



what is software testing?

Ben Simo

Ben@QualityFrog.com

Software Testing

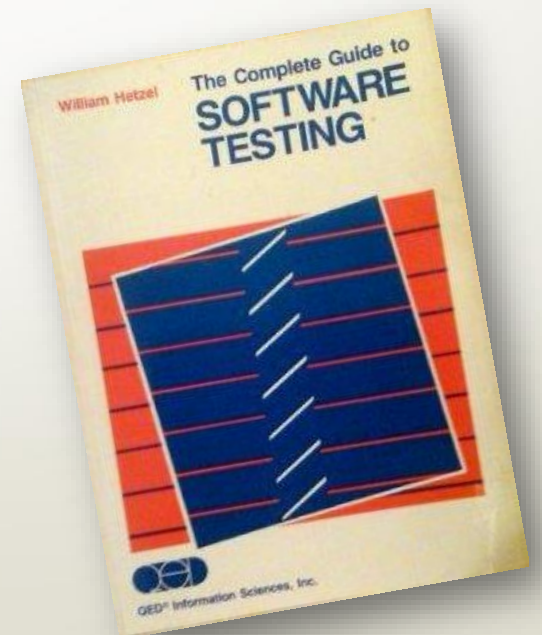
[The] secret of reliable testing is to find all conditions relevant to a program's correct operation and to exercise all possible combinations of these conditions.

- John B. Goodenough, Susan L. Gerhart, Toward a Theory of Test Data Selection, 1975

Software Testing

“Testing is any activity aimed at evaluating an attribute of a program or system. Testing is the measurement of software quality.”

- Bill Hetzel,
The Complete Guide to Software Testing,
1983



Software Testing

“We should run test cases not to look for bugs, but to increase our confidence in a program we are quite sure is correct; finding an error should be the exception rather than the rule.”

- David Gries,
The Science of Programming,
1981



Software Testing

“Testing is the act of executing tests. Tests are designed and then executed to demonstrate correspondence between an element and its specification. There can be no testing without specifications of intentions.”

- Boris Beizer,
Software System Testing
and Quality Assurance, 1984



Software Testing

“Testing should strive to be predictable, dull, constrained, rigid, and inhuman.”

- Boris Beizer,
Software System Testing
and Quality Assurance, 1984



Software Testing

“One usually encounters a definition such as, 'Testing is the process of confirming that a program is correct. It is the demonstration that errors are not present.'

The main trouble with this definition is that it is totally wrong; in fact, it almost defines the antonym of testing.”

- Glenford Myers, Software Reliability, 1976



Software Testing

"Testing is an unnecessary and unproductive activity if its sole purpose is to validate that the specifications were implemented as written."

- William Perry,

Effective Methods
for Software Testing, 1995



Software Testing

“The goal of the testers is to make the program fail. If his test case makes the program or system fail, then he is successful; if his test case does not make the program fail, then he is unsuccessful.”

- Glenford Myers,
Software Reliability, 1976



Software Testing

Two types of testing should take place.

- 1) We must test to prove that the problem specified was programmed
- 2) We must test to learn whether the program works correctly.

- Dennie Van Tassel,
Program Style, Design, Efficiency, Debugging, and Testing,
1978

Software Testing

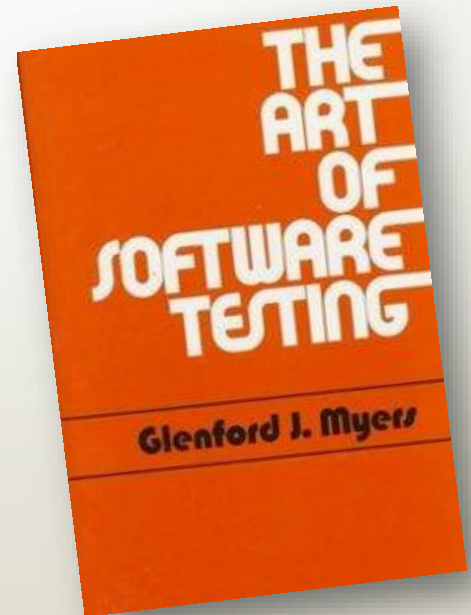
“Testing is the process of executing a program with the intent of finding errors.

...

This definition... implies that testing is a destructive process, even a sadistic process...”

- Glenford Myers,

The Art of Software Testing, 1979



Software Testing

"If the objective of testing were to prove that a program is free of bugs, then not only would testing be practically impossible, but it would also be theoretically impossible."

- Boris Beizer,

Software System Testing
and Quality Assurance, 1984



Software Testing

Testing: The process of operating a system or component under specified conditions, observing or recording the results, and making an evaluation of some aspect of the system or component.

