

A Language-Independent Overview

Unit Test Frameworks



O'REILLY*

Paul Hamill

Table of Contents

Preface	ix
1. Unit Test Frameworks: An Overview	1
Test Driven Development	2
Unit Testing and Quality Assurance	4
Homegrown Unit Testing	5
2. Getting Started: Tutorial	7
Outline of an Application: the Virtual Library	8
Example 1: Create a Book	8
Example 2: Create a Library	12
3. The xUnit Family of Unit Test Frameworks	18
xUnit Family Members	18
xUnit Extensions	19
The xUnit Architecture	20
xUnit Architecture Summary	30
4. Writing Unit Tests	32
Types of Asserts	32
Defining Custom Asserts	34
Single Condition Tests	35
Testing Expected Errors	37
(Not) Testing Get/Set Methods	38
Testing Protected Behavior	38
Test Code Organization	40
Mock Objects	41
AbstractTest	44

Performance Tests	47
New Library and Book Code	49
5. Unit Testing GUI Applications	51
Library GUI	53
6. JUnit	63
Overview	63
Architecture	63
Usage	65
Test Assert Methods	67
7. CppUnit	70
Overview	70
Architecture	70
Usage	72
Test Assert Methods	79
8. NUnit	80
Overview	80
Architecture	80
Usage	81
Test Assert Methods	86
9. PyUnit	88
Overview	88
Architecture	88
Usage	88
Test Assert Methods	95
10. XMLUnit	97
Overview	97
Architecture	98
Usage	99
Test Assert Methods	106
11. Resources	110
Web Sites	110
Discussion Groups	111
Books	112

A. Simple C++ Unit Test Framework 113

B. JUnit Class Reference 122

C. CppUnit Class Reference 137

Glossary 185

Index 189