ABSTRACT

The EduALL website is a web-based education platform that is constantly evolving with new features. To ensure the quality of the system, software testing is an important step, especially in identifying bugs and ensuring functionality remains optimized. So far, testing on the EduALL website is still done manually, which requires a lot of time and effort. Therefore, Model-Based Testing (MBT) based on Extended Finite State Machine (EFSM) is used as a more efficient automated testing method. This research compares the effectiveness of two sequencer models in the TestOptimal tool, namely Optimal Sequencer and Weighted Random Sequencer, in producing effective and efficient automated testing. EFSM models were created for two versions of the EduALL website (old and new), and testing was performed with TestOptimal and integrated with Selenium. The results show that the Optimal Sequencer is more efficient than the Weighted Random Sequencer in terms of execution time and memory usage, while still achieving 100% test coverage for state and transition coverage. Although the Weighted Random Sequencer has flexibility in test path selection, the Optimal Sequencer is superior in result consistency and test efficiency. This research shows that the use of Model-Based Testing with EFSM and TestOptimal can improve the effectiveness of automated testing on the EduALL website, especially in handling CRUD features and dynamic changes.

Keywords: *Automation Testing, Model-Based Testing, TestOptimal, Extended Finite State Machine, Model Sequencer*