Java JUnit

for Unit Testing

INTRODUCTION

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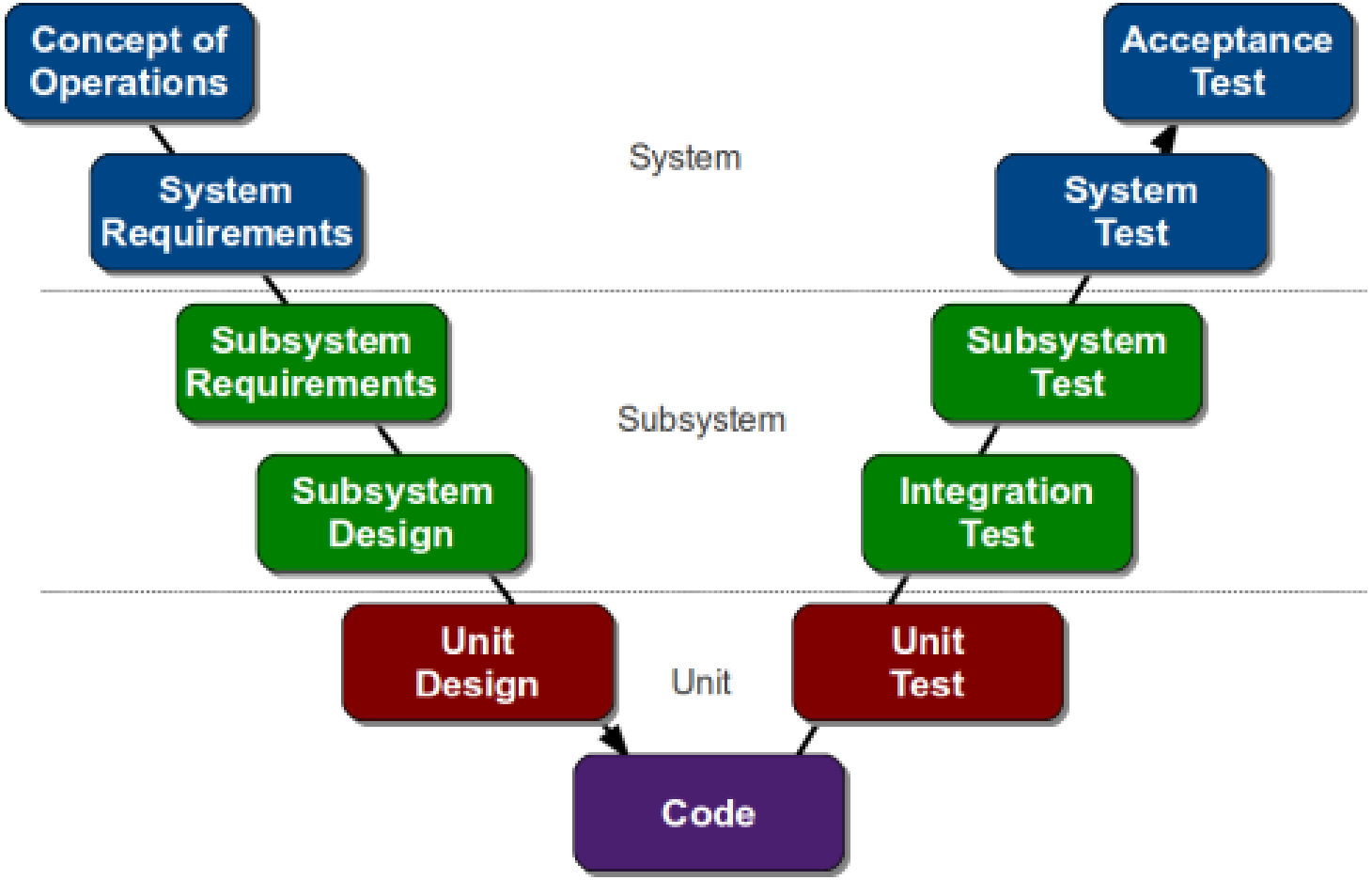
