

CS 635 Advanced Object-Oriented Programming  
Spring Semester, 2007  
Doc 2 Testing  
Jan 30, 2007

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## References

Brian Marick's Testing Web Site: <http://www.testing.com/>

Testing for Programmers, Brian Marick, Available at: <http://www.testing.com/writings.html>

# Testing

## Johnson's Law

If it is not tested it does not work

## Beck's Law

It is is not tested it does not exist

# The more time between coding and testing

More effort is needed to write tests

More effort is needed to find bugs

Fewer bugs are found

Time is wasted working with buggy code

Development time increases

Quality decreases

# Unit Testing

Tests individual code segments

Automotated tests

# What wrong with:

Using print statements

Writing driver program in main

Writing small sample programs to run code

Running program and testing it be using it

We have a QA Team, so why should I write tests?

# When to Write Tests

First write the tests

Then write the code to be tested

Writing tests first saves time

Makes you clear of the interface & functionality of the code

Removes temptation to skip tests



**Can you test every line of code?**

**If you can should you  
test every line of code?**

# What to Test

Everything that could possibly break

Test values

- Inside valid range

- Outside valid range

- On the boundary between valid/invalid

GUIs are very hard to test

- Keep GUI layer very thin

- Unit test program behind the GUI, not the GUI

# Common Things Programs Handle Incorrectly

Adapted with permission from “A Short Catalog of Test Ideas” by Brian Marick,

<http://www.testing.com/writings.html>

## Strings

Empty String

## Collections

Empty Collection

Collection with one element

Collection with duplicate elements

Collections with maximum possible size

## Numbers

Zero

The smallest number

Just below the smallest number

The largest number

Just above the largest number

# Personal Common Error Catalog

Keep a log of your common errors