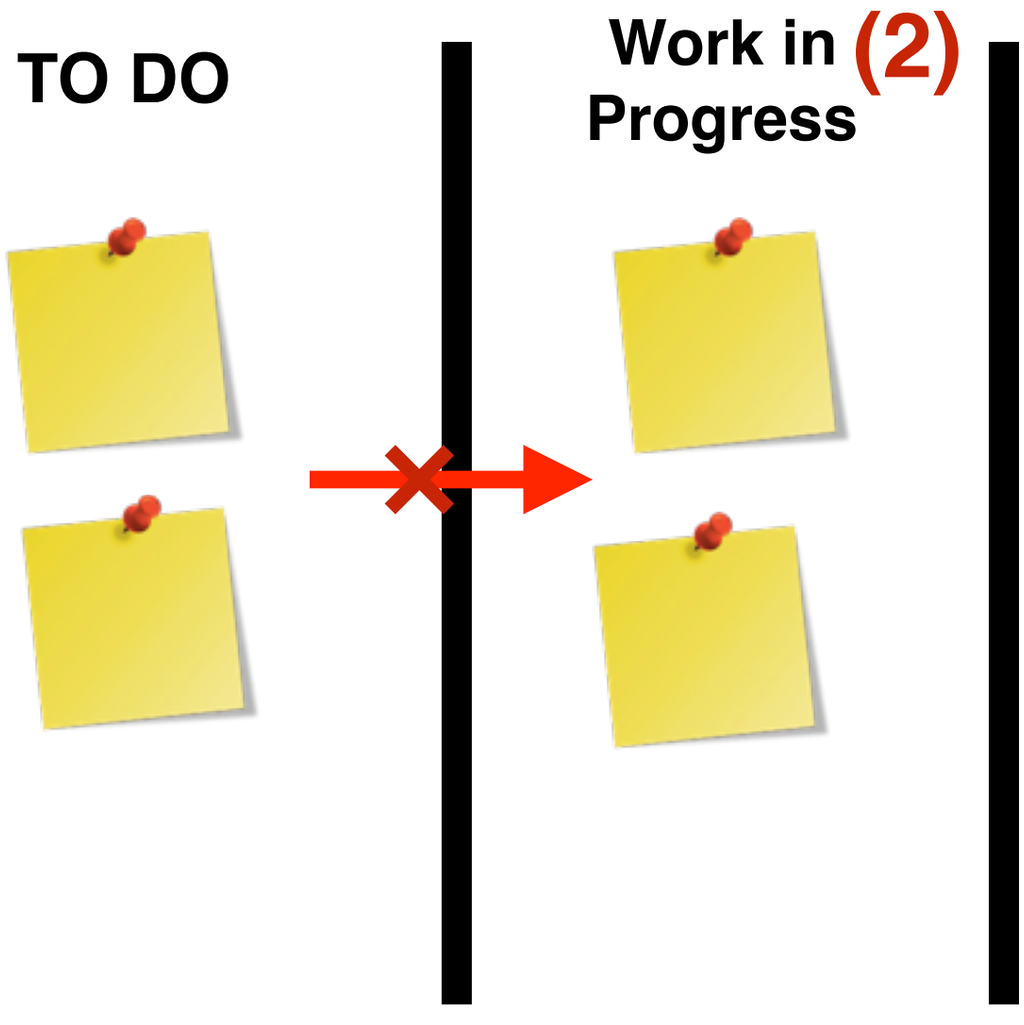
Agile techniques are based on the concept of deliver continuous and frequent delivery. Limiting **work in process** is a way to achieve this goal

With two hands you can only be proficient with up to two tools, then why plan as we had more?

Limit your work in progress

- Kanban is about maintaining flow and eliminating waste
  - Put limits on columns in which work is being performed
  - Get the limits right is tough, start with a best test and fine-tune
  - Ultimate goal to achieve a constant high throughput and personal/team performance

Limit your work in progress



A **note** on capacity

100% capacity on all lanes means minimal throughput – It is like a traffic jam, if all lanes are at maximum capacity the flow follows the leading elements and easily stalls.

This is a symptom of congestion that may lead to blocking!

Put **limits** on your Kanban!

Trello

GitHub

Don’t push, **pull** instead

It is easy to get friction between different teams, specially when one is more performant and pushes more work than the other one can actually handle.

Instead use the pull system, a team pulls work when it is ready for it.

Each time someone pulls an item identify the ownership of the tasks.

Improving visualization through queues.

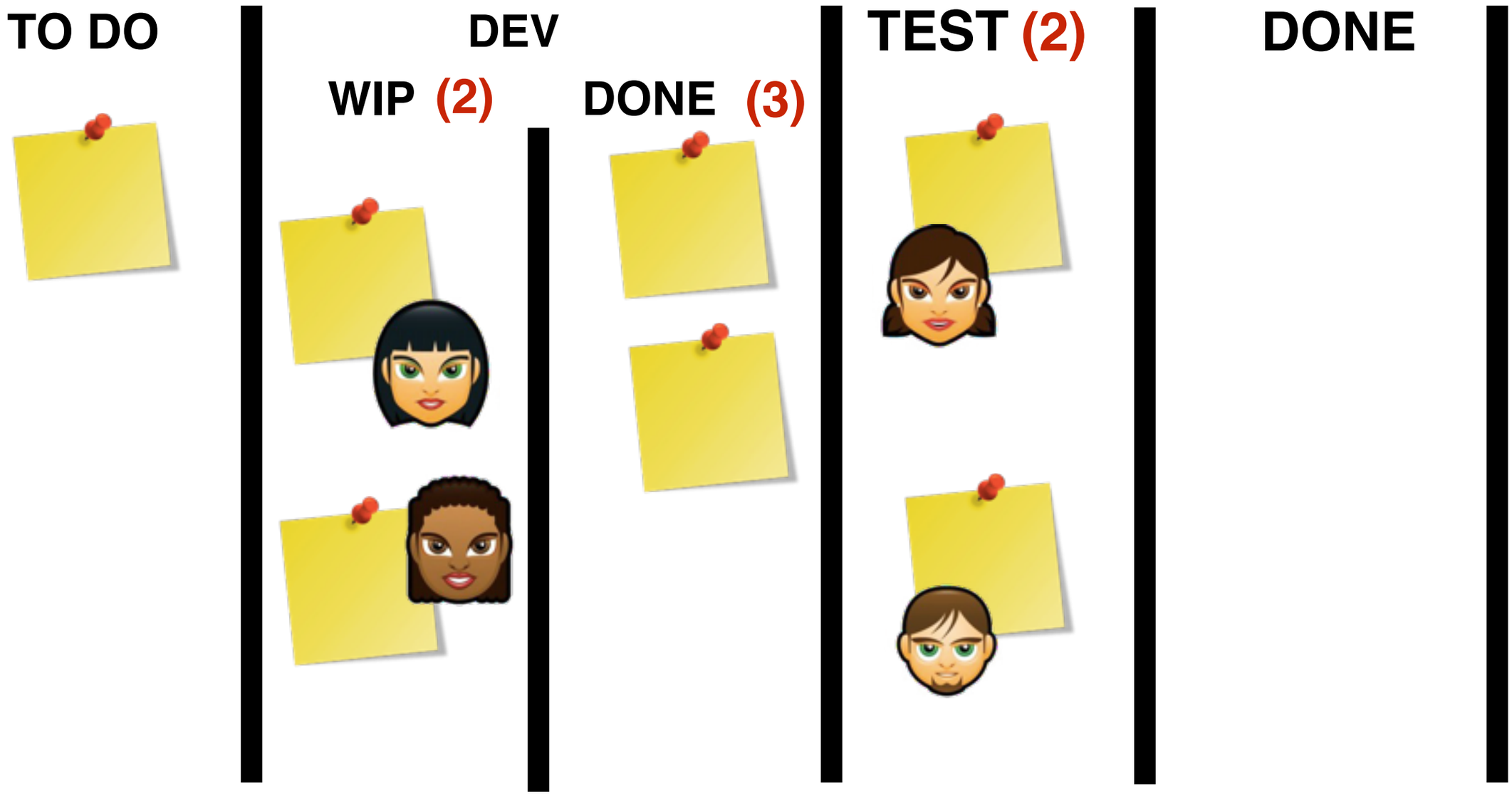
When there are several interdependent teams **the slowest team can** block the whole process.

