Software Testing

Static Testing – Static Code Analysis

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Static Code Analysis

Static Code Analysis

Static Code Analysis (also called Code Reviewing, Code Inspection)

With Static Analysis software code is viewed to see whether the code is according to the coding guidelines, coding requirements, etc. Most of the time executed by Testers, and
aims to _prevent_ _bugs_ and improve overall code quality.
Can be automated: StyleCop, Resharper
(http://stylecop.codeplex.com , http://www.jetbrains.com/)

Note: **Peer Reviews** are also forms of Static Code Analysis, but involve human/manual effort (from programmers) and
Aims to _find_ _mistakes_ of the programmer.
In general Code Reviews/Peer Reviews are considered to be steps of the code engineering process, not part of the Testing process.

Static Code Analysis

Static Code Analysis: Coding Guidelines

In large projects Coding Guidelines are defined, so that all software engineers write in the same style.
Example of Coding Guidelines: http://google-styleguide.googlecode.com/svn/trunk/cppguide.xml

* Variable Naming conventions:

  private bool _IsActive;   private bool b_IsActive;

* Class Naming conventions:

  Interface class names start with an I or with Itf: IController.cs   ItfController.cs

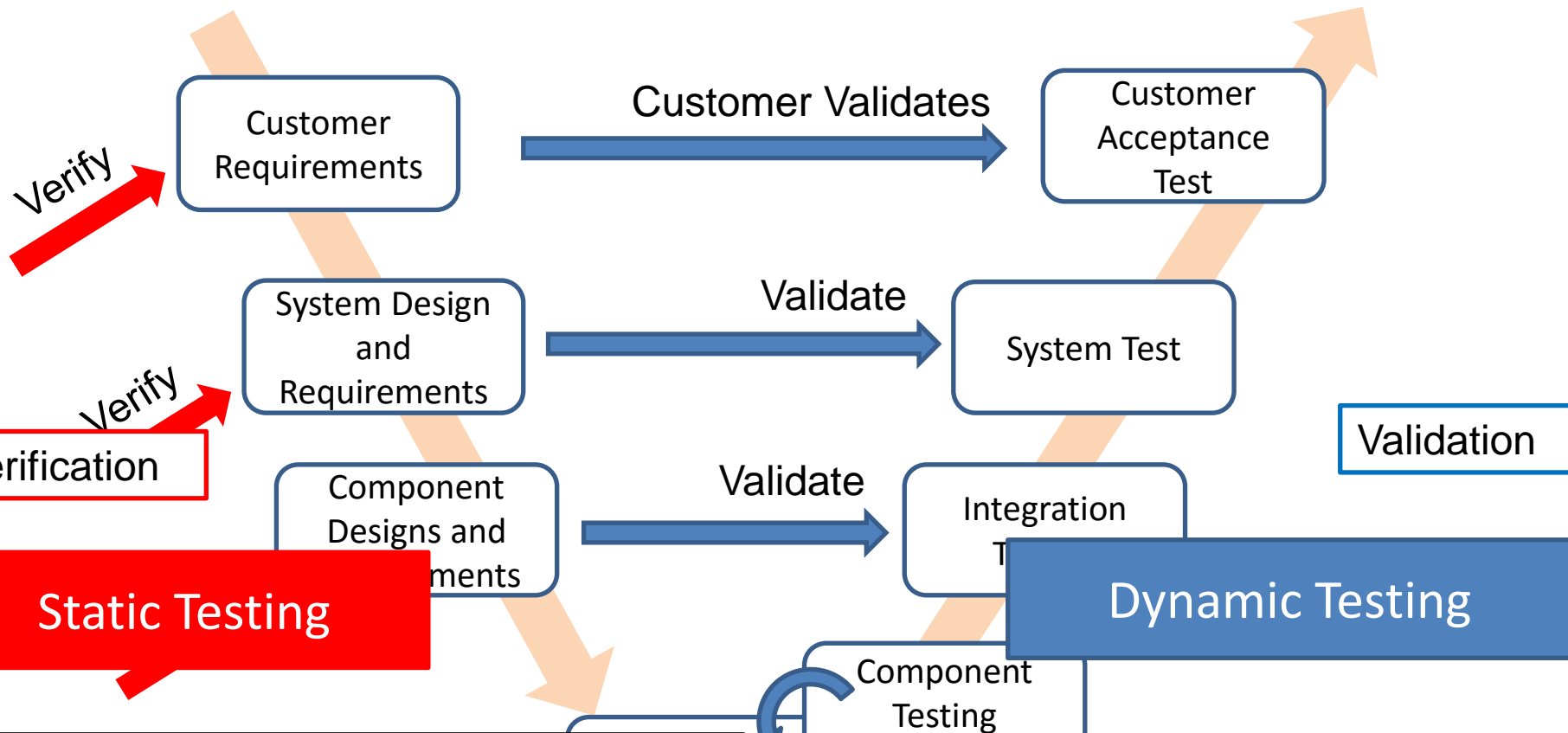* For-loops initialize the max array index outside the loop:

```
int len = myArray.GetLength();

for(int i = 0; i < len; i++)
{
    // Do some stuff with Array
}
```

```
for(int i = 0; i < myArray.GetLength(); i++)
{
    // Do some stuff with Array
}
```

V Model

Customer Requirements

Customer Validates

Customer Acceptance Test

Verify

System Design and Requirements

Validate

System Test

Verify

Verification

Validation

Component Designs and Requirements

Validate

Integration Test

Static Testing

Dynamic Testing

Component Testing

Static Testing is called Static Testing, because you don't need computers to perform the tests.

Dynamic Testing is called Dynamic Testing, because you need computers to perform the tests.

Demo & Questions?