

CSci 3081W: Program Design and Development

Lecture 13 – Development Processes



How the customer explained it



How the project leader understood it



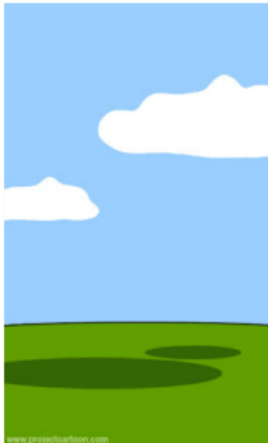
How the analyst designed it



How the programmer wrote it



How the business consultant described it



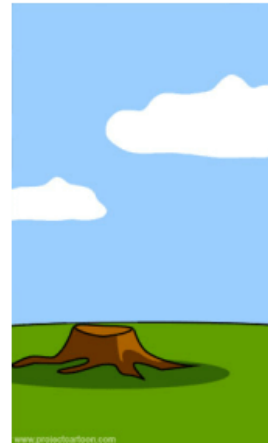
How the project was documented



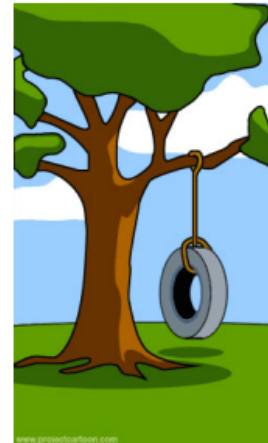
What operations installed



How the customer was billed



How it was supported

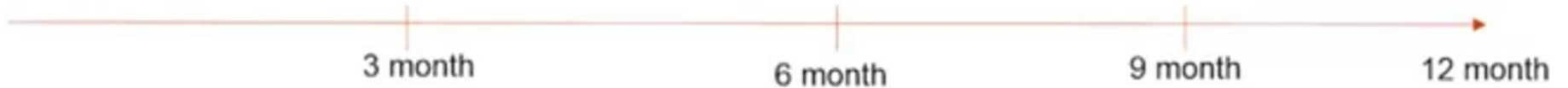


What the customer really needed

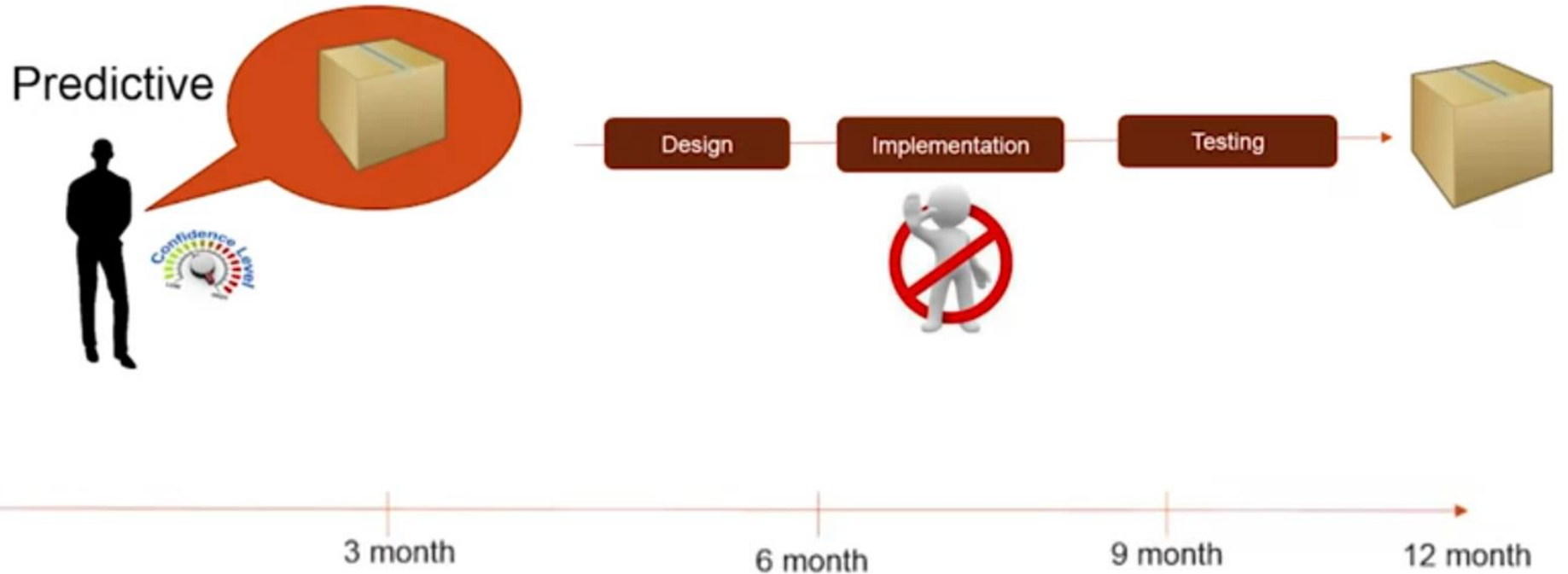
Software Development Models