Because we use a pull system a blocked lane means that the responsible team for that lane cannot pull any new work until the blocking team pulls an item.

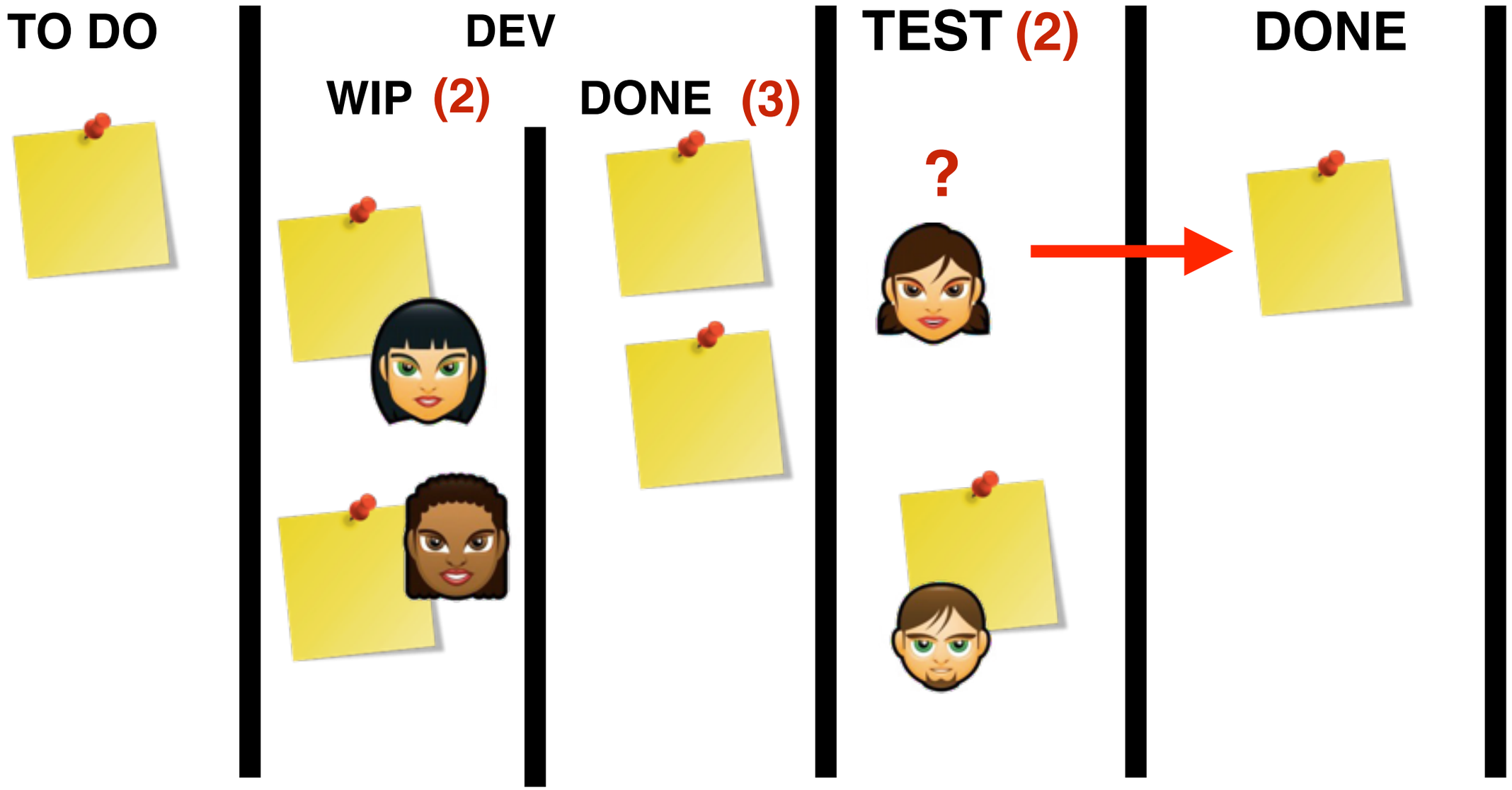
For this purpose it is reasonable to **add queues** to the board.

These also have a **maximum capacity.**

Adding **Queues**

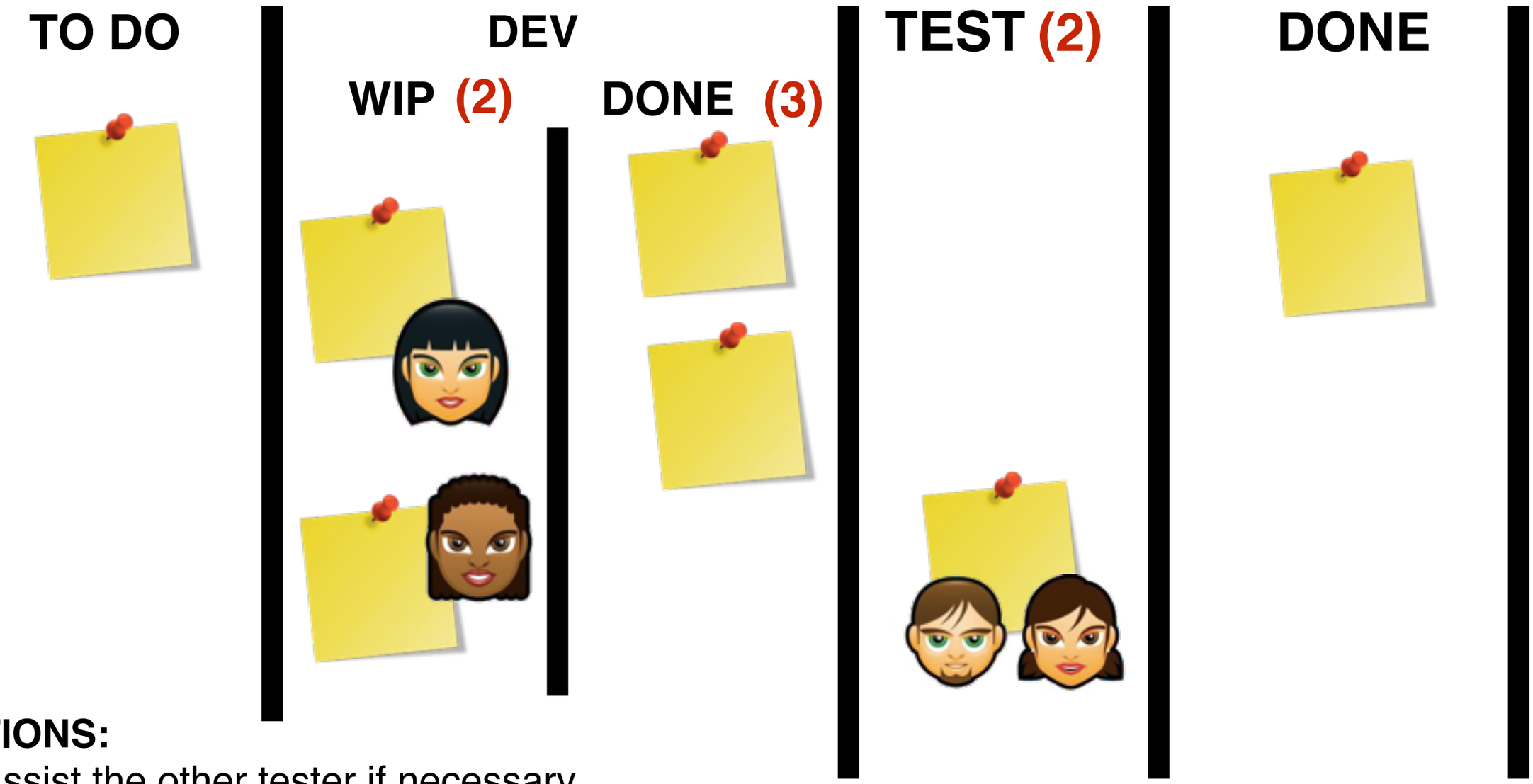


Task Assigment



A tester finished its task. What to do next?

