

REVIEW OF WEB TESTING

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ABSTRACT

The Web has a very significant impact on all aspect of our society. Our dependency on web has increasing day by day. So the quality of web application is very important for us. To ensure the quality of web application, Web testing is having a very important role in Software testing. There are various problems, which have to face with Web Testing. To solve these problems there are various Web Testing tools. The objective of this research paper is to focus on what is Web Testing, Why web testing is essential, what are the problems which have to face on Web Testing, Web testing techniques.

Keywords: Software Testing, Web Testing, Essential Elements Of Web Testing, Issues On Web Testing, Web Testing Techniques.

I INTRODUCTION

Software Testing is an area of Software Development where persistence is essential. "Testing is the process of executing a program with the intent of finding errors"...Glen Myres. A good testing program is a tool for the agency and the integrator/ supplier; it typically identifies the end of the "development" phase of the project, establishes the criteria for project acceptance, and establishes the start of the warranty period.

Software testing can be stated as the process of validating and verifying that a computer program/application/product:

- Meets the requirements that guided its design and development,
- Works as expected,
- Can be implemented with the same characteristics,
- And satisfies the needs of stakeholders.

A primary purpose of testing is to detect software failures so that defects may be discovered and corrected. Testing cannot establish that a product function properly under all condition but can only establish that it does not function improperly under specific conditions. The scope of software testing often includes examination of codes as well as execution of that code in various environments and conditions as well as examining the aspect of code: does it do what it is supposed to do what it needs to do.

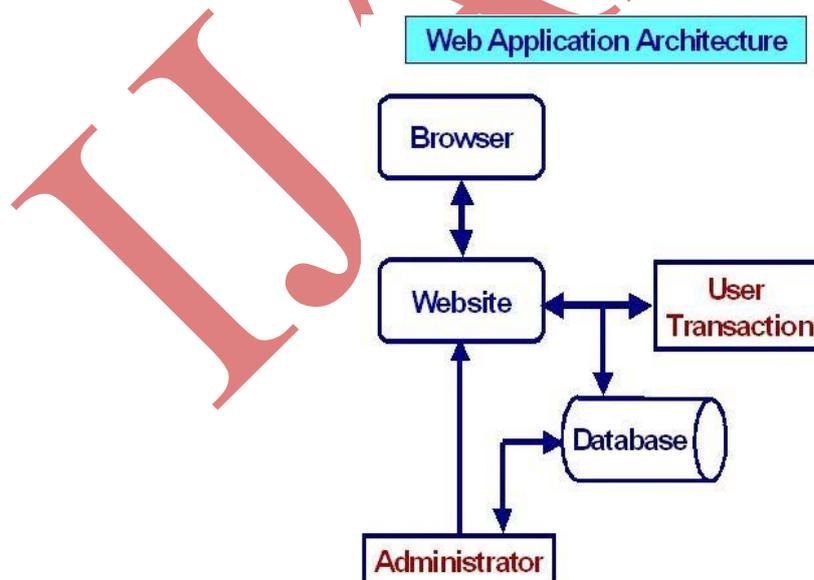
Testing is important because software reliability is defined using testing and approximately fifty percent of the budget for software project is spent on software testing. Today Web applications are being used to support a

number of activities like business transaction, scientific activities, medical systems such as expert system-based diagnoses. The main advantages of adopting the web is (1) no installation cost, (2) automatic upgrade with new features for all users, (3) Universal access from any machine connected to the Internet. Web applications have been deployed at fast pace and have helped in fast adoption but they have also decreased the quality of software. Hence web applications must be tested carefully. Testing methodologies used in web applications should be flexible, automatic and should be able to handle their dynamic nature. The main issue with web application is security because it has world wide access. Hence the main concern is how to protect our data so that no one could misuse it. Web testing is the name given to software testing that focuses on web applications. Complete testing of a web based system before going live can help address issues before the system is revealed to the public. Web application testing consists of the analysis of web fault compared to generic software faults.

