

Reliability Evaluation of Web based Software

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Abstract

Web-based software has become an essential component of modern information systems, supporting applications in areas such as education, banking, healthcare, e-commerce, communication, and public services. As dependence on web-based applications continues to increase, ensuring their reliability is critical for maintaining consistent performance, user satisfaction, and service availability. This study focuses on the reliability evaluation of web-based software by examining its ability to operate correctly and continuously under specified conditions. The evaluation considers important factors such as availability, fault tolerance, response time, failure frequency, maintainability, scalability, and recovery capability. Various software testing and reliability assessment techniques can be applied to identify failures, performance limitations, security vulnerabilities, and other factors that may affect system dependability. Functional testing, load testing, stress testing, regression testing, and reliability testing provide useful information about system behaviour under normal and demanding conditions. Reliability metrics and statistical models can further assist in measuring failure rates and estimating the probability of successful operation over a specified period. The study emphasizes the importance of continuous monitoring and systematic testing throughout the software development and maintenance lifecycle. A reliable web-based system can improve user confidence, reduce service interruptions, and support effective business operations. However, changing user demands, network conditions, security threats, software complexity, and third-party dependencies create challenges for maintaining reliability. Overall, systematic reliability evaluation provides a valuable framework for identifying weaknesses and improving the quality, stability, and dependability of web-based software systems.

Keywords: Web-Based Software, Software Reliability, Reliability Evaluation, Software Testing, Availability, Fault Tolerance, Performance, Maintainability, Scalability, System Dependability.