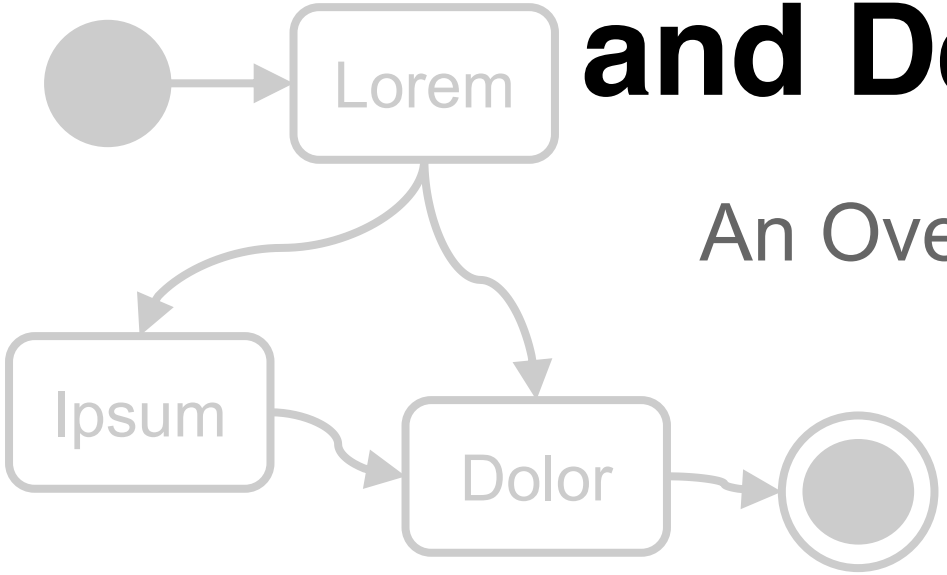
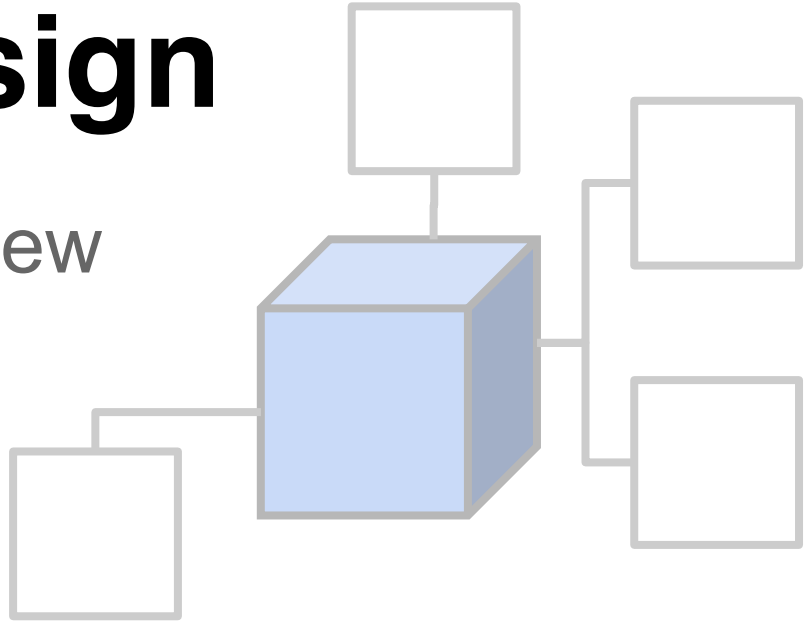
Software Architecture and Design

