

1. Record Nr.	UNINA9910811608503321
Autore	Huang J. C. <1935->
Titolo	Software error detection through testing and analysis // J.C. Huang
Pubbl/distr/stampa	Hoboken, N.J., : John Wiley & Sons, c2009
ISBN	1-282-27967-X 9786612279676 0-470-46407-0 0-470-46405-4
Edizione	[1st ed.]
Descrizione fisica	1 online resource (271 p.)
Disciplina	005.1/4
Soggetti	Computer software - Testing Computer software - Reliability Debugging in computer science
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 237-251) and index.
Nota di contenuto	SOFTWARE ERROR DETECTION THROUGH TESTING AND ANALYSIS; CONTENTS; Preface; 1 Concepts, Notation, and Principles; 1.1 Concepts, Terminology, and Notation; 1.2 Two Principles of Test-Case Selection; 1.3 Classification of Faults; 1.4 Classification of Test-Case Selection Methods; 1.5 The Cost of Program Testing; 2 Code-Based Test-Case Selection Methods; 2.1 Path Testing; 2.2 Statement Testing; 2.3 Branch Testing; 2.4 Howden's and McCabe's Methods; 2.5 Data- Flow Testing; 2.6 Domain-Strategy Testing; 2.7 Program Mutation and Fault Seeding; 2.8 Discussion; Exercises 3 Specification-Based Test-Case Selection Methods3.1 Subfunction Testing; 3.2 Predicate Testing; 3.3 Boundary-Value Analysis; 3.4 Error Guessing; 3.5 Discussion; Exercises; 4 Software Testing Roundup; 4.1 Ideal Test Sets; 4.2 Operational Testing; 4.3 Integration Testing; 4.4 Testing Object-Oriented Programs; 4.5 Regression Testing; 4.6 Criteria for Stopping a Test; 4.7 Choosing a Test-Case Selection Criterion; Exercises; 5 Analysis of Symbolic Traces; 5.1 Symbolic Trace and Program Graph; 5.2 The Concept of a State Constraint; 5.3 Rules for Moving and Simplifying Constraints 5.4 Rules for Moving and Simplifying Statements5.5 Discussion; 5.6

Supporting Software Tool; Exercises; 6 Static Analysis; 6.1 Data-Flow Anomaly Detection; 6.2 Symbolic Evaluation (Execution); 6.3 Program Slicing; 6.4 Code Inspection; 6.5 Proving Programs Correct; Exercises; 7 Program Instrumentation; 7.1 Test-Coverage Measurement; 7.2 Test-Case Effectiveness Assessment; 7.3 Instrumenting Programs for Assertion Checking; 7.4 Instrumenting Programs for Data-Flow-Anomaly Detection; 7.5 Instrumenting Programs for Trace-Subprogram Generation; Exercises; Appendix A: Logico-Mathematical Background Appendix B: Glossary Appendix C: Questions for Self-Assessment; Bibliography; Index

Sommario/riassunto

An in-depth review of key techniques in software error detection
Software error detection is one of the most challenging problems in software engineering. Now, you can learn how to make the most of software testing by selecting test cases to maximize the probability of revealing latent errors. Software Error Detection through Testing and Analysis begins with a thorough discussion of test-case selection and a review of the concepts, notations, and principles used in the book. Next, it covers: Code-based test-case selection methods Specification-based test-case