- We have all the pieces of the system: req, spec, design, implementation, testing
- Piece them together with a model
 - Many models
 - Why use so many? Why not just one?
- Model Classification
 - Predictive vs adaptive
 - Incremental vs iterative
- Some models
 - Waterfall
 - Sashimi (similar to waterfall)
 - V-model

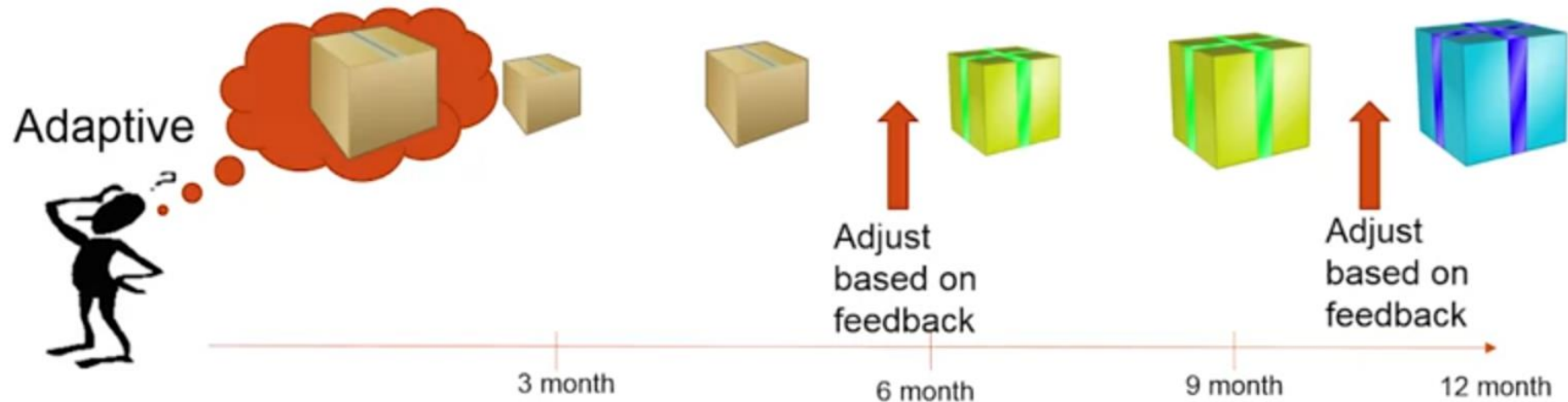
Predictive vs. Adaptive



Predictive vs. Adaptive



Predictive vs. Adaptive



Incremental vs. Iterative

- Incremental



Incremental vs. Iterative

- Iterative



Incremental vs. Iterative

- Incremental

- Pretty clear idea
- Build on top of existing system
- Can be predictive or adaptive

