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Static Testing: It is a complementary technique to dynamic testing technique to acquire higher quality software.

- Also known as non computer based testing or human testing.
- Reveals all the errors not shown by dynamic testing.
- Can be applied for most of the verification activities.
- Requirements, design specifications, test plans, source code, user manuals, maintenance procedures are some of the activities that can be statically tested.

Benefits of Static Testing:

- Quality of product increases because defects are found and fixed.
- Increases the effectiveness of the dynamic test activity.
- Since defects are found in the early stage, cost of software life cycle reduces.
- Immediate evaluation and feedback.

Objectives of Static Testing:

- To identify errors in any phase as early as possible.
- To verify that the components of the software are in conformance with its requirements.
- Provide information for project monitoring.
- Improve software quality.

- Inspections: Used to tackle software quality problems because they allow the detection and removal of errors after each phase of the SD process.
- In process manual examination of an item to detect bugs.
- can be applied to any product or partial product of the SD process, including requirements, SCM, design and code etc.
- Carried out by a group of peers
- the groups first inspect the product at an individual level
- After this they discuss the potential defects of the product in a ~~informal~~ FORMAL meeting.
- Documents that can be inspected are ~~SR~~ SRS, SDD, code and test plan.

- Inspection involves interaction of the following elements
- Inspection steps
- Role for Participants
- Item being inspected.

→ Inspection Team:

- Author / Owner / Inspector: Designer, responsible for producing the document or program. He is also responsible for fixing the defects found in the inspection phase.

- Inspector: Not a manager or supervisor. He is not directly related to the product. A peer member that finds errors, omissions, and inconsistencies.

Moderator: Manages the entire inspection process. Schedules, leads and controls the inspection sessions. Key person of the entire process.

Recorder: Records all the results of the inspection meeting.

Inspection Process:

① Planning

During this phase the following is executed:

- Product to be inspected is identified
- Moderator is assigned
- Objective of the inspection is stated.

Moderator performs the following activity:

- Assures the product is ready for inspection
- Selects inspection team and assigning roles
- schedules meeting venue and time
- Distributes inspection material.

② Overview

In this stage, inspection team is provided with the background information. Author presents the rationale for the product; relationship with rest of the products being developed, its function and approach used to develop it.

Every member should be familiar with the overall purpose of the inspection.

③ Individual Preparation:

- The reviewers study the document provided to them in the review session. Point out

POTENTIAL errors or problems found and record them in a log.

- This error log is then submitted to the moderator who reviews it.
- The moderator compiles the logs of different inspectors and gives the compiled list to the author.

④ Inspection Meeting

- Starts with the author who discusses every issue.
- After discussion, all the members arrive at a consensus whether issues pointed out are in fact errors.
- The main goal of this meeting is to uncover any bug.
- No effort is made to fix the bug during the meeting.
- At the end, the moderator concludes the meeting and produces a summary of errors found that need to be resolved by the author.

⑤ Rework

- The author fixes all the bugs specified in the summary and reports back to the moderator.

⑥ Follow-Up

- Moderator has to check that all the bugs found in the last meeting have been fixed. He then prepares a report and ascertains that all bugs have been fixed.

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- Benefits of Inspection Process. (Read explanation from PDF Pg 201)
- ① Bug Reduction
 - ② Bug Prevention
 - ③ Productivity
 - ④ Real time feedback to Software Engineers.
 - ⑤ Reduction in development resource
 - ⑥ Quality Improvement
 - ⑦ Project Management
 - ⑧ Process Improvement
 - ⑨ Checking coupling and cohesion
 - ⑩ Learning through inspection.

Structured walkthrough

- Less formal and less rigorous technique
- There are no organized meeting.

Members:

- ① Coordinator: Organizes, moderates and follows up activities.
- ② Presenter: Optional member. Presents the item that needs to be inspected.
- ③ Scribe/Recorder: Notes down defects and suggestions.
- ④ Tester: Finds the defects.
- ⑤ Maintenance Oracle: Focuses on long term implications and future maintenance.
- ⑥ Standard Bearer: Assesses adherence to standards.
- ⑦ User Representative: Reflects the needs of the user.

A walkthrough is less formal, has fewer steps and does not use a checklist to document the team's work.

Technical Reviews:

- A review team also includes management
- A higher level technique as compared to inspection or walk-through.
- Comprised of management level representatives & project management.
- Moderator should gather and distribute the documentation to all members for examination before the review.
- Should also prepare a set of indicators to measure
 - ① Appropriateness of the problem definition and requirement.
 - ② Adequacy of all assumptions.
 - ③ Adherence to standards.
 - ④ Consistency
 - ⑤ Completeness
 - ⑥ Documentation.
- Moderator may also prepare a checklist to help the team focus on the key points.