II ESSENTIAL ELEMENTS OF WEB TESTING

Today our dependency upon web applications is increasing continuously. Everyone depends upon websites for business, education and trading purpose. There are various types of users who are connected to websites, so website should respond to users according to their requirements. At the same time correct behaviour of websites has become crucial to the success of businesses and organizations and thus should be tested thoroughly and carefully. Testing a website is not a very easy job because we not only have to test client side but also have to test server side.

The client end of the system is represented by a browser, which connects to the website server via the Internet. The centrepiece of all web applications is a relational database which stores dynamic contents. A transaction server controls the interactions between the database and other servers. The administration function handles the data updates and database administration.



According to above architecture we need to conduct the following tests to ensure the suitability of web applications.

1. What are the expected loads on the server and what kind of performance is required under such loads. This may include web server response time, database query response times.
2. What kind of browsers will be used?
3. What kinds of connection speeds will they have?
4. Are they intra-organization or Internet wide?
5. What kind of performance is expected on the client side?

III WE SHOULD BE READY TO ANSWER THE FOLLOWING QUESTIONS?

- ✓ Will down time for server and content maintenance/upgrades be allowed and how much?
- ✓ What kind of security will be required and what is it expected to do? How can it be tested?
- ✓ How reliable the Internet connections are? And how does that affect backup system or redundant connection requirements and testing?
- ✓ What processes will be required to manage updates to the website's content, and what are the requirements for maintaining, tracking and controlling page content, graphics, links etc?
- ✓ How will internal and external links be validated and updated? How often?
- ✓ How are CGI programs, Applets, Java scripts, ActiveX components to be maintained, controlled and tested?

IV WEB TESTING TECHNIQUES

There are various web testing techniques; which check the web application's browser compatibility, load testing, scalability testing, stress testing etc. Some of web testing techniques are listed below:

4.1 Functionality Testing: Functionality testing include test for all links in web pages, database connection, forms used in the web pages for submitting or getting information from user, cookie testing.

4.2 Usability Testing: Usability Testing include test for navigation, content checking, other user information for user help. Navigation means how the user surfs the web pages, different controls like buttons, boxes or how user using the links on the pages to surf different pages. Usability testing also includes that website should be easy to use. Instructions should be provided clearly. Check if the provided instructions are correct means they should satisfy the purpose. Main menu should be provided on each page.

Content checking includes that content should be logical and easy to understand. There should be no spelling error. Contents should be meaningful. Images should be placed properly with proper size. Other user information for user help includes search option, sitemap, help files etc. Sitemap should be present with all the links in websites with proper tree view of navigation.

4.3 Interface Testing: Interface testing checks all the interactions between Web server and application server interface, Application server and Database server interface are executed properly. Errors should be handled properly. If database or web server returns any error message for any query by application server should catch and display these error messages appropriately to users.

4.4 Compatibility Testing: Compatibility testing is very important for web testing. It checks browser Test application performance on different internet connection speed. In web testing test if many users are accessing or requesting the same page. Can system sustain in peak load times? It also test whether a page can handle heavy load on any specific page.

Web stress testing is performed to break the site by giving stress and checked how system reacts to stress and how system recover from crashes. In web performance testing web site functionality on different operating systems, different hardware platforms are checked for software, hardware, memory leakage errors compatibility, Operating system compatibility, mobile browsing and printing options.

4.5 Performance Testing: Web Performance testing should include Web Load Testing and Web Stress Testing.

4.6 Security Testing: Security testing checks the security of the web applications. Internal pages should not be open if person is not logged into the website. The files should only be given the option for downloading and it should not be accessed without downloading. CAPTCHA for automates scripts logins should be tested. SSL should be tested for security measures. After completing all the testing, a live testing is necessary for web applications. Then upload the site and complete testing should be done.

V CONCLUSION

The web has proven to be a powerful medium for delivering software services over the Internet. Due to this inherit distributed and flexibility, testing become a great challenge for web developers. In this paper we have discussed what web is testing, what are essential elements for web-testing like what kind of browser we will use, what should be the speed etc and various web testing techniques?

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