Task Assigment



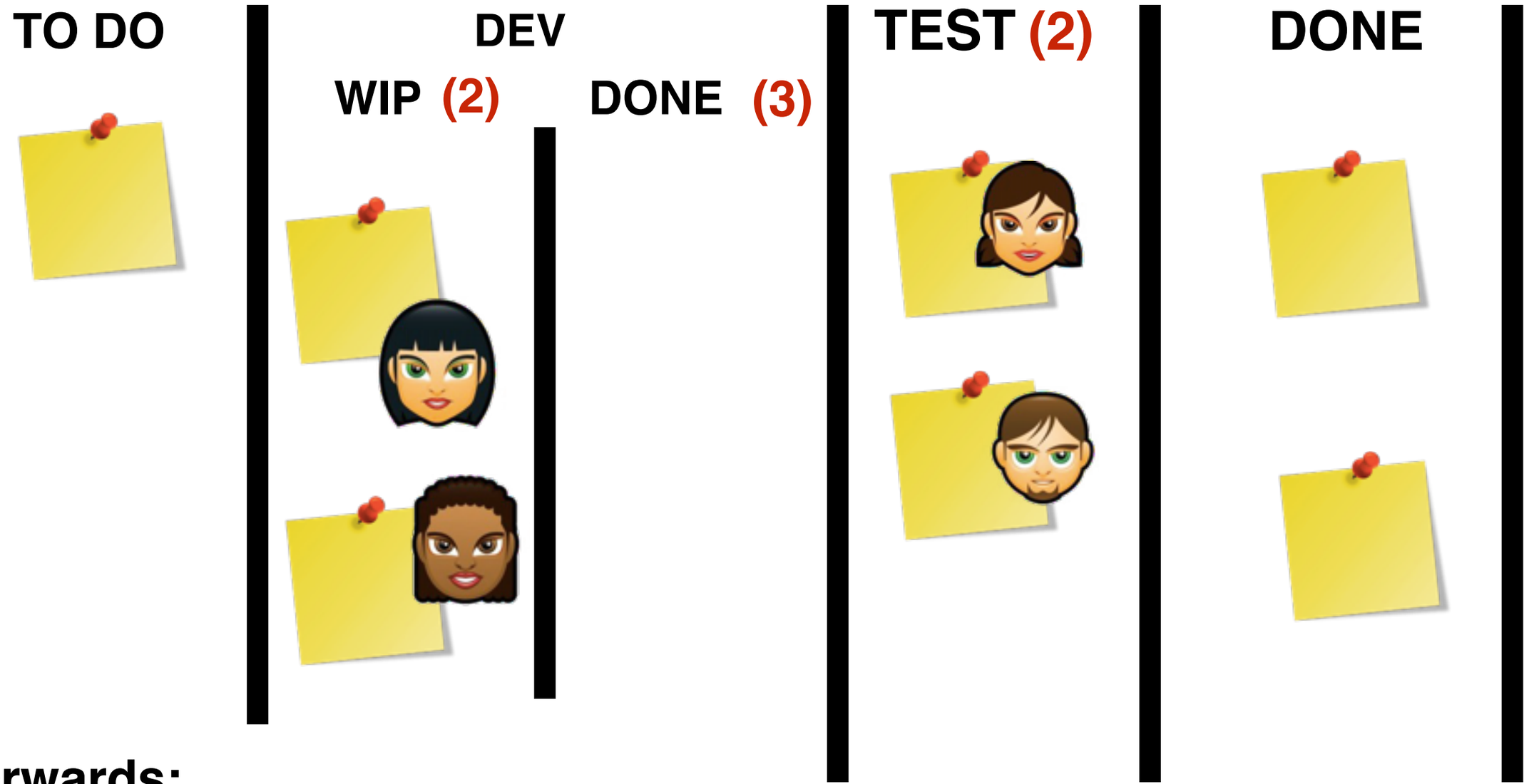
OPTIONS:

(1) Assist the other tester if necessary

(2) Pull new work

THE RULE IS TO FOCUS FROM THE RIGHTMOST ITEM.

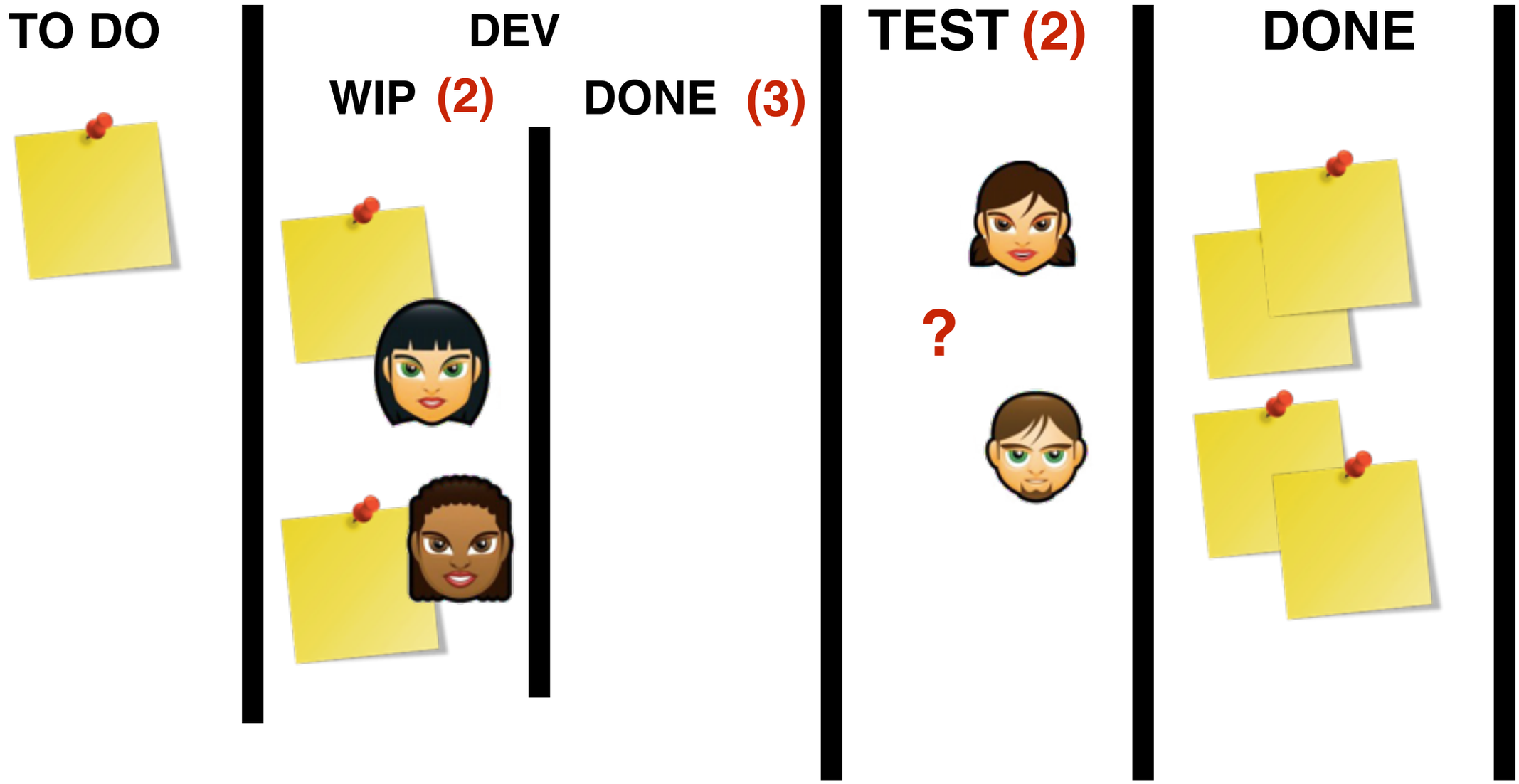
Task Assigment



Afterwards:

