

## 5) Defect Management

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Date

5.1

Introduction :-

Defect classification :-

There are various ways to classify a defect and following are the major classifications.

\* Severity wise :-

- Major :- A defect, which will cause an observable product failure or departure from requirements.

- Minor :- A defect that will not cause a failure in execution of the product.

- Fatal :- A defect that will cause the system to crash or close abruptly or effect other applications.

\* Work product wise :-

- SSD :- A defect from System Study Document.

- FSD :- A defect from Functional Specification Document.

- ADD :- A defect from Architectural Design Document.

- DDD :- A defect from Detailed Design Document.

- Source code :- A defect from source code.

- Test Plan / Test Cases :- A defect from Test Plan / Test cases.

- User Documentation :- A defect from User manuals, operating manuals.



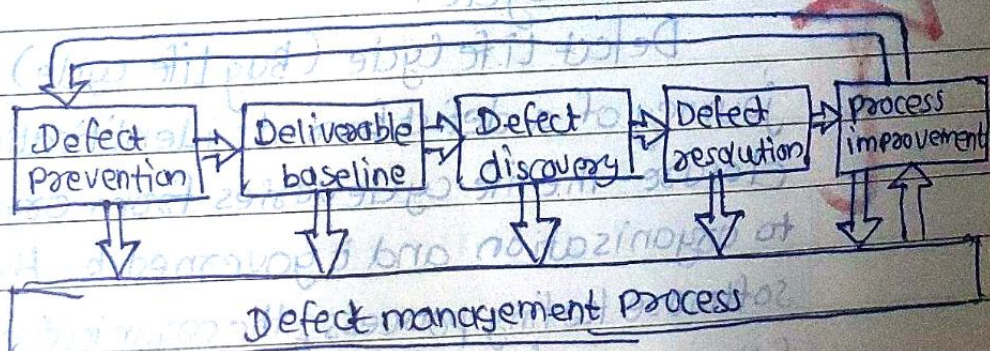
## \* Type of errors wise :-

- Comment
- Computational Errors
- Data errors
- Database errors
- Missing design
- Inadequate or sub optimal design
- In correct design
- Ambiguous design
- Boundary Conditions neglected
- Interface Errors
- Logic errors
- Message error
- Navigation errors
- Performance errors
- Missing Requirements
- Inadequate requirements
- Incorrect requirements
- Ambiguous requirements
- Sequencing / Timing errors
- Standards
- System errors
- Test plan / case errors
- Typographical errors
- Variable Declaration errors.

## \* Status wise :-

- Open
- Closed
- Deferred
- Cancelled

## \* Defect Management Process :-





\* Defect prevention :- Implementation of techniques, methodology and standard processes to reduce risk of defects

\* Deliverable baseline :- Establishment of milestones where deliverables will be considered and complete and ready for further development work.

\* Defect discovery :- Identification and reporting of defects for development team acknowledgement.

\* Defect Resolution :- Work by the development team to prioritize, schedule and fix the defect and document the resolution.

\* Process improvement :- Identification and analysis of the process in which the defect originated to identify ways to improve the process to prevent future occurrences of similar defects.

## 5.2 Defect Life Cycle :

Defect Life Cycle (Bug Life cycle) is a journey of a defect from its identification to its closure. The life cycle varies from organisation to organisation and is governed by the software testing process, the organisation or project follows and/or defect tracking tool being used.



