Testing

The Oxford English Dictionary tells us
that the term “test” is derived from the Latin expression – testum

Testing is any activity aimed at evaluating an attribute or capability of a program or system and determining that it meets its required results

Testing is the process of executing a program or system with the intent of finding defects

What Is the Cost of Not Testing?

Objectives of Test

Fundamental Test Process

Test planning and control

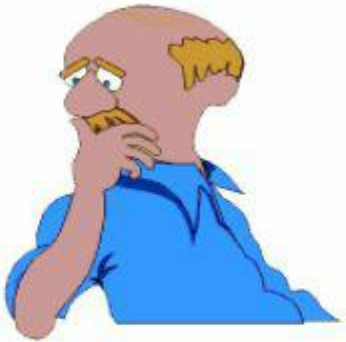
Test Analysis and Design

Test Implementation and Execution

Evaluating exit criteria and reporting

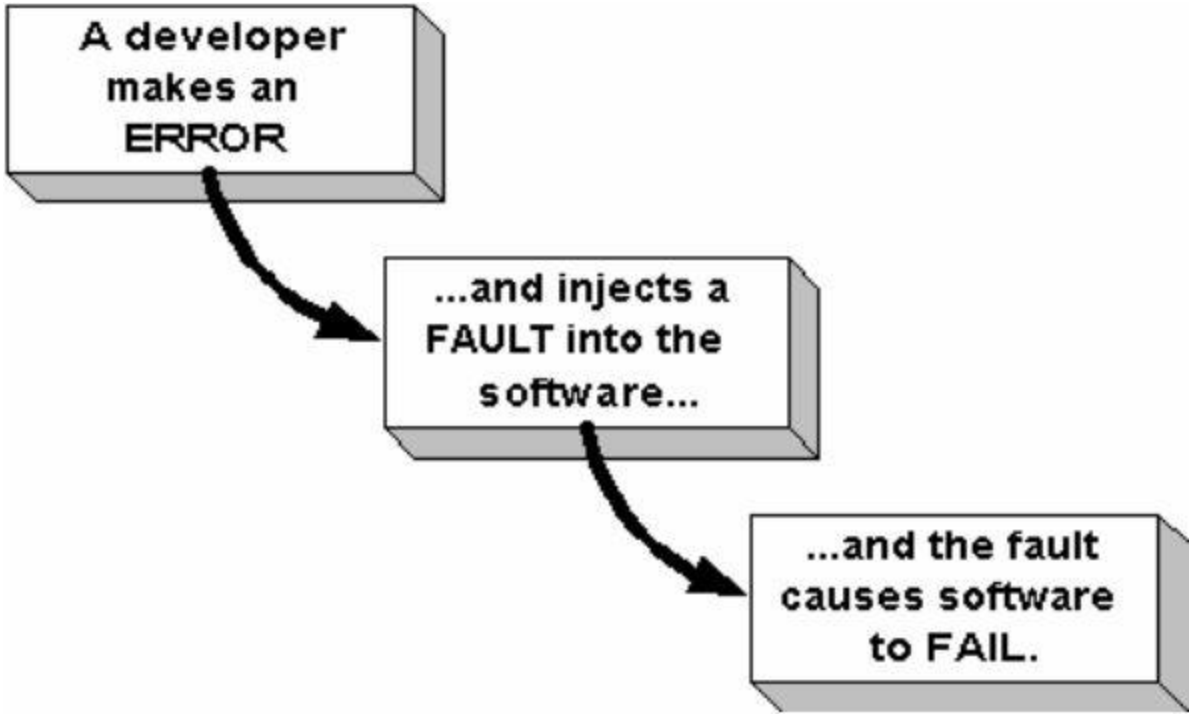
Test Closure

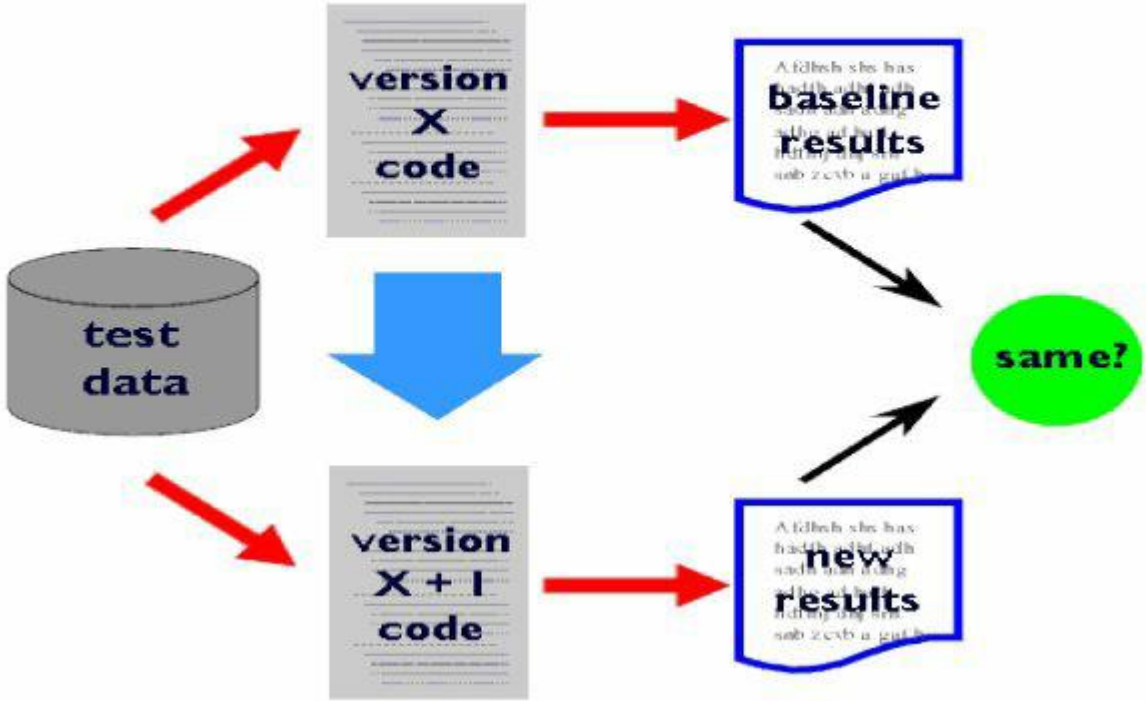
We test
because someone
is concerned



If no one is concerned.....
little or no testing gets done.

Img courtesy bcs IT


A developer makes an ERROR
...and injects a FAULT into the software...
...and the fault causes software to FAIL.


version
X
code
baseline
results
test
data
same?
version
X + 1
code
new
results

Expected Results

External specifications and baselines define what the software is required to do

Requirements Specification, Functional Specification, Design Specification etc.

are baselines

Prioritization

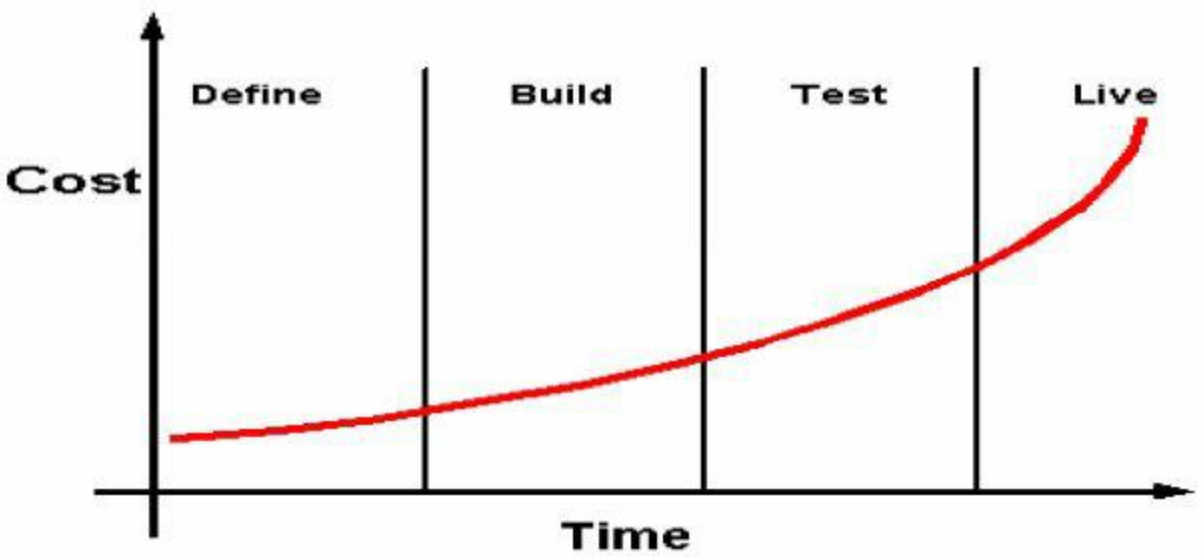
Why Prioritization?

Prioritization

Make sure

The **most important tests** are included in test plans