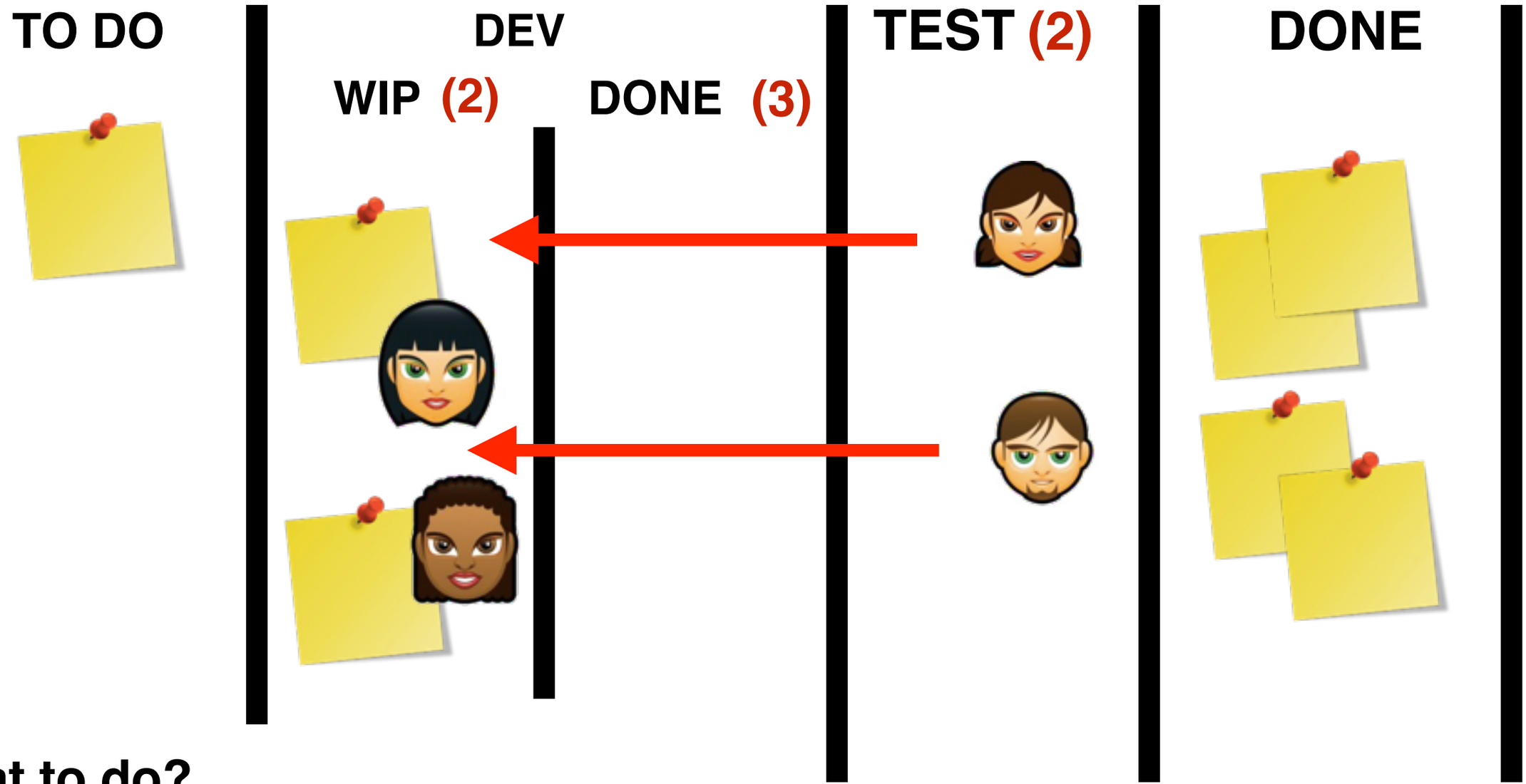
pull new work

Task Assigment



Starvation! What to do?

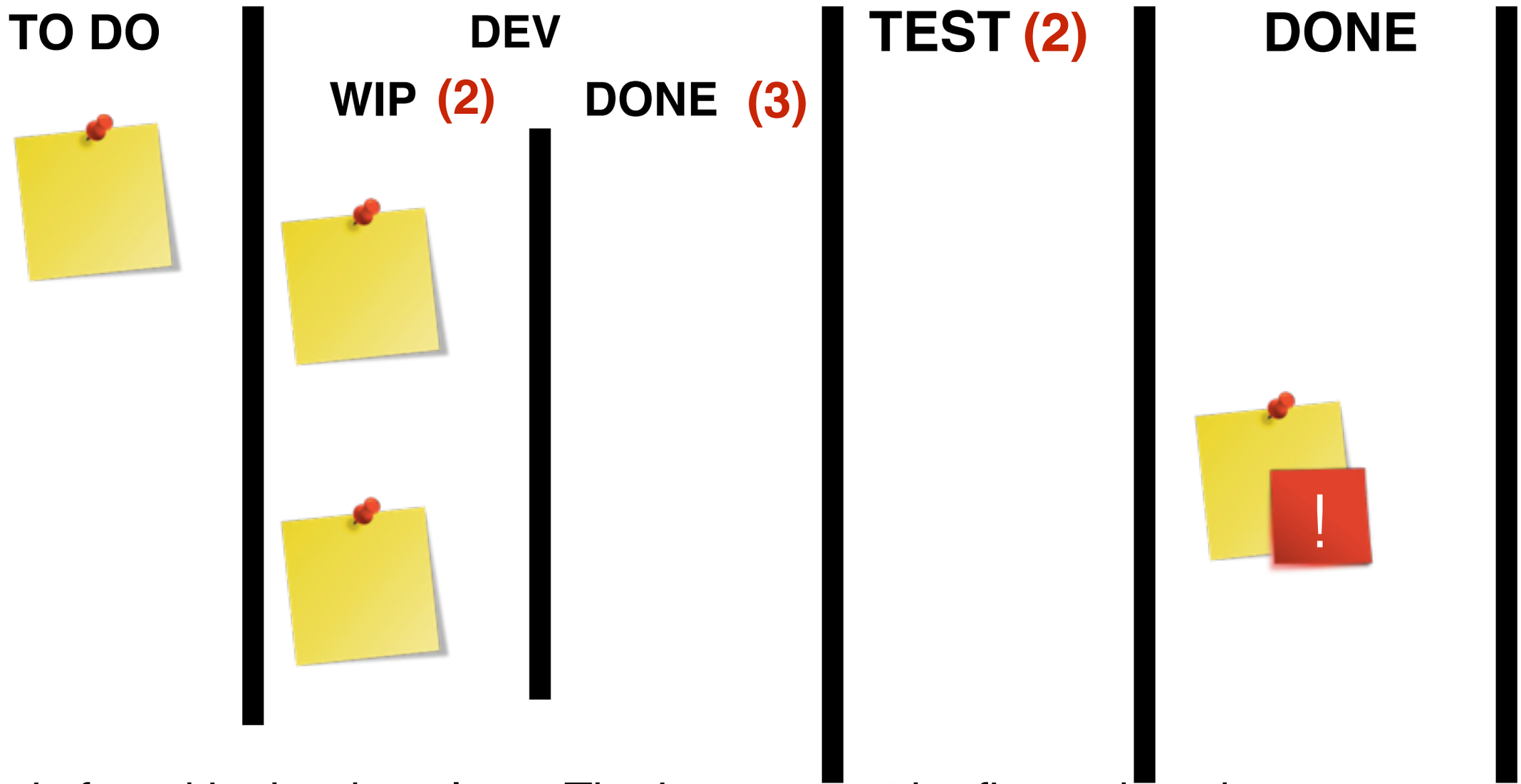
Task Assigment



What to do?

