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Automated Testing vs Manual Testing: Which Should You Use, and When?

November 7, 2014 in Web

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So What's the Difference?

Software testing is a huge domain, but it can be broadly categorized into two areas: manual testing and automated testing.

Both manual and automated testing offer benefits and disadvantages. It's worth

knowing the difference, and when to use one or the other for best results.

In manual testing (as the name suggests), test cases are executed manually (by a human, that is) without any support from tools or scripts. But with automated testing,

test cases are executed with the assistance of tools, scripts, and software.

Testing is an integral part of any successful software project. The type of testing (manual or automated) depends on various factors, including project requirements, budget, timeline, expertise, and suitability. Three vital factors of any project are of course time, cost, and quality – the goal of any successful project is to reduce the cost and time required to complete it successfully while maintaining quality output. When it comes to testing, one type may accomplish this goal better than the other.

Manual vs. Automated Testing: the Pros and Cons

Manual testing and automated testing cover two vast areas. Within each category, specific testing methods are available, such as **black box testing**, **white box testing**, **integration testing**, **system testing**, **performance testing**, and **load testing**. Some of these methods are better suited to manual testing, and some are best performed through automation. Here's a brief comparison of each type, along with some pros and cons:

Manual Testing

Manual testing is not accurate at all times due to human error, hence it is less reliable.

Manual testing is time-consuming, taking up human resources.

Investment is required for human resources.

Automated Testing

- Automated testing is more reliable, as it is performed by tools and/or scripts.
- Automated testing is executed by software tools, so it is significantly faster than a manual approach.
- Investment is required for testing tools.

- Manual testing is only practical when the test cases are run once or twice, and frequent repetition is not required.
- Automated testing is a practical option when the test cases are run repeatedly over a long time period.
- Manual testing allows for human observation, which may be more useful if the goal is user-friendliness or
- Automated testing does not entail human observation and cannot guarantee user-friendliness or positive customer experience.

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When Should I Use Manual vs. Automated testing?

In short, manual testing is best suited to the following areas/scenarios:

• **Exploratory Testing:** This type of testing requires the tester's knowledge, experience, analytical/logical skills, creativity, and intuition. The test is characterized here by poorly written specification documentation, and/or a short time for execution. We need the human skills to execute the testing process in this scenario.

Usability Testing: This is an area in which you need to measure how user-friendly, efficient, or convenient the software or product is for the end users. Here, human observation is the most important factor, so a manual approach is preferable.

• Ad-hoc Testing: In this scenario, there is no specific approach. It is a totally unplanned method of testing where the understanding and insight of the tester is the only important factor.

[Read our Load Testing Best Practice Guide here]

Automated testing is the preferred option in the following areas/scenarios:

Regression Testing: Here, automated



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- Repeated Execution: Testing which requires the repeated execution of a task is best automated.
- **Performance Testing:** Similarly, testing which requires the simulation of thousands of concurrent users requires automation.

Keeping these factors in mind, you can find the best approach in any given testing situation and achieve quality output well within your budget and timeline.

13 thoughts on "Automated Testing vs Manual Testing: Which Should You Use, and When?"



July 19, 2016 at 4:52 pm

Good article. A right mix of manual tests and automated tests are essential to test a software

effectively. Automated testing requires a higher initial investment but can yield a higher ROI. Test Automation increases the test team's efficiency by allowing releases to get to production on schedule.

Know more about automation testing on:

http://guide2mobiletesting.blogspot.in/2015/11/is-test-automation-silver-bullet.html



Prashant Hegde

July 19, 2016 at 6:52 pm

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manjeet Singh

November 22, 2016 at 9:38 am

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Ravikumar Ambadi

November 22, 2016 at 9:48 am good one



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April 29, 2017 at 9:28 am

I don't necessarily agree that manual testing is always less reliable due to the human error. Same human factor can be very beneficial due to the flexibility of thinking and actual undesstanding of the user requirements. And you should bear in mind that manual test is essentially a sanity test for the automation suite.

Professional teams usually use both with understanding where each can bring most benefits. If you look at some corporate websites of QA service providers, you will see that each and every one of them will put manual testing as a way of getting better end-solution, and at the same it reduces both cost and time.



Lina Ostoroukh

April 29, 2017 at 11:28 am

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bala kishore

May 24, 2017 at 1:19 am

hai friends,

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now i want go embedded automation side. can any one suggest what should i learn and what should i do. please help me. my mail id is pbkbalakishore@gmail.com



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May 24, 2017 at 3:19 am

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June 27, 2017 at 11:58 am

Good one. Manual and automation testing each has it's own advantages and disadvantages. Automation testing helps in increasing the efficiency and accuracy of the application. Though higher investment required for automation testing but it gives the high productivity. Many enterprises are providing automation testing services for their clients.



June 27, 2017 at 1:58 pm

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July 7, 2017 at 2:14 pm

yes its a very essential in testing...thank u

for more testing questions and answers :- http://forummantra.org

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