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| **The race between Automation Testing(Rabbit) and Manual Testing(Tortoise)**  Test Automation | Abstract  From this article, we’ll understand the importance of “The Manual Testing” and “Automation Testing” in current IT world  Karthikeyan Rajendran |

Shall we start the race between Manual Testing and Automation Testing………

Oh!  Yaaaaaaaaaaa………………….

One,,,,,,,,,,,,, Two,,,,,,,,,,, Three,,,,,,,, let's gooooooooooooooooooo

When we think about the test automation, the first thing comes to our mind be “Can test automation replace manual testing fully?". This is a common misconception and we will see why?

The answer is, the test automation cannot replace manual testing fully but it acts like catalyst for manual testing. Yes, the test automation speed up the manual testing process and offer the test results quickly. If your process takes long-running time, frequent releases and seeking quicker feedback then the automation is a trump card for you.

We can test a new version of software in two ways, one is regression test and another one is new feature test. The regression test usually takes a long time and has to be performed often, hence should be automated. The test that the new functionality meets its specification has to be performed for the first time but will be a part of the regression test from the next release. Therefore, it should also be automated.

In exploratory testing, a tester uses his/her creativity, analytic skills and experience to learn about the application under test and also find new unaccounted ways of highlighting defects. This is truly based on cognitive process, which requires intuition and original human thinking, so it cannot be automated.

There are many other situations where a computer cannot replace the insights, experience and understanding of a tester. The role of a tester demands a lot of personal communications, and involving the feelings of others. A good tester has the drive to find defects; whereas a quality machine does not possess it. Finally, software is made for a human who has particular thoughts, needs and feelings, thus it has to be tested by someone who can understand and experience in the same way.

Finally, “Machines don’t know what they are doing? It’s simply doing their work according to instruction and protocols. To ensuring that, a piece of software meets the needs of another human being. For this a tester acts as a vital role, with creative, analytic and deep understanding skill “.

At the end, Manual Testing (Tortoise) wins the race.

The reason behind “Why did the Manual Testing (Tortoise) win the race?” is

• Test automation requires more effort at the initial stage which is not suitable for testing small applications.

• Manual testing supports a testing of the application in all environments while automation tool does not support all environments. For example; windows supports only Windows platform, it does not support UNIX environment. Selenium supports web application; it does not support the desktop application.

• For Usability testing, ad-hoc testing and exploratory testing Manual Testing is required as it's based on human judgment and intuitions, also testing are based on experience and knowledge of a person. Automation tools cannot test all types of testing and also it can’t judge look and feel of the application. Manual testing is must in cases where the software application is required to be made more user-friendly as a manual tester can learn more about user perspective. For that Usability testing is required which requires understanding the application from the user point of view.

• 100% automation of test cases is not advisable. It has been observed that only 70-75% test cases are automated as there are many scenarios where automation testing is not possible. For example, testing mobile device application requires human interaction. Also there are cases which require a great deal of effort to automate the test case where the business does not have value, manual testing is suitable in those cases.

• It should be noted that manual testing is always necessary and forms an important part of Software Development Life Cycle. Manual testing is convenient and immediate. New functionality can be tested quickly. No need to create and maintain script for testing new features of the application or small changes in the application.

• Automation testing is not suitable for dynamic changing layouts. Automation is required in the cases which do not undergo many alternations.

• Also, automation testing is time-consuming as the script creation and debugging are required to test the application and sort out script issues.

• In the case of automation testing, it is not possible to test the application immediately and cannot reproduce customer issue immediately. Manual testing takes less time to give a productive output of testing.

• Automation testing can only find defects for which it is programmed. It cannot change the course of testing in the middle if anything has been left untested previously.

• Automation Testing involves more cost. Also, more skilled resources need to be hired and involve the cost of the tool if it is licensed. It is not best fit for short project or project with the limited testing budget.

• There is always need for manual testing as, during software development life cycle, software is continuously developed and modified. It is not possible to quickly develop the script for such large number of test cases immediately. So, Automation is done for stable application with least changes, for a better return on Effort and Investment, after a lot of manual testing is done, to have application stable.

• Proficiency is required for using automation tool. Testing resources should have programming knowledge supported by the tool being used. A tester should be having tool handling capability to produce the productive testing output through the tool. For manual testing, no programming skill and no tool knowledge is required and can do comprehensive testing without this knowledge.

• It is only after manual testing done; application undergoes automation testing to perform regression and re-testing frequently. Manual testing and Automation testing involves different skill sets and it is manual tester who guide Automation tester to design the test scenarios for automation.