

Practical Object-Oriented Design Course II

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Day 1 - Testing and Design

Lessons

Understanding the practice of TDD
Deciding what to test
Creating tests that tolerate changes to code
Bending reality with doubles, stubs, spies, mocks and fakes
Rescuing tests gone wrong

Exercises

Students will:

- 1) Use TDD to create an ideal test suite for a new requirement
- 2) Refactor a costly, confusing test suite into one that's straightforward and economical

Day 2 - Orchestrating Object Collaboration

Lessons

Understanding *structural* design patterns:
adapters, composites, decorators and facades
Understanding *behavioral* design patterns:
chain of responsibility, command, observer, state, strategy
Choosing the right strategy for sharing code:
inheritance vs composition vs decoration
Lowering costs by reducing coupling between objects

Exercises

Students will:

- 1) Practice well-known structural and behavioral patterns
- 2) Learn how to choose between inheritance, composition and decoration by solving the same problem with each technique
- 3) Explore different ways to remove conditionals by leaning on polymorphism
- 4) Simplify a real-world code example using a combination of techniques

Day 3 - Application Architecture

Lessons

- Modeling object interaction using sequence diagrams
- Defining architectural layers
- Managing dependencies between layers

Exercises

Students will:

- 1) Design a new application using sequence diagrams
- 2) Write code that implements a layered architecture