



ALMA Common Software

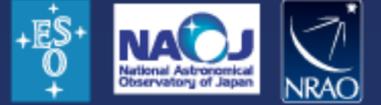
Basic Track

Test Driven Development
Unit testing and TAT



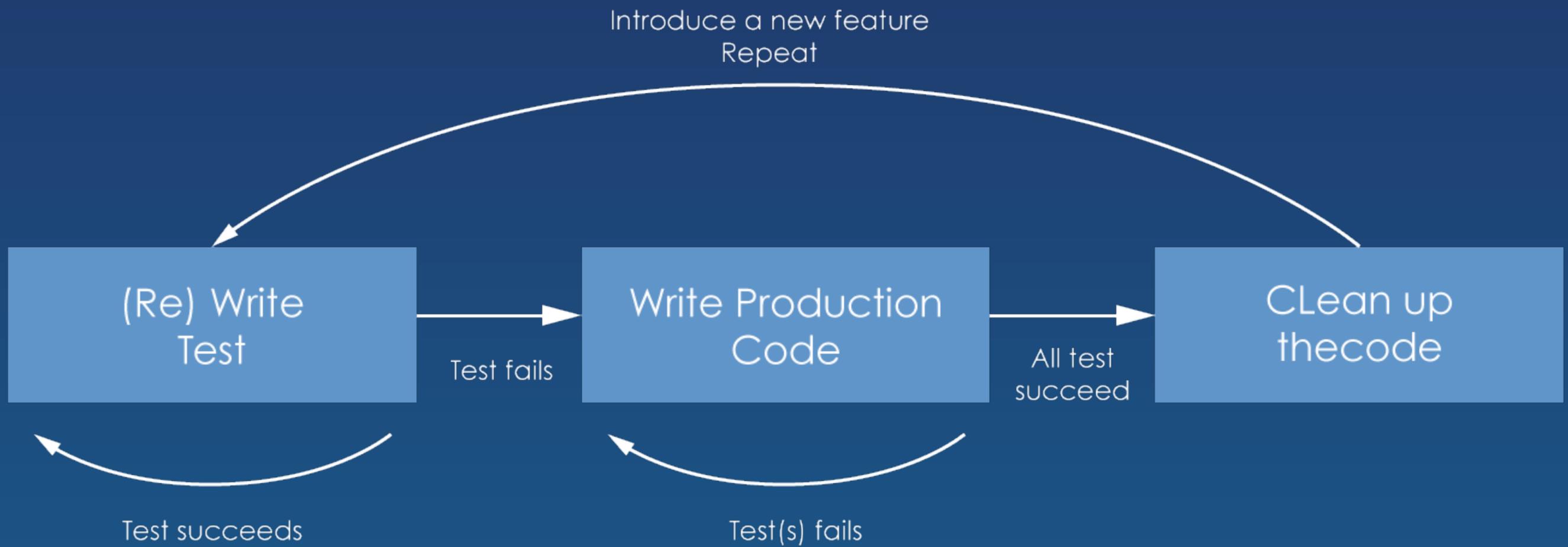


What is it?



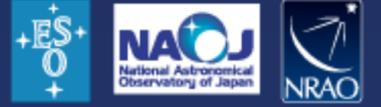
In a nutshell

- ✧ Development process that relies on very short development cycles
- ✧ Tests written before functionality





How to test?



- ✧ Unit testing
 - ✧ Atomic code functionality tests
- ✧ xUnit code-driven testing framework:
 - ✧ CppUnit
 - ✧ junit
 - ✧ PyUnit



What to test? What not to test?



For sure:

- ✧ Interfaces
- ✧ Critical and/or non trivial portions of the code

Avoid testing:

- ✧ Code without added value, such as getters/setters and delegations

Be cautious:

- ✧ Over-testing is a waste of time



xUnit



- ✧ Test case: basic unit
- ✧ Test suite: set of tests that share the same test conditions
 - ✧ `setup()`
 - ✧ `tearDown()`
- ✧ Assertions



- ✧ Automated test driver
- ✧ Initializes environment (ACS)
- ✧ Pass criteria based on comparing test output against an output template
- ✧ Can also run other kind of tests besides xUnit-based ones



Integration Tests



- ✧ Tests the interactions among software modules
- ✧ Tests deployment configuration
- ✧ Integration CDB
- ✧ Hardware configuration, if necessary
- ✧ Individual module unit tests must pass to integrate



Development team



Responsible for:

- ✧ Adding (at least one!) unit test(s) for your component
- ✧ Prepare a test environment
- ✧ Run the test(s) until the work
- ✧ Once tests pass, check in all your code, test code and relevant configurations (TAT files, CDB) to the project configuration server
- ✧ Document your work right away and in parallel with the development!

Advise: When done, take a well deserve coffee break...



Integration and testing team

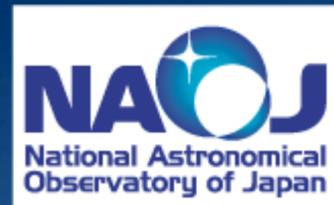


Responsible for:

- ✧ Continuous (and automatic) integration
- ✧ Quality control during development
- ✧ Build every time changes are detected
- ✧ Identifying compilation and failures against regression tests
- ✧ Facilitating the parties responsible for the failure and more importantly the parties responsible for fixing it
- ✧ Revert to the last working checkpoint in case of a failure

Advise: Use automated tools like Jenkins, the integration team key tool

Questions?



Acknowledgements

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