An Overview





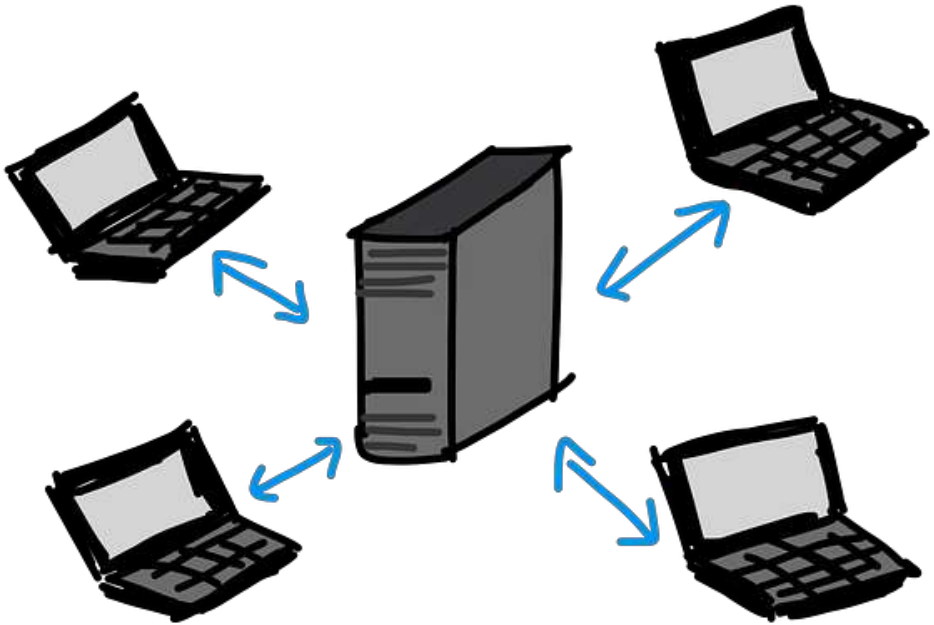
Content

- Popular examples
- Context
- Architecture vs. Design
- Uses
- Aspects

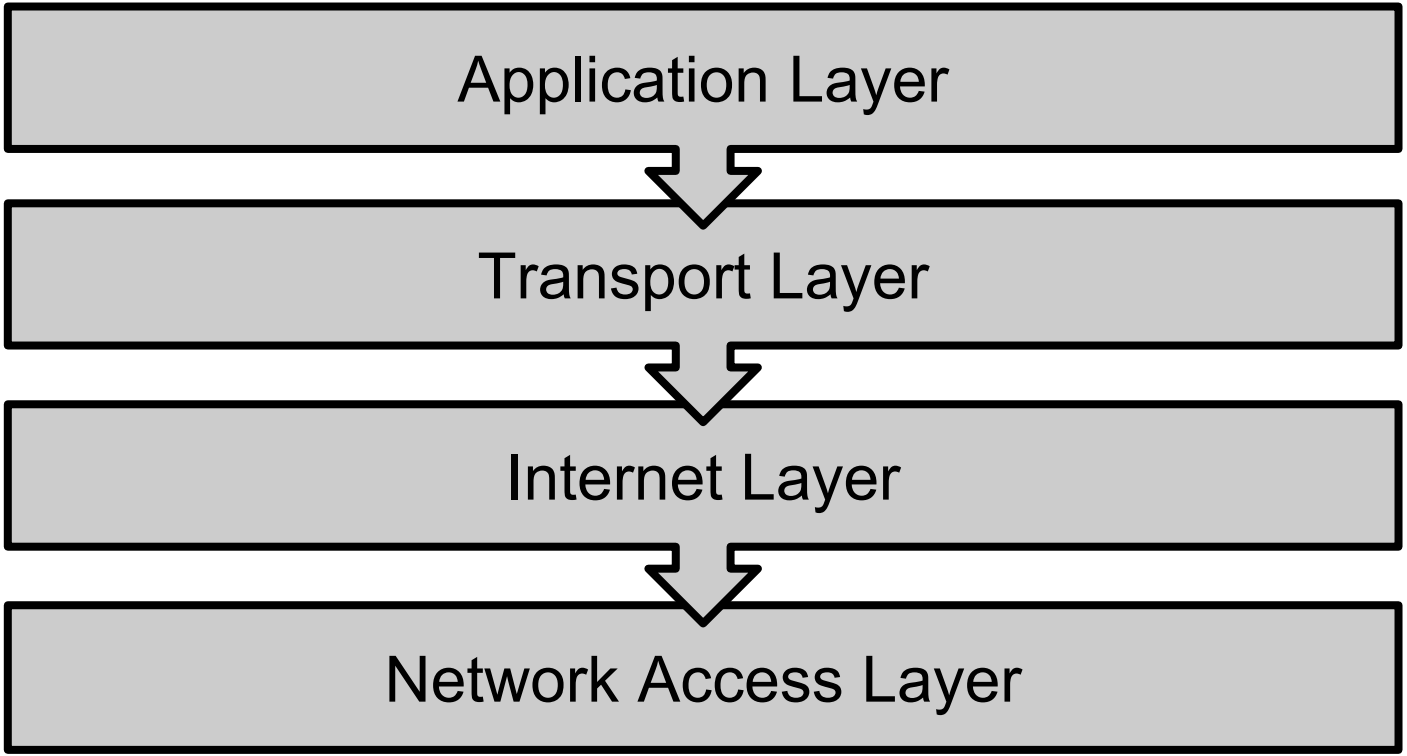
Popular Examples

Stuff you may know

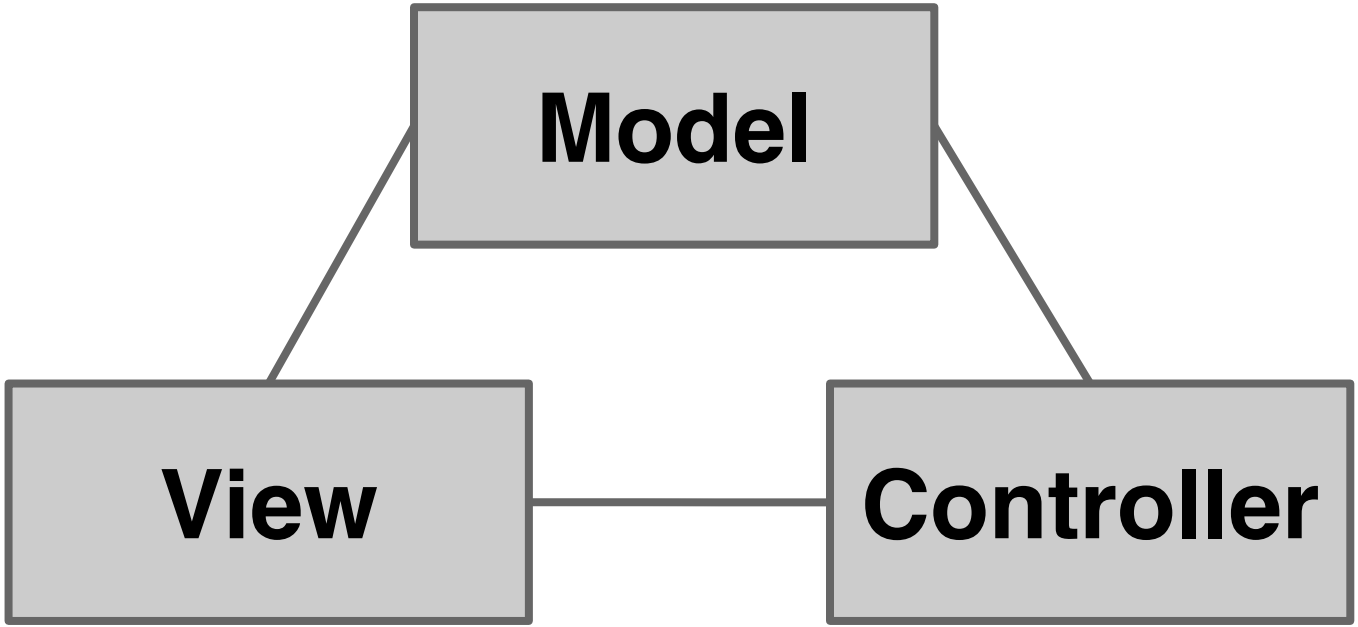
Popular Examples: Client-Server



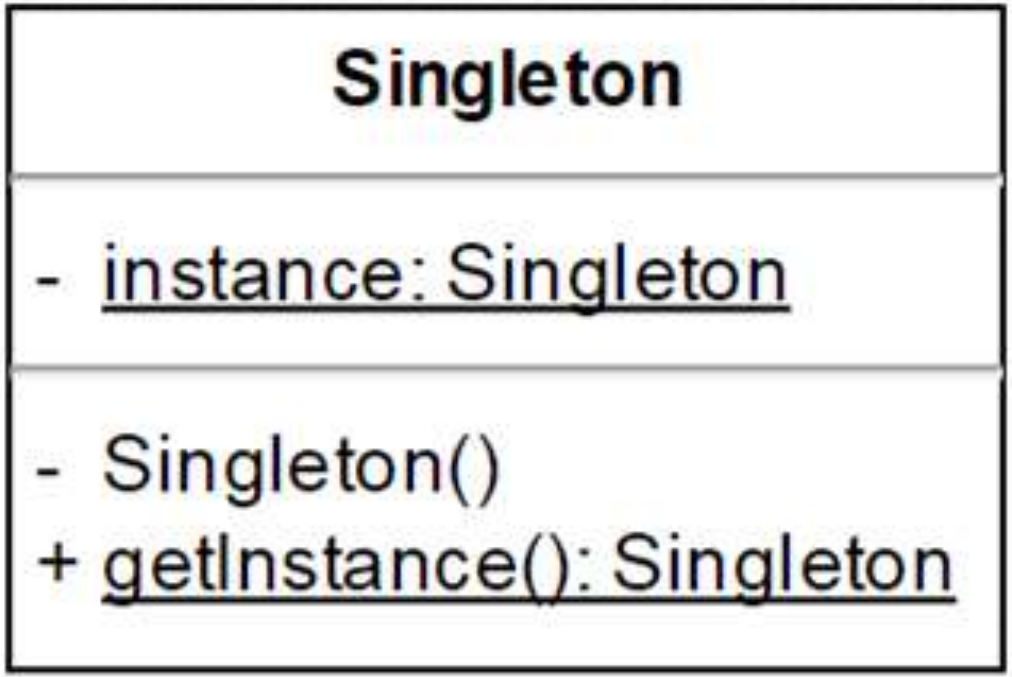