- Iterative

- Not a super clear idea
- Sometimes there's actual replacement

Incremental vs. Iterative vs. Both vs. None

Incremental



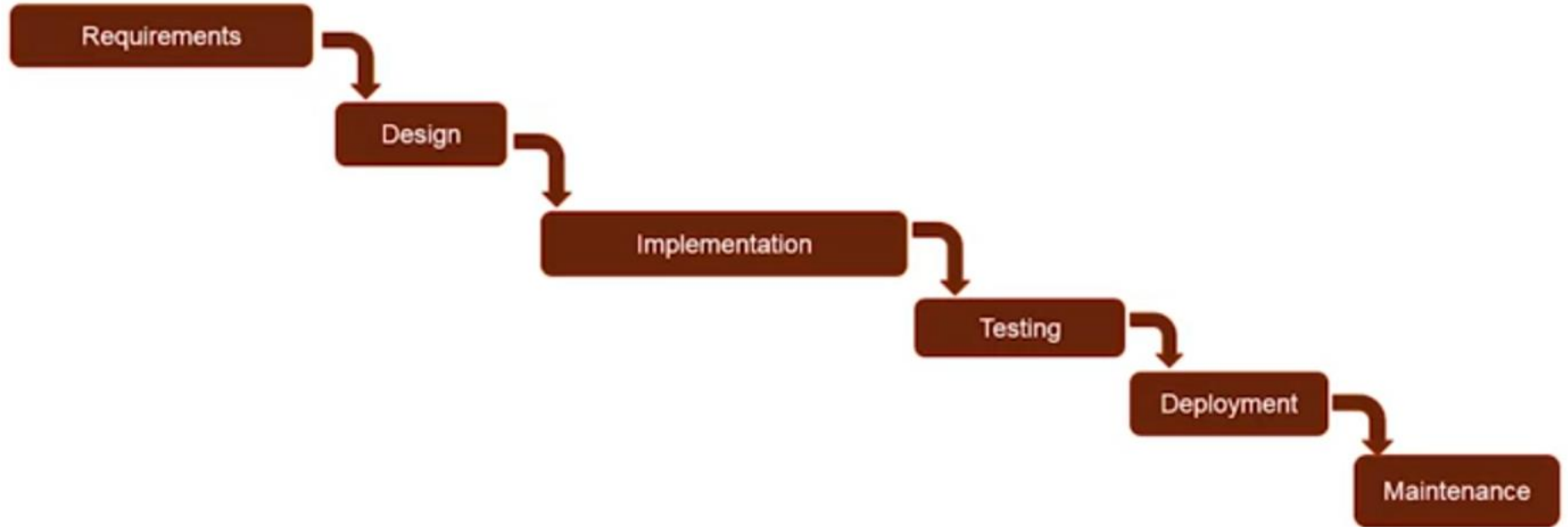
Iterative



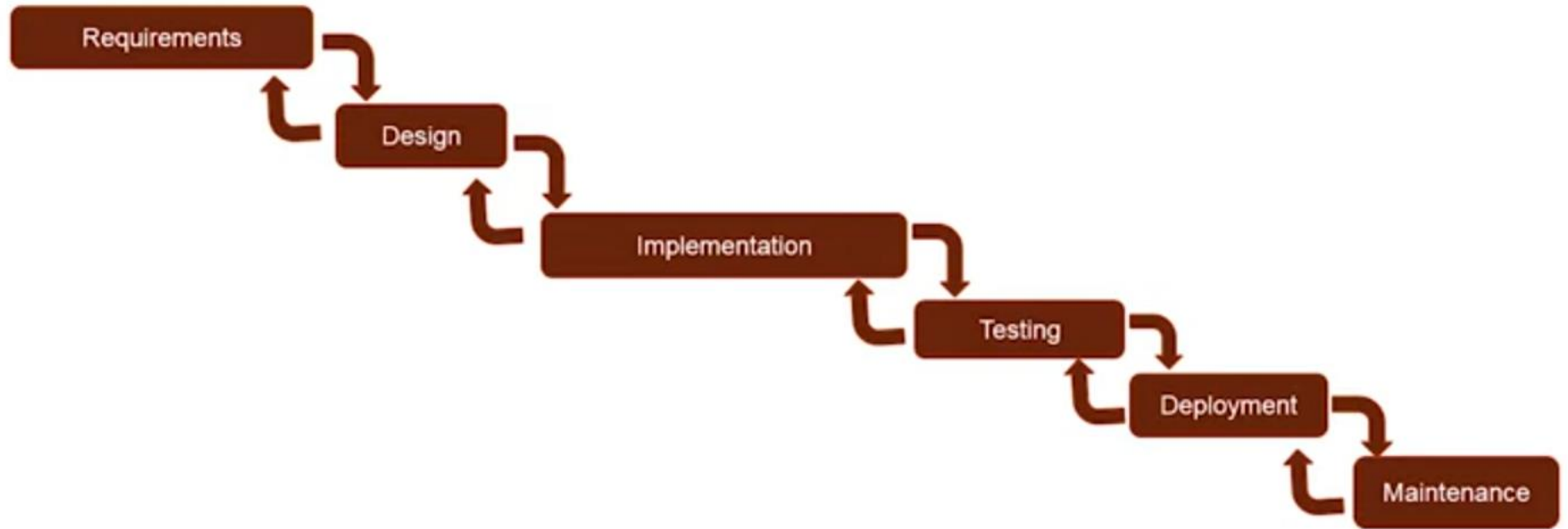
What we will learn about models

- Model name
- Mechanics
- Characteristics
- Predictive vs. adaptive
- Pros vs. cons
- When to use?

