

International Journal of Advance Research in Computer Science and Management Studies

Research Paper

Available online at: www.ijarcsms.com

Smoke Testing is the Root Testing of Further Testing in Software Application

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Abstract: *This paper introduces need of Smoke testing in software application, Smoke testing works as root testing for further detailed testing such as Unit testing or integration testing to find the blockers and major bugs.*

Keywords: *smoke test, Manual, Automatic, Test Cost, Major Bug and Blocker.*

I. INTRODUCTION

A Smoke test is a quick and dirty test which is specially for finding the major functionality bugs and blockers in the software program/System. A Smoke test is an ad-hoc test which can be performed manually or by using automated tools intended to uncover only serious, high severity bugs [1]. A collection of tests that can be applied to newly created or repaired computer program is called smoke test. Smoke test is the process of validating code changes are checked into the larger production official source code collection or the main branch of source code [2].

Need of Smoke Test

1. To verify the proper deployment of application.
2. To find the blockers or major bugs.
3. Work as validating test.
4. Act as driver for further testing.

Types of smoke testing

- 1) Manual Smoke Testing
- 2) Automation Smoke Testing

Manual Smoke Testing:- To ensure that the most crucial functions of a program are working, but not bothering with finer details, we conduct smoke testing, we check all links of processes in application manually to find the blockers and big failures of the application.

Automation Smoke Testing: Automation testing tools are used for smoke testing such as- Selenium, Cargo, TestNG and Maven are the automation testing tool.

In figure 1, **FAT** stands for Functional Acceptance Testing.

Bug Life Cycle: All raised bugs in smoke test should be tracked till closure before FAT.

Bug Log: Identify only the blockers and major bug type or any eye catching GUI bug, bug can be logged in excel sheet or in Bugzilla as the time points (Bugzilla is a tool which is used to log the bugs).

Ramp up Training: Identify the concerned people for ramp up training, understand the business workflow. Perform the ramp up training in test environment as this will also check the stability of the application enough to perform system testing.

This **figure 1** shows that smoke test works as driver for further testing. To improve the quality of the application smoke test is performed.

