Xerris Bootcamp Series

Test Automation

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What is Test Automation

Test Automation

- Test automation is the process of developing a program to test the quality of another program.
- These tests verify the features of your system to ensure they meet the customer's expectations.
- Tests are repeatable, providing a safety net when refactoring the system.
- Tests act as documentation showing how the system reacts to the inputs given.
- Tests help architect the software to provide a higher-quality product.

What is Test Automation

What are the goals of Test Automation?

- Improved software quality.
- Act as a form of system documentation.
- Helps reduce risk.
- Easy to run from the command line.
- Easy to write and maintain.
- Require minimal maintenance as the system evolves.
- Easily integrated into the build pipeline.
- Quicker to market.

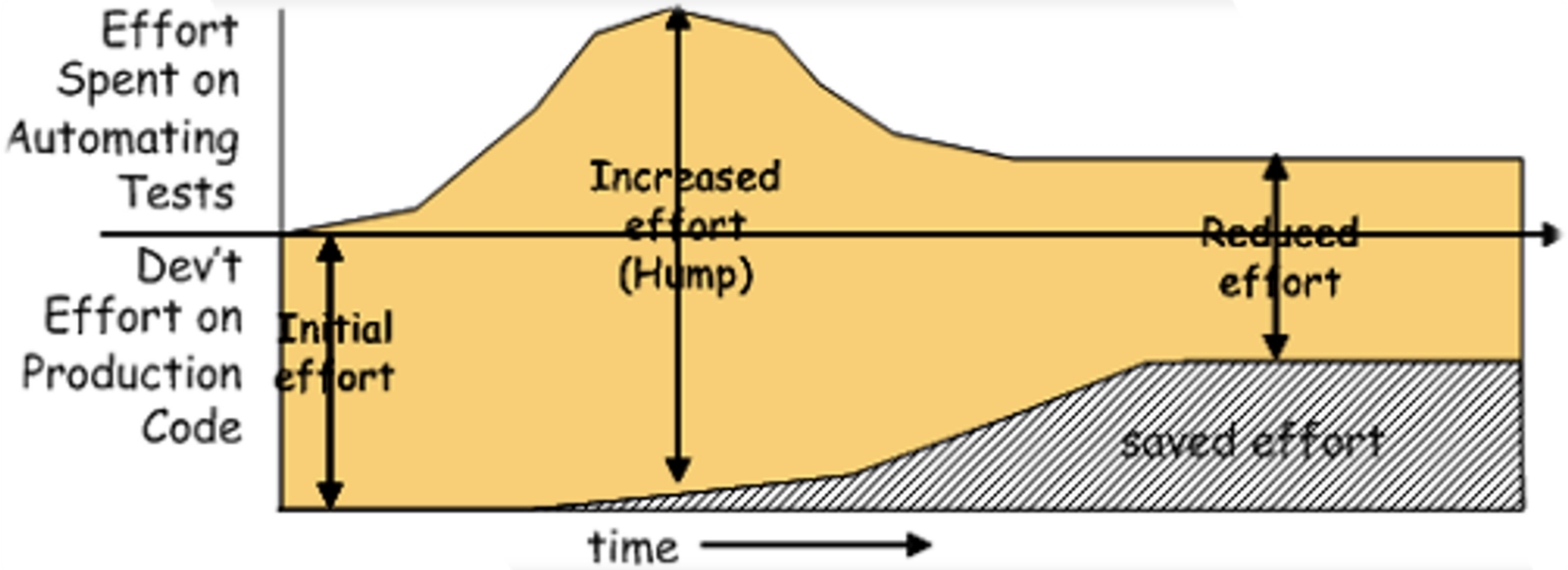
The Economy of Test Automation

Tests can be expensive to develop and maintain

- Upfront investment scares some off.
- The investment is paid back by higher-quality software.
- Shorter QA cycles.
- Fewer bugs are reported.
- The regression suite provides feedback during refactoring.
- Overall improvement in software design.
- Improved developer productivity and satisfaction.