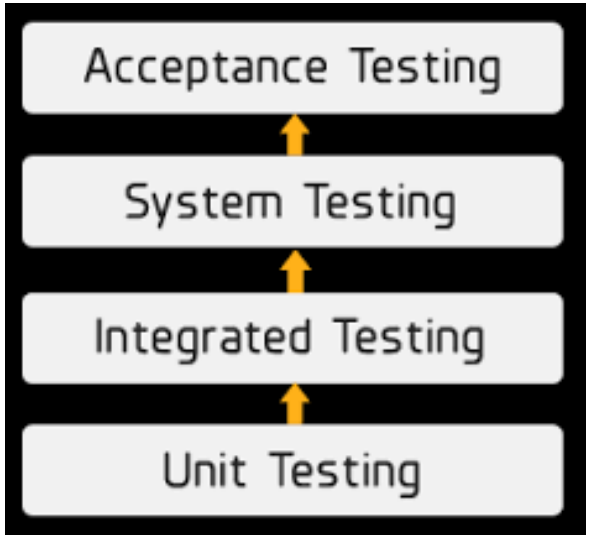
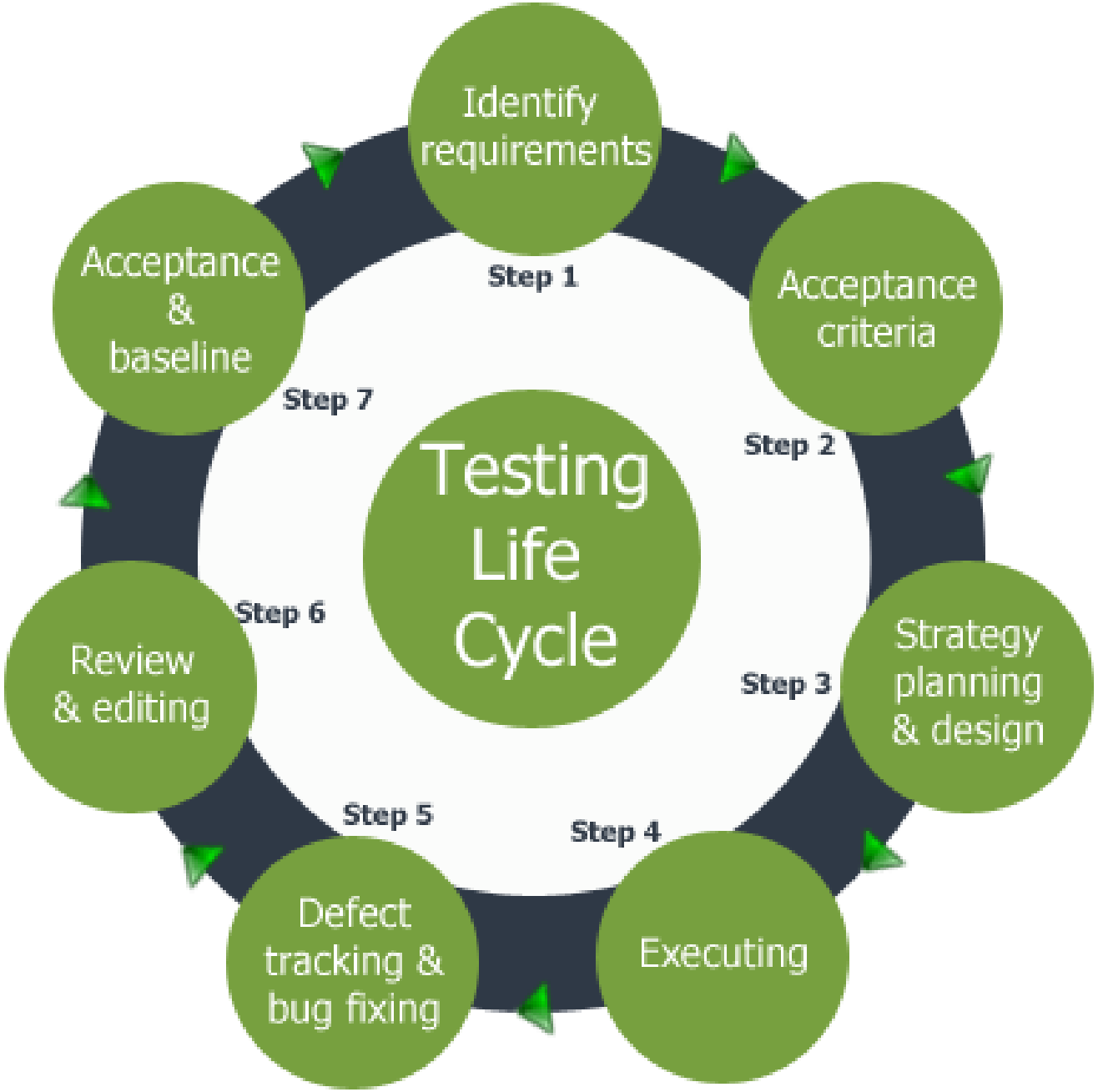
Software Development Life Cycle and Testing (V-model)