Swarm with the dev Team!

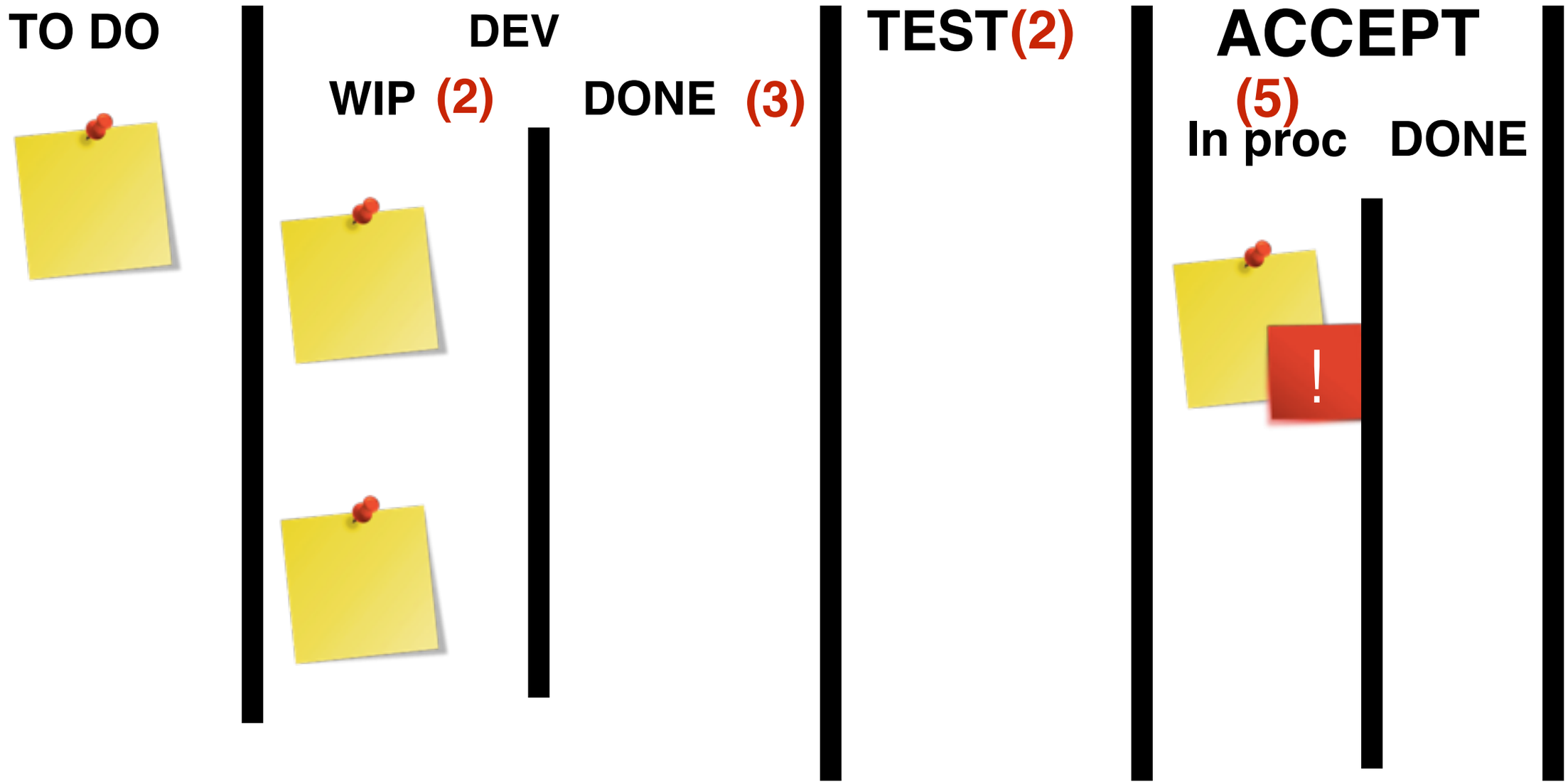
Problems at the end of process



A bug is found in the done lane. The item cannot be flagged as done.

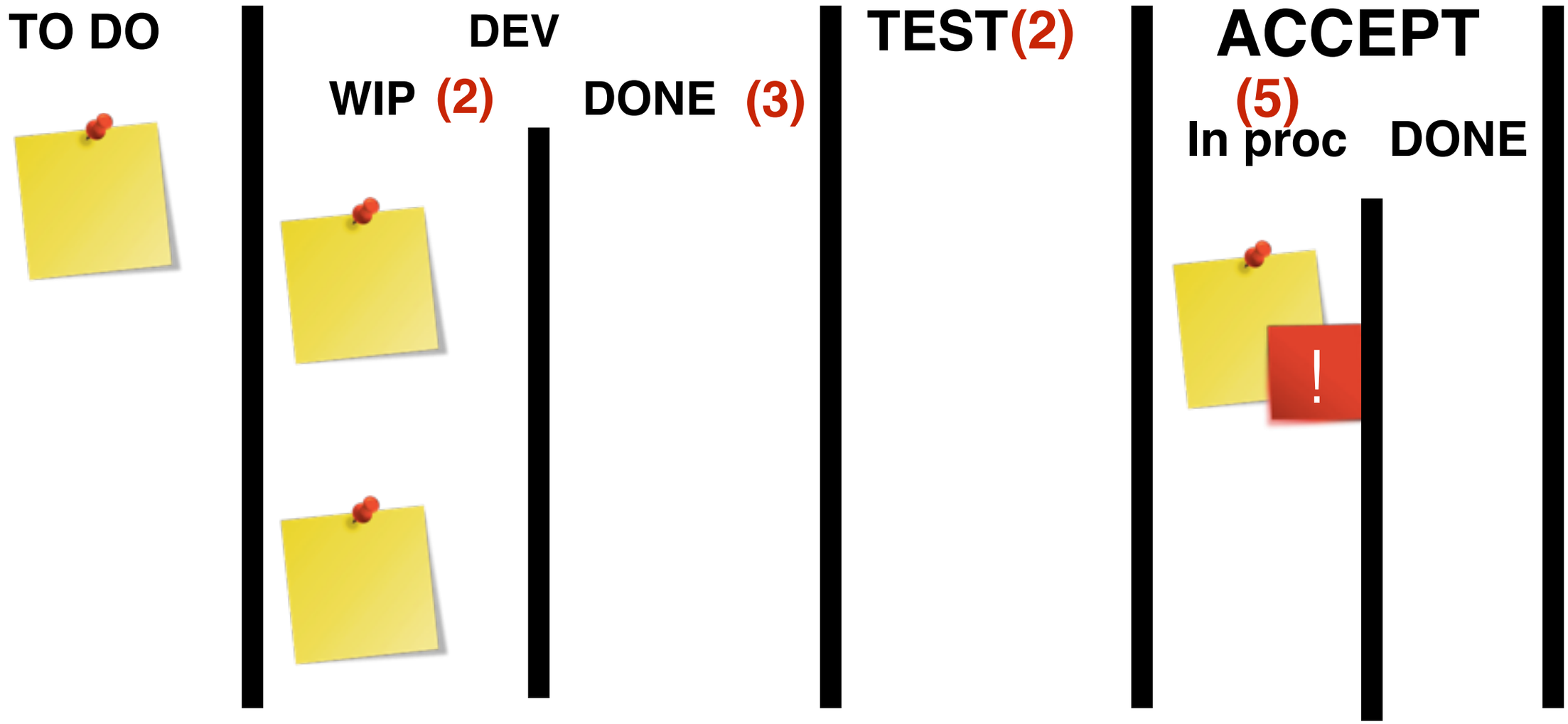
What to do?

