Ideal vs. Non-Ideal Testing Pyramids

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# Ideal Testing Pyramid

The key to productive development is to catch errors as early as possible in automated testing. In the ideal testing pyramid, this is done in three stages: Automated Unit Tests, Automated Service Tests, and Automated User Interface (UI) Tests (Kim, Debois, Willis, Humble, 2016).

Automated Unit Tests: These tests are the base of the Ideal Testing Pyramid. Test in this level allows us to “check our work”, getting immediate feedback and letting developers know exactly where the bugs are (Palamarchuk, 2017). In a case study performed by James Willett, he describes Automated Unit Test as: “The Unit Test should only test a small code that is independent code that doesn’t have dependencies on anything outside that code.” The reason for this is: “If the unit test fails, you will know straight away where the problem resides.” As the pyramid shows, there should be more unit tests performed as they are easy to create and cheap to maintain (Willett, 2016).

Automated Service Test: Automated Service Test include testing the API and Integration. These are more complex to create and expensive to maintain. However, they’re worth the time, money and effort because they’re valuable in showing how two or more parts of the system will work together (Willett, 2016). This test can also be broken into three different testing layers: Component Test, Integration Tests, and API Tests being performed manually. This is also the best layer to automate as much as possible (Palamarchuk, 2017).

Automated UI Tests: The tip of the pyramid and final test is probably the more important of the three and definitely the most comprehensive of the three. The Automated UI Test covers the system’s flow from end-to-end. These are the most expensive of the three to develop and maintain show there shouldn’t be too many of them. However, because they test the system end-to-end, they do cover a lot of ground and are useful in convincing investors and steakholder that the system works (Willett, 2016).

# Non-Ideal Testing Pyramids

In the non-ideal testing pyramid (or anti-pattern, i.e. ice cream cone), tests consist of lots of automated Graphic User Interface (GUI) testing and manual testing at the top, a bit of integration testing in the middle and a little bit of unit testing making up the base (Willett, 2016). This testing pattern is often common in businesses and organizations, especially if developers don’t create unit tests early on in the project when the code is being written (Willett, 2016). And because Testing / QA Team don’t usually have access to the code base in order to create the Unit Tests, they will often compensate by creating more test for service, UI levels, and other layers of the pyramid (Willett, 2016). John Stevenson likened the non-ideal testing pyramid to an ice cream cone and described it, saying: “Over time the over-reliance on manual tests will cause a melting at the top which will trickle down to the other layers of the cone resulting in a complete mess.” (Willett, 2016)

# Conclusion

In my opinion, I think that using the ideal testing pyramid vs the non-ideal testing pyramid is the best approach. It safely ensures that all levels of the system will work by beginning at the bottom. It provides strong testing base with the unit testing which will allow further testing in the integration and UI layers. Compared to the non-ideal testing pyramid which is very top-heavy with services and UI testing and often neglect the Unit Testing which is the strength of the system (Palamarchuk, 2017).

References

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