The Economy of Test Automation

Getting over the hump



Types of Tests

User Interface Tests

- Tests that ensure the UI functions properly
- Can act as end-to-end tests
- Tend to be more fragile and expensive to maintain

Unit Tests

- tests a single component (class)

Integration Tests

- End-to-end Test
- Test that interacts with external dependencies
- Resources beyond your control

Acceptance Tests

- Determines if the feature delivers what was agreed upon.

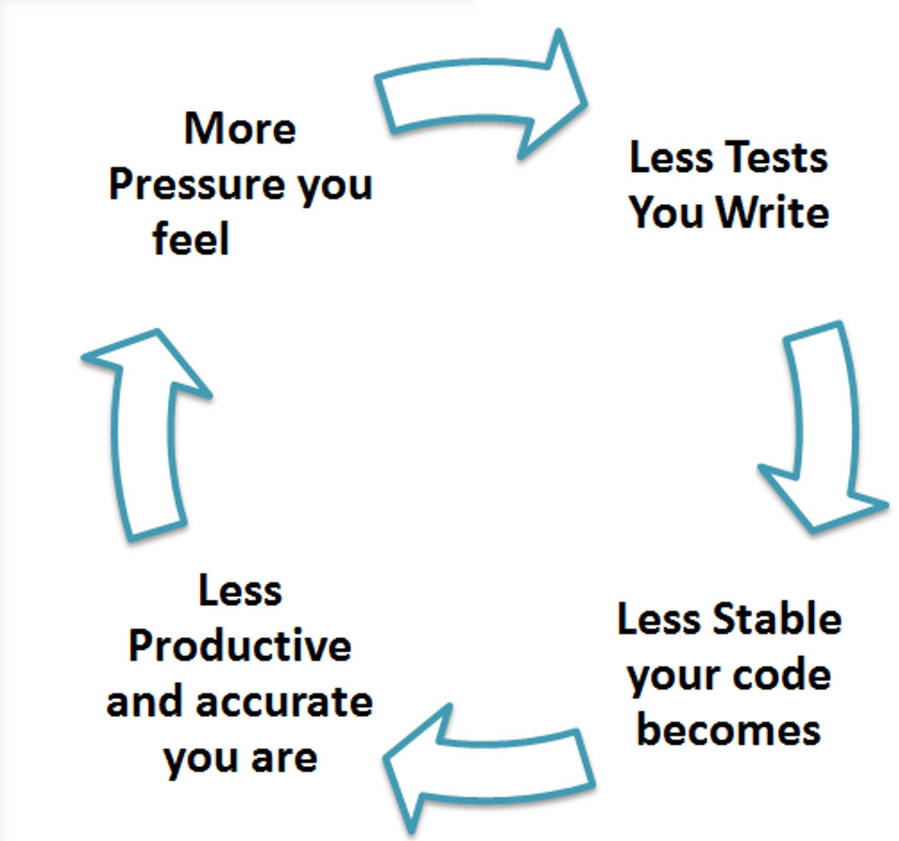
Smoke Tests

- Used after a deployment to validate the deployment was a success.
- Usually non-destructive-type tests.