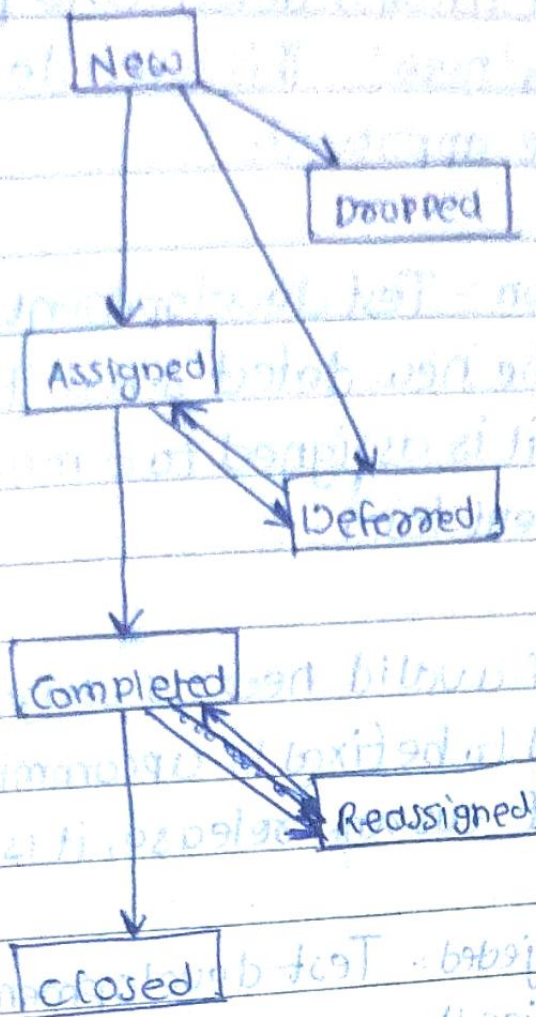


Fig :- Defect Life cycle

Status	Alternative status
New	Open
Assigned	Open
Deferred	Rejected
Dropped	Fixed / resolved / test
Completed	Reopened
Reassigned	Verified
Closed	Verified



\* New :- Tester finds a defect and posts it with status 'new'. This is the defect which is yet to be approved.

\* Assigned / open :- Test development project lead studies the new defect and if it is found to be valid it is assigned to a member of development team.

\* Deferred :- If a valid new or assigned defect is decided to be fixed in upcoming release instead of current release, it is deferred.

\* Dropped / Rejected :- Test development project lead studies the new defect and if it is found to be invalid, it is dropped / rejected.

\* Completed / fixed / resolved / test :-

Developer fixes the defect that is being assigned to him / her.

\* Reassigned / reopened :- If a tester finds that the 'fixed' defect is in fact not fixed or only partially fixed, it is reassigned to the developer who 'fixed' it.

\* closed / verified :- If the tester / test lead finds that the defect is indeed fixed and is no more of any concern, it is closed / verified. This is the happy ending.



## Defect Report Template:

- \* **Headline**:- One line description of the defect. It should be clear, related to defect and give some hints on how critical the defect would be.
- \* **Product**:- Product and version
- \* **Component**:- A defect report containing proper information about component can help managers in assigning it to appropriate person.
- \* **Defect Type**:- This classification can be used to analyze how defects are distributed in the system.
- \* **Priority**:- Priority is the impact of defect on business. This field gives an indication of the impact of this defect on business.
- \* **Severity**:- Severity is the impact of the defect on the product. Example:- if you hit 5 keys together and your product crashes, it is a very severe defect. But it is of low priority as normally people won't hit 5 keys together.
- \* **Environment**:- Proper information about your test execution environment should be present.
- \* **Steps**:- All the steps should be specified clearly.
- \* **Attachments**:- Whatever additional information is needed for the defect should be attached.
- \* **Comments**:- If you have any additional comments on defect, you should specify it clearly.



✓ 5.3

## Estimate Expected Impact of a Defect :-

### Techniques for Finding Defects :-

Defects are either found by pre-planned activities specifically intended to uncover defects or by accident.

Techniques to find defects can be divided into three categories :-

① Static techniques :- Testing that is done without physically executing a program or system. Ex :- A code review

② Dynamic techniques :- Testing in which system components are physically executed to identify defects.

Ex :- Execution of test cases

③ Operational techniques :- When software system product is completed, <sup>it</sup> produces deliverables for the user, customer control or personnel. While using final software product, the defect is found and software is not working or fails.

### Reporting a defect :-

① Be specific :-

\* Specify the exact action : Do not say anything that adds confusion

\* In case of multiple paths, choose the exact path you followed.

\* Do not use vague pronouns.



② Be detailed :- Provide more information (not less). In other words, don't be lazy. Give detailed information and make sure you have not missed any part of it.

③ Be objective :- Stick to the facts and avoid emotions.

④ Reproduce the defect :- Do not be impatient and file a defect report as soon as you uncover a defect. Replicate it at least once for sure.

However if you cannot replicate it again, finally submit the report for further investigation, stating that you are unable to reproduce a defect anymore and providing any evidence of the defect if you had gathered.

⑤ Review the report :- Do not submit as soon as you write the report. Review it at least once. Remove any typos.

