
The Clean Coder

**A CODE OF CONDUCT FOR
PROFESSIONAL PROGRAMMERS**

Robert C. Martin



Upper Saddle River, NJ • Boston • Indianapolis • San Francisco
New York • Toronto • Montreal • London • Munich • Paris • Madrid
Capetown • Sydney • Tokyo • Singapore • Mexico City

Many of the designations used by manufacturers and sellers to distinguish their products are claimed as trademarks. Where those designations appear in this book, and the publisher was aware of a trademark claim, the designations have been printed with initial capital letters or in all capitals.

The author and publisher have taken care in the preparation of this book, but make no expressed or implied warranty of any kind and assume no responsibility for errors or omissions. No liability is assumed for incidental or consequential damages in connection with or arising out of the use of the information or programs contained herein.

The publisher offers excellent discounts on this book when ordered in quantity for bulk purchases or special sales, which may include electronic versions and/or custom covers and content particular to your business, training goals, marketing focus, and branding interests. For more information, please contact:

U.S. Corporate and Government Sales
(800) 382-3419
corpsales@pearsontechgroup.com

For sales outside the United States please contact:

International Sales
international@pearson.com

Visit us on the Web: www.informit.com/ph

Library of Congress Cataloging-in-Publication Data

Martin, Robert C.

The clean coder : a code of conduct for professional programmers / Robert Martin.

p. cm.

Includes bibliographical references and index.

ISBN 0-13-708107-3 (pbk. : alk. paper)

1. Computer programming—Moral and ethical aspects. 2. Computer programmers—Professional ethics. I. Title.

QA76.9.M65M367 2011

005.1092—dc22

2011005962

Copyright © 2011 Pearson Education, Inc.

All rights reserved. Printed in the United States of America. This publication is protected by copyright, and permission must be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form or by any means, electronic, mechanical, photocopying, recording, or likewise. For information regarding permissions, write to:

Pearson Education, Inc.
Rights and Contracts Department
501 Boylston Street, Suite 900
Boston, MA 02116
Fax: (617) 671-3447

ISBN-13: 978-0-13-708107-3

ISBN-10: 0-13-708107-3

Text printed in the United States on recycled paper at RR Donnelley in Crawfordsville, Indiana.

First printing, May 2011

CONTENTS

| | |
|----------------------------------|--------|
| Foreword | xiii |
| Preface | xix |
| Acknowledgments | xxiii |
| About the Author | xxix |
| On the Cover | xxxi |
| Pre-Requisite Introduction | I |
| Chapter 1 Professionalism | 7 |
| Be Careful What You Ask For | 8 |
| Taking Responsibility | 8 |
| First, Do No Harm | 11 |
| Work Ethic | 16 |
| Bibliography | 22 |
| Chapter 2 Saying No | 23 |
| Adversarial Roles | 26 |
| High Stakes | 29 |
| Being a “Team Player” | 30 |
| The Cost of Saying Yes | 36 |
| Code Impossible | 41 |

| | | |
|------------------|--------------------------------|------------|
| Chapter 3 | Saying Yes | 45 |
| | A Language of Commitment | 47 |
| | Learning How to Say “Yes” | 52 |
| | Conclusion | 56 |
| Chapter 4 | Coding | 57 |
| | Preparedness | 58 |
| | The Flow Zone | 62 |
| | Writer’s Block | 64 |
| | Debugging | 66 |
| | Pacing Yourself | 69 |
| | Being Late | 71 |
| | Help | 73 |
| | Bibliography | 76 |
| Chapter 5 | Test Driven Development | 77 |
| | The Jury Is In | 79 |
| | The Three Laws of TDD | 79 |
| | What TDD Is Not | 83 |
| | Bibliography | 84 |
| Chapter 6 | Practicing | 85 |
| | Some Background on Practicing | 86 |
| | The Coding Dojo | 89 |
| | Broadening Your Experience | 93 |
| | Conclusion | 94 |
| | Bibliography | 94 |
| Chapter 7 | Acceptance Testing | 95 |
| | Communicating Requirements | 95 |
| | Acceptance Tests | 100 |
| | Conclusion | 111 |
| Chapter 8 | Testing Strategies | 113 |
| | QA Should Find Nothing | 114 |

| | | |
|-------------------|---|------------|
| | The Test Automation Pyramid | 115 |
| | Conclusion | 119 |
| | Bibliography | 119 |
| Chapter 9 | Time Management | 121 |
| | Meetings | 122 |
| | Focus-Manna | 127 |
| | Time Boxing and Tomatoes | 130 |
| | Avoidance | 131 |
| | Blind Alleys | 131 |
| | Marshes, Bogs, Swamps, and Other Messes | 132 |
| | Conclusion | 133 |
| Chapter 10 | Estimation | 135 |
| | What Is an Estimate? | 138 |
| | PERT | 141 |
| | Estimating Tasks | 144 |
| | The Law of Large Numbers | 147 |
| | Conclusion | 147 |
| | Bibliography | 148 |
| Chapter 11 | Pressure | 149 |
| | Avoiding Pressure | 151 |
| | Handling Pressure | 153 |
| | Conclusion | 155 |
| Chapter 12 | Collaboration | 157 |
| | Programmers versus People | 159 |
| | Cerebellums | 164 |
| | Conclusion | 166 |
| Chapter 13 | Teams and Projects | 167 |
| | Does It Blend? | 168 |
| | Conclusion | 171 |
| | Bibliography | 171 |

| | | |
|-------------------|---|------------|
| Chapter 14 | Mentoring, Apprenticeship, and Craftsmanship | 173 |
| | Degrees of Failure | 174 |
| | Mentoring | 174 |
| | Apprenticeship | 180 |
| | Craftsmanship | 184 |
| | Conclusion | 185 |
| Appendix A | Tooling | 187 |
| | Tools | 189 |
| | Source Code Control | 189 |
| | IDE/Editor | 194 |
| | Issue Tracking | 196 |
| | Continuous Build | 197 |
| | Unit Testing Tools | 198 |
| | Component Testing Tools | 199 |
| | Integration Testing Tools | 200 |
| | UML/MDA | 201 |
| | Conclusion | 204 |
| Index | | 205 |