OPEN ACCESS INTERNATIONAL JOURNAL OF SCIENCE & ENGINEERING

A SURVEY ON STLC: NEW TESTING TECHNIQUES IN SMART VOTING SYSTEM

Sagar Bhor[1], Swapnil Randhave[2], Vaibhav Thakare[3], Sushant Nanaware[4] Dr. Ayesha Butalia[5]

PG Student, Department of Computer Science and Engineering, PGMCOE Engineering College, Pune, India[1 2 3 4]

Phd.DR, Department of Computer Science and Engineering, PGMCOE Engineering College, Pune, India[5]

Sagarbhor70@gmail.com, swpnlrandhave@gmail.com, vaibhav.vat@gmail.com, sushant2328@gmail.com

ayeshabutalia@yahoo.co.in[5]

Abstract: **Software testing is imperative to error mistakes, support and general software costs. Improving of software in a base measure of time. This paper gives the brief introduction about Software testing and various techniques are used into a smart voting system. The main goal of this paper is to analyze new testing techniques in brief including its User Acceptance Testing, Install/Uninstall Testing, End-to-End Testing, Back-end Testing and Recovery Testing discuss about the process in detail. The various techniques of testing are also analyzed into a project or industrial area. They are the following Risk and the following old Techniques: Unit Testing, Integration Testing, Regression Testing, Security Testing and Automation Testing.**

Keywords – *Software testing, testing techniques, (STLC): Software Testing Life Cycle, unit testing, regression testing, integration testing, automated testing and Security testing .*

-- ∴∴∴ --

I INTRODUCTION

The software development and testing firms to know about the latest **Software Testing trends of 2018.** Software testing is a process or a series of processes designed to verify computer code does what it was designed to do. In this various testing are update late we study about new testing techniques are used into a smart voting system. In smart voting we used new techniques for reduce cost and maintains the system. Associations and analyzers propose giving 50%-60% of their assets (time furthermore, spending plan) on testing. It saves time and is cost-effective. To achieve maximum profit with good quality product, within the limitations of time and money. This information derived from software testing may be used to correct the process by which system are developed or developing. Tests are formal procedures, Inputs must be prepared, Outcomes should predicted, tests should be documented, commands need to be executed, and results are to be observed.

Software Testing Life Cycle (STLC)

A Software Testing Life Cycle (STLC) is a development forced on the advancement of a product item. It is every now and again considered a subset of frameworks improvement life cycle. Following steps are involved in Software Testing Life Cycle (STLC). Each step is having its own Entry Criteria and deliverable.
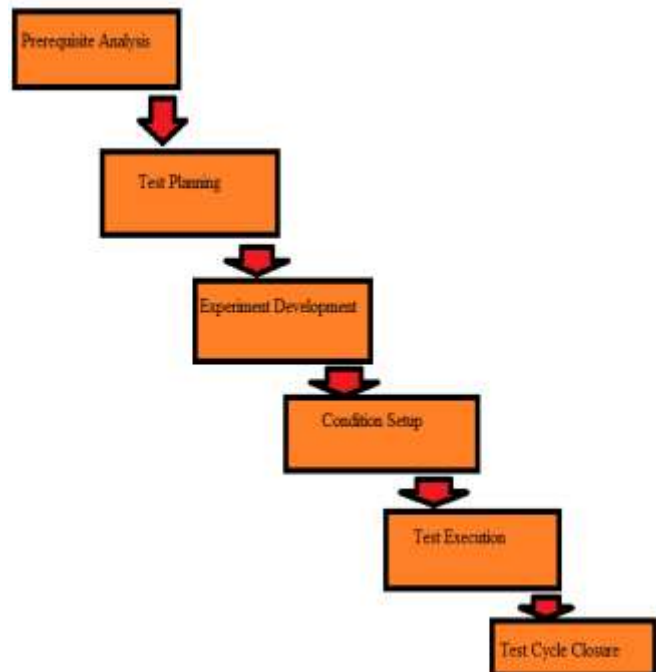

Figure 1:- Software Testing Life cycle (STLC)

- Prerequisite Analysis
- Test Planning
- Experiment Development
- Condition Setup
- Test Execution
- Test Cycle Closure

Now a day, people are coming very closer to each other. They want to learn many new things in various fields. This system provides them a complete platform to manage and view all academic functionality from different users. Test cases are plotted considering the categories and correct functionality of various parts of the code is ensured.

