

Automation of wireless Telecom Node Commands of Network Management System

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Abstract

To implement automation testing for testing the telecom node commands in the wireless network management system. The main objective of this project is to perform automation testing for the various mode commands used in the wireless telecom nodes that plays vital role in enterprise applications implementation. There is various software testing methods that plays an important role in program progress lifestyles cycle. At present many programs were written based on internet utility which runs in a web Browser. This monetary relevance of net founded software increases the need of controlling and increases its satisfactory. In this modern technology world, manual testing of various telecom node commands became a time consuming and tedious process. Further, it is not effective in detecting the defects in large and time bound projects. In order to solve such problem, it is important to introduce a framework for automation testing. The assurance for quality of a system relies on automated checking that decreases the cost of testing and improves work effectively. A style of net centered techniques and functions are confirmed by automated testing instruments. To select the satisfactory method for a mission, quite a lot of issue like integration should be weighed and viewed against the time, cost and efficiency. Additionally the selected tool should suite the implementation and design of a utility.

Keywords: Automation Testing, Manual Testing, Network Management System, Telecom Node Commands, Wireless Telecom Nodes

1. Introduction

In the software development life cycle, software testing plays one of the most crucial phases. This process consumes nearly 70% of the development life cycle¹. The functionality of software program is accessed using the software testing. Some of the defects in the software system are evaluated using this software testing. The quality and the feature of a software system are assessed using the testing phase involved during development life cycle. Software testing is also defined as the process involving validation and verification process of a product or application that should meet the:

- Software requirements in the development process.
- Necessity of having same characteristics.
- Expected result.

In the development process, software testing is very important as it can fix the software bugs easily. In other words, software testing is a process to verify whether the expected result matches with the actual result. It also gives complete assurance to have a defect free software system.

2. Different Types of Testing

There are various types and levels in software testing. Some of the most commonly used testing methodologies are shown in Figure 1.

- Manual testing
- Automation testing
- Black and white box testing

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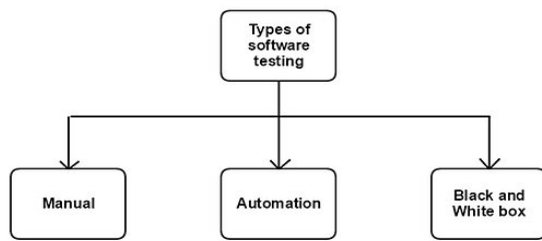


Figure 1. Different types of testing.

In this work, only manual and automation testing are of great concern. At present, large numbers of industries rely on automation testing when compared to the other types of testing.

2.1 Manual Testing

In this type of testing, software is tested without using any tools i.e. manually. In this method, the person testing the software plays the role of an end user to ensure the correct behavior of the application. In some of the large scale projects, manual testing of software follows some tedious steps to increase the number of defects that can be found easily². It follows a systematic approach on test cases that are predetermined. Some of the following steps are generally involved in manual testing:

- Process of choosing high level test plan methodology.
- People start writing test cases to get clear and concise results.
- Above test cases are given to the testers, to follow the steps manually.
- The obtained result is recorded to compare it with the expected result.

The various steps involved in the manual testing is given below in the Figure 2.

At present, most of the telecommunication industries have reduced the usage of manual testing due to the following reasons³:

- In manual testing, the execution speed is very slow as the test is carried out manually.
- Accuracy is very less.
- Repeated execution of same test cases becomes tedious and time consuming process.
- It is not suitable for some of the large scale projects.
- Regression testing becomes very tedious.

Due to the above reasons, manual testing becomes very complicated. Thus it is analyzed from the paper¹ that manual testing is not suitable in large scale time bound projects. It is also noted from the paper² that manual testing becomes tedious and time consuming process.

2.2 Automation Testing

It is a process of testing software in which it controls the execution of test cases and checks whether the obtained result matches with the expected result⁴. It is more advantageous when compared with the manual testing. This method is also referred to as test automation. In automation testing, the test is carried out by using test scripts written by the tester⁵. It becomes very easier to carry out testing even in large projects.

The steps carried out in automation testing shown in Figure 3 prove to be very simple. Due to this reason, many of the telecom industries rely on automation testing during the software development life cycle.