Popular Examples: Layer



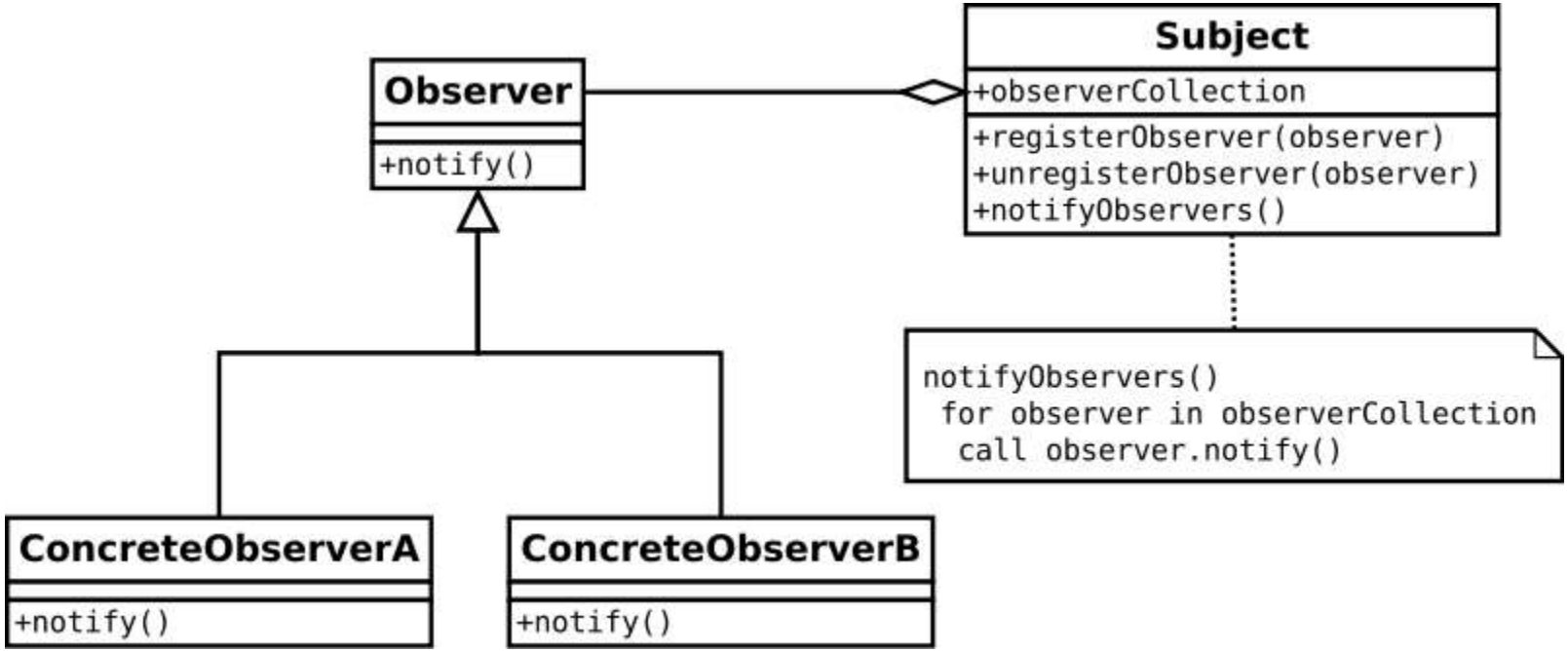
Popular Examples: MVC



Popular Examples: Singleton

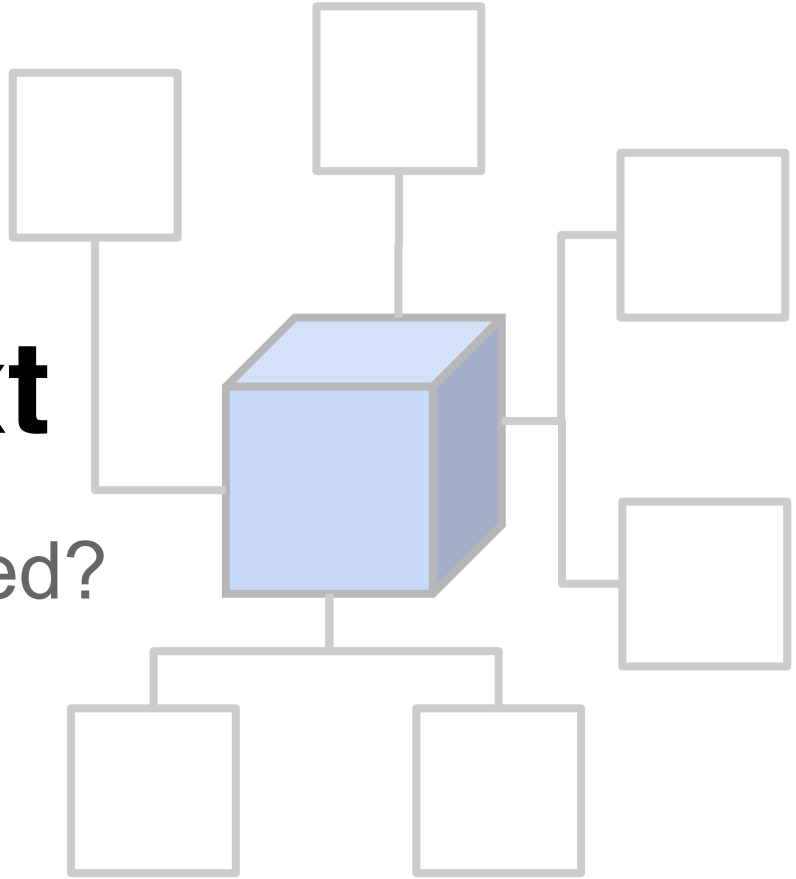


Popular Examples: Observer

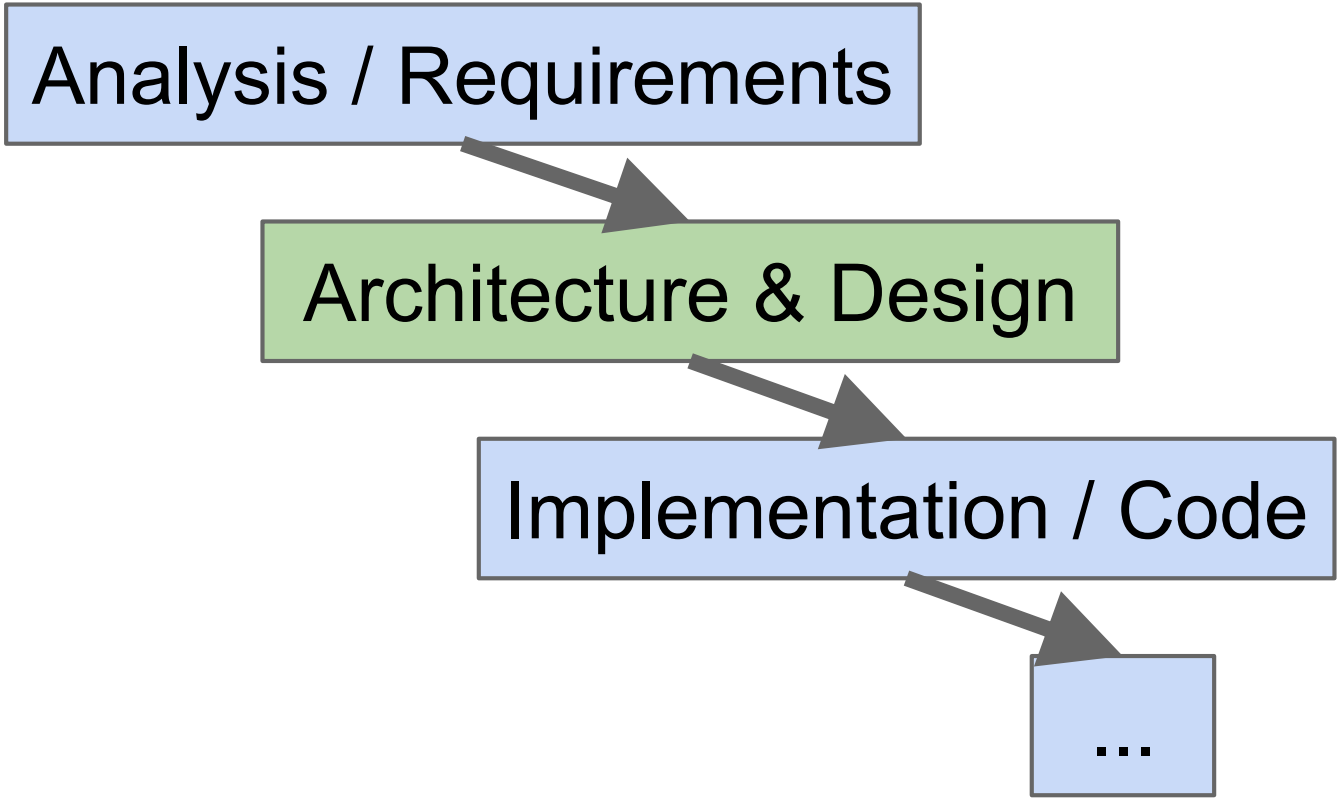


Context

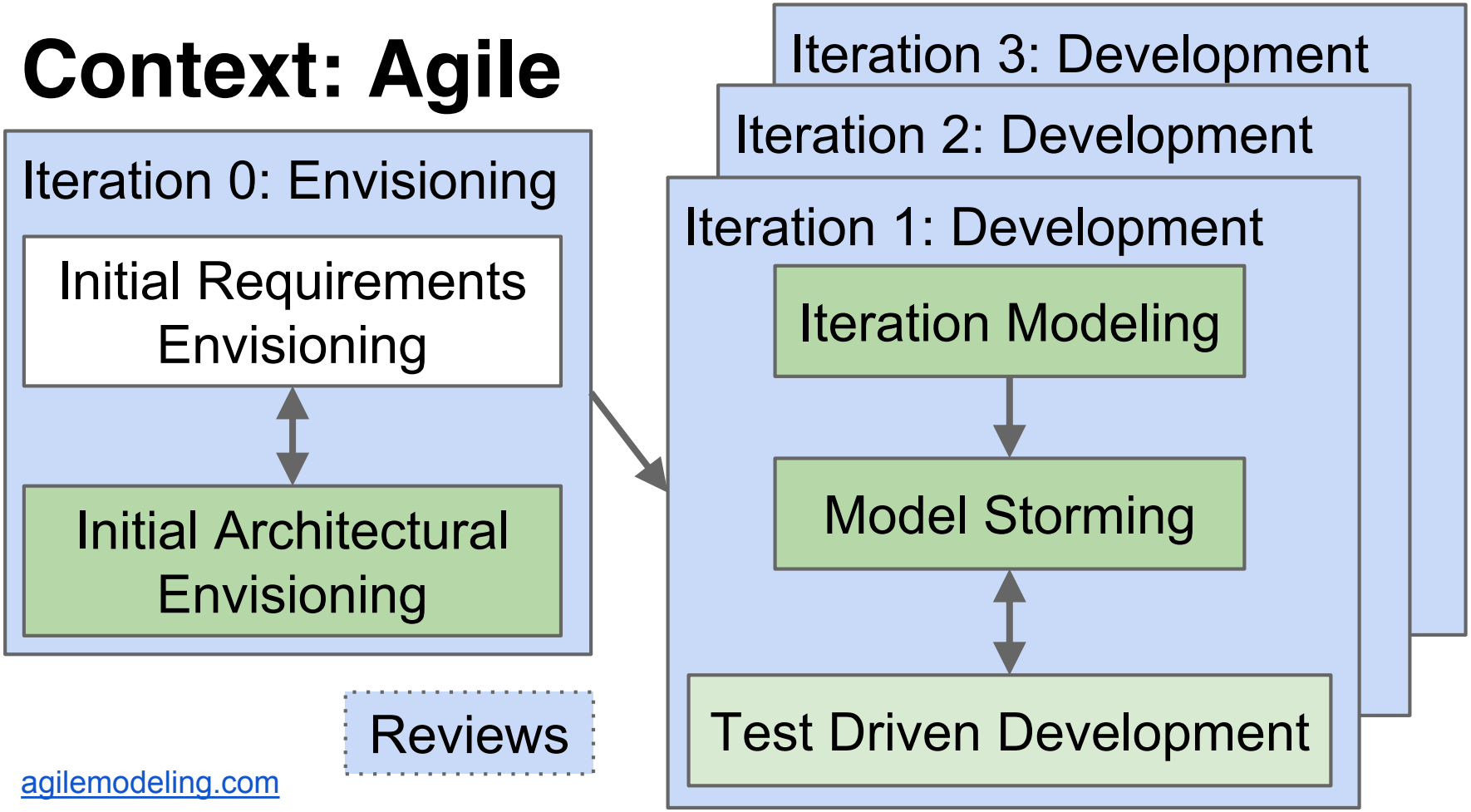
When is it used?



Context: Waterfall