The **most important tests are executed**


Define
Build
Test
Live
Cost
Time

Steps in Waterfall Model

1. **Requirement Specification**

Steps in Waterfall Model

1. **Functional Specification**

Steps in Waterfall Model

1. **Technical Specification**

Steps in Waterfall Model

1. **Program Specification**

Steps in Waterfall Model

1. **Coding**

Steps in Waterfall Model

1.
2. **Testing**

Static Testing

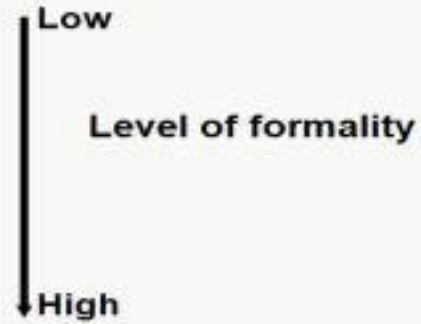
There are two basic types:

1. People-based: generally known as “reviews”

2. Tool-based: for examining source code and are known as "static analysis"

Types of review

- Informal
- Walkthrough
- Technical review
- Inspection



Static Analysis by Tools

1. Cyclomatic Complexity
2. Data flow analysis
3. Lines of code
4. Nesting levels
5. Number of function calls
6. Control flow analysis

Steps of Test Design: Test Condition, Test Cases and Test Procedures

The three main steps of test design

1. **Test Condition** - is an item or event of a component or system that could be verified by one or more Test Cases e.g. a function, feature, attribute etc
2. **Test Case** - is a set of input values, execution preconditions, expected results and execution post conditions, developed for a particular objective or test condition, such as to exercise a particular program path or to verify compliance with a specific document
3. **Test Procedure Specification**