The Defect Management Using Automation Testing Tool

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Abstract- One of the mandatory services that need to be providing to any application or product is testing. The testing process can be classified into two types: manual, automation testing. Manual testing requires lot of human interaction and has many disadvantages which can be overcome by automation testing. The major disadvantage of automation tools that are available in the market requires separate software for tracking the bugs that are raised during the lifecycle. In the paper, we have designed bug tracking software in the automation tool so that it makes easier for the tester and developer both to keep track of the bugs and to the area to be focused based on priority. The JIRA is a commercial license product which is integrated into the automation tool which reduces the time, cost savings is increased, and efficiency of the project is also increased. It provides all the features that are made available in JIRA. There are few additional features such as Link the defect with another Test Case and Traceability which displays the list of test cases that are linked with the selected test case with helps the developer to identify the major similar flaw that are identified in various test cases.

Keywords: Automation Testing, JIRA

I. INTRODUCTION

In recent years, the automation testing is the current industry trends. Automation testing is a form of software testing where a separate software is been used to control the test execution and after the execution completion, the results are compared between actual outcomes and predicted outcomes. Many clients might have a question of why the application needs to be wrapped with automated tests. The importance of automated tests is described as automated tests needs to be done to ensure the quality of the application which is the main objective. The time consumption grows exponentially in case of manual testing. As the day passes the project start growing, it finally reaches to a stage where it is not possible to guarantee the reliability through manual testing.

Assume a scenario where the tester needs to check an application manually. To login into an application the user needs to create an account. While login the information that needs to be provided are the first name, last name, e-mail, and password. In order to verify this form the tester needs to enter all the information that is required in the text fields and at the last, clicks on “Register”. The registration process is completed but not the testing process.

Testers have tested only one script for the registration. There is also mandatory to check the other scripts. For example: what if the users have already registered? , what if the user forgets the password? , what if the user gives none exist e-mail address? And so on. As the tester keeps checking each and every text fields the duration of time increases. This is the scenario of only one module of the project; imagine the testing process for the whole project. As the project grows, the time required to perform manual testing increases.

Automation testing provides many benefits when compared to manual tests. The advantages are as follows:

- Cheaper
  It is better to pay at a stretch once rather than making the payment numerous times for the same task.
• Faster
At the beginning stage, the tester needs to put a considerable effort to write test scripts. After this process, the automation of the test cases can be done faster when compared to manual testing. Another main disadvantage of manual testing is the test cases takes lot of time to execute frequently because all the process needs to be done from the start.

• Reliable
The manual testers might forget to execution some specific task which is the normal human tendency and there is also a situation where it is skipped intentionally.

• Reduces human risks and technical risks
As the employees of the organization are not bonded to stay in the same place, the project make takes several years to get completed. At this situation there is a requirement of a new employee who is capable of continuing it. This technically termed as project hand-off. Without carrying the testing process, it is seriously tedious and risky. The tester usually generate a report after the execution, these reports also helps the new programmer to understand more about the project.

• It is powerful and versatile
Manually performing the testing process is tedious. For example, the tester cannot writ one lakh scripts to test the application; even if it is done he/she can’t ensure the quality.

The major disadvantage of this automation tools is that is requires separate software application to keep track of the issues that are originated in the software development lifecycle. There are many software’s that are licensed product which increases the overall cost consumption during the development and maintenance.

In this paper, the bug tracking software is integrated into the automation tool which helps the user in multiple ways. Whenever the tester finds any errors in the automation tool, at the first stage he/she will view the scripts. If the scripts are correct, tester will consider it as a bug. This bug is raised in the automation tool so that it is easier to keep track of the status of the bug.

II. Related Work
[1] It describes about the Selenium and JMeter. The paper represents the framework of automatic software testing for web applications depending on the two tools. The framework proves that the result increases the development efficiency and the quality of the software products.

[2]Selenium is open-source software and provides portable testing. The test cases in Selenium can be written with the help of many programming languages such as java, .NET, Php etc. Watir full name is “Web Application Testing in Ruby”. Watir is a powerful open source tool. The test scripts can be written only in Ruby language, it doesn’t provide record and playback tool.

III. Defect
The defect is also called as bug/Incident/Fault/ Issue/failure. The task of bug finders is to find the bugs, record it which helps for re-creation, report it to the respective person, manage and keep track of the status of the bug.

The name of the defect tracking system is also known as bug tracking system. Defect tracking system is a software application which is used in every application to keep track of the software bugs that are raised during the software development cycle. It is very useful for the developers to focus on their task.

The essential features of bug tracking systems are:
• User must be able to create a defect with the unique ID. The defect can be identified by anyone with the help of bug ID.
• User must be able to provide the type of the issue, priority.
• User must be able to overall summary and description which helps to reproduce the scenario.
• There must be a comment block where the exception cases of the scenarios can be specified.
• The Due date must be specified before which the bug needs to be fixed.
• It must be capable of creating the defect report with charts and provide a facility of e-mailing.
• It must be capable of providing screen-shots.
• The work flow must be provided which describes the progress.

There are many defect management tools available in market. The top tools are Bugzilla, JIRA, Lean Testing, and HP ALM. JIRA is proprietary incident management tool. It provides issue tracking, recording, reporting and many more facilities. The main feature is that it can be integrated with development environments. It is a medium to agile projects. The trial version JIRA is available for 7 days, this is a commercialized licensed product.

IV. SYSTEM ARCHITECTURE

It uses open source technologies like Selenium, Java, JavaFx, Selendroid, Appium etc. to automate web applications. The application under test (AUT) can be on any of the platforms like Mozilla Firefox, Google Chrome, Safari, Internet Explorer platforms. After automation, test run reports are presented in HTML format. It is intended to be exported into excel format and e-mail it to respective stake holders. The reports can also be sent to Defect management tools like JIRA which helps to reports bug and track them during the bug life cycle.

V. DEFECT CREATION

JIRA's REST API is used by the developers who need to interact with JIRA in a procedural and programmatic manner. This could fulfill the development department who want to integrate their own software or other Atlassian applications with JIRA.
VI. CONCLUSION

In the current competitive world, technicalities can find many find various software and tools which is growing rapidly. Designing and development of software and tools should provide user friendly environment and provide user desirable features in cost-effective manner. The automation suite is developed with multiple features one among them is defect management system. The organizations make use of defect management system to track the defects which is found after running the tests, presently which is performed using separate software. It is helpful, if the Automation suite contains defect management system. In this paper, there is explanation of the integration of defect management system with automation suite. Future work includes development and integration of project management system.

REFERENCES