Context: Agile



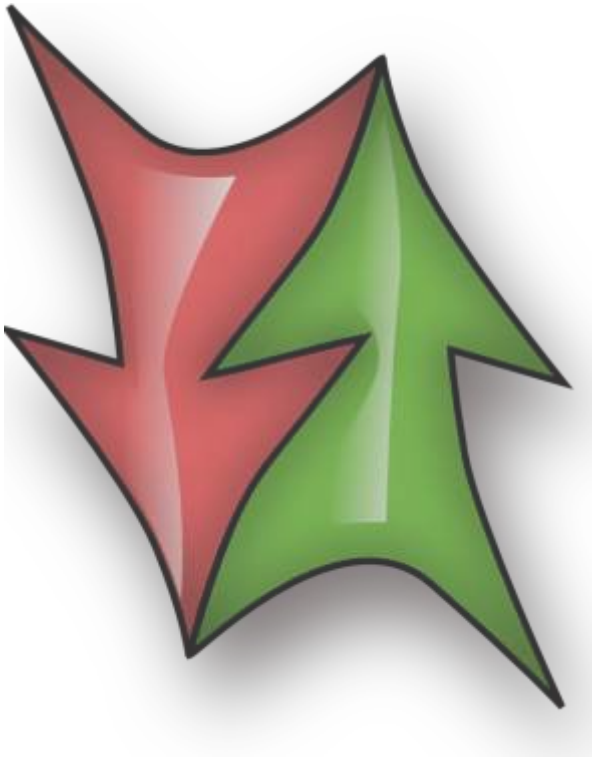
agilemodeling.com

Architecture vs. Design

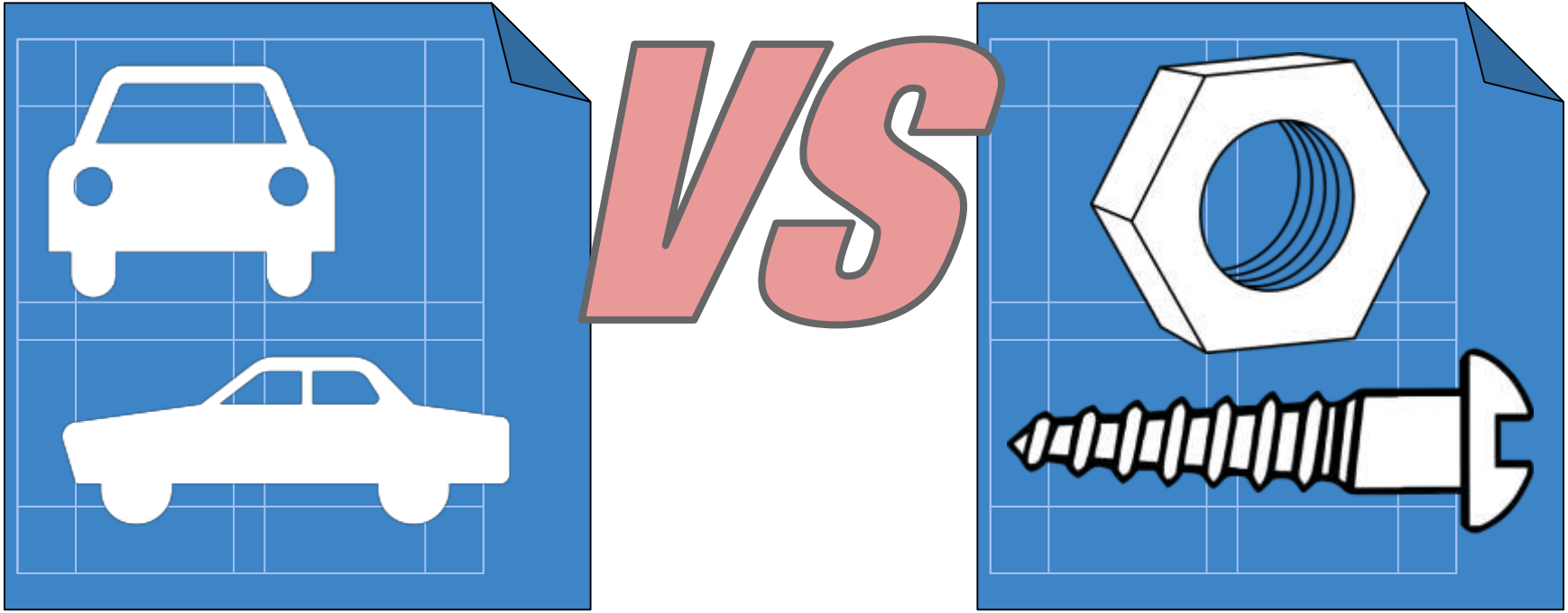
Whats the difference?

Architecture vs. Design

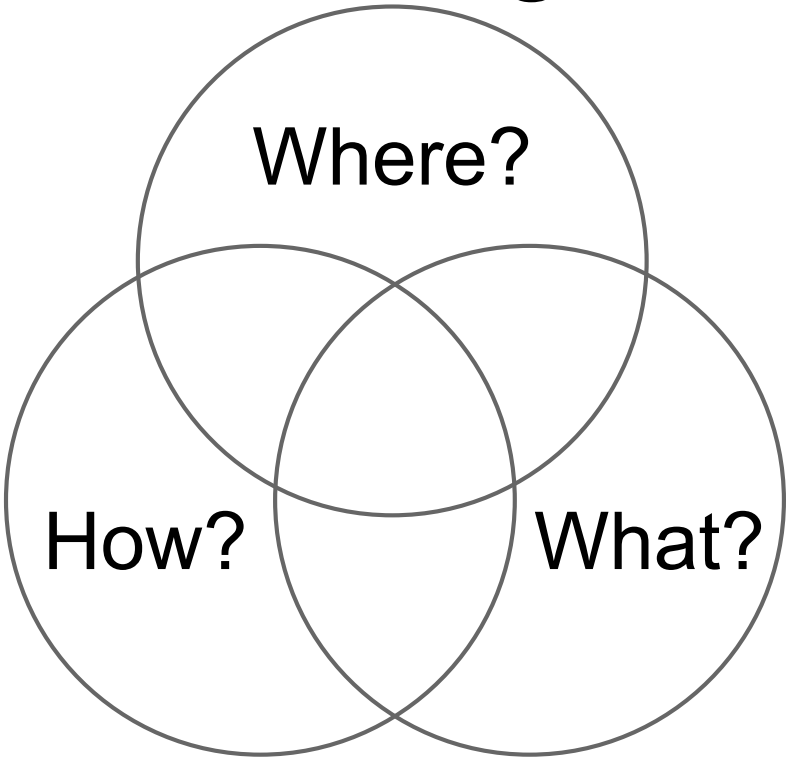
- often subjective
- different definitions
- fuzzy boundary
- both are kinds of *Models / Modelling*



