

# Automation of quality assurance essay sample



Quality assurance refers to the act of ensuring the products which are produced are of high quality as required. This necessitates definition of quality processes and standards which minimizes the defects in products. On the other hand, Quality control refers to a set of procedures aimed at ensuring that a performed service or manufactured product complies with the requirements of the customers or law requirements. Thorough testing by quality assurance on products is important so as to give developers a chance to fix hitches before new technology before the products are unleashed to the consumers. Proper quality assurance can also assist firms in obtaining a competitive edge in the trading ecosystem which is highly complex. It can also improve consumer acquisition and retention rates by assisting in delivering cutting edge services to clients more reliably and faster. Quality assurance automation refers to a form of automation which is aimed at accomplishing quality assurance, minimizing the need of manual testing, improving productivity and reducing cost of engineering. Automation of Quality assurance occurs where industries profits are increased through improved production speed and reduced production cost by replacing a huge fraction of the manual labor. The most regular form of automation is quality assurance is culmination of tools and techniques to detect the defects in products (Brocka, 1988).

Automation is an ideal way for the firms to improve time to market and maintains systems quality high through hastening regression testing. By use of automating testing, firms can deliver hastily while avoiding key defects which could have adverse effects on the customer relationships. Automate testing, in which QA teams use product tools to run repetitive, detailed and

data-intensive tests automatically, assists teams in improving product quality and create the most of their testing resources which are constantly - limited. Automated testing assists teams test faster, permits them to test significantly more code, advances accuracy of the test, and frees up quality assurance engineers in order for them to put more focus on tests that necessitate manual attention and their human skills which are exceptional. In order to ensure that automated testing is successful (Bush, 2006).

In order to have a successful automation of quality assurance processes the following practices are followed so as to realize maximum return on investment.

*Determining the applications or test cases to be automated.*

Successful automation necessitates careful design work and planning. It is not possible to automate all the applications. Initially, defining the goal for automated testing should be performed in order to determine the processes to be automated. After establishing on the goal and types of tests to be automated, the actions to be performed on automated tests should be determined. The most ideal applications to be automated are those which need multiple releases all through their useful life as a result of new, changed or expanded functionality. Also applications which must deliver a consistent set of outcomes using data which is relatively stable are also ideal for automation. Other tests which require automation are repetitive tests, tests requiring numerous data sets, tests which are prone to human error, tests which cannot be carried out manually, tests which are time consuming and requiring a lot of efforts among others (Leung & Chan, 2004).

*Choosing the ideal automated testing approach.*

Several approaches exist for creation of automated functional tests which include;

**Test modularity:** It approach divides the application which is under test into script modules or components. Through scripting language of testing solution which is automated, quality assurance develops a layer of abstraction in front of every element thus concealing it from the other part of the application. It improves the scalability and maintainability of automated test suites through protecting the other part of application from alterations within an individual element.

**Test library architecture:** This is another framework which is based in scripting and partitions an application into sections which are utilized in building tests. This framework describes these sections in functions and procedures rather than scripts which enables greater reusability, maintainability and modularity (Naik & Tripathy, 2008).

**Keyword-driven testing:** It is a framework and which is application-independent and uses key words which are easy to understand and uses data tables in describing actions to be carried out on the application which is under test. Keywords and data tables are autonomous from both automated testing solution which undertakes them and test scripts driving the application and also its data. Testing which is keyword driven can make experts of domain part of testing process. This is because it makes it possible for non-technical individuals to develop automated tests just by populating a simple grid with common terms doing away with the need for

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programming or scripting. Using this approach necessitates time to develop the tables which are keyword driven and vocabulary, in addition to the script modules or components behind the keywords. However, when in operation testing driven using keywords has demonstrated to be highly effective and efficient (Robinson & Miller, 1989).

Data -driven testing: This refers to a framework and stores data in external file instead of test scripts. In this approach, single script can test all the required data values. This approach insulated the test script from any alterations since data is outer script. Updating data only necessitates altering the table instead of upholding the script. This improves the productivity of the test engineers through reducing test maintenance and allowing a high reusability level of script from release to release. Testing which is data driven is usually utilized in union with any of the frameworks above (Retrieved from [https://www.borland.com/\\_images/Silk-Test\\_WP\\_How-to-successfully-automate-the-functional-testing-process\\_tcm32-205735.pdf](https://www.borland.com/_images/Silk-Test_WP_How-to-successfully-automate-the-functional-testing-process_tcm32-205735.pdf)).