Problems at the end of process



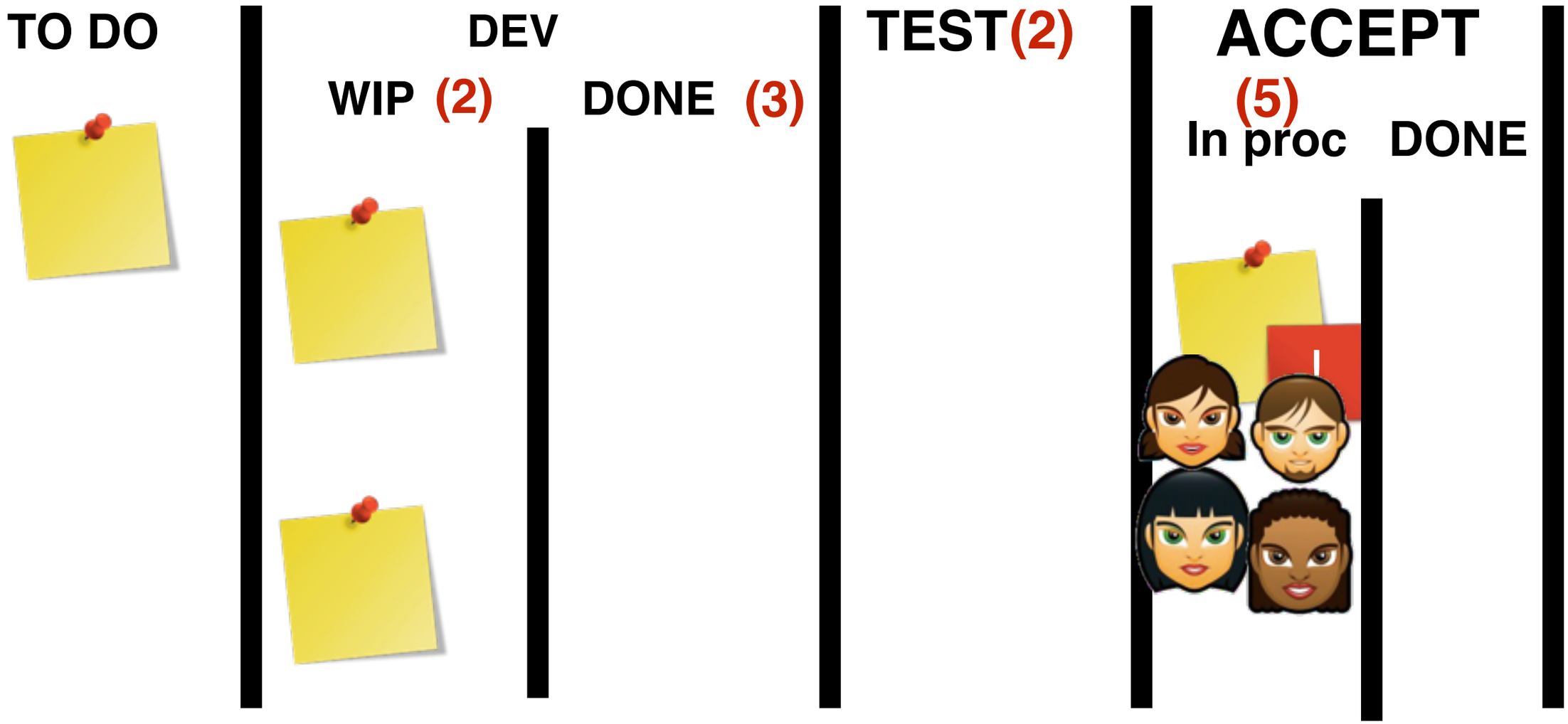
FIRST: Adapt the process to reflect the real scenario. If a bug is found it is not done, it is detected in the process of accepting the item.

Problems at the end of process



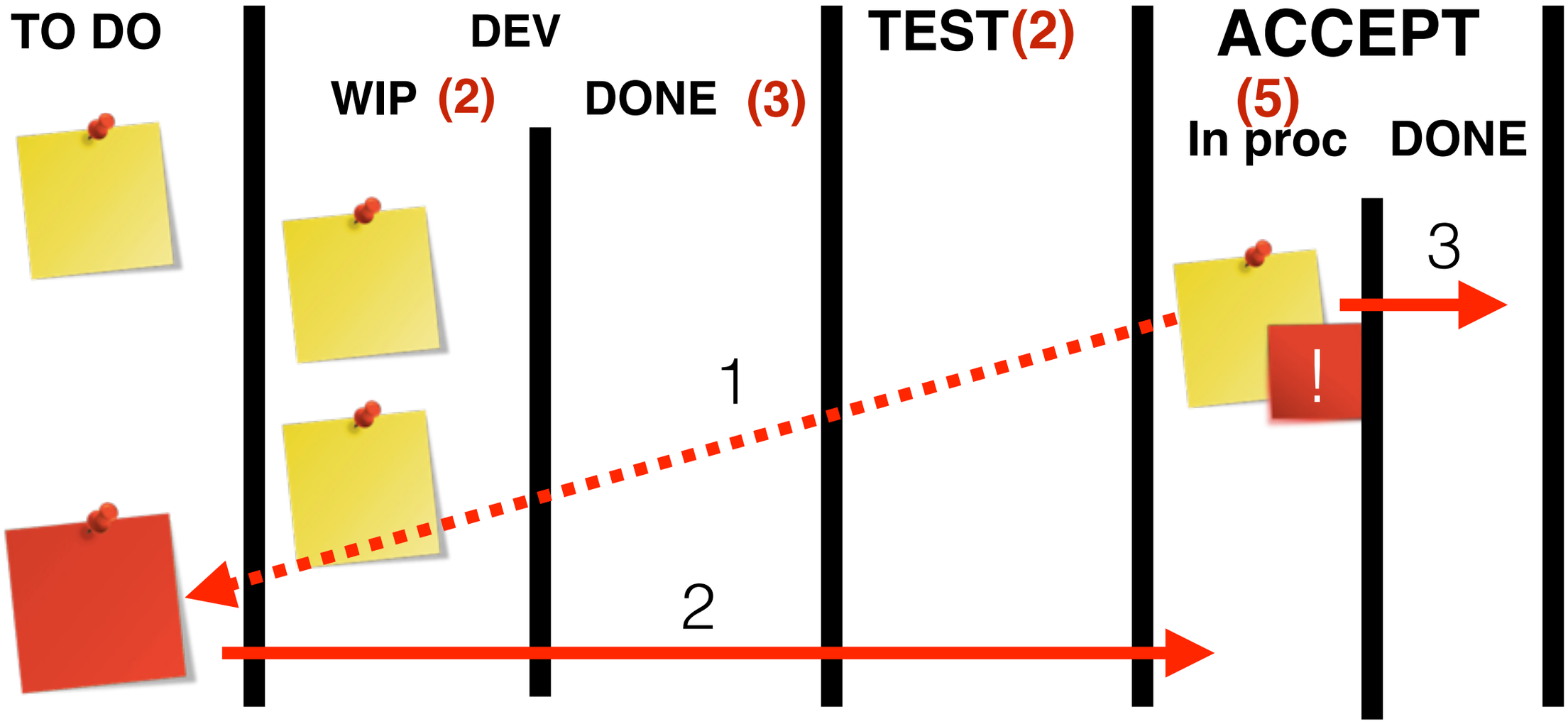
But... how to handle the bug? Is moving the item back to DEV an option?
DISALLOWING MOVING BACK INCENTIVES FINISHING THE TASKS

