IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 7.39 ⁜ Vol. 11, Issue 5, May 2022

DOI: 10.17148/IJARCCE.2022.11587

Software Testing Techniques: Manual Testing

Satish Kale[1], Sandeep Shinde[2]

Lecturer, Department Of Information Technology, BVIT Navi Mumbai, Thane, India[1]

Lecturer, Department Of Information Technology, BVIT Navi Mumbai, Thane, India[2]

Abstract: Software is inseparable part of society from households to spacecraft. It is essential part of any electronic device. That's because software development has exciting career. However it has many challenges. Software is complex and also requires quality in it. Customer's awareness about quality in software product increases workload and responsibility of the software development team. That is because testing has gained so much popularity. Testing is important segment of software development team.

Keywords: Software Testing, STLC, Types of Testing, Manual Testing.

I. INTRODUCTION

Software Testing is a strategy to check whether the actual software matches anticipated prerequisites and to guarantee that software is without defect. It includes execution of software/modules utilizing manual or automated tools to assess at least one properties of interest. The purpose of software testing is to identify errors, gaps or missing requirements against actual requirements.

Software testing is significant since, in such a case that there are any bugs or defects in the product, they can be recognized early and fixed before the product item is delivered to clients. An appropriately tested programming item guarantees trustworthiness, security, and superior execution, which prompts time reserve funds, cost viability, and consumer loyalty.

Here are the benefits of using software testing:

- **Cost-effective**: Testing any software project on time assists you with setting aside your money as long as possible. On the off chance that assuming the bugs trapped in the early phase of software testing, it costs less to fix.
- **Security:** Individuals are searching for secured in items. It helps in eliminating dangers and issues prior.
- **Product quality:** It is a fundamental prerequisite of any product item. Testing guarantees a quality item is delivered to clients.
- **Consumer loyalty:** The principal point of any item is to give fulfillment to their clients. UI/UX Testing guarantees the best client experience.

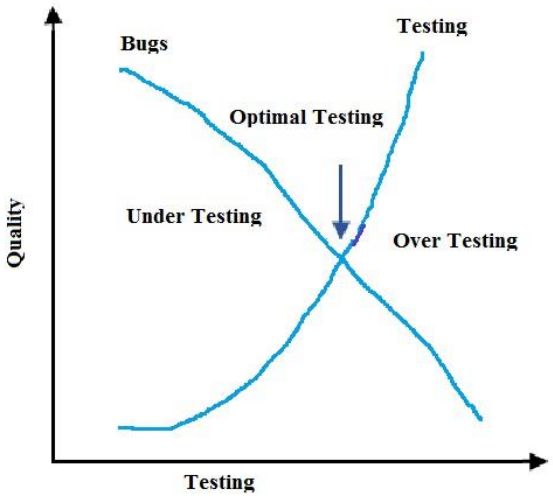

Fig-1: Quality vs Amount of Testing

IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 7.39 ⁜ Vol. 11, Issue 5, May 2022

DOI: 10.17148/IJARCCE.2022.11587

Figure 1 shows the relationship between testing cost and bugs. It shows that cost of software increases if amount of testing increases. According to fig-1, Software testing is a significant part of software quality confirmation. The significance of testing can be considered from life-basic programming testing which can be exceptionally costly.

II. SOFTWARE TESTING LIFE CYCLE (STLC)

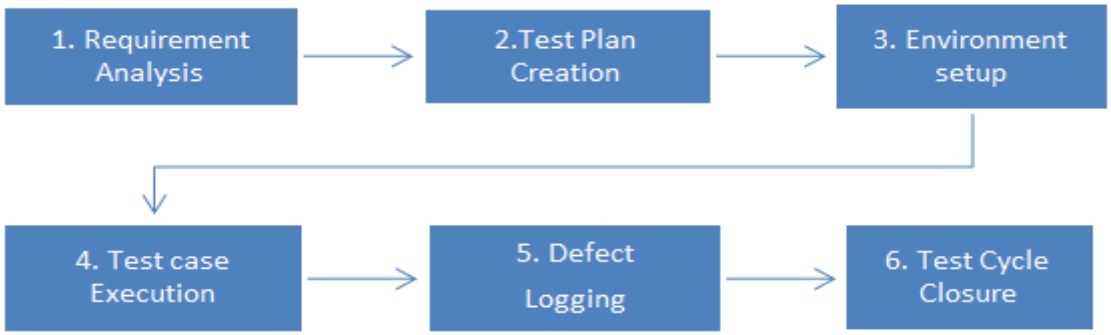

Fig-2: Software Testing Life Cycle (STLC)

1. Requirement Analysis:
In this stage, tester examinations requirements expressed by the client. Subsequent to inspecting the requirements, the tester makes a test plan to check regardless of whether the product is meeting the necessities.