Waterfall



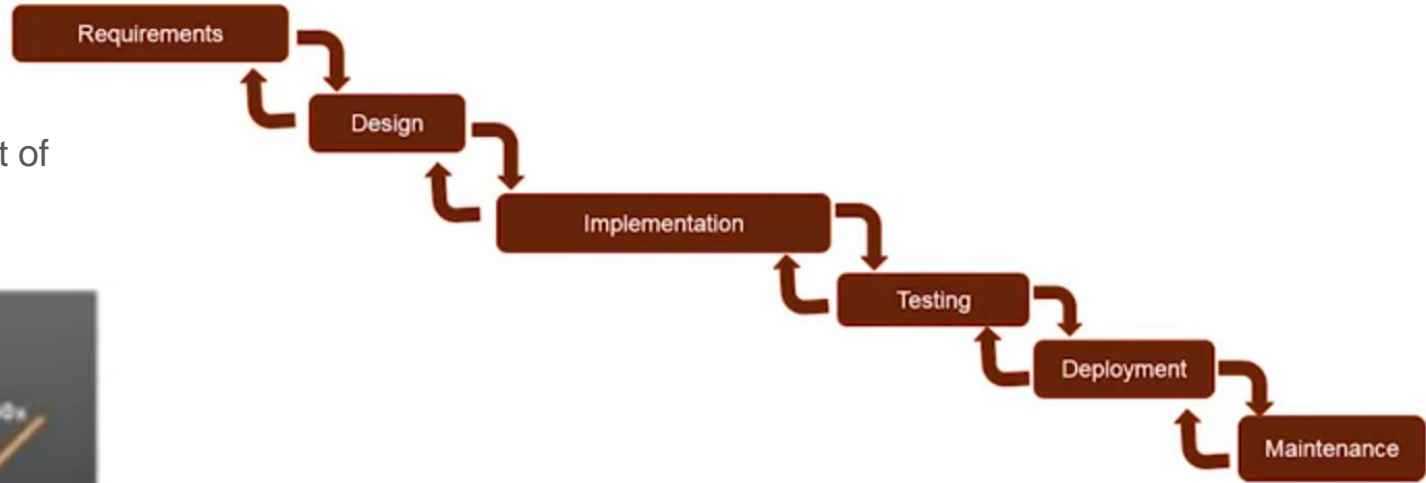
Waterfall



Waterfall

Cost of change

As time elapses, cost of change increases



3 month

6 month

9 month

12 month

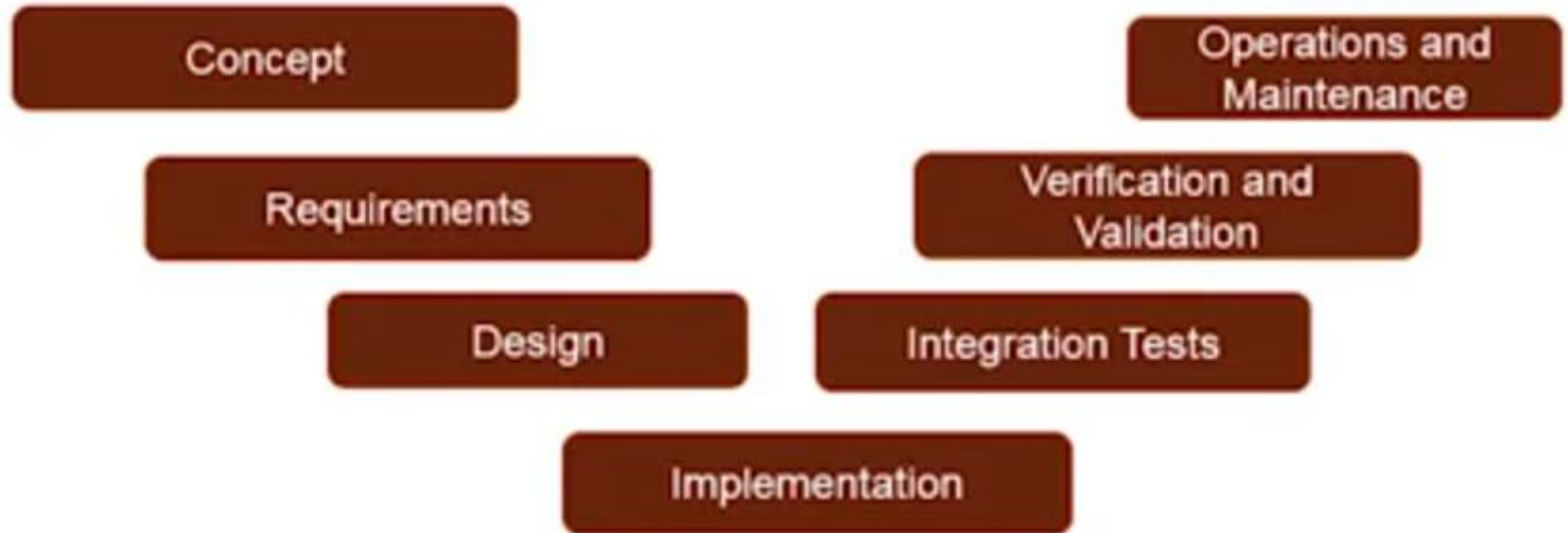
Waterfall

- Assumptions
 - 1. We fully understand the requirements, we were given the requirements with no mistakes in them, the requirements won't change
 - 2. Team has experience building similar software.
 - 3. The whole process from requirements all the way until the release will be perfect.
- When to use
 - Predictable, repeatable work