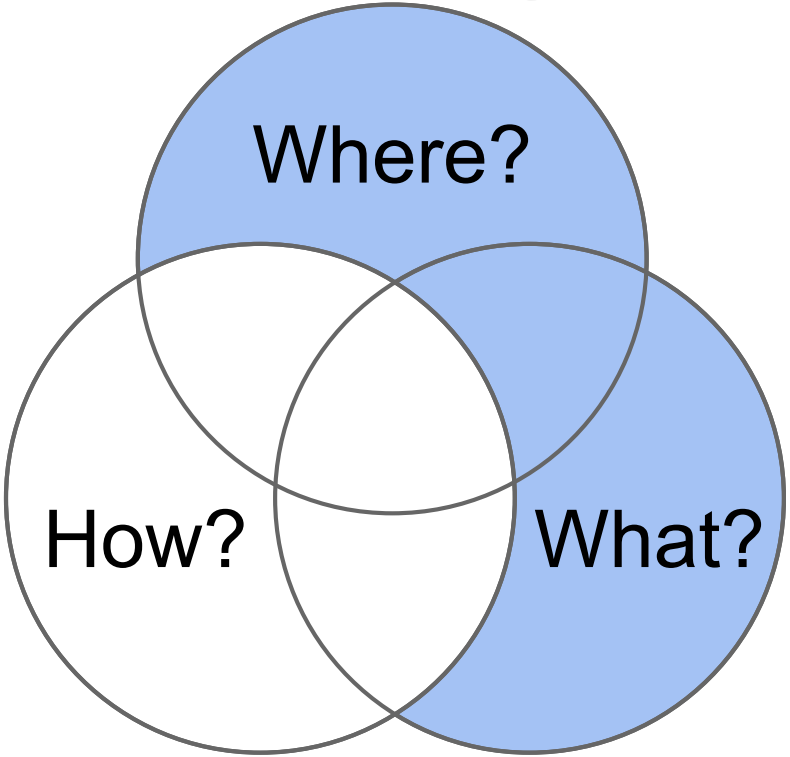
Architecture vs. Design - Granularity



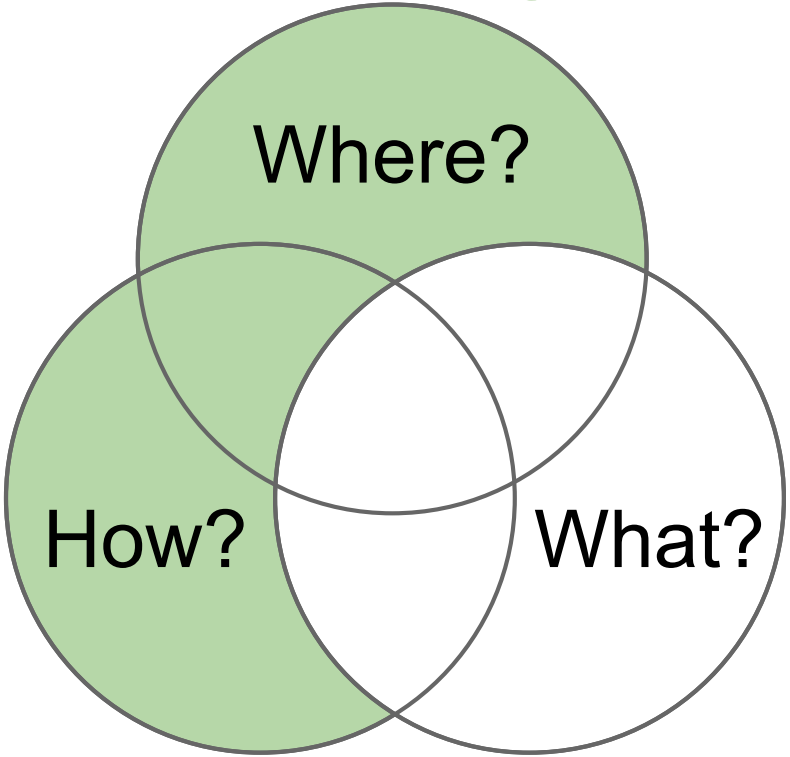
Architecture vs. Design - Question



Architecture vs. Design - Question



Architecture vs. Design - Question



Architecture vs. Design - Examples

- What kind of data storage?
- How do modules interact with each other?
- What recovery systems are in place?

- What are the responsibilities of module X?
- What are the functions of class Y?
- What can a class do, and what not?

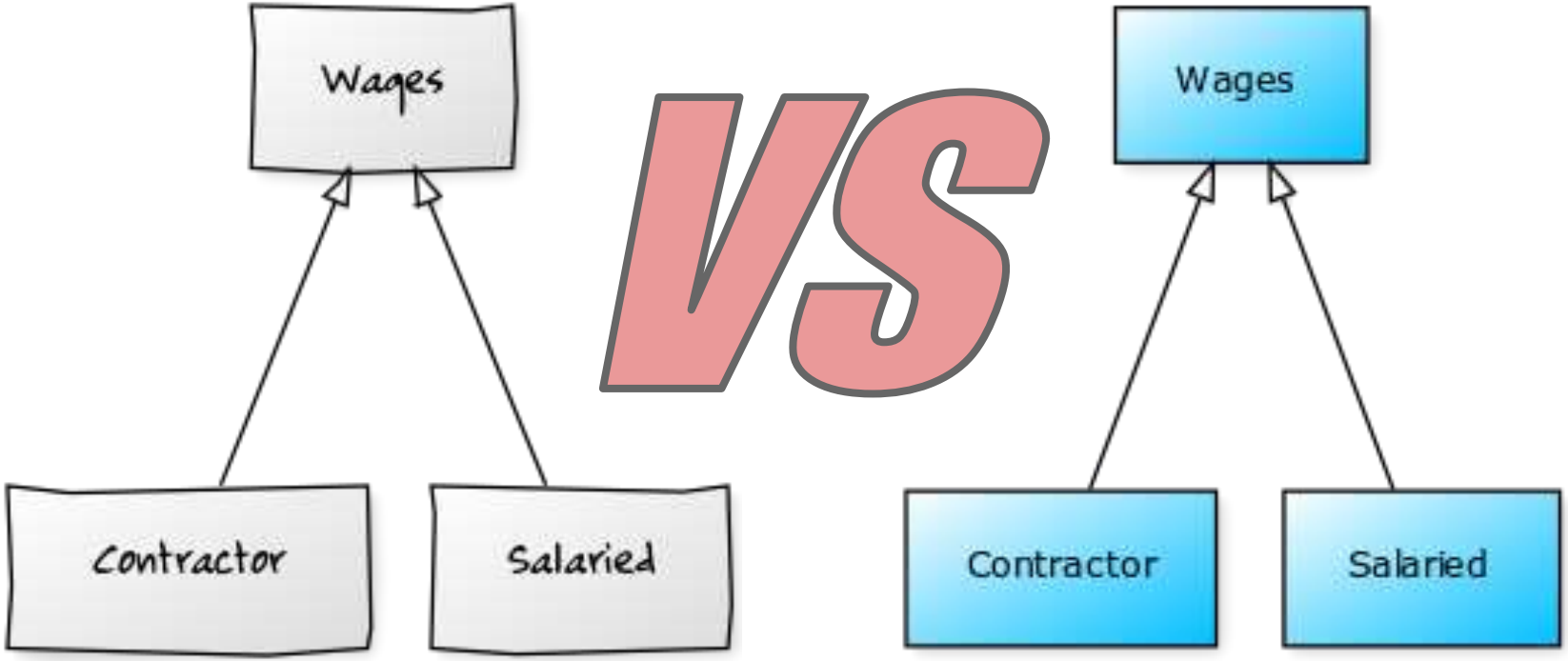
Architecture vs. Design - Conclusion

- hairsplitting → don’t bother
- all are ambiguous → attach “*Software*”

Uses

What’s its purpose?

