

Unit Testing with NUnit and Mock Objects

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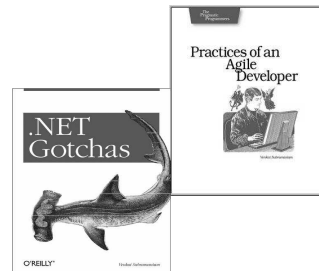
Abstract

Abstract Open source tools like NUnit are changing the way .NET programmer are developing their application. What are the benefits of Unit testing? How is it different from what your testers do? How do you write your tests? How do you isolate your system from its dependencies using the Mock objects? What are the tools that can help you develop and test with Mock objects? What new features and tools are being introduced into Visual Studio 8.0 that make you more productive and effective when it comes to robustness and quality of your code? In this session, the speaker will take an examples drive approach to illustrate how you can rely on tools like NUnit, NDoc, Mock objects, to improve and speed your development process. We will also look at guidelines and examples from the speaker's experience.

About the Speaker *Dr. Venkat Subramaniam*, founder of Agile Developer, Inc., has trained and mentored thousands of software developers in the US, Canada and Europe. He has significant experience in architecture, design, and development of software applications. Venkat helps his clients effectively apply and succeed with agile practices on their software projects, and speaks frequently at conferences.

He is also an adjunct faculty at the University of Houston (where he received the 2004 CS department teaching excellence award) and teaches the professional software developer series at Rice University School of continuing studies.

Venkat has been a frequent speaker at No Fluff Just Stuff Software Symposium since Summer 2002.



Unit Testing with NUnit, Mock Objects

- **What we will do**
 - **Presentation with no powerpoint (almost!)**
 - **Most time will be spent on code**
 - **We will learn by example**
- **Look at a Problem Statement**
- **Discuss your design ideas**
- **Discuss the approach we will take**
- **Introduce tools and techniques**
- **Let's build the application**
- **Discuss NUnit, NDoc, Mock Objects and VS 8.0 features**

Credit Card Processing

You have been asked to write web service that will fulfill payment for an order. You need to receive a credit card number, expiration date, name of card holder and amount. You then have to charge the credit card if every thing is good. Otherwise, you need to throw an exception with appropriate details: Error validating credit card, Credit exceeded.

Implementation

- Download from
<http://www.agiledeveloper.com/download.aspx>



NUnit

- Unit testing framework and tool that allows you to exercise your test cases
- You get the benefits of unit testing
 - Helps you design
 - Provides safety net
 - Serves as documentations
 - Helps to learn and explain concepts as well

NDoc

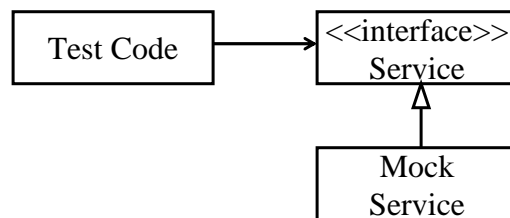
- Where documentation is fun!
- Tool helps convert your XML comments into documentation

Test Isolation – Mock Objects

- How do we create a test when our system may depend on
 - A database to persist information
 - A third party simulator to perform calculations/functions
 - A printer to print output
 - A scanner or device to read input?
- We may implement our system with Mock Objects

Mock Objects

- A Mock Object
 - Provides the expected functionality
 - Isolates the code from details that may be filled in later
 - Speeds up development of test code
 - Can be refined incrementally by replacing with actual code



VS 8.0 Features

- Refactoring capabilities introduced in VS.NET 8.0
- Team System capabilities

Quiz Time



References

1. Pragmatic Unit Testing in C# with NUnit, Andy Hunt and Dave Thomas
2. Test-Driven Development by Example, Kent Beck
3. Agile Software Development, Principles, Patterns, and Practices, Robert Martin
4. Refactoring Improving The Design Of Existing Code, Martin Fowler
5. Examples, slides are for your download at

<http://www.agiledeveloper.com/download.aspx>