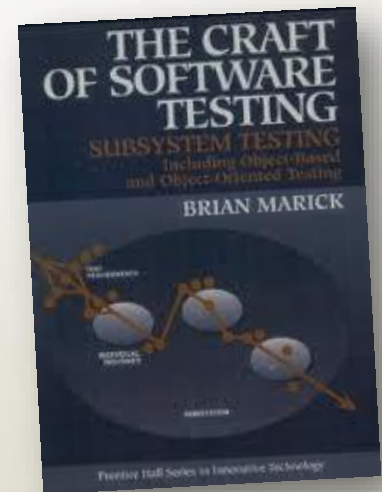
- IEEE Standard Glossary of Software Engineering Terminology, 1990

Software Testing

"A tester is given a false statement ('the system works') and has the job of selecting, from an infinite number of possibilities, an input that contradicts the statement."

- Brian Marick,

The Craft of Software Testing, 1995

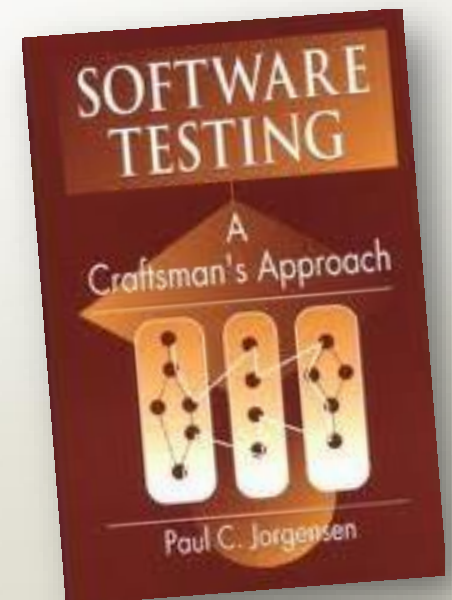


Software Testing

"There are two distinct goals of a test:
either to find failures,
or to demonstrate correct execution."

- Paul C. Jorgensen,

Software Testing:
A Craftsman's Approach, 1995



Software Testing

"Software testing is the process of applying metrics to determine product quality. Software testing is the dynamic execution of software and the comparison of the results of that execution against a set of pre-determined criteria."

- NIST,

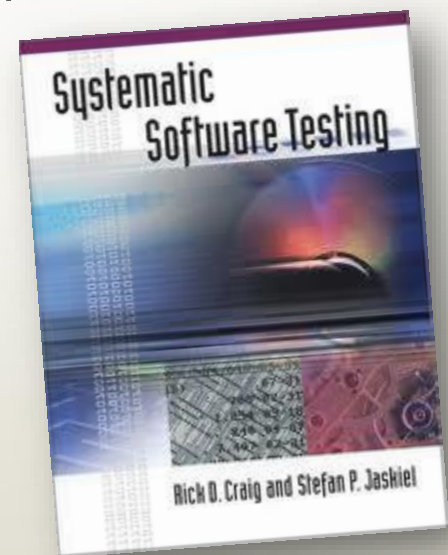
The Economic Impacts of
Inadequate Infrastructure
for Software Testing, 2002



Software Testing

"Testing is a concurrent lifecycle process of engineering, using and maintaining testware in order to measure and improve the quality of the software being tested."

- Rick Craig and Stefan Jaskiel,
Systematic Software Testing, 2002

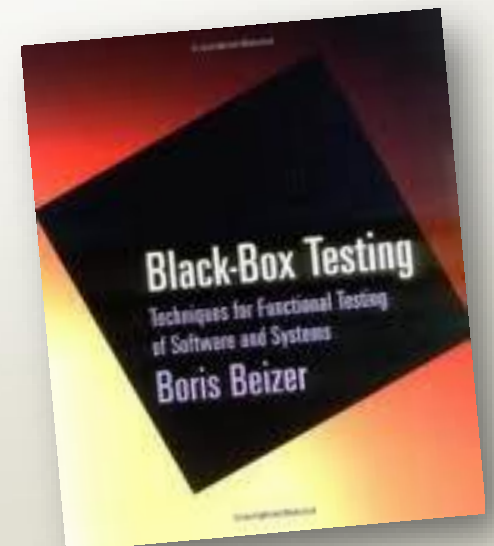


Software Testing

"The penultimate objective of testing is to gather management information."

- Boris Beizer,

Black Box Software Testing, 1995



Software Testing

"Testing is done to find information.

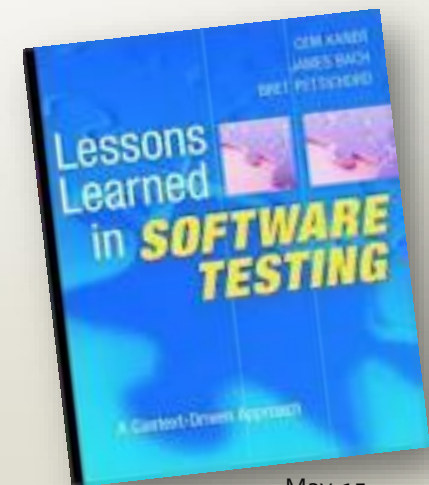
Critical decisions about the project or the product are made on the basis of that information."