Playback/record testing: This approach does away with the necessity for scripting so as to capture a test. This begins with recording the manual interactions inputs with the application which is under test. These inputs which are recorded are utilized in generation of automated test scripts which can be replayed and later on be implemented. Although this approach is the easiest and fastest in regards to test automation, however the tests are neither reusable nor maintainable. Any alteration in the application depicts re-recording the whole chain of steps opposing any savings in terms of time.

Therefore, this approach offers the lowest test asset reusability, return on investment and resource output of any automation form (Fox, 1993).

*Develop your application test plan.*

This is a document describing the approach, scope, coverage, schedule and resources of all the manual and automatic activities concerned in application testing. The plan also identifies all the features of the application to be tested, people responsible for carrying out each task, the testing tasks, the test environment, the various environments and platforms to be tested, the chosen test design approach and test metrics for outcomes reporting (Retrieved from [https://www.borland.com/\\_images/Silk-Test\\_WP\\_How-to-successfully-automate-the-functional-testing-process\\_tcm32-205735.pdf](https://www.borland.com/_images/Silk-Test_WP_How-to-successfully-automate-the-functional-testing-process_tcm32-205735.pdf)).

*Create and deploy the automated tests.*

This plan acts as the roadmap for the creation of automated tests. Quality assurance develops all the tests through an automated testing solution which supports the selected approach to automation. Once the tests are planned to requirements, created, defined, the automation is now ready to be implemented (Fainter, 1991).

Quality assurance automation should be reviewed, designed and documented carefully. Testing should be established as early enough in the development cycle and to be run as often as required In order for a successful automated testing. Selection of a tool for automated testing is important for test automation. On the market there are a lot of automated testing tools and therefore it is essential to select the tool which best fits the

needed requirements. Quality assurance departments should mitigate costs of automation as a result of maintenance activities. For instance, when a modification in functionality happens, the only part to be changed should be the affected component instead of rescripting the whole test enabling them to easily and quickly alter tests to reflect the application needs which are changing (Edosomwan, 1987).

When automation in QA processes is carried out well this will help in improving production and also to increase the return on investment in the firms. Implementing test automation is a long term project and requires a huge upfront investment of both resources and time (Summers & Hearn, 2008). Also automation cannot fully substitute expertise and therefore appropriate training is required and also developing the required skills set by learning concerning the best automation practices, test-automation solution and testing methodologies. This will ensure that automation is conducted in the right way thus producing exemplary and accurate results.

## References

Brocka, B. (1988). Automation in quality assurance. Davenport, IA: Executive Sciences Institute.

Bush, M. E. (2006). Quality assurance of multiple-choice tests. *Quality Assurance in Education*, 14(4), 398-404.

Edosomwan, J. A. (1987). Integrating productivity and quality management. New York: M. Dekker.

Fainter, J. (1991). Quality Assurance # Quality Improvement. *Journal of Quality Assurance* , 13(1), 8-36.

Fox, M. J. (1993). *Quality assurance management*. London: Chapman & Hall.

Leung, H., & Chan, K. (2004). *Implementing automated testing*. Hershey, PA: Idea Group Pub.. Naik, K., & Tripathy, P. (2008). *Software testing and quality assurance theory and practice*. Hoboken, N. J.: John Wiley & Sons.

Quality Assurance . (n. d.). *Automation*. Retrieved April 17, 2001, from [https://www.borland.com/\\_images/Silk-Test\\_WP\\_How-to-successfully-automate-the-functional-testing-process\\_tcm32-205735.pdf](https://www.borland.com/_images/Silk-Test_WP_How-to-successfully-automate-the-functional-testing-process_tcm32-205735.pdf)

Robinson, S. L., & Miller, R. K. (1989). *Automated inspection and quality assurance*. New York: M. Dekker ;.

Summers, A. E., & Hearn, W. H. (2008). Quality assurance in safe automation. *Process Safety Progress*, 27(4), 323-327.