Comparative Analysis of Software Quality in Automatic Testing of Website Learning Evaluation Using Selenium WebDriver and Apache JMeter

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ABSTRACT

Software testing is an important stage in ensuring the quality of a system such as a website-based application. This study aims to conduct a comparative analysis of software quality on the Learning Evaluation website (https://project-jti.polije.ac.id/jtiform/login) *with automated testing using two automated testing tools, namely Selenium WebDriver and Apache JMeter. The main parameter measured is execution time as an indicator of system performance. The test results show that Apache JMeter consistently has a faster execution time than Selenium WebDriver for almost all features, with an average time of under 0.3 seconds. Meanwhile, Selenium WebDriver recorded a much higher execution time, especially for the Forgot Password and Profile features which reached 5,886 ms and 4,720 ms, respectively. This is due to the difference in testing approaches, where Selenium WebDriver interacts directly with the user interface, while Apache JMeter focuses on high workload testing simultaneously. So it can be concluded that Apache JMeter is more suitable for testing system performance and load, while Selenium WebDriver is more effective for testing user interface-based functionality. The combination of these two tools can provide a comprehensive picture of software quality.*

Keywords*: Automated Testing, Software Quality, Selenium WebDriver, Apache JMeter, Performance Testing*