

Presentation for Senior Design 491

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- Use [slido.com](https://www.slido.com) (Event code: #00491) to post questions. Note this is moderated.
- Use Chat to post answers to questions.

Engineers love
to BUILD!

Why Engineers needed to build?

Meet features

Meet NFRs

Economical

Quality

Consistently

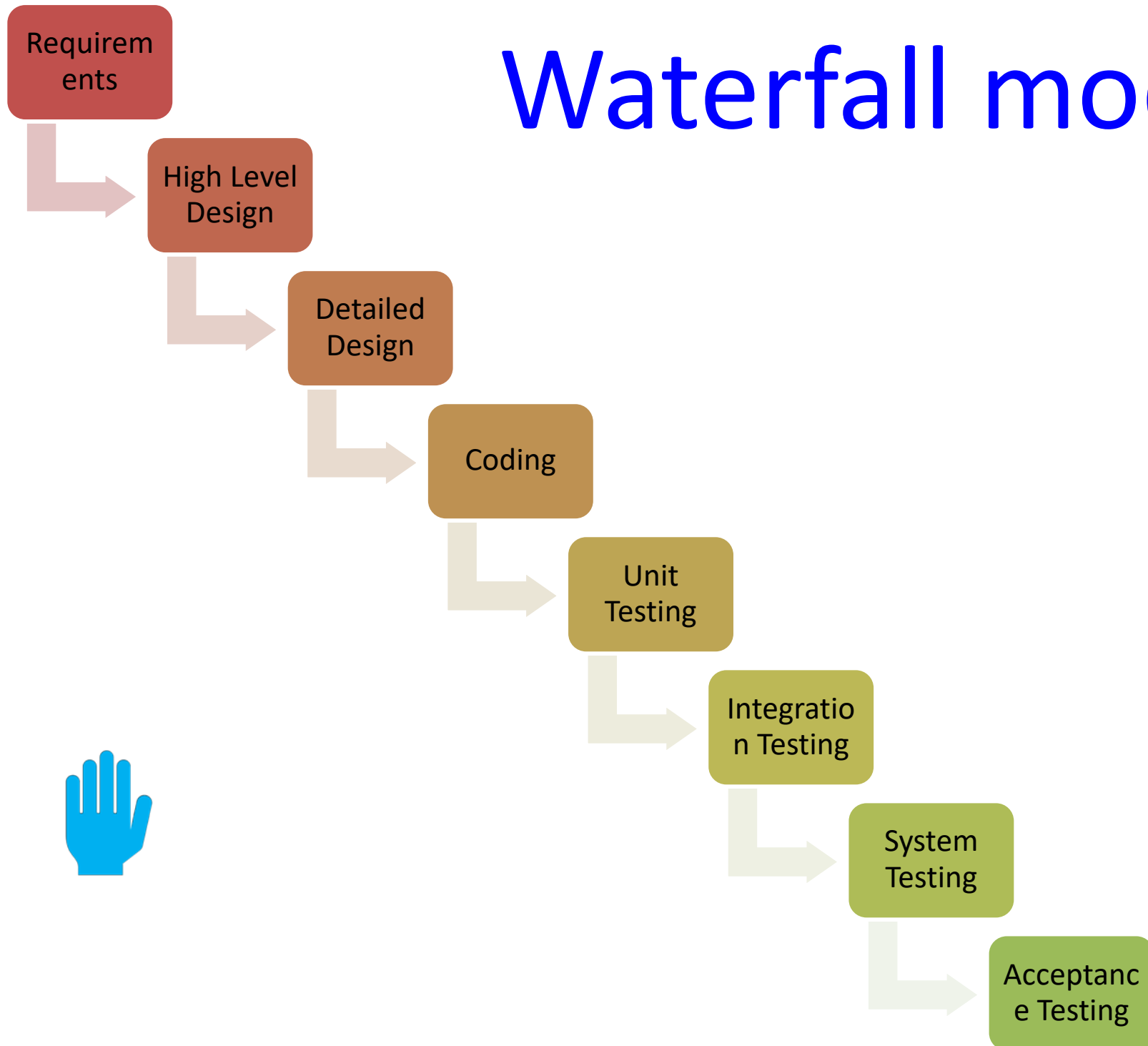
Q1. What to
build?

Q2. How to
build it?

