

# New Ways: Engage Software Testers Early in Software Development Life Cycle

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## ABSTRACT

Whatever be the development model used by the Software companies, Software Testing is most essential in every model. Some models are used software testing in lateral stage and some models uses this technique at early stage depends on the company's policies and the duration they have. If testing phase is used early, we have the number of benefits. So this paper mostly focuses on the various ways to see the software testers early and gain large number of benefits. While considering different ways, Advantages and disadvantage are also taken in to consideration.

## Keywords

Software Development Life Cycle (SDLC), Software Testing (ST), Bug, Unit Testing.

## 1. INTRODUCTION

There are so many models used for the software development. Of course different models used different strategy to achieve goals. Software Testing is a serious field used in all models with some less or more intensively. This paper considered a new way to see software tester early. For that to achieve following terms mentioned.

Focuses on main three terms

- 1) More Emphasis on Analyst should be a tester.
- 2) Unit Testing is done by tester rather than developer.
- 3) User training should be given by testers.

Mostly up till now in software development, Analyst is a person who does all kind of analysis, and then considers a design, development and testing phase. But if it is possible to used a Specialist tester as an analyst if it's applied so many problems can solve at the same level. We also consider two more things for using tester early so that the percentage of finding bus will be less and the quality of end product should be improved. This paper is organized in the following way next focuses on prior work (Literature Review), all important new ways, advantages and disadvantage depends on new ways, Conclusion, Acknowledgement, and finally with the all important References.

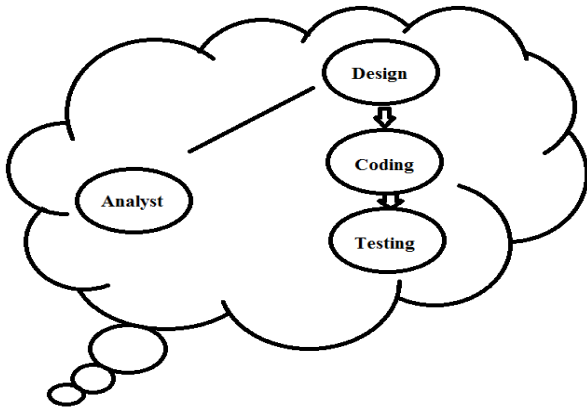
## 2. LITERATURE REVIEW

In this paper, author concentrate on the Goal Tree Success Tree and Master Logic Diagram (GTST-MLD) is proposed to model software development life cycle to ensure software quality based on meeting the criteria for high integrity safety systems. And focus on (1) show how a local change affects

other phases of development; (2) GTST-MLD hierarchically represent software development life cycle so as to identify missing and incomplete requirements; (3) it is easy to automate on computers, to expand and update[1]. Next paper mentioned about selection of an SDLC is critical and cannot be improvised or influenced by industry trends. A SDLC selection and adoption process is needed so that organizations maximize their chances to deliver their software successfully. Selecting and adopting the right SDLC is a management decision with long term implications. Thus this Graph SDLC is providing one of the best approaches to develop software without having any defects and interaction with each other phase in the model. The final and major goal of this model is to achieve error free/defect free software as outcome [2]. This paper is about the strategic test planning and mentioned most common problems when you don't have a test plan and related solution is also provided [3]. Next reference is about the Agile projects are in fact an excellent opportunity for QA to take leadership of the agile processes; who else is better placed to bridge the gap between users and developers, understand both what is required, how it can be achieved and how it can be assured prior to deployment? QA should have a vested interest in both —the howl and —the resultl, as well as continuing to ensure that the whole evolving system meets the business objectives and is fit for purpose [4]. Next author concentrate on the core of software testing strategies mainly lies with unit testing, regarding the process of unit testing, its importance, and the problems faced by Developers in performing unit tests [5]. **Mark L. Gillenson, PhD, CCP, October 16, 2006 [6].** The University of Memphis Research Proposal."Engaging Testers Earlier in the SDLC", have the following views: We believe that software development is fertile ground for the use of cross-functional teams, with testers being integral members of those teams at all stages of development. An additional contribution will be testers seeing themselves as stakeholders in the quality of the finished applications by virtue of their work throughout the SDLC. This will lead to the further development of systems testing as a recognized and respected specialty within information systems organizations. Finding and fixing these problems early (i.e. at the requirements or design phase) will reduce the overall risk and cost of the product [7]

## 3. NEW WAYS

1) "More Emphasis on Analyst should be a Tester": Software Companies rely mostly on the customers as any company wanted to do, but beside that final outcome is also an important one.

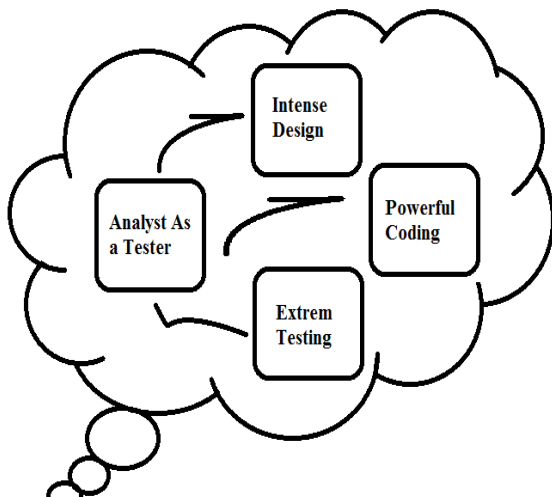


**Fig. 1 Usual Steps of SDLC**

In the above diagram (See Fig. No.1) if SDLC is considered, then as well software companies start with the Customer requirements. After considering requirements the analysis phase starts. Since who do the analysis is also an important issue to consider. No doubt the analyst is one who has a lot of experience, the structured document is then pass to the design phase where design is created under analyst observation. In the same way all two i.e. coding and testing based on the software takes place. This is the most obvious way to obtain the product.