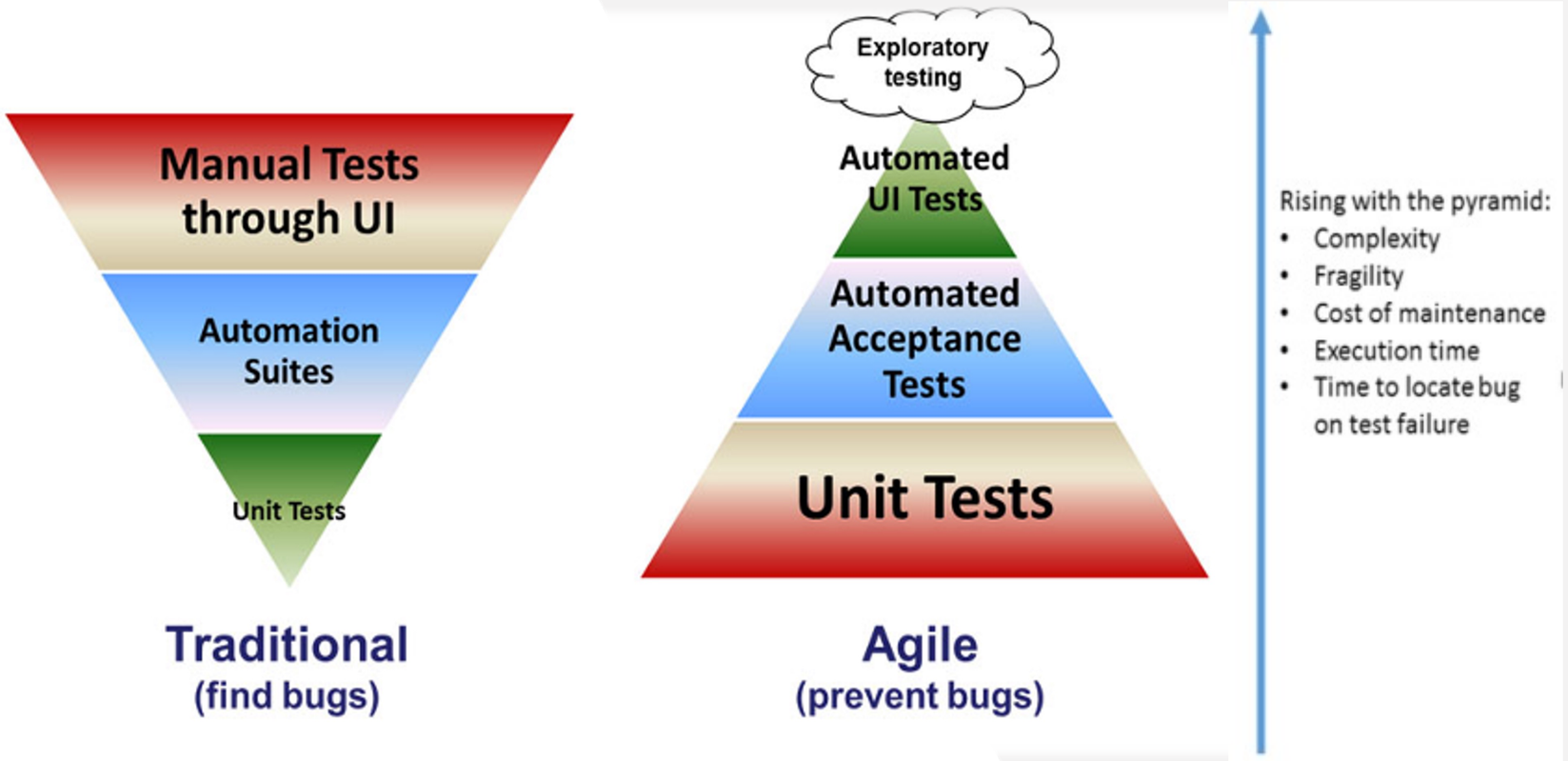
Unit Tests

What is a Unit Test?

- A “program” to test a single component of the overall system.
- Tests the correctness of an isolated unit (class).
- Written in the same language as the production software.
- Open-source frameworks provide great unit testing tools.
- Attempts to isolate a class from its dependencies to test it as a single unit.
- Mocking tools allow for this type of isolation.



Test Automation



Test Automation

What is the right balance of tests?

- Automated UI tests are more expensive and brittle.
- Service API tests provide great documentation for the service.
- Tests the orchestration between all the individual components (units).
- Acts as a boundary between UI -> Back-End.
- Unit tests each component and overall provide the most value (arguably).