II LITERATURE SURVEY AND SOFTWARE TESTING TECHNIQUES

A. Software testing

Software testing means to find out error or faults in a system and to make it correct, complete and to identify its quality. Software testing is used to detect the bugs in the system. Software testing is different from software development. It is part of software development. It is an internal part of software development and closely related to software quality. The main aim of software testing is to make the system error free. So software testing is mainly to find outs the error or bugs to improve the quality of the system. In our project we checks whether the expected results match with the another results. It is the last stage of the machine before deliver to the user. There are different new techniques of software testing are available to find out the defects in a software. These testing are as following are:

1) User Acceptance Testing (UAT) :

UAT stands for User Acceptance Testing. The principle motivation behind this testing is to approve the conclusion to end business stream. It doesn't concentrate on the corrective error, Spelling errors or System testing. This testing is completed in discrete testing condition with generation like information setup. It is a sort of discovery testing where at least two end clients will be included. Some Important points of UAT:
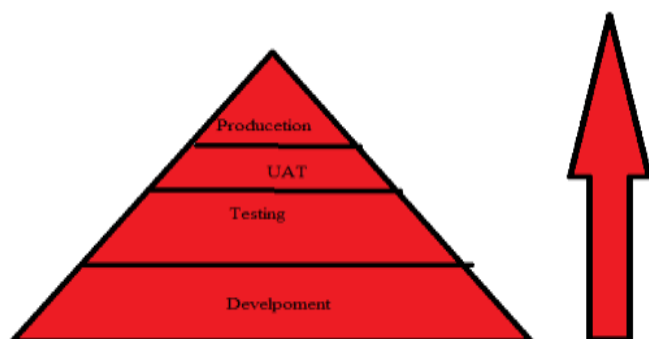

Figure 2 :- User Acceptance Testing (UAT)

- Most of the circumstances in a regular software creating situations, UAT is done in the QA condition. On the off chance that there is no organizing or UAT condition.
- UAT is arranged into Beta and Alpha testing however it isn't so essential when software is developed for an service based industry.
- UAT bodes well when the client is included to a greater extent.

Quality assurance work that spotlights on what clients should do to introduce and set up the new programming effectively. It may include full, partial or upgrades install/uninstall forms and is typically done by the product testing engineer in conjunction with the setup director.

2) End-to-End Testing

It checks the complete end-to-end process flow into Evm machine to server. Like framework testing, includes testing of an entire application condition in a circumstance that true utilize, for example, collaborating with a database, utilizing system correspondences, or interfacing with other equipment, applications, or frameworks if fitting. It is performed by QA groups.

3) Back-end Testing

At back-end we are testing the code of different models and database system. whatever an input or data is entered on front-end application, it stores in the database and the testing of such database is known as Database Testing or Back-end testing. There are distinctive databases like SQL Server, MySQL, and Oracle and so on. Database testing includes testing table structure, schema, stored procedure, data structure and so on.

4) Recovery Testing

It is a type of testing which validates that how well the application or system recovers from accidents. Recovery testing determines if the system is able to continue the operation after a disaster. Expect that application is receiving data through the network cable and suddenly that network cable has been unplugged. Sometime later, plug the network cable; then the system should start receiving data from where it lost the connection due to network cable unplugged. That is why we are using the recovery testing into a smart voting.

