Application of Selenium WebDriver and Jenkins in Website Testing for TMart

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***Abstract*—This undergraduate thesis explores the application of Selenium WebDriver and Jenkins in testing the TMart website. The author describes the setup and usage of Selenium WebDriver for web testing, including commands for browser interaction and element identification. The integration of Selenium WebDriver with Jenkins for automated testing is also detailed. The work covers various testing methods, including black-box and white-box testing, and provides an overview of the testing process and tools used. However, specific numerical results or performance metrics are not provided. In the applied section, the author tests TMart login, registration, and purchase functions and describes Jenkins-assisted automated builds.**

***Index Terms*—Selenium WebDriver, Jenkins, black-box testing, white-box testing, web testing, TMart**

I. Introduction

The thesis begins with an introduction to software testing, covering different testing levels and methods. It explains the concepts of manual and automated testing, and discusses the black-box and white-box testing approaches. The author then delves into the testing process and tools used, including Selenium WebDriver and Jenkins. The background chapter provides a comprehensive overview of the testing process, including the Software Testing Life Cycle (STLC) and the importance of both black-box and white-box testing methods [1]. Published articles on the methods and subject of this project provide context for this English summary [2], [3], [4].

II. Methods

The author details the setup and usage of Selenium WebDriver for web testing, including commands for browser interaction and element identification. The integration of Selenium WebDriver with Jenkins for automated testing is also described. The author explains the process of setting up the TestNG plugin in Eclipse and using Selenium WebDriver commands for browser interaction and element identification. However, specific numerical results or performance metrics are not provided [1].

III. Results

The source reports using Selenium WebDriver to test login, registration, and purchasing functions on the TMart website. It also describes integrating the testing project with Jenkins for an automated build. The report gives examples of browser-control and element-selection commands and discusses how test cases are organized. Its conclusion does not give an aggregate pass rate or a measured performance improvement from the automation. The demonstrated application is therefore limited to the documented TMart functions and the build workflow [1].

IV. Discussion

The author discusses the advantages and disadvantages of black-box testing, noting that while it provides an objective evaluation, it can be less efficient due to the lack of knowledge about the internal structure of the software. The white-box testing approach is also briefly introduced, focusing on the use of specific algorithms and data structures. The discussion highlights the importance of both black-box and white-box testing methods in ensuring comprehensive software quality [1].

V. Conclusion

The thesis concludes with a summary of the testing process and tools used, highlighting the importance of both black-box and white-box testing methods. The author suggests future directions for the topic, emphasizing the need for more comprehensive testing strategies. The work provides a detailed explanation of the setup and usage of Selenium WebDriver and Jenkins for automated testing, but specific numerical results or performance metrics are not provided [1].

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References

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