AVOIDING TEST AUTOMATION PITFALLS

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INDEX

INTRODUCTION

The digital world has put the emphasis on speed and accuracy right from the word 'go'! Software apps are in a tearing hurry to 'go-to-market' before competitors do – whether it is the inaugural app, or its frequent updates. To add to the already strained time factor, is the rapid rate of digital innovation, which necessitates new features to be swiftly incorporated, in order to keep the app relevant in an ever-changing environment.

This speed-driven testing environment can only be sustained by automation, as testers don't have the luxury of time! The fact is that the current demands of speed and accuracy are not humanly possible to achieve given the intense time constraints, and this has led to the widespread use of automation in software testing.

However it would be wrong to presume that all tests can be automated, and dangerous to believe that using an automated testing tool is the be-all and end-all of software testing! In reality, a lot of thought has to go into test automation planning and execution, on selecting the right tool etc., in order to get the most out of automated testing. It is therefore important for testers to be aware of the pitfalls of test automation so that they can make informed decisions. This Whitepaper will therefore dwell on Test Automation Pitfalls and How They Can Be Avoided.

ABSTRACT

Test Automation is a necessity in today's digital world and there is no denying that automation can achieve the desired testing in a fraction of the time taken by manual testing, and that too with greater accuracy and reliability, as it avoids the problems associated with human intervention, fatigue, and boredom.

However, to get the most out of test automation, it has to be a well thought of, well planned, and well executed exercise. It greatly helps when testers are aware of the stumbling blocks, because they can then approach test automation with eyes wide open. This Whitepaper therefore presents the various Test Automation Pitfalls and looks at what needs to be done to avoid them, which will in turn pave the way for excellence in test automation.
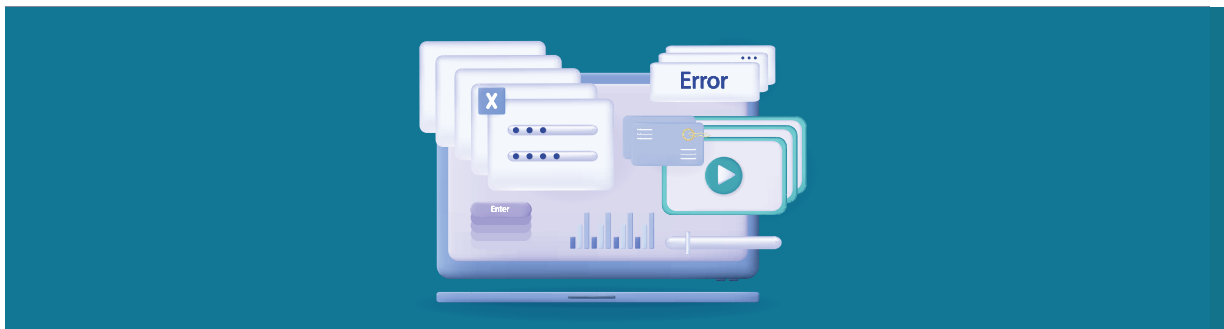
A summary of Test Automation Pitfalls is given below:

- Lack of Initial Assessment and Goal Setting
- Insufficient Knowledge of the App to be Tested
- Insufficient Research into Test Automation Tools
- Over Enthusiasm to Achieve 100% Test Automation
- Complexity in Writing Test Cases
- Negligence in Test Maintenance
- Lack of Quality Data for Testing
- Disorganized Testing
- Unstable Selector Choices
- Inappropriate Wait Time
- Ambiguity in Placeholder Names
- Merging Tests with the Development Process

The pages that follow will throw light on these pitfalls and explore ways to circumvent them.

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TEST AUTOMATION PITFALLS AND WAYS TO AVOID THEM

It is said that being forewarned is being forearmed, and this is very true in test automation. While test automation brings great benefits, it is important to understand what needs to be avoided in order to truly reap the immensity of these benefits. Awareness of test automation pitfalls can prevent the tester from falling into test automation traps which are counter-productive. Read on to understand the various Test Automation Pitfalls and how they can be avoided.