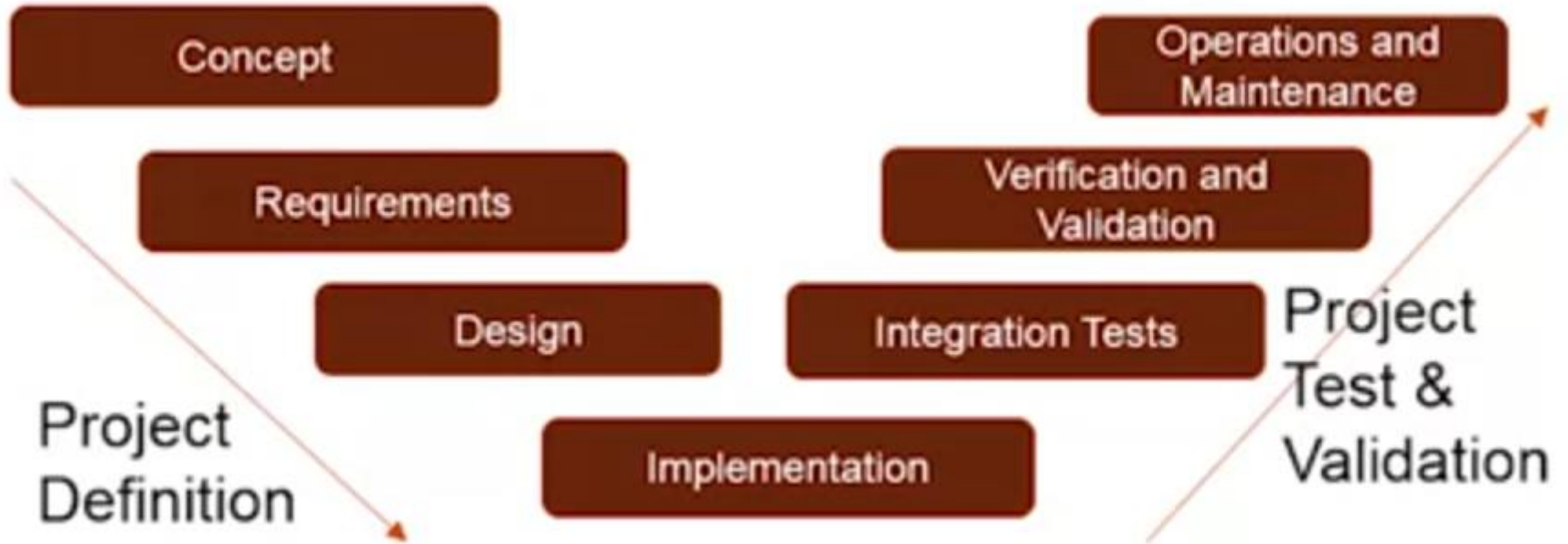
Waterfall

- Predictive/Adaptive Scale
 - Completely predictive
- Pros
 - Simple, easy for everyone to understand
 - Predictable
 - Efficient
- Cons
 - Not flexible for change
 - First release happens at the end of the process