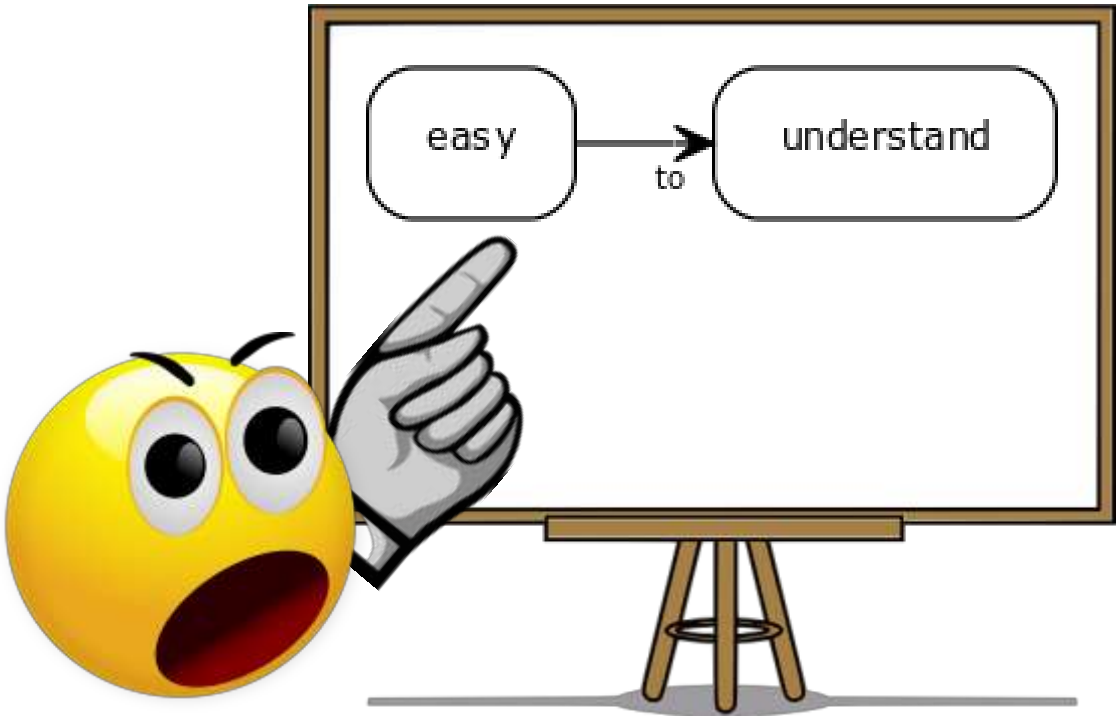
Uses: Sketch vs. CASE



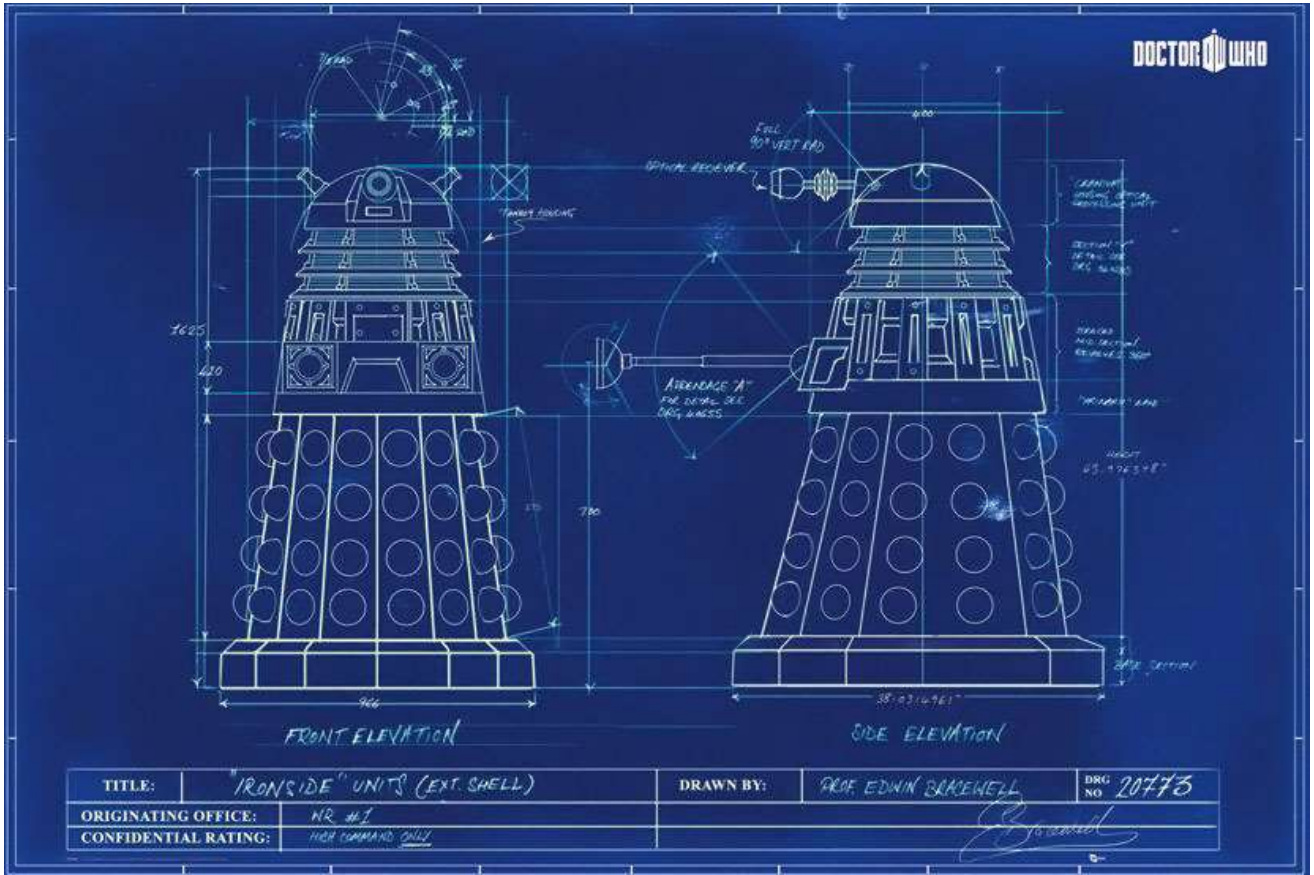
Use: Communication (1)

```
var __extends = this.__extends ||
function (d, b) {
    for (var p in b) if
(b.hasOwnProperty(p)) d[p] = b[p];
    function __() { this.constructor =
d; }
    __.prototype = b.prototype;
    d.prototype = new __();
};
```

Use: Communication (2)



Use: Planning



source: http://www.bbcshop.com/doctor-who/doctor-who-dalek-blueprint-poster/invt/fp2558

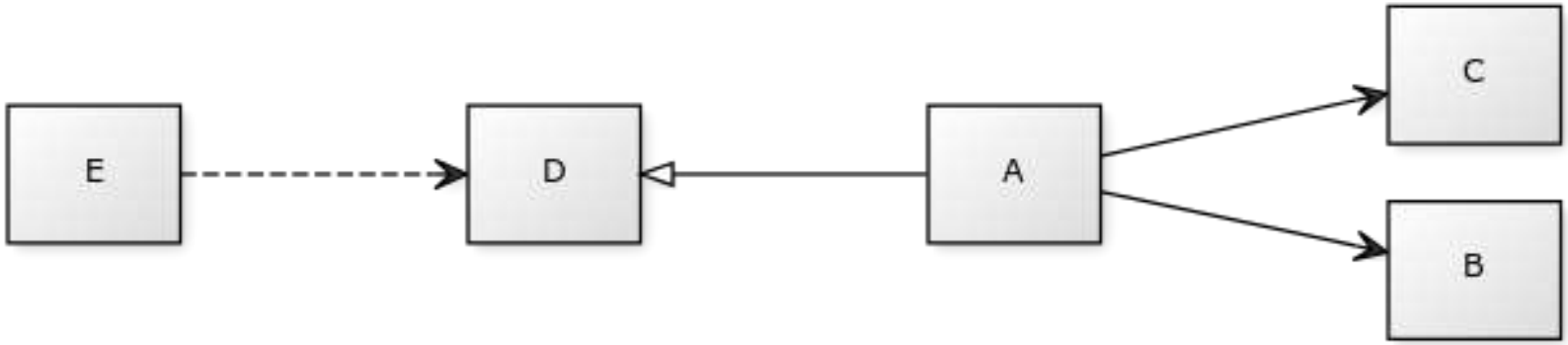
Use: Understanding

- simplification
- information hiding
- easy trial-and-error
- 2d information

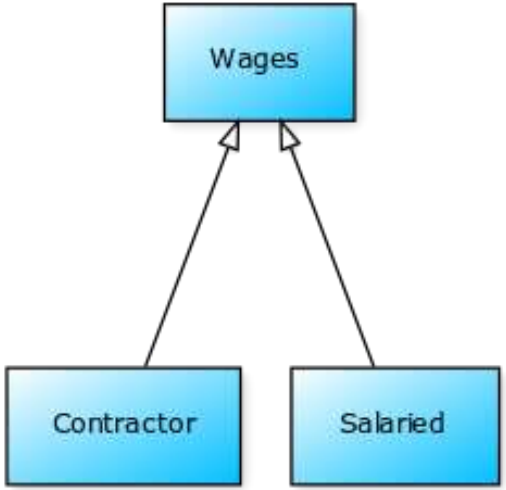
Use: Documentation (1)

