

Chapter Six: Static Testing

- At the end of this chapter, the student will be able to achieve the following basic static testing objectives.
 - To define static testing
 - To understand types of static testing. such as :-
 - ✓ Informal reviews
 - ✓ Walk-through
 - ✓ Technical review
 - ✓ Management review

Introduction to Static Testing

- static testing is testing or quality assurance where the object under testing is not being executed on a computer.
- Static testing can be performed on anything that can be read throughout the product life cycle, and it requires no special investments.
- The ISEB/ISTQB vocabulary defines static testing as: “Testing of a component or system at specification or implementation level without execution of that software (e.g., reviews or static code analysis).”
- The primary objective of any static testing is to find defects in the object under testing and hence provide information about the quality of what is being produced.

Types of Static Testing

- The static testing types we are going to discuss in detail are, as mentioned as follows :
 - Informal review
 - Walk-through
 - Technical review
 - Management review

Informal review

- The informal review is the **least formal type of static test**.
 - asking a colleague or a friend to look at something we have produced.
- The objectives of informal reviews are **very individual, depending on the author's needs**.
 - ✓ It could be everything from **finding spelling and grammar mistakes**, to the structure of the product, to the actual contents from a professional point of view.
- An informal review follows **no formal documented process**.
- The participants are normally just the **author** and **one or two reviewers**.
 - The reviewer(s) are usually chosen by the author.
- Most people have a network of reviewers to choose from, **depending on the document to be reviewed** and **the review objective**.

Informal review Cont.

- The result of an informal review **varies** and **is very much dependent on the review skills of the chosen reviewer(s)**.

benefits of informal reviews

- In most companies no material must be delivered to another without having at least been through an informal review.

Disadvantages of Informal review

- One is the dependency of the reviewers' reviewing skill
- There are usually **no records kept** of the reviews and **hence no data available for calculation of effectiveness**.

Walk-Through

- A walk-through is a step-by-step presentation of a document by the author at a walk-through meeting.
- The primary objective is to find defects.
- Quite often the author discovers defects him- or herself just by going through the document.
- The secondary objective is to create a common understanding of the contents of the document under testing.
- Walk-throughs are usually planned to take place at specific stages of the development.
- It can be early in the production process for a document to make sure the author is going in the right direction

Walk-Through Cont.

- Any document may be the **object** of a walk-through.
- The object is most often **code** or **design** since a common understanding of the document is most important here.
- The **process for walk-throughs** is usually **not very formal**.
- When the document to test is in a state corresponding **to the defined entry criteria**, the walkthrough **is scheduled** and the participants, usually **3–7 people**, are invited.
- The **reviewers** may get the document in advance **to familiarize themselves with it**, but there is no **formal preparation required**.
- A **walk-through meeting** is always part of the process.
- The **author acts as the presenter** of the document and the only other role represented is **reviewers** (listeners).
- In cases of **potential conflict** a neutral **facilitator** may be present.

Walk-Through Cont.

- Walk-through meetings should not last for more than 1–2 hours, so the volume that can be “walked through” cannot be too high.
- If the full volume of the document is too high, representative samples must be selected, and the information gathered must be applied to the rest of the document during rework.
- After the walk-through meeting an informal report should be produced summarizing the findings.
- The exit criteria for a walk-through are usually that the meeting has been held and the report approved.
- Corrections to the document under test are made at the author’s discretion.
- The only slight disadvantage of walk-throughs is that the benefit depends on the author’s ability to present the object.

Walk-Through Cont.

- The defect finding is an important benefit, but
 - the transfer and sharing of knowledge and
 - understanding is even more important and
 - useful in an organization.
- This is valid for
 - groups of experienced people,
 - groups of people with varied experience, and
 - for groups with newcomers under training.

Technical Review

- A technical review is a peer group discussion activity that focuses on achieving consensus on the technical approach to be taken.
- A technical review is also known as a peer review.
- the primary objective is to find defects.
- The secondary objective is
 - to make technical decisions and
 - (one hopes) reach consensus about the approach to the work.
- Technical reviews are usually planned to take place at certain times in the development life cycle.
- Basis material in the form of preceding documents, requirements for the object, and/or standards and checklists should be used.

Technical Review Cont.