2) But looking this portion in a different way if considered a analyst as not only a experienced person but who have a little knowledge of testing field then lot of positives coming from this

Structure. and since tester is considered as a Advocate of the customer who understand the customer well and always think about the customer first, will rethink about the model and try to find the new way to produced a quality output by achieving the model.

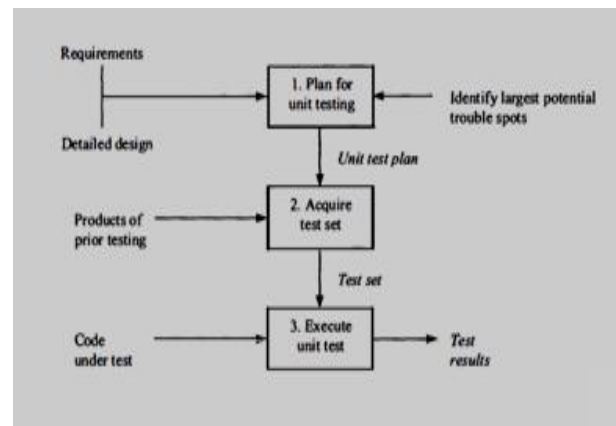


**Fig 2: If Analyst is a Tester**

In the above model (See Fig. No. 2) after successful completion of user requirement, analysis phase is considered with basic knowledge of testing or somewhat interest in testing. So that the next remaining phases looks like much improved one in the form of intense design, powerful coding, and finally come up with extreme testing. Since all the mindset of analyst is not to monitor the phases but at each phases try to correct if the same is involved with error or bug. So that after every phase more quality output produced.

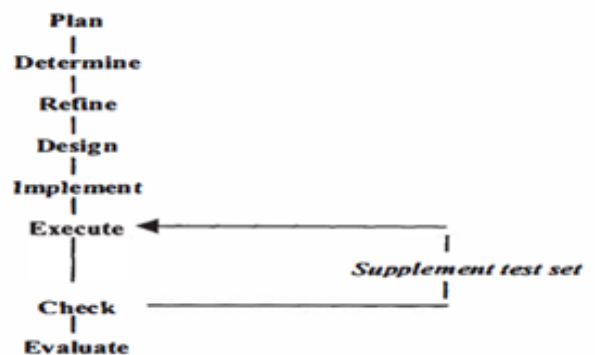
2) Unit Testing is done by Tester rather than Developer.: In many software companies one sentence is follow about the unit testing. “Unit testing is crime” Since unit testing is mostly done by software developer and not by software tester. But by nature software developer are good in development and not have much knowledge about the testing field. So they mostly concentrate on development and less on testing. This is a general tendency of human what we like most do 100%, but other things not do 100%. So that this time the system on which software developers works on unit testing is not approximately bug free. Beautiful saying from the famous person. Bill Gates agrees with the importance of software testing, saying, “[At Microsoft,] we have as many testers as we have developers. And testers spend all their time testing, and developers spend half their time testing.

So for the same reason if we used software tester to do unit testing then many bugs or errors will be minimized in the same module and finally what we get is quality software. Following figure.3 indicates the roadmap for unit testing.



**Fig.3 – Road map for unit testing adopted from Reference [5]**

The description of above figure is first considering the requirements from user planning for unit testing is done. Where try to find out the trouble spot in the same coding. Secondly try to acquire the test set and finally collect the entire test set and able to execute the same. So that the entire individual portion must be correct at that instant. Following figure.4 indicates the unit testing activity. Where all the phases are defined in proper sequence.



**Fig.4 – Unit Testing Activity adopted from Reference [5]**

3) User training should be provided by testers: In many software companies starting from small to large after installation of desired software the user training is provided by software developer. But if the first way is adopt in software companies then tester must know all the starting as well as all

the detailed requirements from user. So tester might be a proper person to assign training work. If any bug is still found in the software, software tester is able to convince the developer as well as customer and correct at that point.

If the same bug is found and if the developer is assign to do training then by natural tendency of developer he/she might neglect the same mentioned bug. So for quality software and try to fulfilled all the requirements of the users , Using software tester is a good practice for providing training rather than go for the Software developer to do same kind of work.

\*Advantages of using the above mentioned ways

@ If used tester as an analyst bug finds at early stage.

@ User documentation could be generated in proper format.

@ Design, Coding and testing phases must improve with the introduction of the tester early.

@ Apply all changes mentioned above reduces costing of the project and maintenance phase as well.

\*Disadvantage of using the above mentioned ways

The effectiveness of this approach is highly correlated with the quality of the testing activities. An experienced tester can be quite effective, but an in-experienced tester can miss many important issues.

#### 4. CONCLUSION

This paper relay on new technique, if so adopted by software companies large change will see in near future. Since now customers are being advanced not only in technological term but also to software product as well. For matching this, software companies are also need to advance in their approach. For this to happen if companies try to engage software tester early in software development it's good for the product in terms of software quality, project costing, and also reduced essential phases.

This paper describes three techniques to achieve the same. In software development unit testing is most important since unit testing depends on small code. And if small code is correct then we don't need to worry about the major upcoming portion. So related roadmap and activity about unit testing is also depicted in this paper. Ending the paper with some advantages and disadvantage

#### 5. ACKNOWLEDGMENT

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