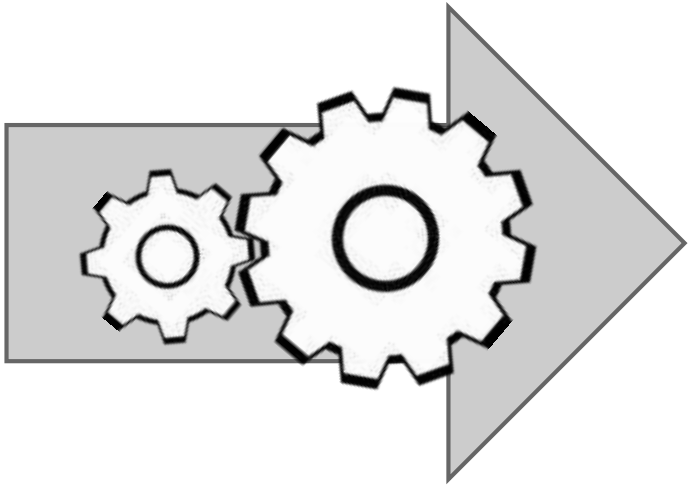
```
/** ============================
 *  This class uses class B
 *  It also uses class C
 *  It extends class D, through
 *  which it is used by class E
 *  ============================
 */
```

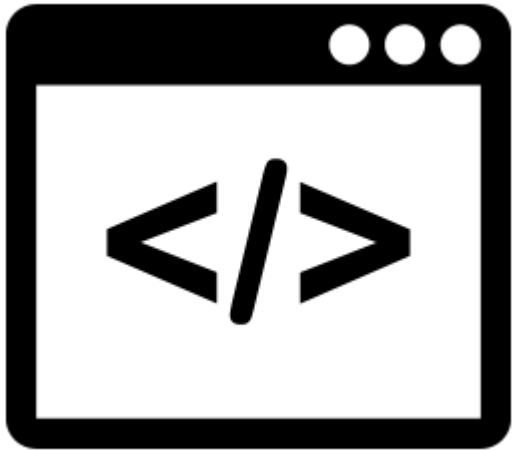
Use: Documentation (2)



