Functional Testing Of Institute Website Using Jmeter

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ABSTRACT

Software testing is the process used to measure the quality of developed computer software. It is a process of finding errors while executing a program so that we get a zero defect software. It exhibits all mistakes, errors and flaws in the developed software. Software testing means to cut errors, reduce maintenances and to short the cost of software development. In this paper, the most prevalent and commonly used software testing techniques for detecting errors are described they are: black box testing.

KEYWORDS: *Software testing, types of testing, functional testing.*

I. INTRODUCTION

Software testing has evolved since 1970's as an integral part of software development process. Through it, the final quality of the software can be improved by discovering errors and faults through interacting, checking behavior and evaluating the System Under Test (SUT) to check whether it operates as expected or not on a limited number of test cases with the aim of discovering errors that are found in the software and fixing them[1]. Ehmer Khan [2] shortly defines it as a set of activities conducted with the intent of finding errors in software. In addition, according to Ammann and Offutt [3] Software testing means evaluating software by observing its execution. Software testing given by Dijkastra "A process of executing a program with the goal of finding errors". [4]

Since software-testing process is a very expensive process, complete testing is practically impossible and it is not acceptable to reduce testing effort by accepting quality reductions. Testing effort is often a major cost factor during software development. Many software organizations are spending up to 40% of their resources on testing [5] Therefore, an existing open problem is how to reduce testing effort without affecting the quality level of the final software.

II. OBJECTIVE OF TESTING

The objective of testing is to find problems and fix them to improve quality. Software testing typically represents 40% of a software development budget.
There are four main objectives of software testing:

1 Demonstration:
It demonstrates functions under special conditions and shows that products are ready for integration or use.

2 Detection:
It discovers defects, errors and deficiencies. It determines system capabilities and limitations, quality of components, work products and the system.

3 Prevention:
It provides information to prevent or reduce the number of errors clarify system specifications and performance. Identify ways to avoid risk and problems in the future.

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4 Improving Quality:

By doing effective testing, we can minimize errors and hence improve the quality of software.[6]

III. TYPES OF TESTING

- Functional testing
- System testing
- Grey box testing

FUNCTIONAL TESTING:

Functional testing is also known as Behavior testing, is a software testing method in which internal structure / design / implementation of item being tested is not known to the tester. These tests can be functional or Nonfunctional through usually functional.In a black-box manual test execution environment, testers are not required to have specific knowledge of the application code structure [7].
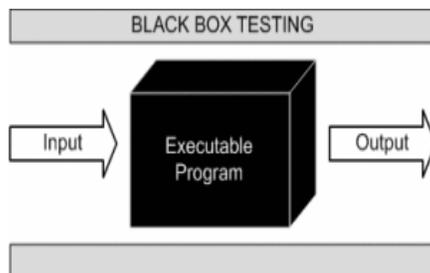
This method is so because software program in the eyes of the tester is like a black box; inside which one cannot see.This method attempts to find errors in the following categories:

- Incorrect or missing functions
- Interface errors
- Errors in data structures
- Behavior or performance errors
- Initialization and termination errors.[8]

Advantages

1. Testers need not to have knowledge on specific programming language.

2. Testing is done from user's point of view.
3. It helps to expose any ambiguities or inconsistencies in the requirement specifications.
4. Programmer and tester both are independent of each other.

Disadvantages
1. Test cases are hard to design without clear specifications.
2. Chances of having repetition of tests that are already done by programmer.
3. Some parts of back end are not tested at all [6].

IV. INTRODUCTION TO JMETER

- The **Apache JMeter**^{TM} is pure Java **open source** software, which was first developed by Stefano Mazzocchi of the Apache Software Foundation, designed to load test functional behavior and measure performance.
- You can use JMeter to analyze and measure the performance of web application or variety of services. Performance testing means testing a web application against heavy load, multiple and concurrent user traffic. JMeter originally is used for testing Web Application or FTP application.

Nowadays, it is used for functional test, database server test etc.[9]

JMeter Features

Following are some of the features of Jmeter:-

- Being an open source software, it is freely available.
- It has a simple and intuitive GUI.
- JMeter can conduct load and performance test for many different server types − Web - HTTP, HTTPS, SOAP, Database via JDBC, LDAP, JMS, Mail - POP3, etc.
- It is a platform-independent tool. On Linux/Unix, JMeter can be invoked by clicking on JMeter shell script. On Windows, it can be invoked by starting the jmeter.bat file.
- It has full Swing and lightweight component support (precompiled JAR uses packages javax.swing.*).
- JMeter store its test plans in XML format. This means you can generate a test plan using a text editor.
- Its full multi-threading framework allows concurrent sampling by many threads and simultaneous sampling of different functions by separate thread groups.[10]

V.CONCLUSION

In above discussion there are various type of testing. In this paper my focus is on black box testing.

There are many tools available to do the same however I will be using jmeter for being an open source technology.

I will be testing MRSSTU website.

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