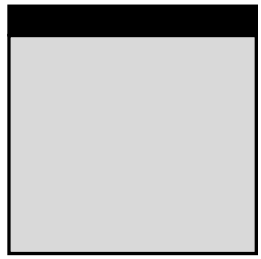

Effective Methods for Software Testing

Third Edition

William E. Perry

Wiley Publishing, Inc.

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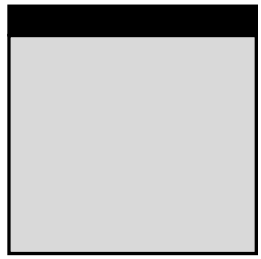

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This book is dedicated to my wife Cynthia, who for many years has been "testing" my ability to live in accordance with our marriage vows. She taught me that testing is a lifelong process, that testing is necessary to ensure that you are meeting your objectives, and that testing can be fun if it is performed correctly. Thank you, Cynthia. What you have taught me is incorporated into many of the concepts in this book.

About the Author

William E. Perry holds degrees from Clarkson University, University of Rochester, and Rochester Institute of Technology. Bill also holds the following professional certifications: CPA (Certified Public Accountant), CIA (Certified Internal Auditor), CISA (Certified Information Services Auditor), CSQA (Certified Software Quality Analyst), and CSTE (Certified Software Tester). He has been an examiner for the Malcolm Baldrige National Quality Award, and served on standards committees for NIST (National Institute of Standards and Technology), IEEE (Institute of Electrical and Electronics Engineers), AICPA (American Institute of Certified Public Accountants) and ISACA (Information Systems Audit and Control Association).

In 1980, Bill founded the Quality Assurance Institute (QAI), a professional association for testers. QAI offers professional certification for Quality Assurance, Software Testing, Software Project Leaders and Business Analyst Professional. More than 27,000 individuals have been certified since the inception of the program.

Bill has authored more than 50 books, many published by John Wiley & Sons. He recently founded the Internal Control Institute (ICI). ICI and St. Petersburg College recently formed the Internal Control Center of Excellence to share best internal control practices, hold conferences on emerging internal control practices, and to offer e-learning courses and a professional certification in internal control.

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Contents

Introduction

Most books about software testing explain "what" to do. This book, on the other hand, takes more of a "how-to" approach. It provides the procedures, templates, checklists, and assessment questionnaires necessary to conduct effective and efficient software testing.

The book is divided into five parts, as follows:

- **Part One: Assessing Testing Capabilities and Competencies.** It is difficult to make any significant change until you know where you are. A baseline tells not only where you are, but lets you measure your progress as your testing strategies and techniques improve. Part One provides three baseline assessments: the capabilities of your software testing group, the competencies of your individual testers, and the effectiveness of your test processes.
- **Part Two: Building a Software Testing Environment.** Software testers are most effective when they work in an environment that encourages and supports well-established testing policies and procedures. The environment includes the procedures and tools for testing, as well as the support and encouragement of management. Part Two begins by describing how to build an environment conducive to testing, and then expands the discussion by describing how to develop a testing process, select testing tools, and build the competency of your testers.
- **Part Three: The Seven-Step Testing Process.** Part Three comprises the core material in the book. It defines a world-class software testing process, from its initiation through testing changes made to operational software systems. This material can be used two ways. First, it contains sufficient procedures and templates so that an organization can use the process as their own. Of course, most organizations inevitably will make some changes to accommodate local vocabulary, specific needs, and customs. This customization process, the seven-step process in this book becomes "owned" by the software testers.

- **Part Four: Incorporating Specialized Testing Responsibilities.** The seven-step testing process is a generic process that almost all software testing organizations can use. However, the mission of software testers may incorporate specialized activities, such as testing security. Rather than incorporating these specialized testing activities directly into the seven-step process, they are presented as individual, specialized activities. As appropriate, they can be incorporated into the seven-step process.
- **Part Five: Building Agility into the Testing Process.** Part Five, which draws on what you've learned earlier in the book, is designed to help you identify the strengths and weaknesses of your current software testing process, and then modify it to become more usable or agile.

Getting the Most Out of This Book

This book is not designed to be read like a novel, from beginning to end, nor is it filled with human interest stories about testers. The book focuses on how to conduct software testing. It is designed to help you improve your testing competencies and processes. The self-assessments in Part One will help you identify which parts of the book you need to read first.

The following guidelines will help you maximize the benefit from this book:

- **Establish a baseline of current performance.** Part One of this book (and Chapter 5) contains four self-assessments for establishing baselines. You need to know where you are so that you can develop a good plan for moving forward.
- **Define the software testing organization you would like to have.** It has been said that if you do not know where you're going, all roads lead there. Too many software testing groups just add new testing programs, processes, and tools without knowing if they will integrate effectively.
- **Develop a plan for moving from your baseline to your goal.** Few organizations can quickly and effectively install an entirely new software testing process. Gradual change is normally much better than radical change. Therefore, identify the gaps between where you are and where you want to be. Determine which of those gaps if closed would provide the greatest benefit to your organization. That becomes the part of the plan you implement first. Over time you will move the entire testing process from your current baseline to your desired goal.

For additional information on software testing conferences and training programs, visit `www.taiworldwide.org`. For information on software testing certifications, visit `www.softwarecertifications.org`.

What's New in the Third Edition

The core of this book is the step-by-step process for testing software. This edition has simplified that process from 11 steps to 7 steps.

A major addition to this edition is the self-assessment in Chapter 5, which testers can use to identify their strengths and weaknesses and then build a personal improvement plan. The self-assessment is based on the Common Body of Knowledge (CBOK) for the Certified Software Tester (CSTE).

Other significant additions include

- A new chapter on testing internal control
- An expanded chapter on testing security
- A new chapter on adapting testing to the developmental methodology used to build the software
- Two new chapters on how to incorporate agile methods into the testing process

What's on the CD

This book includes a CD that contains the work papers and quality control checklists to help you implement the software testing process.

To use the CD, first you need to select a software testing activity that you want to implement in your organization—for example, test planning. Then, from the chapter on test planning, identify those work papers and checklists that you believe would be beneficial to your organization. You can extract those work papers and checklists from the CD and begin a customization process. For example, you can include the name of your organization, add or delete portions of the work papers, and change the terminology to be consistent with your organization.

After you have used the work papers for conducting a software test, you should bundle the work papers into a case study for new testers. If they use the book to learn the basics of software testing and then can cross reference what they have learned to examples of how the work papers are actually used in software testing, learning should be accelerated.