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Angular Testing

8 - Testing Strategies

Two Competing Schools of Unit Testing

Differences

London ~ Unit Test

- Unit is a **class**
- Mock everything except the class
  - Very tightly coupled to implementation
- Disadvantages
  - No refactoring
  - Lots of code for mocking
  - No interplay testing
- Advantages
  - Edge cases, finding bugs, exploratory
  - Great code quality (FP)
  - Fast

Detroit (Chicago) ~ Integration Test

- Unit is a **behaviour**
- Mock out-of-system dependencies
  - Runs against an API (UI)
- Advantages
  - Great for refactoring
  - Efficient (coverage)
- Disadvantages
  - Large setup required
  - Slow
  - Hard (Async, Change Detection, DOM,...)
  - Code Quality is of no concern

It is not Unit vs. Integration

It is about the right balance

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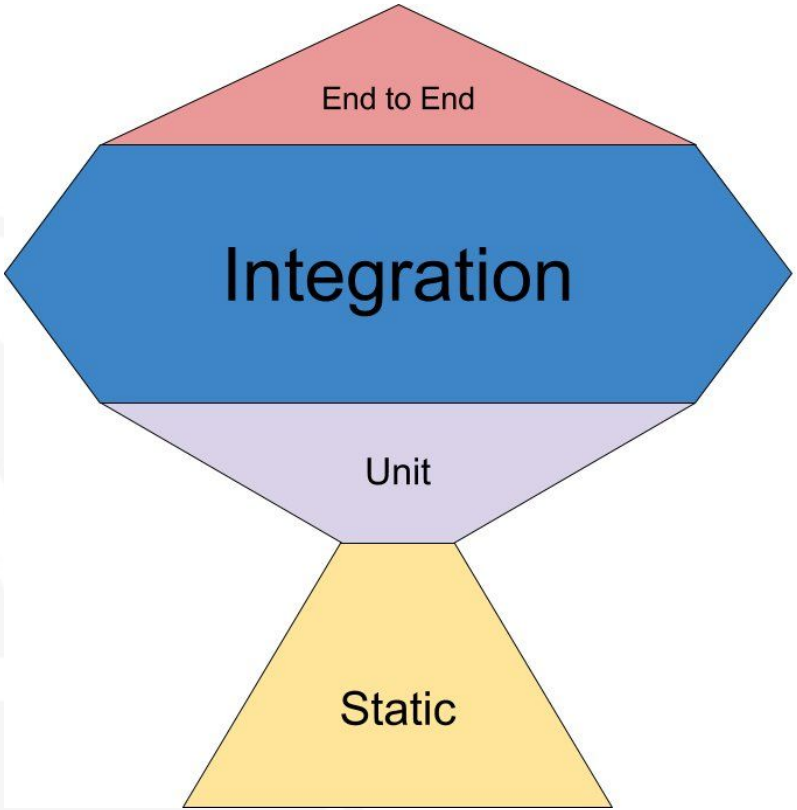
Testing According to ROI



Kent C. Dodds: https://twitter.com/kentcdodds/status/960723172591992832

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Is TDD possible?

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Criterias

- Speed
  - Execution
  - Writing & Maintaining
  - CI & Local Setup
- Timing
- Industry
- Effectiveness
- Application Type

Application Types

1: Anemic

- Most parts of data processing (unit test) done in backend
- Frontend as "proxy" → less logic
- Integration is King

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2: Autonomous

- Backend acts as Store
- Lots of Logic in Frontend
- Unit Tests & Integration Tests are critical

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3: Complex UI

- ViewState in different variations
- Go for Component Tests

4: UI Library

- Library Vendor
- Storybook
  - Visual Regression
  - Cypress

5: Too big to Test

- "I can only run unit tests because of build time"
- Architectural Engine
- Split Logic and UI from each other
- Functional Style
- Example: RulesEngine for Workflow
  - Unit Tests for RulesEngine
  - Integration Tests for Execution into UI

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Trust your instincts!

- *"It doesn't feel right"*
- *"What are we actually testing here? If a function is called? Really?!"*
- *"I don't see any value in testing."*
- *"I never discovered a bug with my tests."*
- *"I am wasting my time with writing tests instead of producing "real" code."*