Problems at the end of process



(A) Redefine QA as testing and bug fixing. => SWARM ON THE BUG

Problems at the end of process



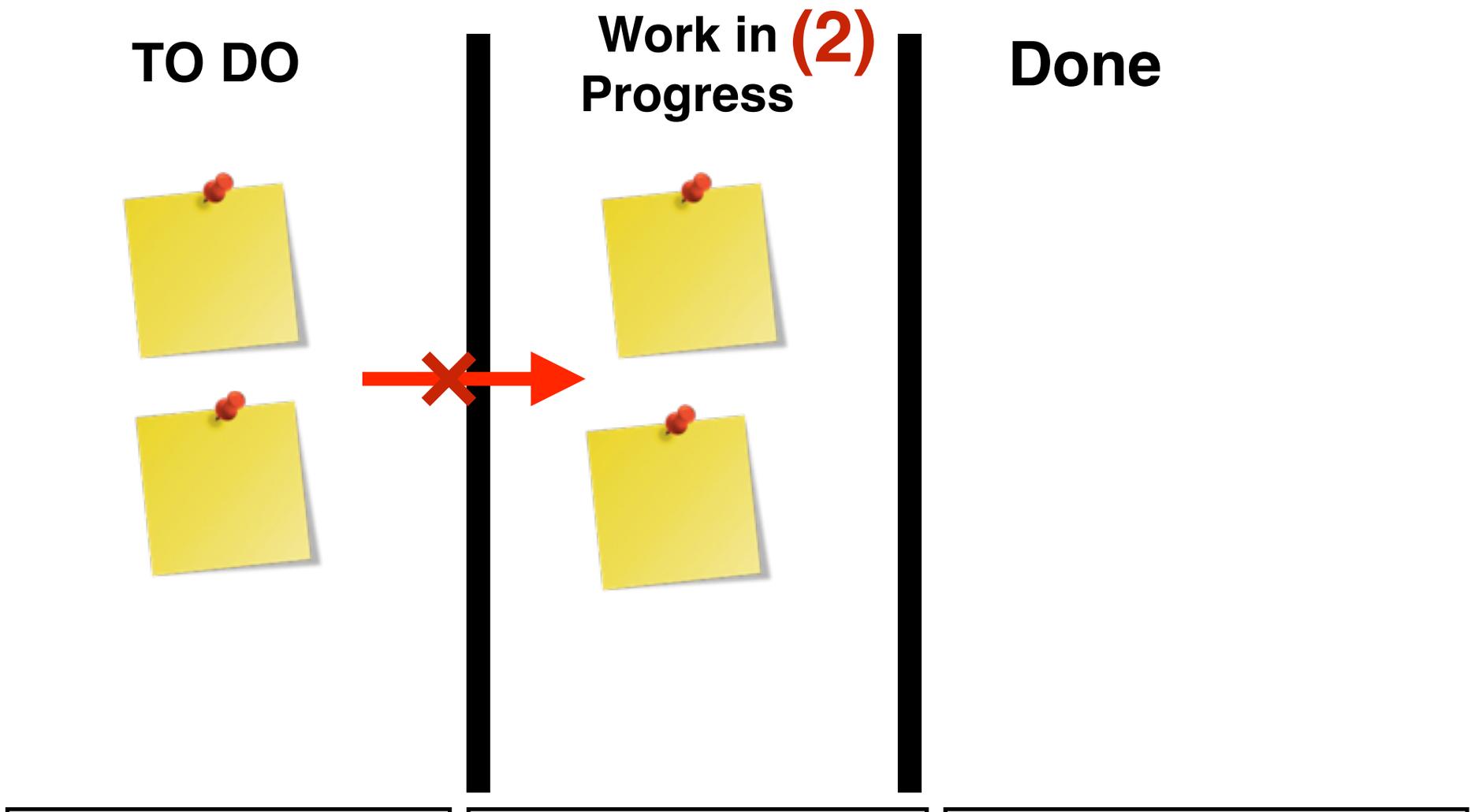
(B) The item is not moved back!!! A new item is introduced in the TODO: “BUG”

Makes **policies** explicits

Make policies explicit defines the Quality Assurance Process. By explicitly showing them we can verify them at each stage of the process.

In Kanban, this is done by adding a description of the quality policy to follow whenever a task is transitioning to a certain stage.

Makes **policies** explicits



When a task is introduced write the date in	As an item is pulled to WIP write the pull date	As an item is pulled into DONE write the pull day

Makes **policies** explicits

Which policies are useful for your workflow ?

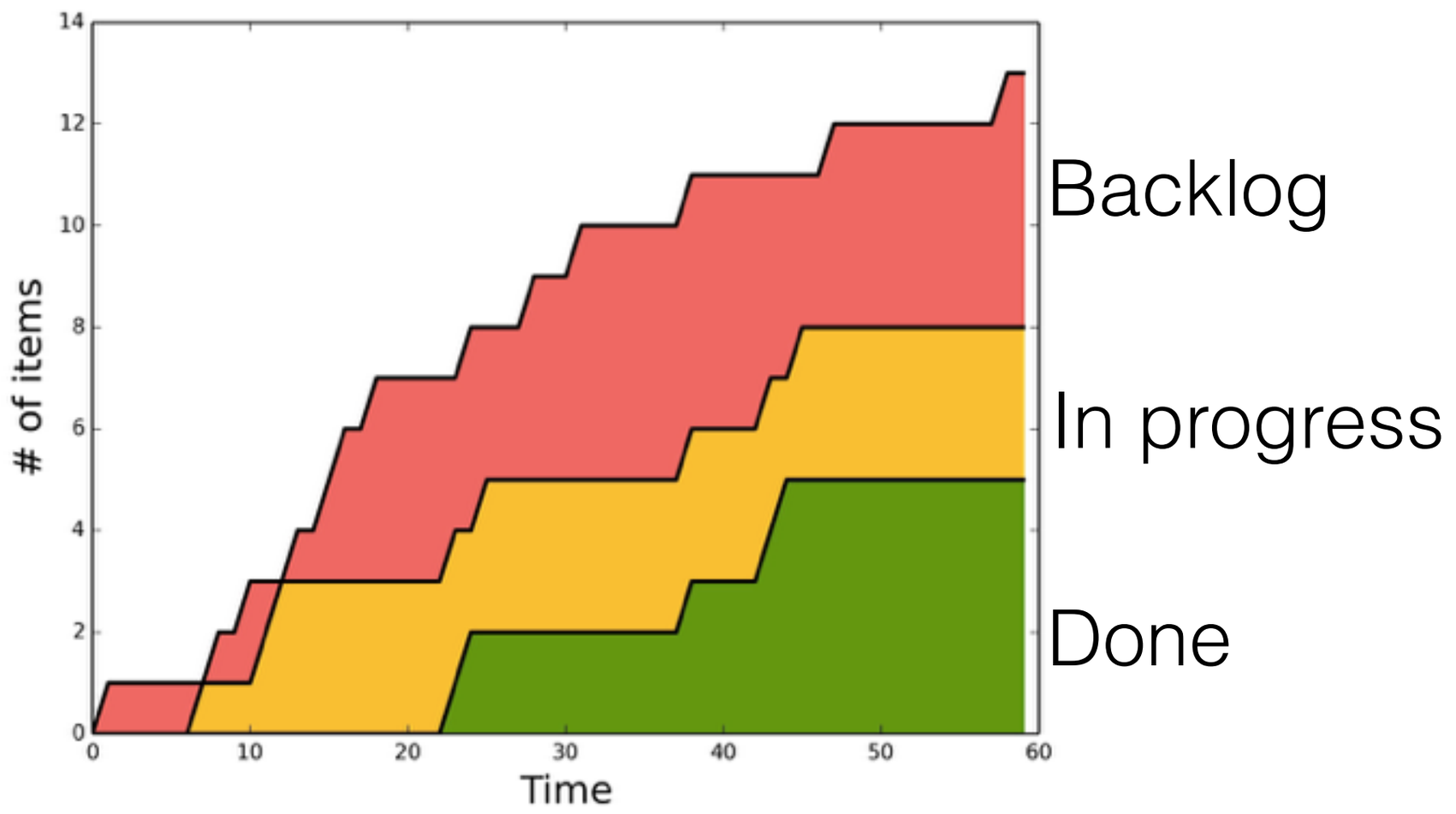
Trello

GitHub

Manage and Measure Workflow.