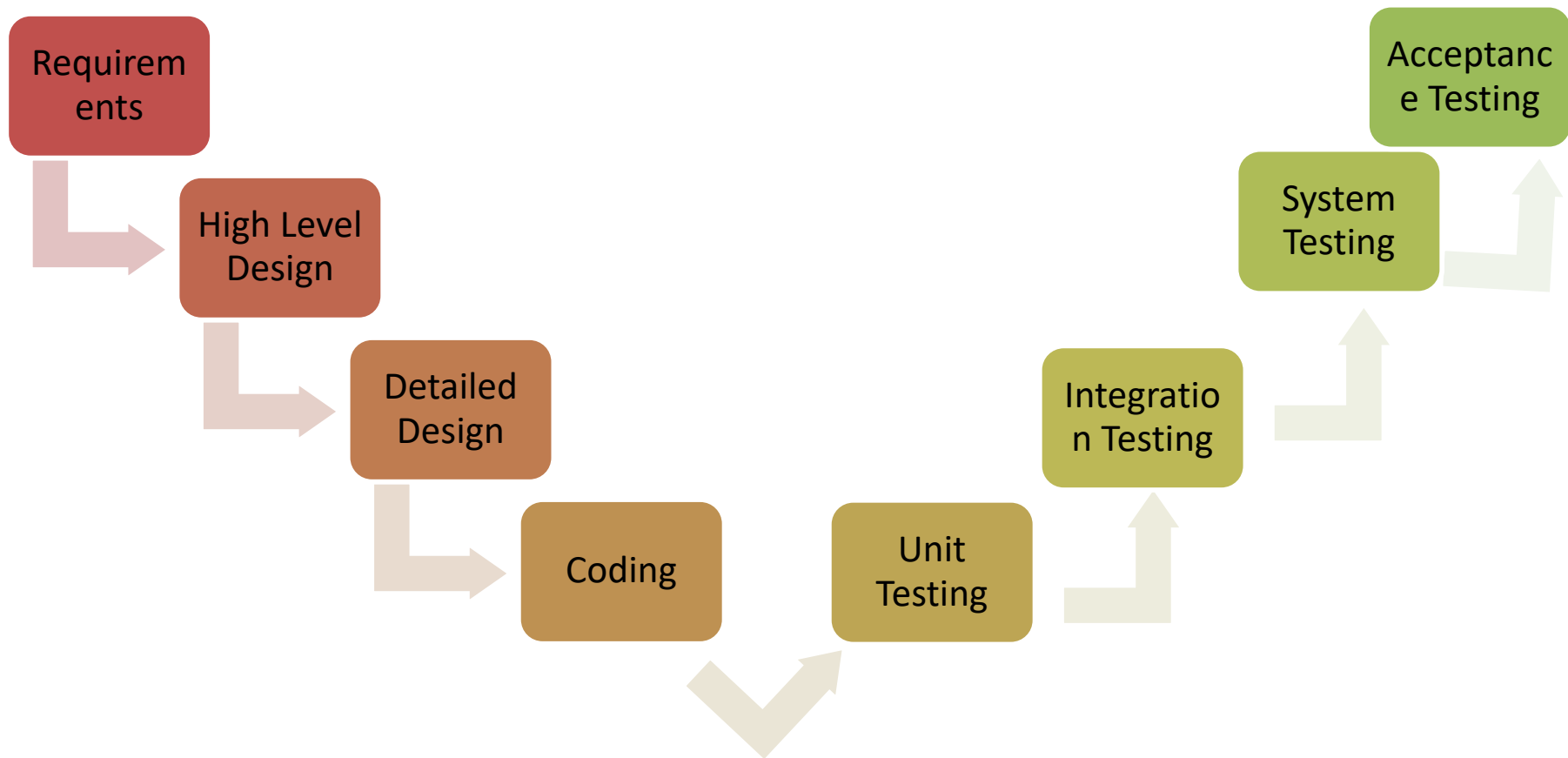
Build it

Test it

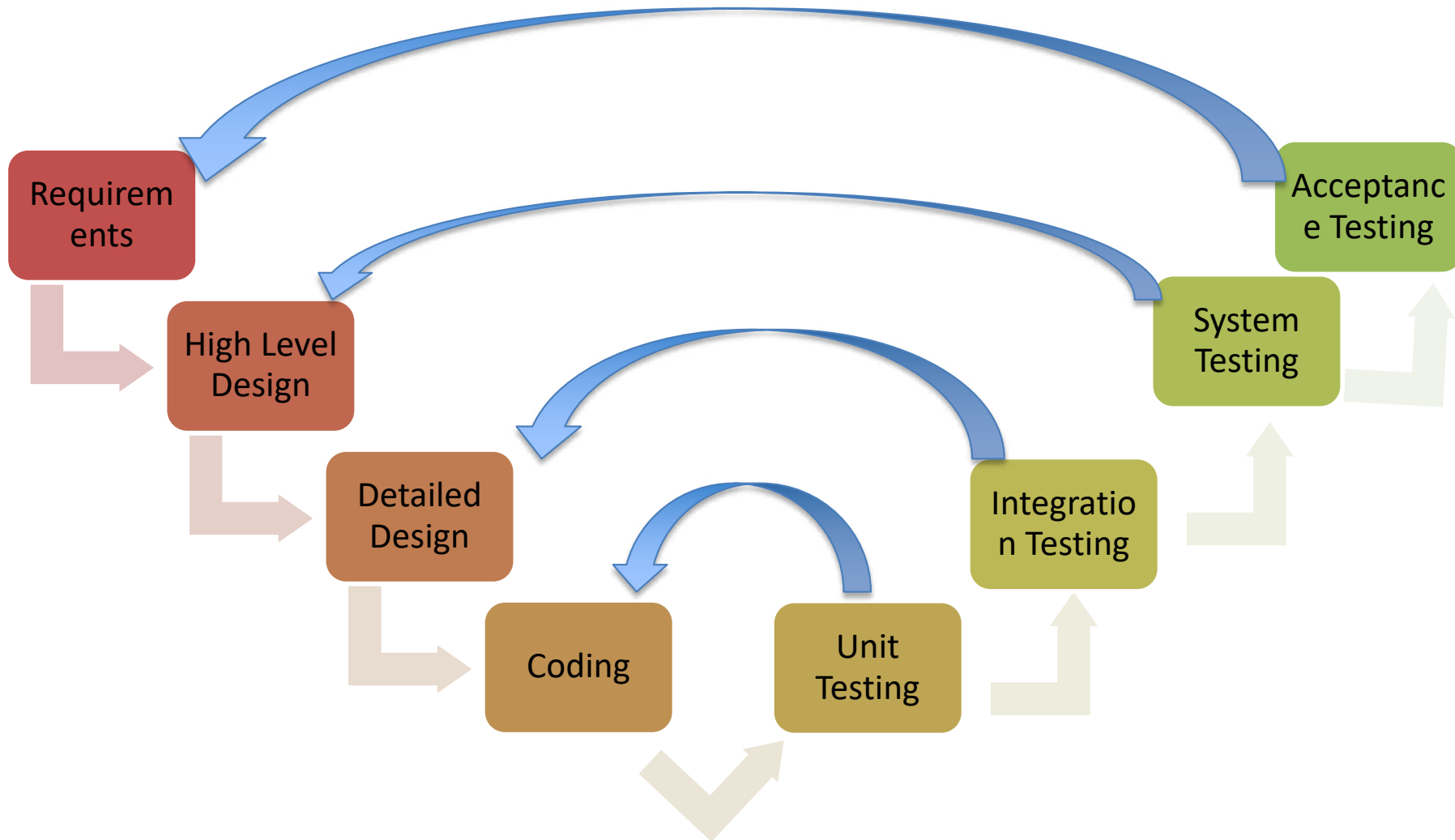