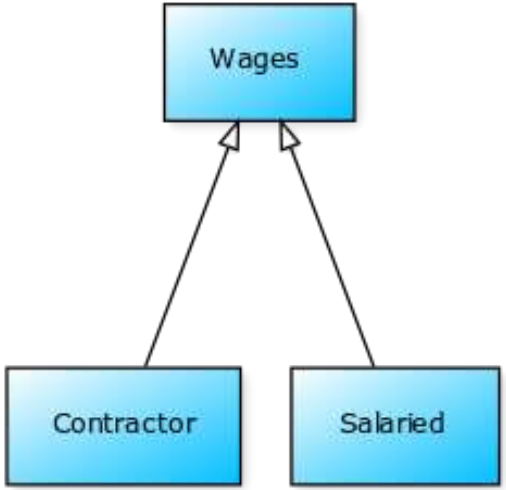
Use: Model Driven Development

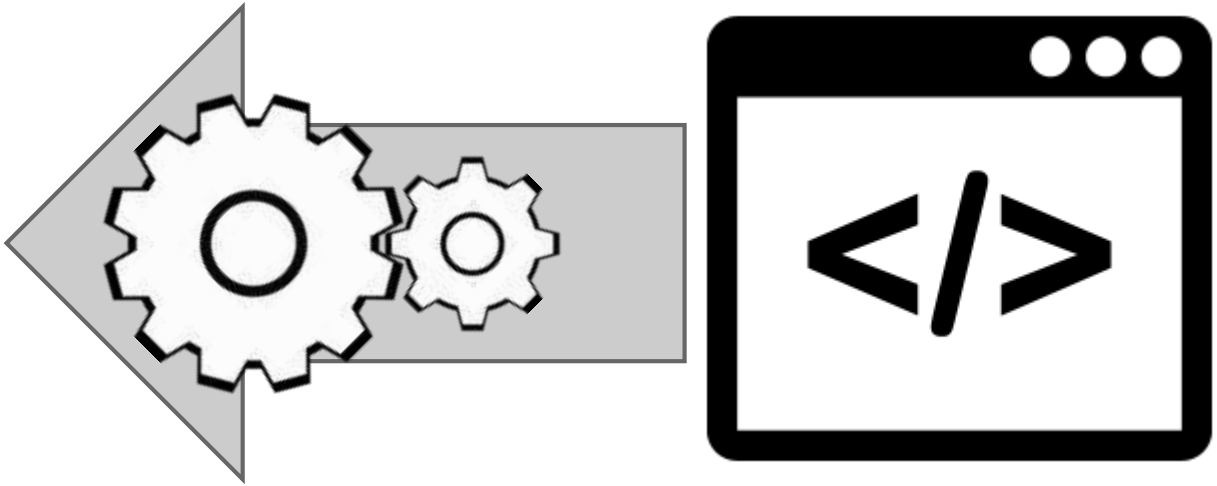




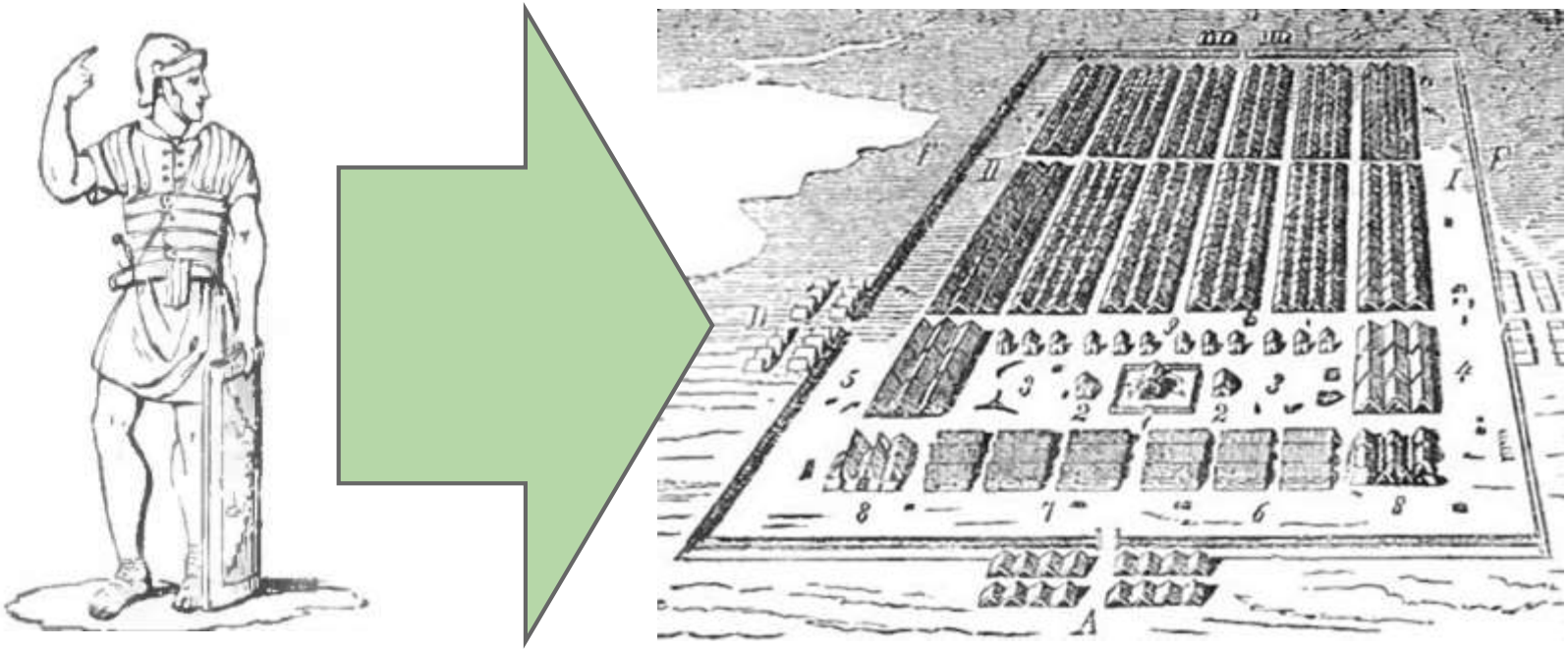


Use: Reverse Engineering





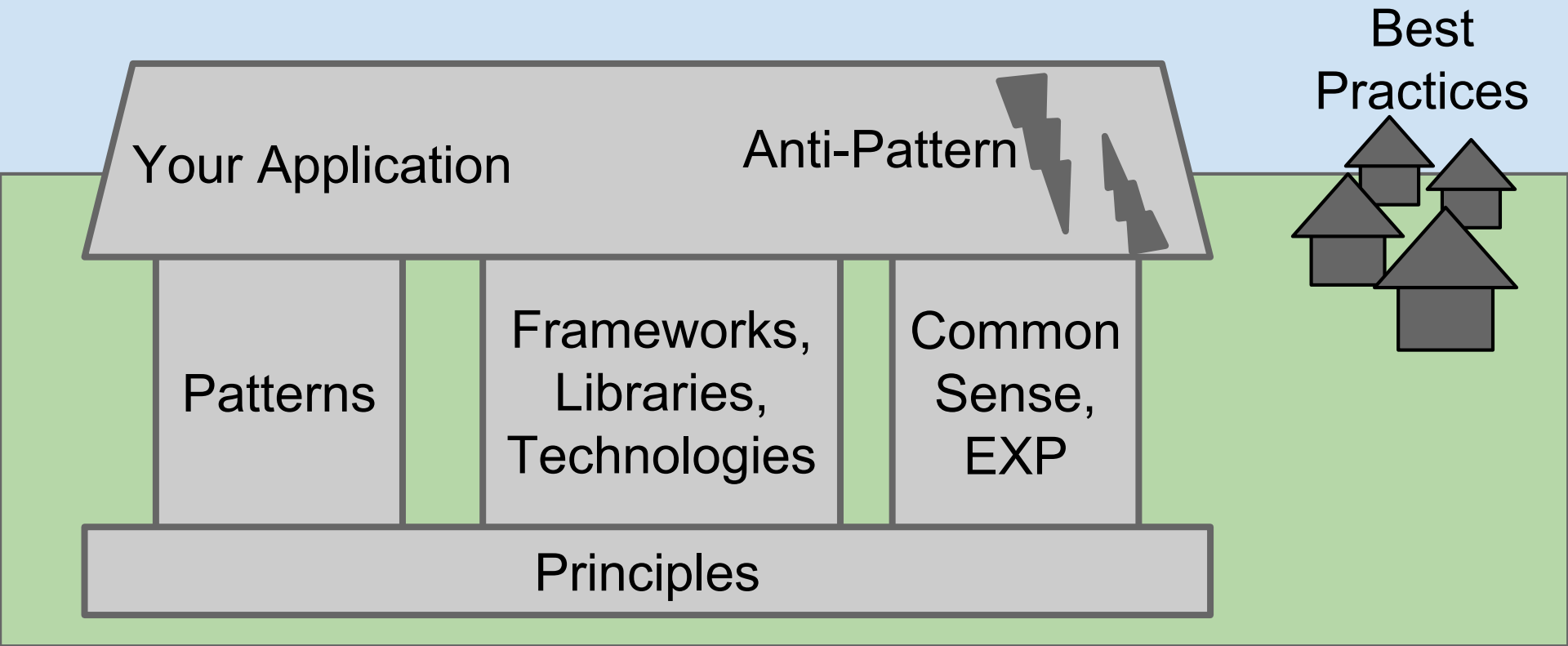
Use: Clean Scaling



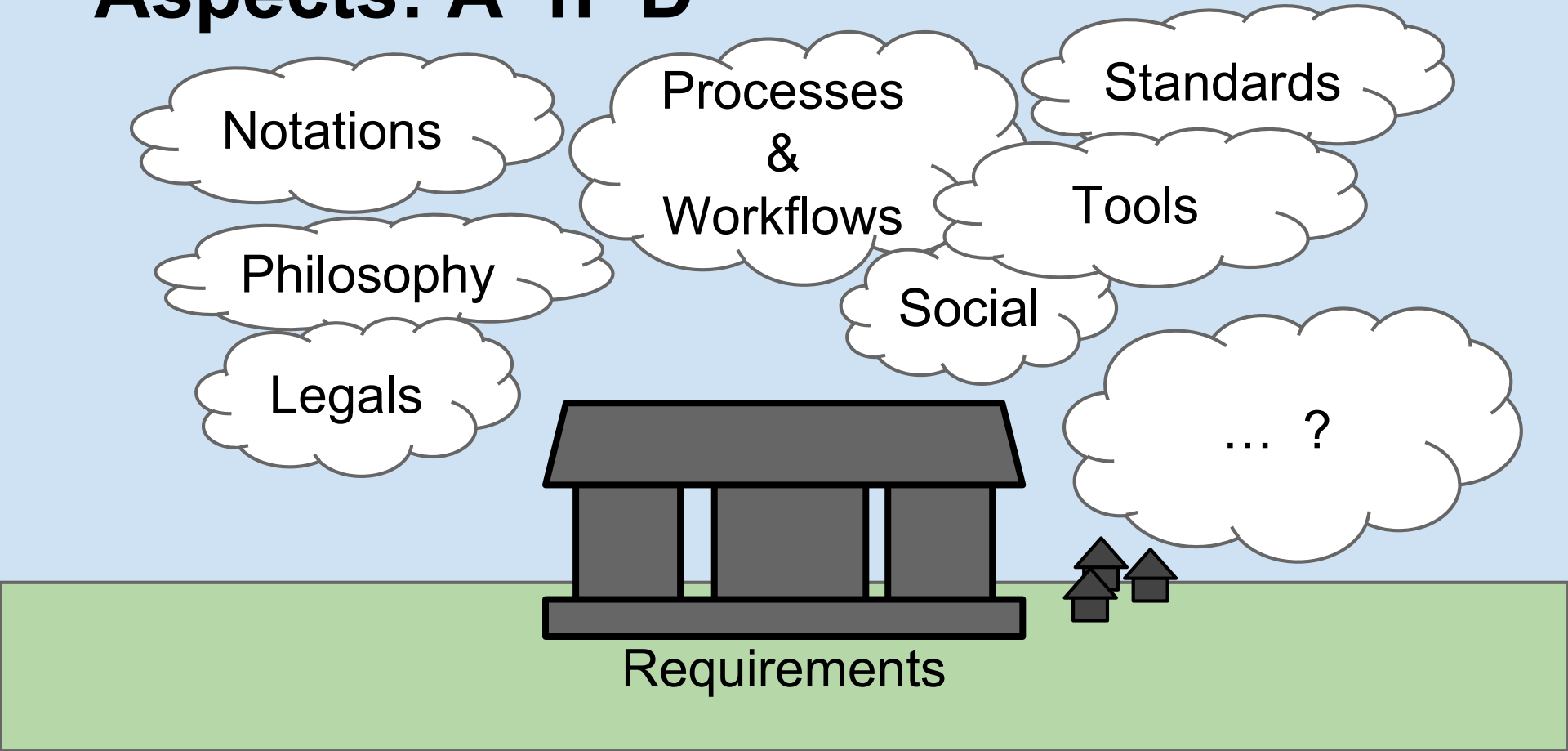
Aspects

What to consider?

Aspects: Structure of A ‘n’ D



Aspects: A ‘n’ D


Notations
Processes & Workflows
Standards
Tools
Philosophy
Social
Legals
… ?
Requirements