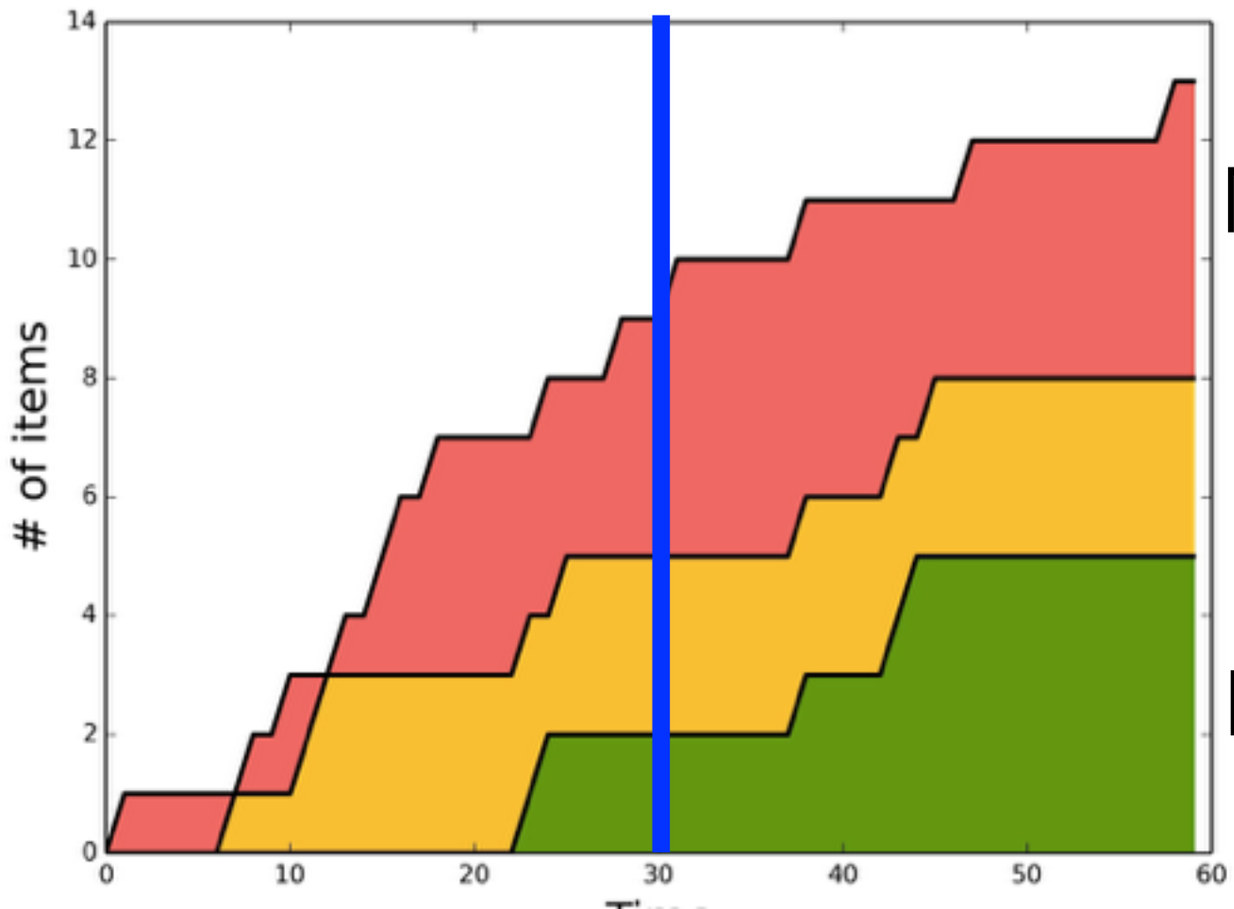
- Tool: Cumulative Flow Chart

- Each day mark how many tasks are in each column



Reading the cumulative flow chart

- Vertically a point in the chart tells us about work in progress

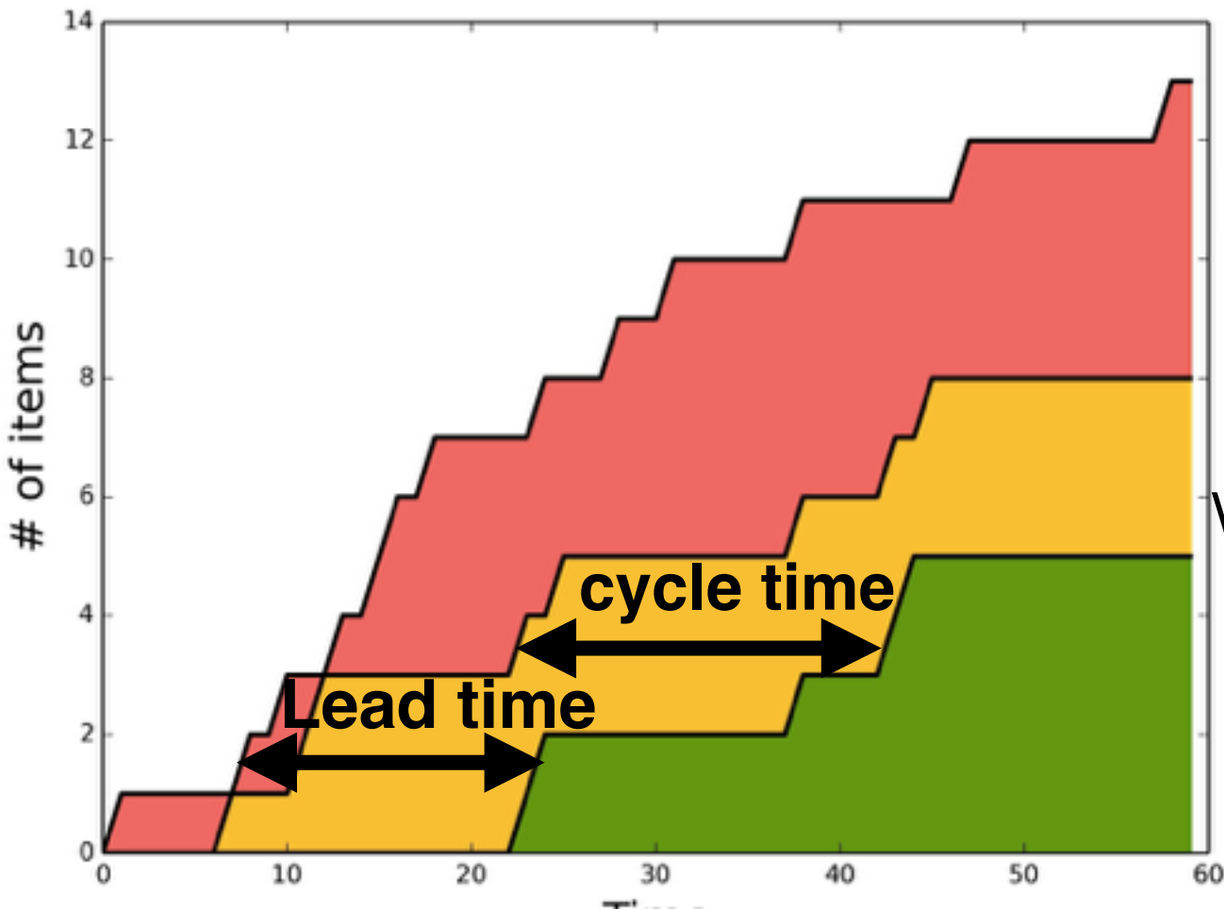


Reading the cumulative flow chart

- Horizontally it tells us about the duration of the tasks. Two concepts are defined Lead time and Cycle time. Additionally, we can also measure the Throughput (ITEMS/TIME).

LEAD TIME: Time between initiation & delivery of an item (What customers see)

CYCLE TIME: Time between start & completion of an item. A measure of real process capacity



Conclusion

What to choose? **SCRUM** or **KANBAN**? **SCRUMBAN**!

- **SCRUM** iterations and artifacts
    - Backlogs, Sprint, Daily meetings, Revision, Retrospective
- **KANBAN** board:
    - To visualize and track progress during the sprints.
    - Limiting work in progress.