Waterfall model



The V model

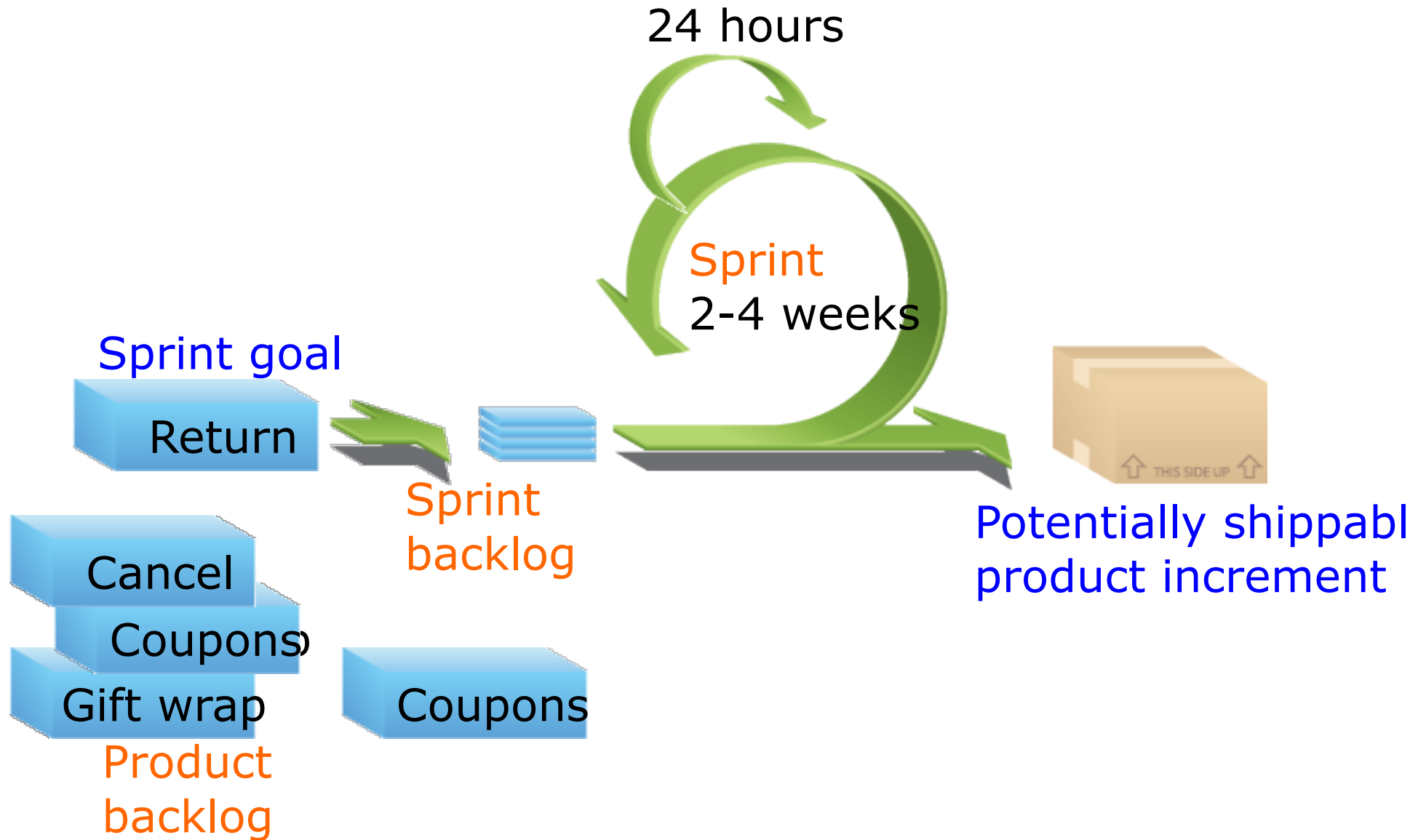


The V model





