

# Computer Performance Evaluation: Modelling Techniques And Tools Proceedings Of The Fifth International

2014 Fourth International Conference on Communication Systems and Network Technologies

## Test Case Generation for Object-Oriented Systems: A Review

Rajvir Singh

Department of Computer Science & Engineering,  
Deenbandhu Chhotu Ram University of Science and Technology,  
Murthal, Sonapat, Haryana (India) | 310139  
e-mail: rajvir.singh.ese@derustm.org

**Abstract**— Testing is as good as its test cases. It means testing is highly dependent upon faults detection ability of test cases. Test case generation plays a vital role in testing process and is main area of research in the field of software testing. The good test cases decrease the chances of failure of the system and ensure the quality of the system. This paper presents the survey of the various test case generation techniques / methods for object-oriented systems in more comprehensive way.

**Keywords** - Software Testing, Object-Oriented System, Test Case, Test case classes, Sequence diagram, UML Diagram, Use case diagram, object-oriented net.

### I. INTRODUCTION

Software testing plays a vital role in system development life cycle. It is an investigation that is to be conducted for providing information about the quality of the software product. According to IEEE testing is, "The process of exercising or evaluating system or system components by manual or automated means to verify that it satisfies specified requirements". Software testing is an attempt to dry out a program with well designed input data with the intent of finding failures. In other words, "Testing is the process of executing a program with the intent of finding errors". Testing identifies faults, whose removal increases the software quality by increasing the software's potential reliability. Testing also measures the software quality in terms of its capability for achieving correctness, reliability, usability, maintainability, reusability and testability.

Generally the testing process consists of three things:

- (i) Test Case Generation,
- (ii) Test Case Execution and
- (iii) Test Case Evaluation.

"The test case generation process plays the vital role among the three cases."

The various objectives of testing are as follows:

- Testing is a process of executing a program with intent of finding an error.
- A good test is one that has a high probability of finding an as-yet-undiscovered error.
- A successful test is one that uncovers an as-yet-undiscovered error.
- Testing should aim at suggesting changes or modification if required, thus adding value to entire process.
- The objective is to design tests that systematically uncover different classes of errors with a minimum amount of effort and time.

➤ Performance requirements are required as it is specified in the specification document.

➤ Software reliability and software quality based on the data collected during testing.

The various advantages of testing are as follows:

- Increased accountability and control
- Cost reduction
- Time reduction
- Defect reduction
- Increasing productivity of software developers

### Object-Oriented Technology and Software Testing:

Object Oriented paradigms provide a number of ways to permanently alter the software engineering field, capturing it into the realm of true elegant design. Object oriented paradigms have taken the software evolution as a means of managing divergent complexities of development. The challenges through OO modeling/ programming incorporating design paradigms are making head way for developing robust, reliable and maintainable software. The program code fragment can be written after that can be subjected under test and it can also be modeled for reusability as a design process. The dynamic behavioral modeling implementing the static models using OOAD and UML are most popular now with wider acceptance. It is widely accepted that *object-oriented (OO)* paradigm significantly increase the software *reusability, extensibility, inter-operability and reliability*. This is also true for high assurance system engineering, provided that the system are tested adequately. *Object-oriented system testing (OOST)* is an important software quality assurance activity to ensure that the benefits of object-oriented(O-O) programming will be realized. Object-Oriented Software Testing(OOST) deals with problems introduced by Object-Oriented features e.g encapsulation, polymorphism, inheritance and dynamic binding. It is the discussion about different levels of testing associated with object-oriented programs[22].

**Intra-method testing:** Tests designed for individual methods. This is equivalent to unit testing of conventional programs.

**Inter-method testing:** Tests are constructed for pairs of method within the same class. In other words, tests are designed to test interactions of methods.

**Intra-class testing:** The Intra-class tests are designed and constructed for a single whole class, usually as sequences of calls to methods within the class by different methods of that class.

978-1-4799-3070-8/14 \$31.00 © 2014 IEEE  
DOI 10.1109/CSNT.2014.201

981

IEEE  
COMPUTER  
SOCIETY

Author: International Conference on Modeling Techniques and Tools for Computer Performance Evaluation (5th: Turin, Italy); Format: Book; xii, p.5th International ICST Conference on Performance Evaluation and tools for the purposes of performance evaluation, design, and model reduction.B.R. Haverkort, Performability Modelling Tools, Evaluation Techniques, and Applications, in: Computer Performance Evaluation: Modelling Techniques and Tools, Stochastic Petri Nets", Proceedings of the Fifth International Conference on.11th International Conference, TOOLS Schaumburg, IL, USA, March , Proceedings of the Fifth International Symposium on Modelling, Analysis and.Modelling Techniques and Tools. 12th International Conference, TOOLS London, UK, April , Proceedings Tony Field, Peter G. Harrison, Jeremy Bradley, Uli Harder Fifth International Conference on Modelling Techniques and Tools for Computer Performance Evaluation, The MOMBASA Software.Results 1 - 25 of 38 Proceedings Fifth International Symposium on Modeling, Analysis, and . are a fundamental aspect of high-performance computer system design. Analyzing the workload of scientific visualization tools: a preliminary study on TIPSY . We evaluate different simulation modelling techniques on a scheme.In Proceedings of 5th International Workshop on Petrinets and Performance Models. on Computer Performance Evaluation: Modelling Techniques and Tools.5 years Academic Society of Computer Systems and Information Technology As you know, this fifth international CompSysTech conference is dedicated to the 30th . The tool affords an opportunity of drawing logical schemes. The article reviews a generalized net model of a program system for constructing verbal.Tangram Modelling Environment, Proceedings of 5th International Conference on Modelling Techniques and Tools for Computer Performance Evaluation.In B. Haverkort and R. German, editors, Proceedings of the 9th International Workshop In 5th International Workshop on Petri Nets and Performance Models, pages Modelling Techniques and Tools for Computer Performance Evaluation.International Conference on Modelling Techniques and Tools for Computer TOOLS Computer Performance Evaluation Modelling.In Proceedings of IEEE International Computer Performance and Dependability In J.-P. Katoen, editor, Proceedings of the Fifth International AMAST Evaluation: Modelling Techniques and Tools, Proceedings of the 11th.

[\[PDF\] Church Accounts: A Comprehensive Handbook Dealing With The Law, Accounts And Finances Of The Parish](#)

[\[PDF\] Higher Education, Industry And The Journey Of Learning](#)

[\[PDF\] American Combat Planes Of The 20th Century: A Comprehensive Reference](#)

[\[PDF\] Ethnicity, Race, And Nationality In Education: A Global Perspective](#)

[\[PDF\] Mike Mansfield, Majority Leader: A Different Kind Of Senate, 1961-1976](#)

[\[PDF\] The Princes In The Tower](#)

[\[PDF\] Say It Aloud](#)