01 Lack of Initial Assessment and Goal Setting

The impulse to rush on to the test automation bandwagon, to be one with the crowd is something that definitely needs to be avoided. Everyone is into automation and so it may seem irrelevant to ask important questions like 'Why do we need test automation? What do we need to automate? What are our automation goals? What are the problems we face, and will automation address them?' Focusing attention on questions like these can set the test automation agenda in the right direction. Concrete, quantifiable goals need to be set, so that at each phase of test automation, progress can be measured and assessed, for corrective action to follow if needed.

02 Insufficient Knowledge of the App to be Tested

Lack of sufficient knowledge of the app, can be a big hurdle to successful test automation. Before venturing into test automation, it is important to fully understand the app to be tested. – What are the technologies used? Is it meant to be a web app, a desktop app, or a mobile app? For web apps it needs to be seen which browsers it will support and what technologies are employed. For desktop apps the language it has been built on needs to be checked. For mobile apps it must be seen whether it is a native app, cross-platform app or mobile web app. In general it is also important to know what third party controls and libraries are used in the app. Thorough knowledge of the app will help to better understand the testing requirements and is therefore vital, before embarking on test automation.

03 Complexity in Writing Test Cases

With the app's advancement, the number of test cases increases and complexity tends to creep into test case creation. This is something testers should carefully guard against. Complex logic in the code increases the chances of things going wrong, hence testers should consciously ensure that their tests are always written in a simple, clear, easy to interpret way, so that there is no confusion no matter when and by whom the tests cases need to be interpreted in future. Explicit, clear cut test cases pave the way for easy build-up of future tests, and also help when debugging is required.

04 Insufficient Research into Test Automation Tools

The market is flooded with test automation tools meant for various needs and skill levels. Hence it is important to apply sufficient thought and spend time to analyze which tool best suits the app's testing needs and available skills. Preferably select a tool that uses the programming language that is familiar to the testers, as an unfamiliar programming language will involve additional time for learning. Furthermore, it is vital to avoid being an unsuspecting victim of marketing gimmicks that make exaggerated claims. It is equally important to see whether the genuine advanced features built into the test automation tools are of real value for the app's current and future testing needs. Determining the testing needs and testing skill levels should therefore be the precursor to choosing an automated testing tool. After the available tools have been sufficiently researched and shortlisted, the free trial offer should be availed, in order to assess the claims made, and also to check the tool's suitability for the app's testing needs.

05 Over Enthusiasm to Achieve 100% Test Automation

The 100% test automation approach is another pitfall that must be avoided. There are areas where manual testing fares better e.g. tests which require human intuition, observation, and insight; and those that require attention to visual aspects of UI like fonts, colors, sizes, contrasts, etc. Manual Testing also supports Exploratory, Usability and Ad-hoc Testing and is useful where there are small changes in User Interface (UI) or where the Application under Testing (AUT) changes frequently. Manual Regression Testing too has its place for quality regression and for testing unusual cases in the production environment. Automating these tests can prove counter-productive. Hence automation time and effort should be focused on areas that can really benefit – like repetitive functional tests; tests cases where the frequency of execution is high; high volume regression testing; performance testing; and tests which are very complex to execute manually.

06 Negligence in Test Maintenance

Test Maintenance is the practice of regularly updating tests, in order that they consistently remain up to date with changes in codes. However, due to time constraints, testers may sometimes be tempted to ignore test maintenance, since it reduces the time available for test creation and execution, and furthermore time spent on this exercise is difficult to justify. It is important to note that negligence in test maintenance can be very detrimental to test automation, because codes are interconnected and new tests depend on results of previously approved tests. If the older tests are not updated with changes in code they will generate misleading results and affect future test results too. This is bound to adversely affect test automation.

