

Research on some testing techniques and tools. Application in automated testing of Web applications.

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Abstract: This thesis investigates selected software testing techniques and tools, with a specific focus on their application in the automated testing of web applications. The study begins by systematically analyzing fundamental testing methodologies, including black-box, white-box, and regression testing, to establish a theoretical foundation. Subsequently, it evaluates a range of contemporary automated testing tools, such as Selenium and Cypress, assessing their capabilities, limitations, and suitability for different web application architectures. The core of the research involves the design and implementation of a practical automated testing framework tailored for a real-world web application. Through a series of controlled experiments, the proposed framework is validated against key performance metrics, including test execution time, defect detection rate, and maintenance effort. The findings demonstrate that a strategic combination of specific techniques, such as data-driven and keyword-driven testing, significantly enhances the efficiency and reliability of the testing process. This research contributes a practical methodology for selecting and deploying automated testing solutions, offering valuable insights for both practitioners and researchers in the field of software quality assurance.

Keywords: Testing techniques, testing tools, automated testing, web application