2. Test Plan Creation:
In this stage all the testing strategies are characterized. Tester decides the assessed effort and cost of the whole project. Test case execution can be begun after the effective finish of Test Plan Creation.

3. Environment setup:
Environment setup requires a gathering of fundamental software and hardware to establish a test environment. The testing group isn't engaged with setting up the testing climate, senior engineers make it.

4. Test case Execution:
In this stage, the testing group begins case development and execution action. The testing group records the detailed test cases, likewise readies the test information whenever required. The pre-arranged test cases are investigated by peer individuals from the group or Quality Assurance pioneer.
RTM (Requirement Traceability Matrix) is additionally ready in this stage. Necessity Traceability Matrix is industry level organization, utilized for following prerequisites.

5. Defect Logging:
This stage decides the attributes and disadvantages of the product. Test cases and bug reports are broke down inside and out to distinguish the sort of defect and its seriousness. Defect logging investigation principally attempts to figure out deformity circulation relying on seriousness and types. In the event that any defect is distinguished, the product is gotten back to the improvement group to fix the imperfection, then, at that point, the product is re-tested on all parts of the testing. When the test cycle is completely finished then test closure report, and test metrics are ready.

6. Test Cycle Closure:
The test cycle closure report incorporates all the documentation connected with software design, development, testing results, and defect reports.This stage assesses the system of advancement, testing strategy, possible defects to involve these practices from now on assuming that there is software with a similar detail.

IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 7.39 ⁜ Vol. 11, Issue 5, May 2022