Identify requirements
Step 1
Acceptance criteria
Step 2
Strategy planning & design
Step 3
Executing
Step 4
Defect tracking & bug fixing
Step 5
Review & editing
Step 6
Acceptance & baseline
Step 7
Testing Life Cycle

JUnit

What is Unit Testing?

Unit testing is a software development process in which the smallest testable parts of an application, called units, are individually and independently scrutinized for proper operation. **Unit testing** is often automated but it can also be done manually.

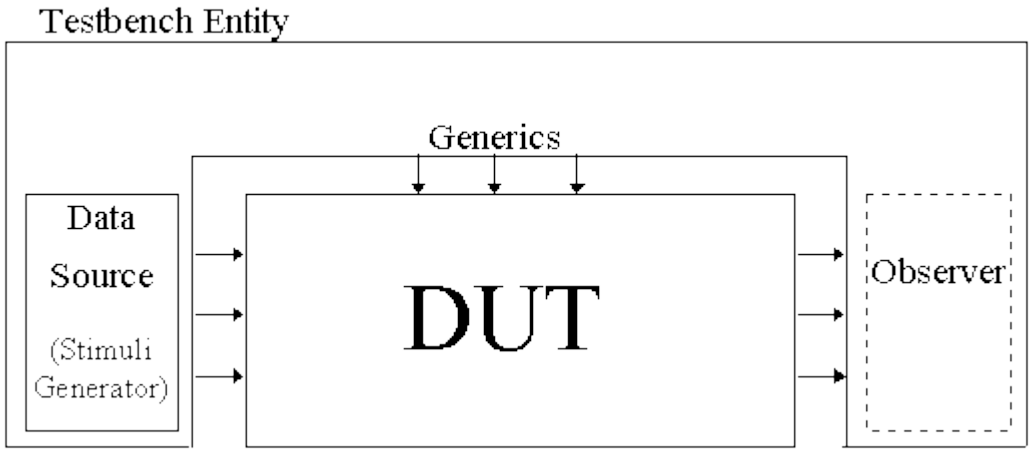
JUnit

At Unit Testing

We are dealing with testing for single software unit (a class or multiple class of a software indivisible unit)

Feed Testing cases to the Design-Under-Test (DUT, or Test Unit) Some test cases may be assigned in a test engineer while the whole test tasks belong to a test manager.

Gather test result and create the Test Report for the DUT.



JUnit

Systematic Software Testing

Large scale engineering projects that rely on manual software testing follow a more rigorous methodology in order to maximize the number of defects that can be found. A **systematic approach** focuses on predetermined test cases and generally involves the following steps.