There are different old techniques of software testing are available to find out the defects in a software. These testing are as following are:

A. Unit Testing:-

This testing individual components and modules are tested to ensure that they operate correctly. The littlest testable part (i.e. techniques, interfaces, capacities and classes) of an application is known as unit. In the project we are As soon as the first module is ready unit testing is performed by the developer so that the upcoming risks,

excess time and cost required is saved. The littlest testable parts of an application, called units, are separately and freely examined for appropriate operation. Unit testing should be possible physically however is regularly computerized. Different unit testing techniques are the following :-

- Module Interface test
- Local data structures
- Boundary conditions
- Independent paths
- Error handling paths

Advantages:-

- This testing is performed by application engineer.
- It is extremely financially savvy.
- To accomplish abnormal state structure of code.
- It makes it simple to test some portion of framework without sitting tight for the accessibility of different parts.
- Less cost required to identify and expel blunder.
- On account of testing little units of code zone it is
- Basic procedure.

Disadvantages:-

- Utilizing unit testing it is hard to get each bug in the program. Since unit are tried independently.
- It is tedious.
- Utilizing this framework and coordination blunders might be missed.
- Composing great experiments are excessively troublesome.
- On account of errors done by engineer impact the general framework.

B. Integration Testing:-

The system as a whole is tested here. The system is said to be operating correctly if it passes these tests. After the different modules have been individually tested, we have to integrate them and tackle the issues during the integration. To consolidate programming module and to test them as gathering is known as integration testing. There are three types integration testing:-

- Top-down integration testing
- Bottom-up integration testing
- Approaches in integration testing

Different system testing techniques are the following :-

- Recovery testing
- Security Testing
- Graphical user interface testing
- Compatibility testing

Advantages:-

- Testing depends on already tried modules/units.
- Modules are independently tried.

- Testing is finished by coordinating already tried modules.

Disadvantages:-

- Hard to investigate blunders.
- Clients have no entrance to application until the point that late being developed cycle.
- Much disposable coding is required.

C. Regression testing:-

In particular, it tries to reveal programming regressions, as debased or lost highlights, including old bugs that have returned. Such regressions happen at whatever point programming usefulness that was already working effectively, quits functioning as expected. Ordinarily, relapses happen as a unintended result of program changes, when the recently grew piece of the product crashes into the already existing code. Normal strategies for regressions testing incorporate re-running past arrangements of experiments and checking whether beforehand settled issues have re-risen. During regression testing, new software bugs or regressions may be uncovered. These areas may include functional and non-functional areas of the system. Different Regressions testing techniques are the following:-

- Retest all
- Regression test selection
- Test case prioritization
- Hybrid

D. Automated testing:-

Automation has been accomplished by different means including mechanical, pressure driven, pneumatic, electrical, electronic gadgets and PCs, as a rule in blend. Automation can be characterized as the innovation by which a procedure or strategy is performed without human help. The utilization of different control frameworks for working gear, for example, apparatus, forms in manufacturing plants, boilers and warmth treating stoves, exchanging on phone systems, guiding and adjustment of boats, air ship and different applications and vehicles with negligible or diminished human mediation, with a few procedures have been totally robotized .

Advantages:-

- Expanded throughput or profitability.
- Enhanced quality or expanded consistency of value.
- Enhanced vigor (consistency), of procedures or item.
- Expanded consistency of yield.
- Lessened direct human work expenses and costs.

Disadvantages:-

- Security Threats/Vulnerability.
- Erratic/exorbitant improvement costs.
- High introductory cost.