07 Lack of Quality Data for Testing

Irrelevant or obsolete data is another automation pitfall that testers need to be aware of. Quality test data is a must for successful test automation. In the course of testing, immense quantity of data is processed, which may at times be externally sourced to test a particular feature. It is important to see that testing is always done only on relevant data, and not on old data, or data affected by unwanted external influences. Quality data implies that data size is optimal and contains information and components relevant for the app's testing requirement. Additionally, data sets must be combined and separated into different categories like valid data, invalid data, boundary condition, etc. The required data can be read from a database stored in XML, Excel or Text file format for conducting data-driven testing, but it is vital that the data is updated consistently, in order to get accurate results. One way to ensure that testing is done on the right data is to reset the app before running automated tests. Another way is to use API queries for generating the relevant data for the tests, and running them independently.

08 Unstable Selector Choices

Unstable selectors are those that are prone to change in future. Use of these selectors will naturally lead to failure of future tests. This will adversely affect automated testing, as time will be spent on detecting the reason for test failure, only to discover that the test was outdated due to the changes within the selector and not because of any defect in the software. Selectors such as data attributes prove to be more stable and are therefore the better choice for automated testing. Furthermore, it is not advisable to test implementation details, as it will result in false positives and false negatives when the app is restructured, thus burdening the limited time available.

09 Disorganized Testing

Disorganized, haphazard testing can hamper and slow down automated testing. Therefore, to get the most out of automated testing it is important to put in place a well-structured, logical testing strategy. The testing process should clearly define the variables to be tested; logically list out the jobs and sequence involved in the testing process, implement the work flow as planned; and maintain meticulous records of outcomes.

10 Inappropriate Wait Time

False failures can arise when the wait time is either insufficient or excessive, and this inappropriate wait time is another test automation pitfall to watch out for. In case the wait time is insufficient as compared to the app's response time, then false errors will arise due to time-out issues. However, if the wait time is too long it can lead to testing inefficiency and even test failures. Hence proper judgment should be applied when defining the wait time, which should be flexible enough to allow the UI changes to be completed, in order that the automated tests are reliable and successful.

11 Ambiguity in Placeholder Names

A placeholder is a character, word, or string of characters that temporarily takes the place of the final data when the input is not yet known. It may also be used to indicate where specific code needs to be added. Ambiguous, unintelligible placeholder names are yet another automation pitfall, as these will be hard to interpret making it difficult for oneself and other testers to fathom what is to be done. Hence placeholder names should be such that they clearly express beyond doubt, what is sought to be conveyed.

12 Merging Tests with the Development Process

Making testing part of the development process is another automation pitfall that needs to be avoided. It is vital that the development and testing functions are kept distinct. Yes, Continuous Testing is important for adding speed to the testing process, but it has to be a distinct function. Merging the testing and development functions is bound to result in failures and delays. While test automation requires synergy between developers and testers, the individuality of the functions must be maintained for successful test automation.

Awareness of the snares related to test automation implementation will help testers steer clear from troubled waters and save vital time and resources in test automation. It is hoped that the aforesaid concrete steps for avoiding test automation pitfalls, will contribute to successful test automation and result in confident, stress-free automated testing.

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CONCLUSION

Test Automation is an absolute must for modern day testing. Nonetheless, the right questions need to be asked before embarking on this important journey. There are pitfalls related to test automation implementation and awareness of these is vital, in order to capitalize on the immense benefits of test automation. The cost of good test automation tools can be fairly large but in the long run the benefits of the appropriate automated testing tool or platform will more than balance out the initial cost, and the organization will reap tremendous economies that come from immense speed and accuracy. It is also true that the choice of the wrong tool will be a terrible drain on resources. Therefore abundant caution needs to be exercised in selecting the most appropriate test automation tool. However, it is equally important to avoid the other pitfalls detailed in this Whitepaper, in order to succeed in test automation and maximize Return on Investment (ROI).

For Mobile App Testing, BOTm is a good centralized option to consider for the entire spectrum of mobile app testing, because of its in-built state-of-the-art app testing technologies that ensure speed, accuracy, and security in testing. Features like audio interaction with Alexa; CICT using Jenkins; Death of a Device Cloud; and Appium Converter – ensure stress-free, error-free testing. Visit www.botmtesting.com and sign up for a Free Trial to experience the benefits of this world class testing platform.

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BOTm is the accelerator BOT for automated and manual testing of mobile applications - developed for both Android and iOS devices.