

The Addison-Wesley Signature Series



A MIKE COHN SIGNATURE
BOOK
Mike Cohn

DEVELOPER TESTING

BUILDING QUALITY INTO SOFTWARE

ALEXANDER TARLINDER



Forewords by JEFF LANGR
and LISA CRISPIN

DEVELOPER TESTING

Developer Testing: Building Quality into Software

Table of Contents

Cover

Title Page

Copyright Page

Contents

Foreword by Jeff Langr

Foreword by Lisa Crispin

Preface

Acknowledgments

About the Author

Chapter 1 Developer Testing

- Developers Test

- Developer Testing Activities

- What Developers Usually Dont Do

- Defining Developer Testing

- Developer Testing and the Development Process

- Summary

Chapter 2 Testing Objectives, Styles, and Roles

- Testing and Checking

- Testing Objectives

- Testing Styles

Table of Contents

Your Quality Assurance and Developer Testing

Summary

Chapter 3 The Testing Vocabulary

Errors, Defects, Failures

White Box and Black Box Testing

Classifying Tests

The Agile Testing Quadrants

Some Other Types of Testing

Summary

Chapter 4 Testability from a Developers Perspective

Testable Software

Benefits of Testability

Testability Defined

Summary

Chapter 5 Programming by Contract

Contracts Formalize Constraints

Implementing Programming by Contract

Enforcing Contracts

Summary

Chapter 6 Drivers of Testability

Direct Input and Output

Indirect Input and Output

State

Temporal Coupling

Data Types and Testability

Domain-to-Range Ratio

Table of Contents

Summary

Chapter 7 Unit Testing

Why Do It?

What Is a Unit Test?

The Life Cycle of a Unit Testing Framework

Naming Tests

Structuring Tests

Assertion Methods

Testing Exceptions

Behavior-driven DevelopmentStyle Frameworks

Summary

Chapter 8 Specification-based Testing Techniques

Equivalence Partitioning

Boundary Value Analysis

Edge Cases and Gotchas for Some Data Types

State Transition Testing

Decision Tables

Summary

Chapter 9 Dependencies

Relations between Objects

System Resource Dependencies

Dependencies between Layers

Dependencies across Tiers

Summary

Chapter 10 Data-driven and Combinatorial Testing

Parameterized Tests

Table of Contents

Theories

Generative Testing

Combinatorial Testing

Summary

Chapter 11 Almost Unit Tests

Examples

Impact

Summary

Chapter 12 Test Doubles

Stubs

Fakes

Mock Objects

Spies

Dummies

Verify State or Behavior?

Summary

Chapter 13 Mocking Frameworks

Constructing Test Doubles

Setting Expectations

Verifying Interactions

Misuse, Overuse, and Other Pitfalls

Summary

Chapter 14 Test-driven DevelopmentClassic Style

Test-driving a Simple Search Engine

Order of Tests

Red- to Green-bar Strategies

Table of Contents

Challenges

Test First or Test Last?

Summary

Chapter 15 Test-driven DevelopmentMockist Style

A Different Approach

Double-loop TDD

Summary

Chapter 16 Duplication

Why Duplication Is Bad

Taking Advantage of Duplication

Mechanical Duplication

Knowledge Duplication

Summary

Chapter 17 Working with Test Code

Commenting Tests

Deleting Tests

Summary

Chapter 18 Beyond Unit Testing

Tests that Arent Unit Tests

Characteristics of Tests that Arent Unit Tests

Pointers and Practices

Deciding on a Developer Testing Strategy

Summary

Chapter 19 Test Ideas and Heuristics

High-level Considerations

Low-level Considerations

Table of Contents

Summary

Appendix A: Tools and Libraries

Appendix B: Source Code

Test Doubles

Data-driven and Combinatorial Testing

Test-driven Development

Beyond Unit Testing

Bibliography

Index