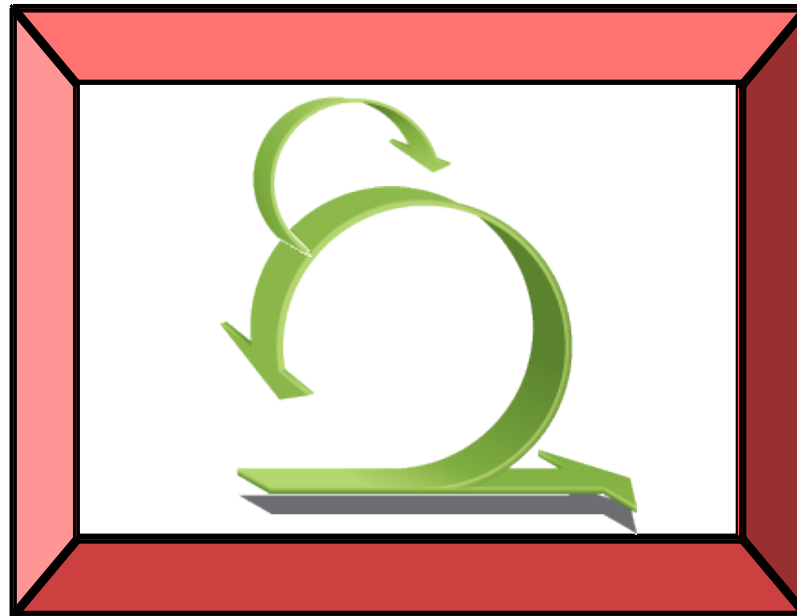
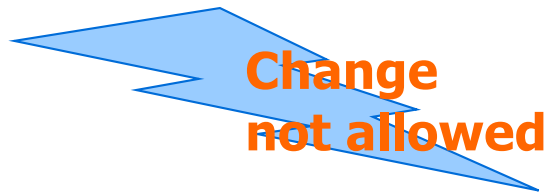
Basics - Scrum