DOI: 10.17148/IJARCCE.2022.11587

III. EXISTING SOFTWARE TESTING METHODS

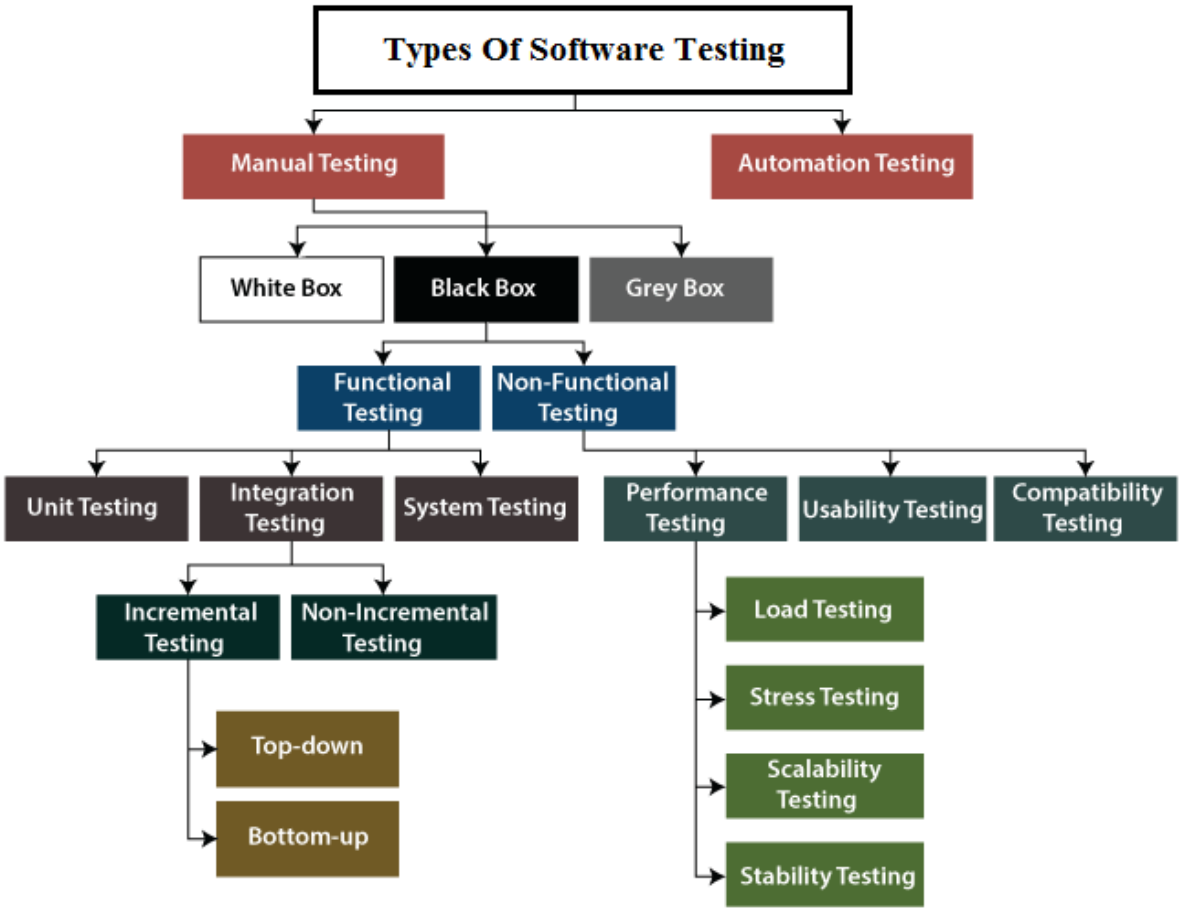

Fig-3: Types Of Software Testing

The software testing mainly divided into two parts: Manual Testing and Automation Testing.

Manual Testing: Testing of any software or an application according to the client's requirements without using any automation tool is known as manual testing. It doesn't require any use of automation tools or its prior knowledge. It is again classified into three types: White Box, Black Box and Grey Box.

A. White Box Testing

In white-box testing, the developer will review each line of code prior to giving it over to the testing group or the concerned test engineers.

B. Black Box Testing

In black-box testing, the test designer will examine the software against requirements, recognize the defects or bug, and sends it back to the development group.

C. Grey Box Testing

In Grey box testing, it's a combination of black box and white box testing. Since, the grey box testing incorporates admittance to inside coding for planning experiments. Grey box testing is performed by an individual who knows coding as well as testing.

International Journal of Advanced Research in Computer and Communication Engineering
Impact Factor 7.39 ⁜ Vol. 11, Issue 5, May 2022
DOI: 10.17148/IJARCCE.2022.11587

IV. CONCLUSION AND FUTURE WORK

Testing is the most basic piece of the Software Improvement Lifecycle, as it is something whereupon the last conveyance of the item is reliant. It is tedious and a serious cycle, thusly, improved methods and inventive procedures are essential. This makes Automated Testing and other different Test Metrics execution previously and during the testing process. It can improve the current testing strategies, both for time adequacy as well with respect to productive and solid last item which meets the predefined necessities as well as likewise furnishes with most extreme functional proficiency.

REFERENCES

[1]. P. Ron. Software testing. Vol. 2. Indianapolis: Sam's, 2001.
[2]. S. Amland, "Risk-based testing:" Journal of Systems and Software, vol. 53, no. 3, pp. 287–295, Sep. 2000.
[3]. Redmill and Felix, "Theory and Practice of Risk-based Testing", Software Testing, Verification and Reliability, Vol. 15, No. 1, March 2005.
[4]. B. Agarwal et al., "Software engineering and testing". Jones & Bartlett Learning, 2010.
[5]. K. Bogdan. "Automated software test data generation". Software Engineering, IEEE Transactions on 16.8 (1990): 870-879.
[6]. [6] Jacobson et al. The unified software development process. Vol. 1. Reading: Addison-Wesley, 1999.
[7]. Everett et al., "Software testing: testing across the entire software development life cycle". John Wiley & Sons, 2007.
[8]. J.Irena. "Software Testing Methods and Techniques", 2008, pp. 30-35.
[9]. Guide to the Software Engineering Body of Knowledge, Swebok, A project of the IEEE Computer Society Professional Practices Committee, 2004.
[10]. E. F. Miller, "Introduction to Software Testing Technology", Software Testing & Validation Techniques, IEEE, 1981, pp. 4-16
[11]. M. Shaw, "Prospects for an engineering discipline of software," IEEE Software, November 1990, pp.15-24
[12]. D. Nicola et al. "A grey-box approach to the functional testing of complex automatic train protection systems." Dependable Computing-EDCC 5. Springer Berlin Heidelberg, 2005. 305-317.