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Critical analysis of SQA by using Automated UI Testing Tool:TestComplete

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Abstract

In the case of market access time, quality control teams are not left without automated control solutions to reduce costs. TestComplete is a flexible solution that requires a rapid increase in the number of experiments by project managers, ensuring timely and timely products from quality assurance inspectors. Software Quality Assurance (SQA) is a key element in any software development and is designed to meet quality and productivity requirements. The methodology requires an experimental automation tool that allows developers and checkers to easily calculate software development practices. The purpose of this study is to examine the key features supported by the TestComplete testing tool that help reduce the maintenance resources of scripts and improve the efficiency of reusing scripts. TestComplete is an automated testing platform developed by SmartBear Software. TestComplete evaluators can automate tests in Microsoft Windows, Web, Android, and iOS applications.

Keywords: SQA, Methodology, TestComplete, & Testing Tools.

1. Introduction

The purpose of the software testing involvement is to identify errors in software products. The process of operating and evaluating systems and components using automated documentation is the classification of differences in meeting specific needs or anticipating specific results. There are two types of testing, manual or automatic. Tests must use most of the features of a program to function and utility properly as an end user. Follow the test plan, which guides you through many important test events. The difficulty with manual testing is that it is a time-consuming process, not reusable, not capable of writing scripts, time consuming, and less error- prone. Automatic testing covers everything from manual testing. Automatic testing uses automated tools like TestComplete to automate manual test procedures. Improves test performance, reliability, repeatability, programming, completeness, and reusability. TestComplete automation tools make it easy for developers and testers to computerize all the software development issues. The main purpose is to examine the features supported by these functional testing tools. This reduces resource redundancy and improves re-script utilization.

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The ultimate goal of software development is to create high-quality software. Good quality software has such features as low cost, reliability and customer satisfaction. Testing is the process of running a troubleshooting program. This is a necessary and essential process for finding all the errors in the first stage of software development. Extensive and effective tests reduce system costs. Software developers are looking for test and quality certification staff to perform the test. A test is as much a response as possible to a program's response. The program should test all valid and invalid inputs and outputs.

Testing can be done in two ways:

- Manual testing and
- Automated testing

Manual testing requires testers to manually perform test tasks without the aid of test automation. Manual testing is the process by which testers follow a written test plan, which results in several important tests. A software test case is a set of situations that is specific to a particular application, and the tester executes all of these conditions to test the correct operation of a program. Manual testing is a daunting task that requires the tester to maintain a certain quality. Be patient, observant, imaginative, creative, innovative, open minded, knowledgeable To make sure you are fully qualified for the application, you need to take at least two tests for each requirement. One positive test, one negative test. Manual testing helps identify defects related to usability and GUI test areas. To automate the test, you need to manually check for new applications. Manual testing requires more effort, but automation is needed. Manual test does not require knowledge of test tools. Automated testing runs test cases that do not require manual intervention to execute each case. Create and run test cases using special software and compare actual and predicted results. The tests are automated, so they can be repeated quickly and easily.

Automatic software testing is the best way to increase software efficiency, productivityand scope. Automatic testing will require significant investments in software-compatible hardware resources. Automatic testing may not be performed manually. Automatic testing improves accuracy and saves testers and organizing hours. Automatic testing is ideal for environments where requirements are constantly changing and multiple regression analyzes are required. Ideal for environments with significant test cases that repeat automatic testing. This improves the

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quality of the test structure and reduces maintenance costs. The many benefits of automated testing are that you can run tests faster. There are reusable test cases that are reliable, comprehensive and programmable. The key difference between manual and automated testing is that the automatic test is most suitable for repeatable environments (for example, regression tests, re-entry of the same test data, and coded standards testing). Manual testing is ideal in a constantly changing environment.

2. Objectives:

- To study the key features that are supported by the TestComplete testing tool, which help reduce script maintenance resources and increase script reuse efficiency.
- To automate the ability to manage software production and qualityby using the Automated TestComplete test tool.