JUnit

Systematic Software Testing

1. Choose a high level **test plan** where a general methodology is chosen, and resources such as people, computers, and software licenses are identified and acquired.
2. Write detailed **test cases**, identifying clear and concise steps to be taken by the tester, with expected outcomes.
3. Assign the test cases to testers, who manually follow the steps and record the results.
4. Author a **test report**, detailing the findings of the testers. The report is used by managers to determine whether the software can be released, and if not, it is used by engineers to identify and correct the problems.

Ad hoc Testing

No plan

Unstructured

No strategy

Good for early development stag

Try to prove the programming idea is feasible.

Used to develop **Test Plan**

BlueJ has good ad hoc Testing environment for Java.

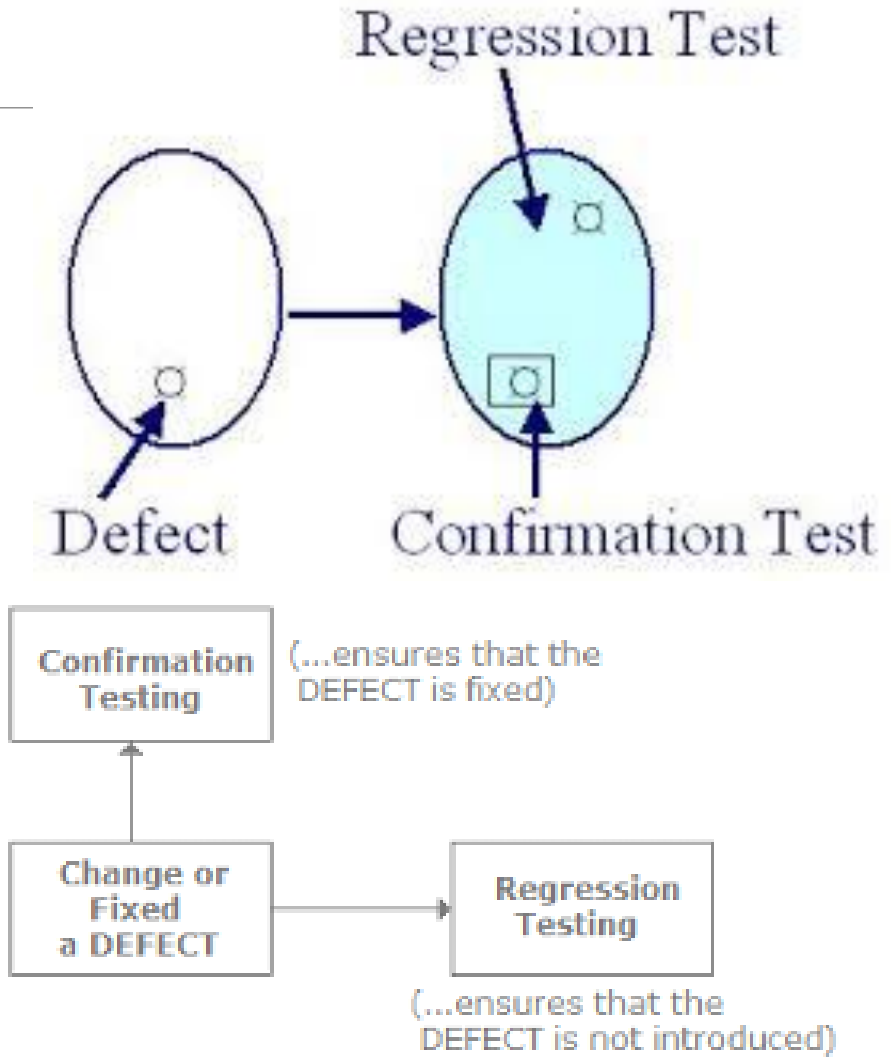
Regression testing

(Shoot for new bugs)

Regression testing is a type of software testing that seeks to uncover new software bugs, or regressions, in existing functional and non-functional areas of a system after changes such as enhancements, patches or configuration changes, have been made to them.