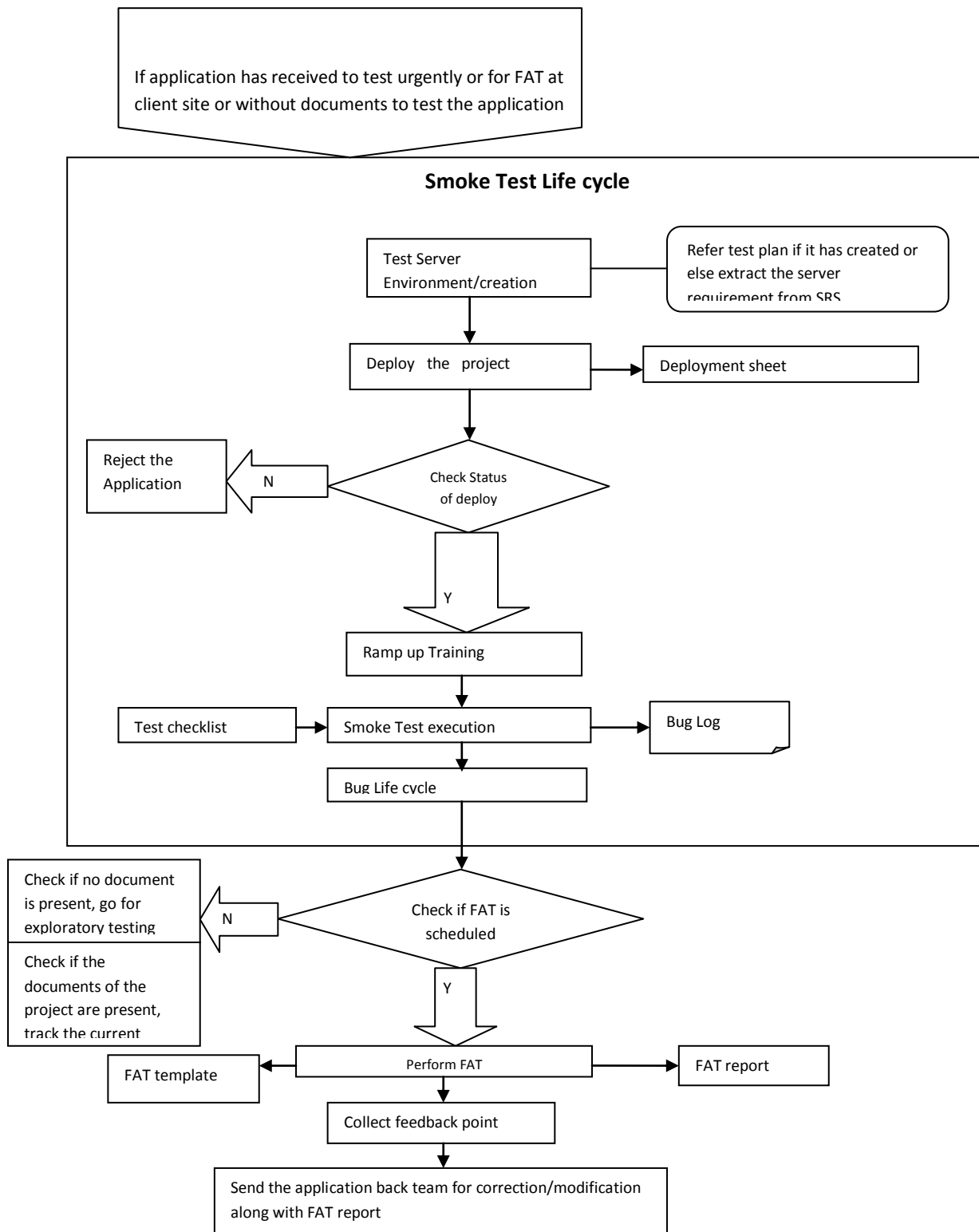


Figure 1: Smoke Test Life Cycle

II. IMPORTANCE OF SMOKE TESTING IN SOFTWARE APPLICATION

Smoke test is used to find breakdowns, blockers and major functionality bugs. But if we do not use the smoke test and direct apply the detailed testing and blockers are found so that the cost and time is wasted, because detailed testing is very costly in comparison of smoke testing.

If we want to apply unit testing, firstly we have to prepare all testing environment to do a testing.

Software testing life cycle:

Requirement/ Design Review

Test Planning

Test Designing

Test Environment Setup

Test Execution

Test Reporting

Total cost of testing = test effort cost + test infrastructure cost

If we do not apply smoke testing firstly and direct apply unit testing then we get blockers and major functionality bugs then **Test effort cost and Test infrastructure cost is wasted.**

But smoke test does not require a detailed planning because smoke testing is simply an ad-hoc testing of checking that the URL of application, login page of application and all links of application are working or not, in quick manner, if we get the blockers and major bugs then no need to go for unit testing and further detailed testing.

If there is an error in requirement and design phase then cost is minimum to handle the error because of documentation, we have to change only in documentation.

Testing is 8 times costly of previous stages because there are two precious parameters Cost and Time.

Cost consists cost of the testers, the equipment, systems, software and other tools which is required to run tests and test suite.

Time required to conduct test setup and cleanup activities must also be considered. Setup and cleanup activities can be estimated as part of the time required to run a test or as separate items [3].

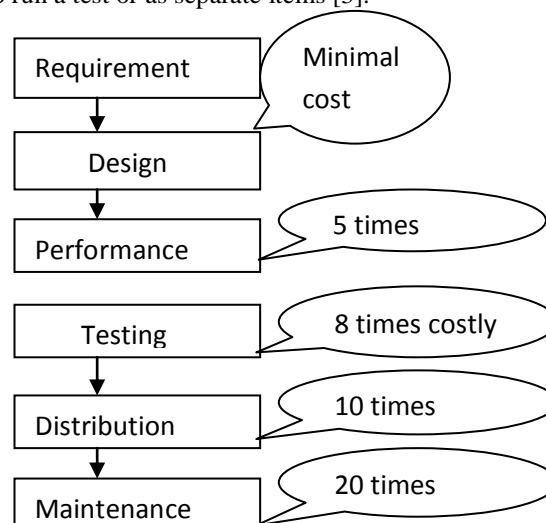


Figure 2: it shows how an error is costly as the stages move forward

III. CONCLUSION

Smoke test is used to help in exposing and major problems early in the cycle. It uncovers problems early. Smoke test is used to decide whether to proceed with further testing; if t smoke test is not applied and application is badly broken, detailed testing might be a waste of time and effort[4].

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