3. AutomatedUI Testing Tools

Quality assurance professionals know that UI testing is important to testing strategies because it provides important feedback from the user's perspective. However, it checks all aspects of the program's activities, such as images, colors, fonts, visual controls, controls, navigation, error notifications, and data entry. Comprehensive GUI testing is time consuming, especially as testing is part of a regression and needs to be repeated on drives and devices. Automated tests can help you save time and money by spending a little time on manual tests. Experimental automation saves resources on multiple browsers and platforms simultaneously. Automation reduces employees from regular testing, so they can be more complex and focus on exploration. The best test coverage gained by automated testing was to convince those who are willing to start the program with the desired quality. An important part of UI testing is examining common use cases. For example, common use cases for hotel booking sites include finding a room, selecting a room, booking details, and ordering. The experiment succeeds for data values called "happy scenes". Functional testing is to test for rooms ("sad" mode), days entered by the user, or invalid credit card numbers, and program activities ("wrong pass"). TestComplete Studio's database-based tests automate the process of repeating multiple data tests, so you can't be satisfied with roads, sad roads, and wrong roads. Data values can be obtained from internal data tables, external Excel files, or SQL tables. Test data is stored separately from the testing process, so you

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can easily add or change alternatives. For more complex versions, TestComplete Studio supports running local and global parameters, key-based tests and conditional tests.

4. Methodology

There are many functional testing tools are available in open or commercial source markets. We select the best automation test tool for recording scripts and then use these playback scripts as an essential feature of automation tests.

TestComplete is a self-service self-testing tool through SmartBear. It allows you to test Windows and web applications and is one of the world's first functional testing tools. This tool demonstrates ATI Automation honors awards in 2010 as the Best Commercial Automated Functional Test Tool, which is used by Adobe, Corel, Falafel Software, ARUP Laboratories, and worldwide leading companies.

Figure 1: Application Types supported by TestComplete

The TestComplete tool uses a test frame that manages keyword execution for functional testing; In addition, it can test with scripts. Its operational understanding is relatively simple. As shown in Figure 2, the instrument will record and then perform the operations performed on the test system by means of a process interconnection and various built-in ancillary devices.

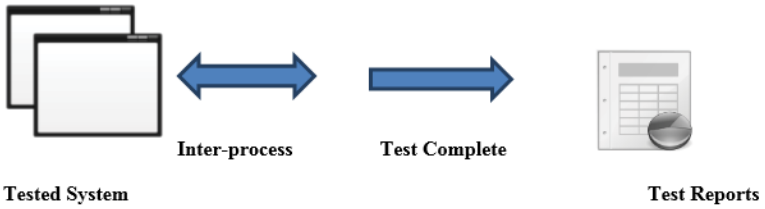

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Figure 2: Test Complete Concept

Key features of TestComplete are as follows:

- TestComplete has a test editor based on a key word, which consists of key word operations that relate to automatic test actions.
- Code editor to help testers write scripts manually. This includes the foundation of extraordinary extensions.
- Take all necessary steps to repeal and dismiss all unwanted trials.
- TestComplete allows you to read the names of the essential elements of Delphi C ++ Builder, .NET, WPF, Java, and Visual Basic and allow them to use test scripts to verify these values.
- TestComplete Unicode support package allows you to test non-ASCII applications using Arabic, Greek, Catalan, Hebrew and others, such as Unicode characters.
- Its engines are based on open APIs and COM interfaces. It is independent of the mother tongue and can be used to read debug information and use it through the TestComplete Debug Info Agent.
- Automatically save screenshots during experiments and playback. This facilitates the comparisons between expected and real screen during testing.
- Plugins are supported because third-party vendors can link TestComplete to their software.

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Tools/Criteria	TestComplete
Pricing (USD)	Licensed and it costs 1999
Cross Platform	Windows 7 and later
Application support	Web, Desktop, and Mobile applications
Browsers-support	IE-Firefox-OperaChrome
Record-Playback	Support
Ease of Use	Experience needed
Script-language	VBScript, Delphi, C++, C#, and JavaScript
Technical support	Good technical support via phone, mail, web forum.
Data-Driven Framework	Excel, CSV, SQL
Training-Cost (USD)	449
Debugging support	Strong
Report Generation	HTML,XML
Product Support	Smartbear support with support forums

Table1: Features Supported by TestComplete

5. SQA Analysis and evaluation by TestCompleteTesting Tool

The SQA is evaluated by the TestComplete test tool to verify if the project is successful or not determined by the extent to which the actual results meet the product quality objectives.

System under Test

This demonstration uses the open source tool Webstore to demonstrate TestComplete functionality for automating an application in order to build up a testing framework.