Confirmation Testing

(ensure bugs-fixed)



JUnit (an API for unit testing)

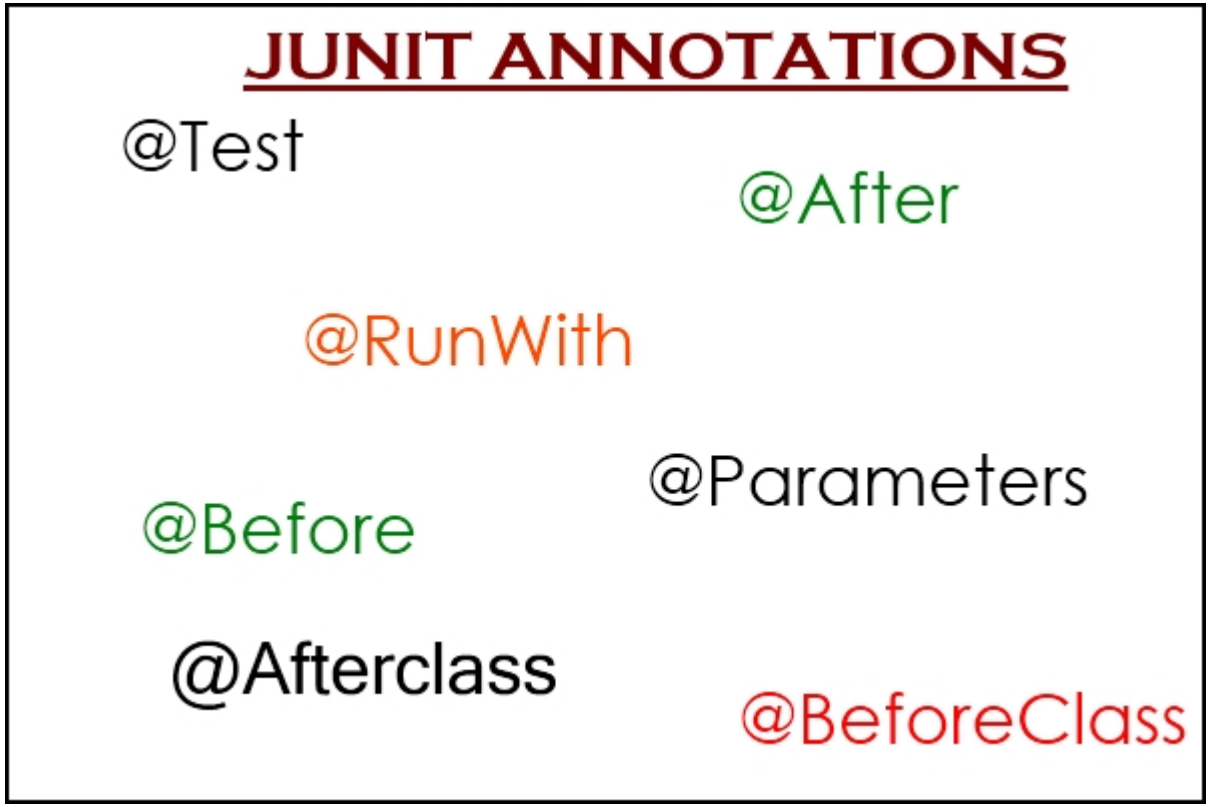
JUnit is a simple framework to write repeatable tests. It is an instance of the xUnit architecture for unit testing frameworks.

Web-site: www.junit.org

@Test

The annotation **@Test** identifies that a method is a test method. Denotes a test method. Can be used with expected to assert expected results on the object under test.

@Test annotates an entry point for the program



JUnit

First JUnit Testing in BlueJ

Go BlueJ!!!