- Cem Kaner, James Bach, Bret Pettichord,

Lessons Learned

In Software Testing:

A Context-Driven Approach, 2002



Software Testing

Software testing is not such an exact science that one can determine what to test in advance, execute the plan, and be done with it. This would take god-like powers of foresight. Instead of a plan, intelligence, insight, experience, and a nose for where the bugs are hiding should guide testers.

- James A. Whittaker,
How to Break Software: A Practical Guide to Testing,
2003

Software Testing

“Testing is the infinite process of comparing the invisible to the ambiguous so as to avoid the unthinkable happening to the anonymous.”

- James Bach,
Becoming a
Software Testing Expert, 2006



Software Testing

“Testing is an empirical, technical investigation conducted to provide stakeholders with information about the quality of the product under test.”

- Cem Kaner, 2007



Software Testing

*"**Exploratory software testing** is a style of software testing that emphasizes the personal freedom and responsibility of the individual tester to continually optimize the value of her work by treating test-related learning, test design, test execution, and test result interpretation as mutually supportive activities that run in parallel throughout the project."*

- WHET (Workshop on Heuristic and Exploratory Techniques),
2008

Software Testing

There are many ways
of testing without involving computers,
but no way of testing that doesn't involve using brains.

- Gerald M. Weinberg,
Perfect Software: and other illusions about testing, 2008

Software Testing

CHECKING is a process of
CONFIRMATION,
VERIFICATION,
and VALIDATION.

TESTING is a process of
EXPLORATION,
DISCOVERY,
INVESTIGATION,
and LEARNING.

- Michael Bolton, 2009



Software Testing

Test is not a document. *Test* is not code.

Test is not executing a program.

Test is not applying a decision rule.

Test is not anything that can be done by a machine.

Test is the act of evaluating.

Test requires sapience.

***Test is sapient evaluation
that leads to discovery"***

- Ben Simo, Talkin' 'bout test in a different light, 2009



Software Testing

Testing

is the process of
evaluating a product

by **learning** about it
through **experimentation**,

which includes to some degree:

- questioning,
- study,
- modeling,
- observation
- and inference.

(A **test** is an instance of testing.)

Checking

is the process of
making evaluations

by **applying**
algorithmic decision rules

to specific observations of a product.

(A **check** is an instance of checking.)

- James Bach & Michael Bolton, Testing and Checking Refined, 2013

Software Testing

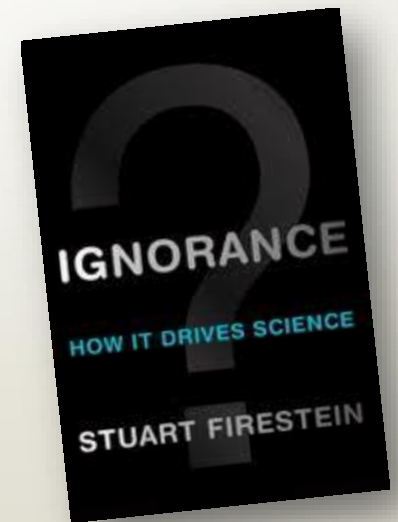
“Testing is a performance, not an artifact.

Artifacts may be produced before, during, or after the act of testing. Whatever they are, they are not tests. They may be test instructions, test results, or test tools. They cannot be tests.”

-James Bach,
Testing is Performance, 2014

Discovery

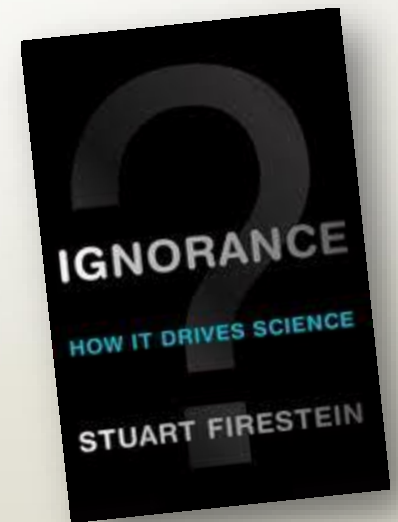
*It is especially difficult to find
a black cat in a dark room.*



Discovery

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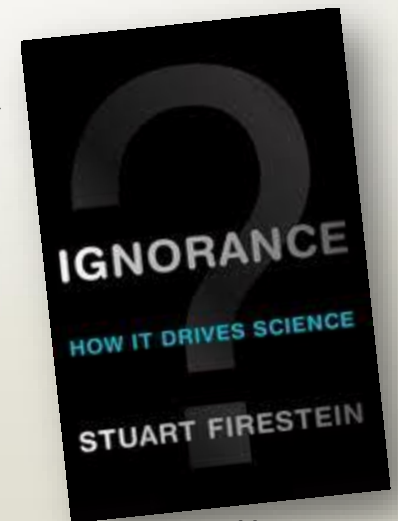
*Especially
when there is no cat.*



Discovery

“I know that this view of scientific process – feeling around in the dark, bumping into unidentifiable things, looking for barely perceptible phantoms – is contrary to that held by many people, especially by non-scientists.”

- Stuart Firestein





Discovery

DIS-COVER