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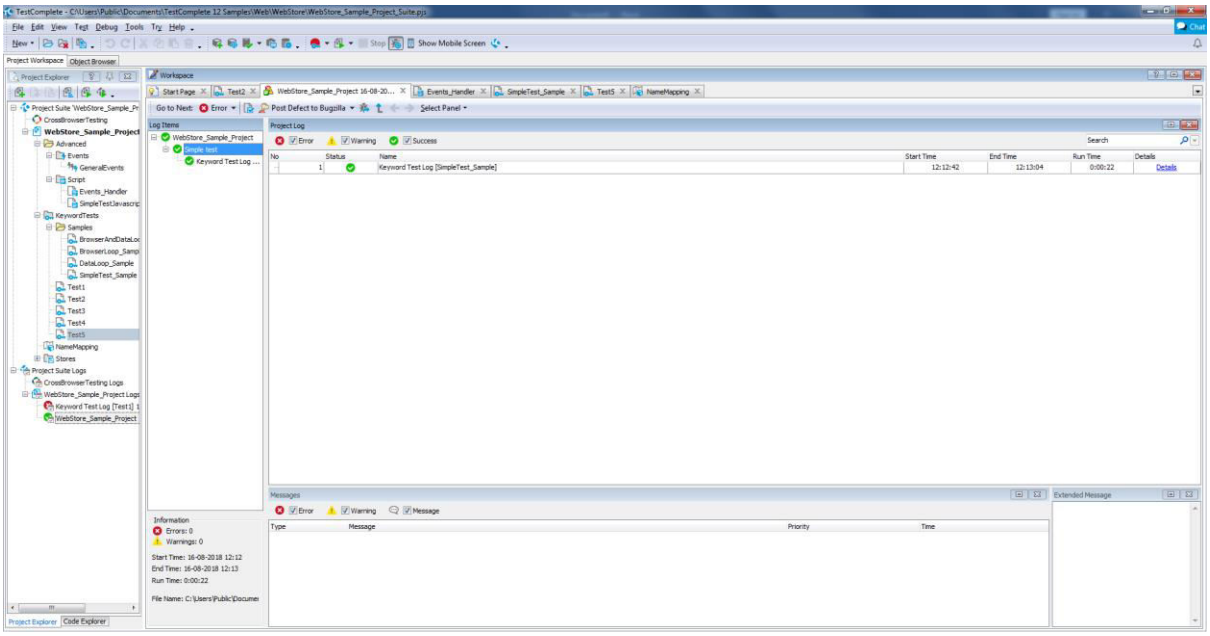
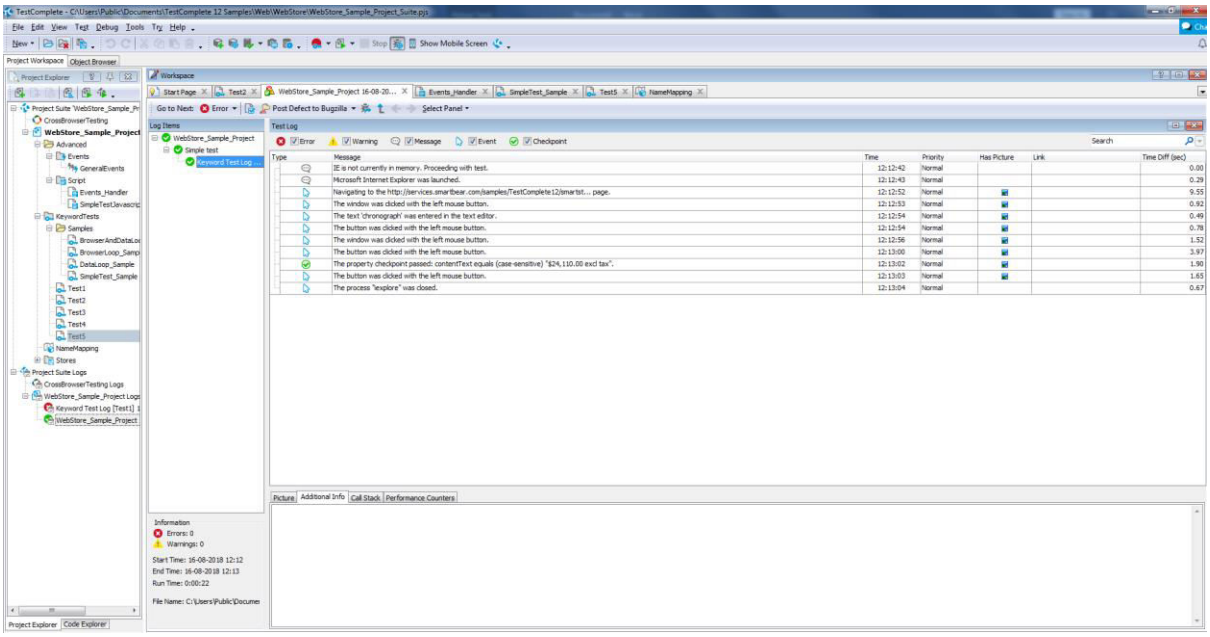