- Technical reviews must have a manager, who is not the author.
- The manager decides if the document is ready for review based on the demands for a review expressed in the relevant policy and the test or quality assurance plan.
- The defined roles for technical reviews are fairly formal.
- The roles to be represented are a manager, the chairperson for the review meeting, the presenter, the reviewers, the author, and the recorder.
- The manager, chair, and presenter role is often filled by the same person.
- The total number of participants should be 3–10 people.

Technical Review Cont.

- It is important that the participants in a technical review are more or less at the same level in the organization.
- A manager should not participate in a technical review.
- The technical review process is also fairly formal.
- The manager schedules the preparation and the review meeting and presents the material to the reviewers.
- The reviewers are usually expected to examine the material for defects and issues before the review meeting is held.
- At the review meeting the chair provides an overview of what is going to happen.
- The document is leafed through page by page and issues are noted and discussed.
- Conclusions about what should be changed and what should not should be reached before the end of the meeting.

Technical Review Cont.

- The author is present, but in contrast to his or her role at a walk-through, the author should stay silent and listen during a review meeting.
- Clarifying questions may be asked and answered, but the author should not try to “defend” him- or herself.
- A report should be written after the review meeting summarizing the findings and the conclusions.
- In some cases measurements related to the time and defect finding are reported.
- If the document is rejected and a new review is to be performed, this must be scheduled by the manager.
- If the document needs rework before it can be approved, this will take place after the meeting and is usually done by the original author.

Technical Review Cont.

- The disadvantages of technical (and management) reviews are few.
- The outcome depends on the reviewers, but these can be selected carefully to get the best results.
- If reporting of measurements is not imposed it is difficult to calculate the effectiveness of the technical reviews, but the measurements are not difficult to obtain.
- The benefits of technical reviews are even greater than those for informal reviews.
- Defects are found early and cheaply, information about the quality of the produced objects is gathered, and the participants learn from each other.

Management Review

- Management review is a review type performed on management documents.
- This may be:
 - Project-related plans, such as:
 - ✓ Project management plans, including schedules and resources
 - ✓ Quality assurance plans
 - ✓ Configuration management plans
 - ✓ Risk management plans
 - ✓ Contingency plans
 - Plans pertaining to the product, such as:
 - ✓ Safety plans
 - ✓ Installation plans
 - ✓ Maintenance plans
 - ✓ Backup and recovery plans
 - ✓ Disaster plans

Management Review Cont.

- Reports, such as:
 - ✓ Progress reports
 - ✓ Incident reports, including customer complaints
 - ✓ Technical review reports
 - ✓ Inspection reports
 - ✓ Audit reports
- The primary objective is to find defects in the documents under static testing.
- The secondary objective is to monitor progress according to the current plan, to assess status, and to make necessary decisions about any actions to take accordingly, including changes in resources, time, and/or scope/quality and updating the plan accordingly.

Management Review Cont.

- The scope and the quality are usually expressed in terms of requirements to fulfill.
- Management reviews are usually planned to take place at certain times in the development life cycle, typically in connection with defined milestones, that is, transfer from one development phase to the next.
- A management review is performed using all appropriate information about the status of the project and the product, like progress and status reports concerning both technical and financial aspects and incident reports.

Management Review Cont.

- The roles that should be filled for a management review are the decision maker (the owner of the plan), the leader, reviewers, and a recorder.
- The reviewers are relevant stakeholders and should include management and technical staff involved in the execution of the planned activities.
- The total number of participants should be within 3–10 people.
- The management review process is also fairly formal.
- The leader schedules the preparation and the review meeting and presents the plan and any other information to the reviewers.
- The reviewers are usually expected to be prepared, that is to know the current plan and any deviations from it, before the review meeting is held

Management Review Cont.

- At the review meeting the plan is checked for compliance with other plans and consistency with reality.
- The performance of management procedures being applied may also be assessed.
- Conclusions about what should be changed in the plan and what should not should be reached before the end of the meeting.
- A report should be written after the review meeting summarizing the action items defined and the issues to be resolved, if any.
- In some cases measurements related to the time and effectiveness of the review are reported.

Management Review Cont.

- The disadvantages of management reviews are few. The outcome depends on the reviewers, but these are usually sufficiently committed.
- If reporting of measurements is not imposed it is difficult to calculate the effectiveness of the technical reviews, but the measurements are not difficult to obtain.
- The benefits of management reviews are many.
- A plan that is agreed on by all relevant stakeholders has a higher probability of being followed than a plan without such an agreement.