

Abstract

This research purposes using Model-Based Testing with the Markov Chain approach to address complexities in testing e-commerce applications. Due to the intricate architecture and interconnected functionalities of such applications, testing poses a significant challenge. The methodology employs the Priority Sequencer algorithm to achieve comprehensive coverage of user behaviors, enhancing testing efficiency, particularly in runtime. Results demonstrate that the Markov Chain approach achieved 100% coverage for states, transitions, and requirements in e-commerce applications. Testing generated all conceivable user behaviors within 1 minute and 48 seconds for the User Model and 5 minutes and 49 seconds for the Admin Model. Consistent coverage and runtime results suggest that the Markov Chain approach is an efficient testing methodology for e-commerce applications.

Keywords: E-Commerce Application, Markov Chain, Model-Based Testing, Complex Application