E.Security testing:-

This testing is done to confirm that the software allow only authentication and authorized users to access and use the system. In our project most importation testing is doing in a Security testing is a procedure expected to uncover defects in the security instruments of a data framework that ensure information and keep up usefulness as planned. Different Security testing techniques are the following:-

- Authentication
- Authorization
- Availability
- Non-repudiation

III RESULT

Table 1: - New Testing Techniques

Overall review New Testing Techniques				
	Testing Environment	Effective (fault detection)	Size of test pool	Testing technique
User Acceptance Testing	White box	More effective	Small	Validation
Install/Uninstall Testing	Black box	Most effective	Large	Code based
Back-end Testing	Black box	Less effective	Medium	Code based
End-to-End Testing	White box	Less effective	Small	Specification based
Recovery Testing	Black box	More effective	Medium	Code based

Table 2:- Types of old Testing Technique

	Unit testing	Integration Testing	Regression testing	Automation testing
Functional Testing	Yes	Yes	Yes	Yes
Document Testing	Yes	Yes	Yes	Yes
User Interface Testing	No	No	Yes	Yes
Usability Testing	No	No	Yes	Yes
Installation Testing	No	No	Yes	Yes
Security Testing	No	Yes	Yes	Yes
Performance Testing	Yes	Yes	Yes	Yes

The best testing is security testing and integration testing by checking various testing integration testing is most often the final test to verify that the system to be delivered meets the specification and its purpose.

IV CONCLUSION

The above-mentioned testing types are just a part of new and old testing. So I have covered some common Types of Software Testing which are mostly used in the testing life cycle. Also these testing types, processes, and implementation new techniques methods keep changing as and when the project, requirements, and scope changes. In further to this paper we possible to doing on new testing techniques like cloud testing, digital testing and big data testing and also compare between of them.

ACKNOWLEDGMENT

REFERENCES

[1] Syed Roohullah Jan1, Syed Tauhid Ullah Shah1. "An Innovative Approach to Investigate Various Software Testing Techniques and Strategies," *International Journal of Scientific Research in Science, Engineering and Technology* IJSRSET1622210| Received: 31March 2016| Accepted: 09 April2016| March-April2016 [(2)2: 682-689].

[2] Itti Hooda and Raj ender Singh Chhillar. 2015. "Software Test Process, Testing Types and Techniques," *International Journal of Computer Applications* (0975 – 8887) Volume 111 – No 13, February 2015.

[3] Software Testing from Wikipedia available at https://en.wikipedia.org/wiki/Software_testing.

[4] http://istqbexamcertification.com/what-is-smoke-testing-when-to-use-it-advantages-and-disadvantages-2/.

[5] New software Testing fro available at http://www.softwaretestingstudio.com/latest-trends-software-testing-2017.

[6] Alexandre Métrailler and Thibault Estier" EVOLIS Framework: a Method to Study Information Systems Evolution Records," *Proceedings of the IEEE*, vol-978-1-4799-2504-9/14©2014IEEE DOI 10.1109/HICSS.2014.472.

[7] Manpreet Kaur1 and Rupinder Singh "A Review of Software Testing Techniques," International Journal of Electronic and Electrical Engineering. ISSN 0974-2174, Volume 7, Number 5 (2014), pp. 463-474.

[8] R.S. Pressman & teal, "Software Engineering A Practitioner's Approach" 6/e; Chapter 14: Software Testing Techniques, 2005

[9] Mohd. Ehmer Khan, "Different Approaches to Black Box Testing Technique for Finding Errors," IJSEA, Vol. 2, No. 4, pp 31-40, October 2011

[10] Nidhra, Srinivas, and Jagruthi Dondeti. "Black box and white box testing techniques- A Literature." International Journal of Embedded Systems & Applications 2.2 (2012).

[11] Pressman, R.S. 1997. Software Engineering: A practitioner Approach.4th Edition. Tata McGraw Hill.

[12] Sommerville, I. 1998. Software Engineering. 5th edition. Addison-Wesley.

[13] G.McGraw.2004.Software SecurityTesting .IEEE Security and Privacy.2,2(Sept/Oct 2004),(80-83).

[14] D,Verndon. G.McGraw.2004.Risk Analysis in software Design. IEEE Security and Privacy.2,4.32-37 (July/August 2004).