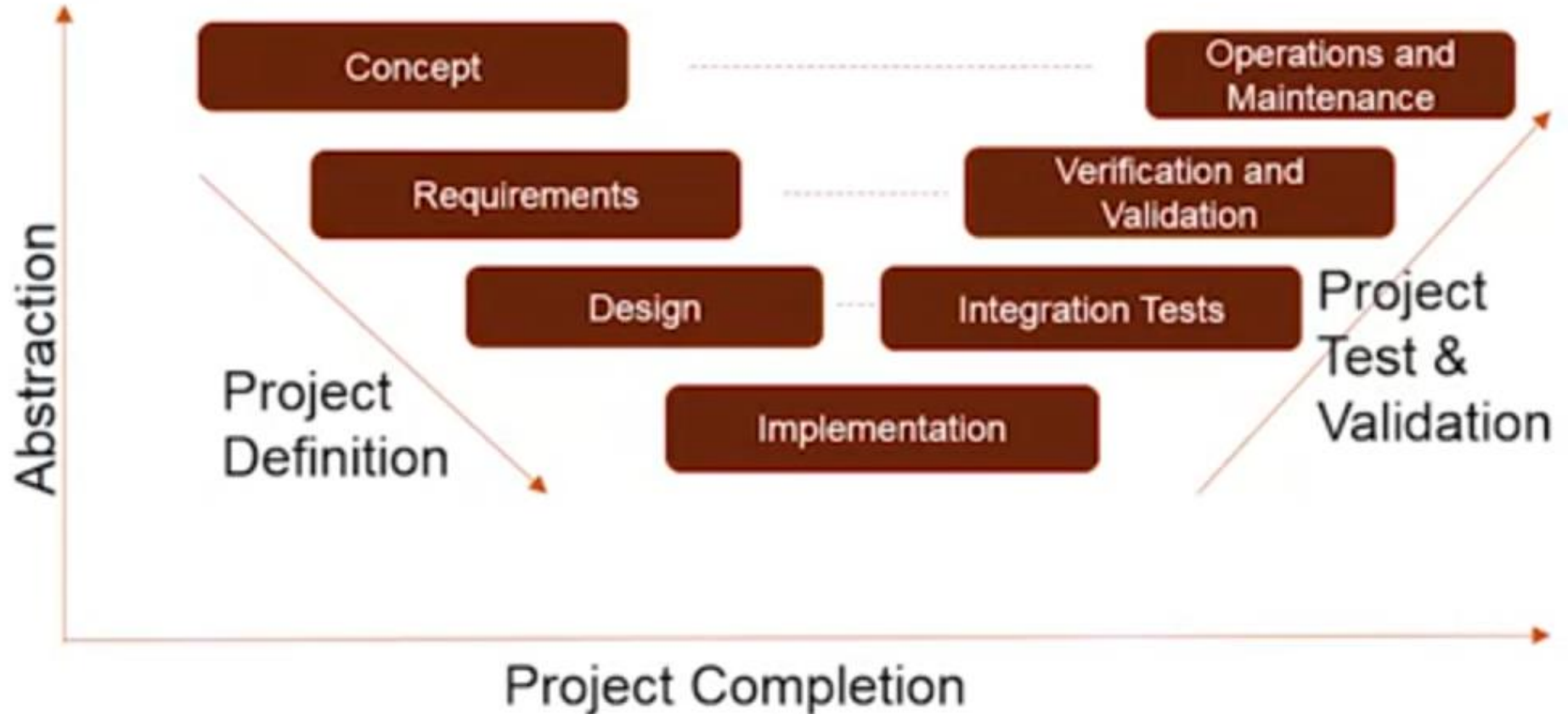
V-Model



V-Model



V-Model



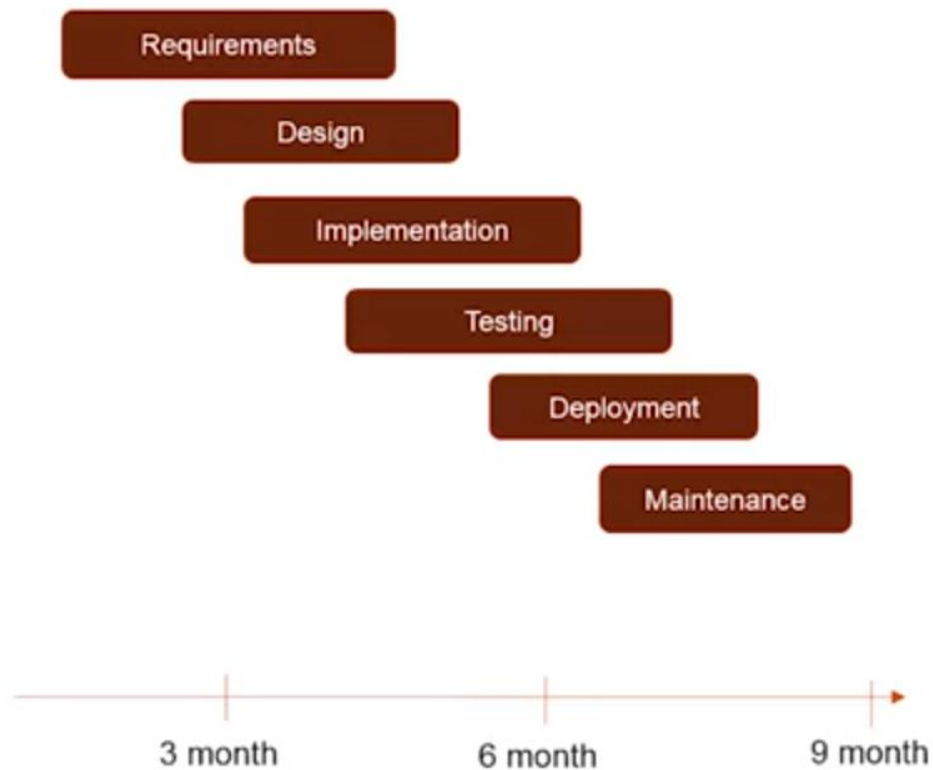
V-Model

- Mechanism – emphasis on validation earlier in the process
- Predictive/Adaptive Scale
 - Predictive – no feedback/changes
- When to use?
 - When there's some ambiguity in the requirements so having early validation could be useful.