Basics – Sprints

- Scrum projects make progress in a series of “sprints”
- Typical duration is 2–4 weeks or a calendar month at most
- A constant duration leads to a better rhythm
- Product is designed, coded, and tested during the sprint

No changes allowed during a sprint (fix resources and schedule AND scope)



Roles

- Product owner
- ScrumMaster

Ceremonies

- Sprint planning
- Sprint review
- Sprint retrospective

Artifacts

- Product backlog
- Sprint backlog
- Burndown charts

Roles - Product owner



- Define the features of the product
- Decide on release date and content
- Be responsible for the profitability of the product (ROI)
- Prioritize features according to market value
- Adjust features and priority every iteration, as needed
- Accept or reject work results

Roles - ScrumMaster



- Represents management
- Responsible for enacting Scrum values & practices
- Removes impediments
- Ensure that the team is functional & productive
- Enable close cooperation across all roles
- Shield the team from external interferences

Roles - Team



- Typically 5-9 people
- Cross-functional:
 - Programmers, testers, user experience designers, etc.
- Members should be full-time
 - May be exceptions (e.g., database administrator)
- Teams are self-organizing
 - Ideally, no titles but rarely a possibility
- Membership should change only between sprints

Artifacts - Product backlog



This is the
product backlog

- The requirements (**user stories**)
- Ideally expressed such that each item has value to the users or customers of the product
- Prioritized by the product owner
- Reprioritized at the start of each sprint

Artifacts - Sprint Backlog

- a list of tasks for the sprint (TODO)
- these are selected from product backlog (user stories broken into tasks)
- estimate hours each task will take

Artifacts - Scrum Board (Use Trello)

- Tool to visualize progress within sprint
- User stories and tasks written on post-it notes
- Tasks moved from:
 - To do
 - In progress
 - Done



Ceremonies -Sprint planning

- Team selects items from the product backlog they can commit to completing
- Sprint backlog is created
- High-level design is considered

As a vacation planner, I want to see photos of the hotels.

Code the middle tier (8 hours)
Code the user interface (4)
Write test fixtures (4)
Code the foo class (6)
Update performance tests (4)

Ceremonies -The daily scrum

- Parameters
 - Daily
 - 15-minutes
 - Stand-up
- Not for problem solving
 - Whole world is invited
 - Only team members, ScrumMaster, product owner, can talk
- Helps avoid other unnecessary meetings



Everyone answers 3 questions

1

What did you do yesterday?

2

What will you do today?

3

Is anything in your way?

- These are *not* status for the ScrumMaster
 - They are commitments in front of peers

Ceremonies - Sprint retrospective

- Done after every sprint
- Whole team gathers and discusses what they'd like to
 - continue doing
 - stop doing
 - start doing
- Typically takes 15–30 minutes

Ceremonies -The sprint review

- Invite the world
- Typically takes the form of a **demo of new features**
- Informal
 - 2-hour prep time rule
 - No slides

Roles

- Product owner
- ScrumMaster
- Team

Ceremonies

- Sprint planning
- Sprint review
- Sprint retrospective
- Daily scrum meeting

Artifacts

- Product backlog
- Sprint backlog
- Burndown charts

- What is Agile

<https://www.youtube.com/watch?v=Z9QbYZh1YXY>

- <https://www.scaledagileframework.com/>

- Scrum vs Kanban

https://www.youtube.com/watch?v=HNd1_irOL5k