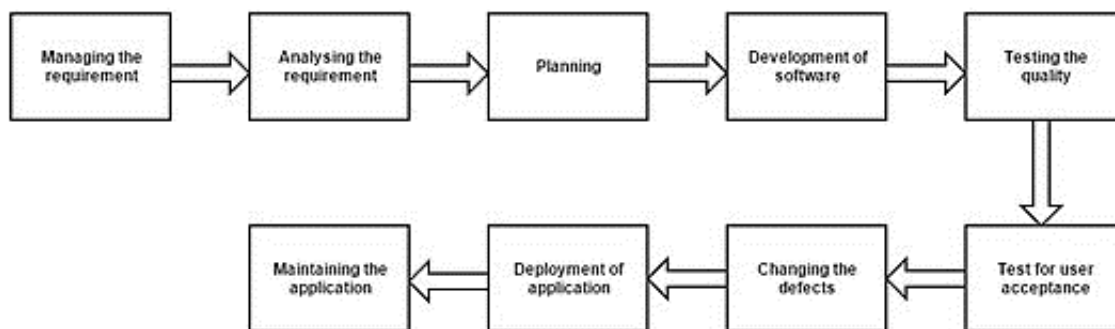


Figure 2. Steps involved in manual testing.

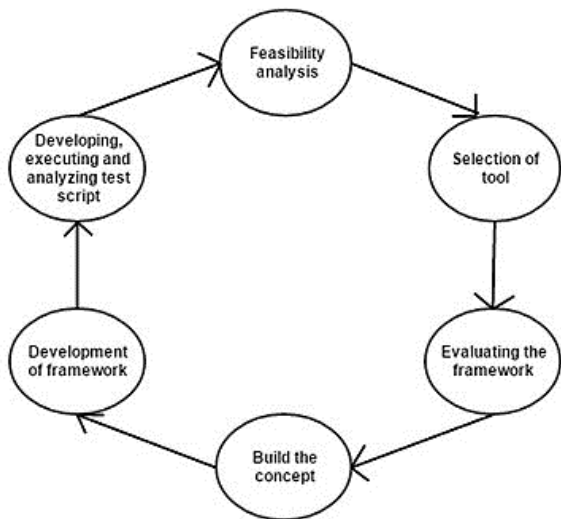


Figure 3. Steps involved in automation testing.

At present, the automation testing is preferred than manual testing due to the following reasons⁶:

- Execution of test cases is significantly faster when compared to manual testing.
- As test cases are executed using software tools, the need for human resources.
- It is more reliable and consumes less amount of time.
- Test cases can be re-used for many numbers of times.
- Hidden defects can be detected by programming the test cases.

Due to this above advantage, automation testing is preferred in all industries. Automation testing helps in improving the efficiency and quality of the software by identifying all the defects easily⁷. With this, the software can be deployed to the end user in an efficient manner.

3. Existing System

At present, in many industries the various commands used to access the wireless telecom nodes are tested manually i.e. using human resources. As the performance and working of commands are tested manually, it becomes a time consuming and tedious process. In order to reduce the time consumed for testing, large number of human are involved to carry out the testing process. But the testing of this various commands used in the wireless telecom nodes should require very less amount of time.

4. Proposed System

As the time and human resources for testing the functionality of various telecom node command increases, it is necessary to find an alternative solution for testing. The remaining development stage depends on the working of these commands, it is necessary to decrease the testing time of these commands. In order to overcome the above shortcomings, we propose a method in which the function and working of the commands are verified using automation testing instead of manual testing. In automated testing of commands helps in reducing the:

- Testing time
- Human resources
- Cost
- Requires simple setup for testing

5. Manual Testing vs. Automation Testing

From the above graph Figure 4, it is inferred that automation testing is better than manual testing. It is also clear that the time and cost is reduced for the automation testing. It proves that the automated testing of the various wireless telecom node commands is more efficient and reliable compared to the manual testing.

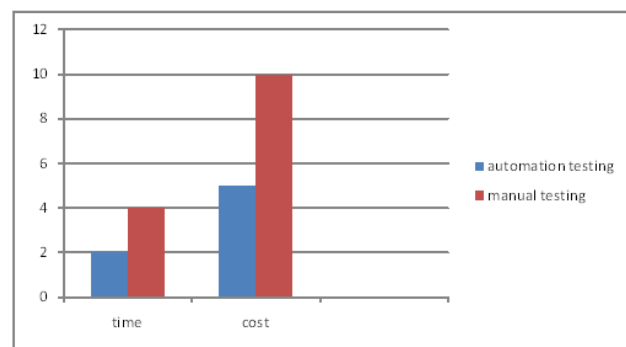


Figure 4. Comparison between manual and automation testing.

6. Conclusion

In this paper, we have analyzed that automation testing is more suitable when compared to the manual testing for verifying the functionality and performance of the various commands in the wireless telecom nodes. Automation of

telecom node commands helps in detecting the defects easily. It also helps in detecting the error in the early stages of the development process^{8,9}. While in manual testing, the commands and application are tested only after the completion of the development process. In automation testing, the testing can be carried out for small units and the application can be tested even in the middle of development process. Effective results can be obtained for the automation testing by using various available automated tools¹⁰. In future, the automation testing can be further developed by using parallel execution of the various telecom commands.

7. References

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