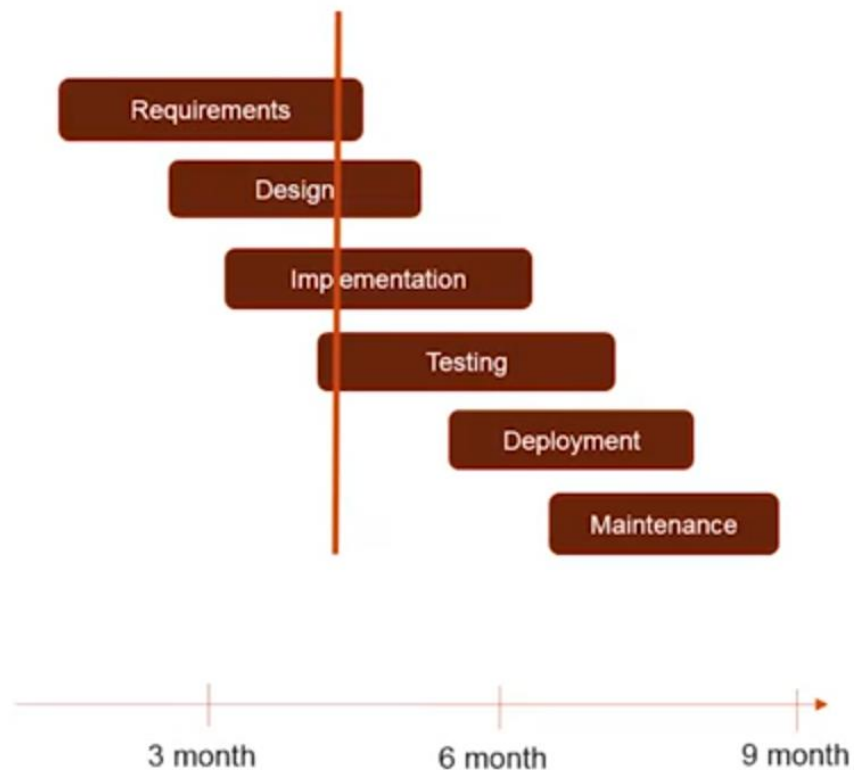
V-Model

- Pros
 - Earlier detection of potential issues
- Cons
 - More upfront work

Sashimi



Sashimi



Sashimi

- Mechanism – a phase can start before the previous phase ends
- Predictive/Adaptive Scale
 - Almost completely predictive but maybe a little bit adaptive
- When to use?
 - To shorten the time scale
 - Resource utilization

Sashimi

- Pros
 - Shorten development time
 - People can start working without waiting for the previous phase to finish
 - Can learn more easily
- Cons
 - Reworks

Software Development Memes



SOFTWARE DEVELOPMENT PROCESS

1. I CAN'T FIX THIS
2. CRISIS OF CONFIDENCE
3. QUESTIONS CAREER
4. QUESTIONS LIFE
5. OH IT WAS A TYPO, COOL

Project Management Textbook (optional)

[Software Project Management: A Unified Framework](#)

Hardcover is \$5.78

Used Hardcover is \$0.88

Project Management Textbook (optional)

Requirements analysis and evolution activities consume 40% of life cycle costs

Software design activities have an impact on more than 50% of the resources

Coding and unit testing activities consume about 50% of software development effort and schedule

Test activities can consume as much as 50% of a project's resources

Configuration control and change management are critical activities that can consume as much as 25% of resources on a large-scale project

Documentation activities can consume more than 30% of project engineering resources

Project management, business administration, and progress assessment can consume as much as 30% of project budgets

Project Management Memes



Project Management Memes