Screenshot1: Testing: Simple Test



Screenshot 2: Keyword Test Log

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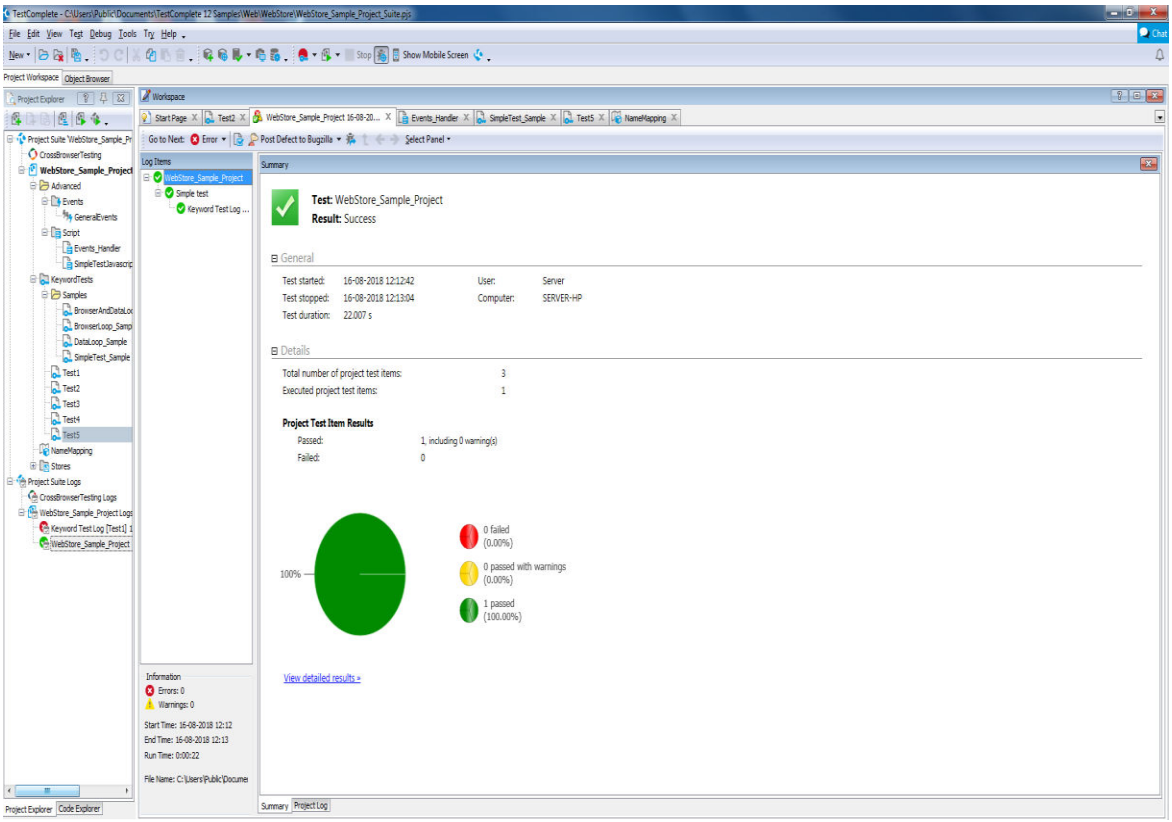

Screenshot3: Result of Webstore Project Module

Summary ofWebstore Test Suit

Test Data	Total Error	Warning	Status (Pass/Fail)
DataDriven Tests	0	0	Success
TC_ValidateVersionNumber	0	0	Success
TC_OpenLoginAndClose	0	0	Success

“Test automation methodology plays an important role in any software test. Some test cases are arduous, time consuming and repetitive. Automating such test cases saves a lot of time, which necessitates the continuous delivery of software quality development and automation for the success of test models.”

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6. Conclusion and Future Work

Automated software testing is the ultimate way to increase the productivity as well as scope of software testing methodologyand TestComplete is a suite of tools that can be used to test web applications. With the help of this study ,weanalyze and find web application tests using the automated TestComplete test tool, which will automatically record test cases as testers enter data into the web application screen. and making them ideal for the regression test environment. In the forthcoming, the software development environment will add to refining the quality of the software. TestComplete is a flexible solution that offers the benefits of delivering products on time and on budget. Adding more variable automation factors to your analysis can make your work more accurate and scalable in the future. This research can be combined with the concept of automated test data generation.

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