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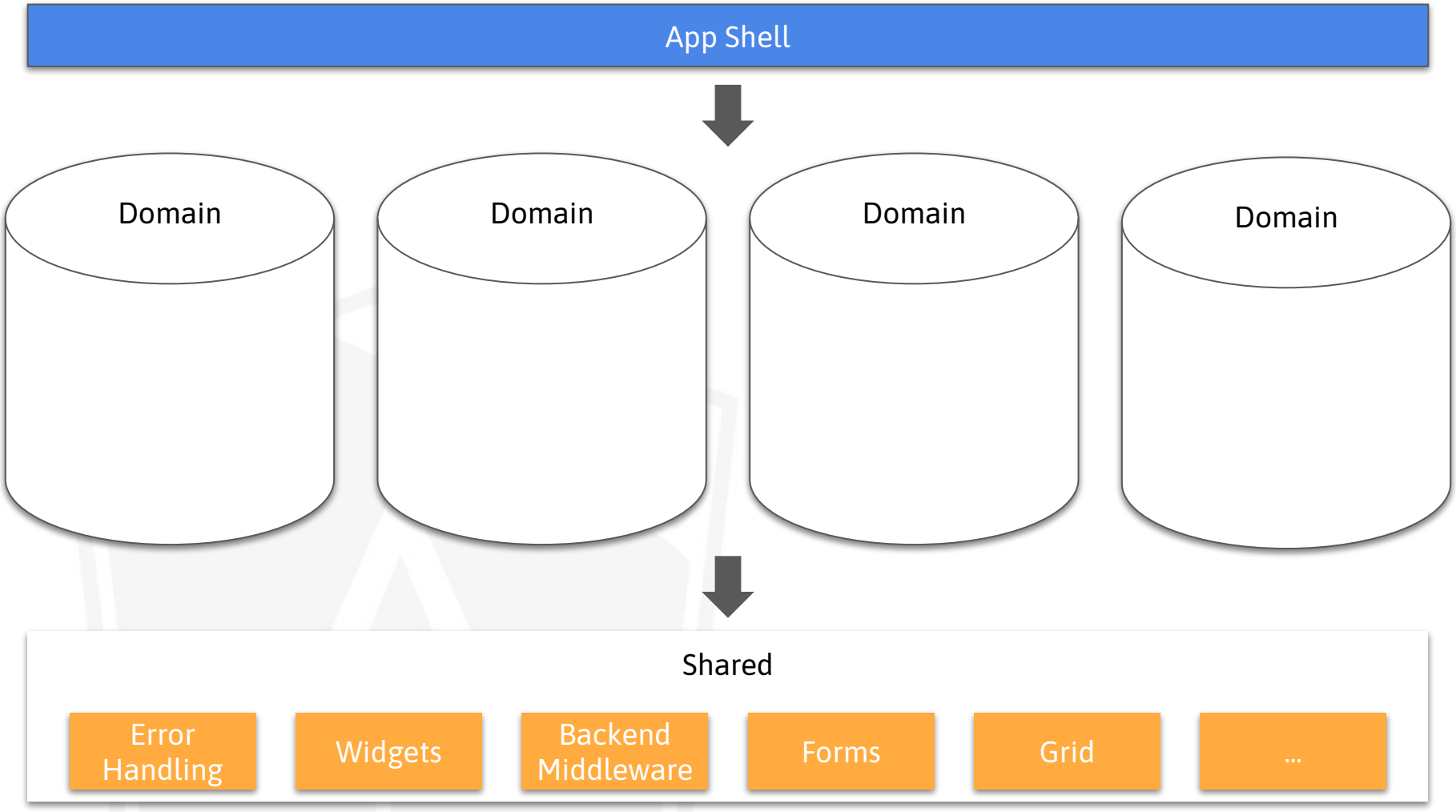
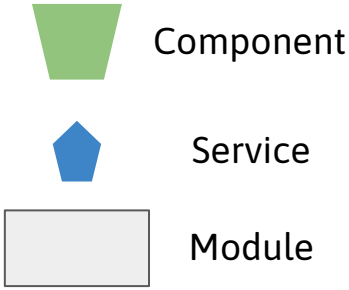
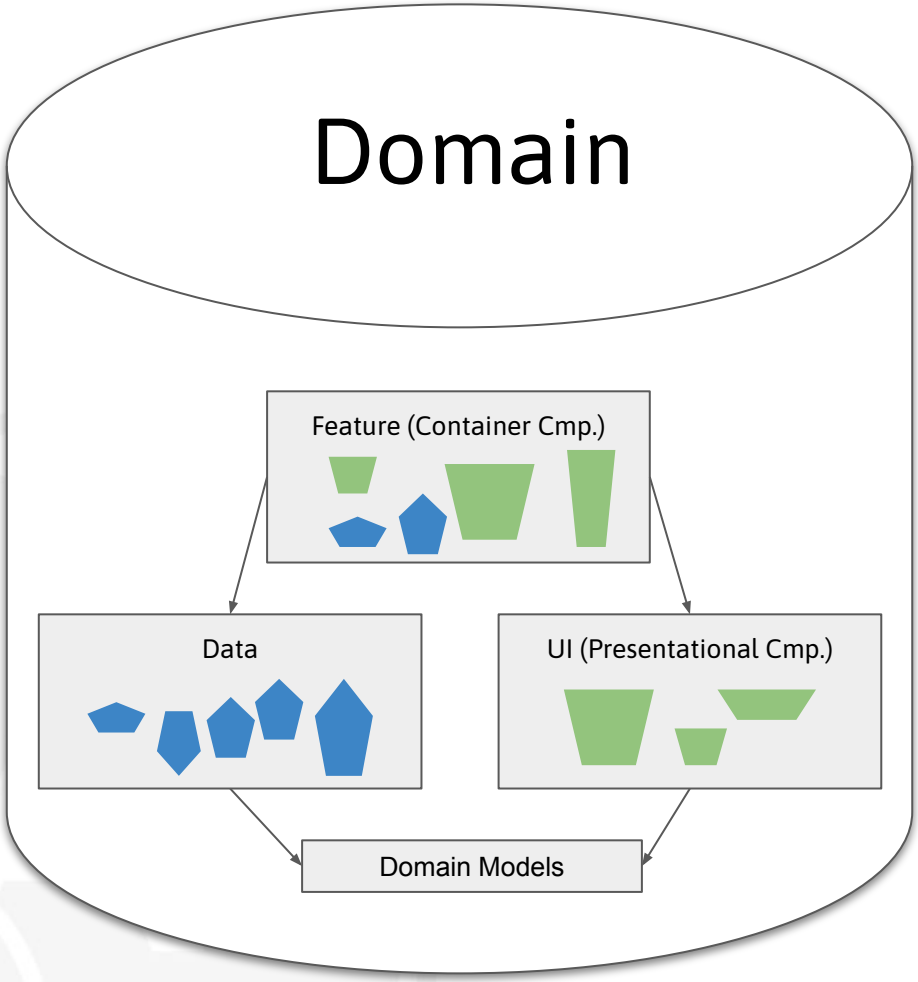
Testable Architecture


App Shell
Domain
Domain
Domain
Domain
Shared
Error Handling
Widgets
Backend Middleware
Forms
Grid
...





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