Verification

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Agenda

- Testing
- Development strategy
- Effects of testing

Testing

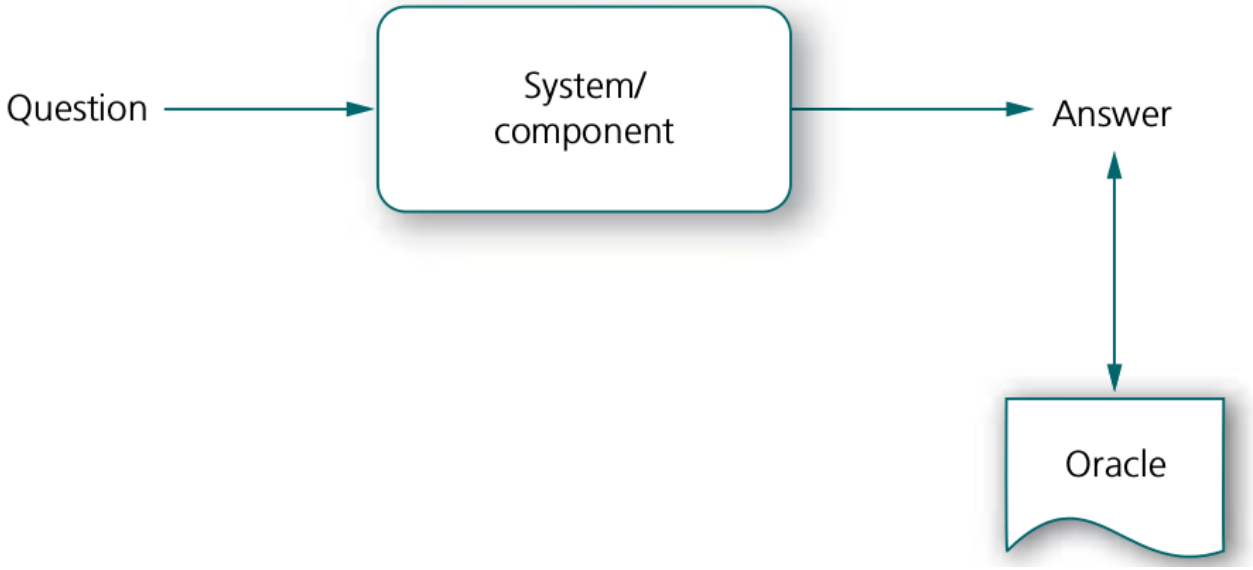

Figure : Testing

- how to ask questions
- which questions to ask
- interpret the answers and have something to compare them with

Effects of Testing - Waterfall Model

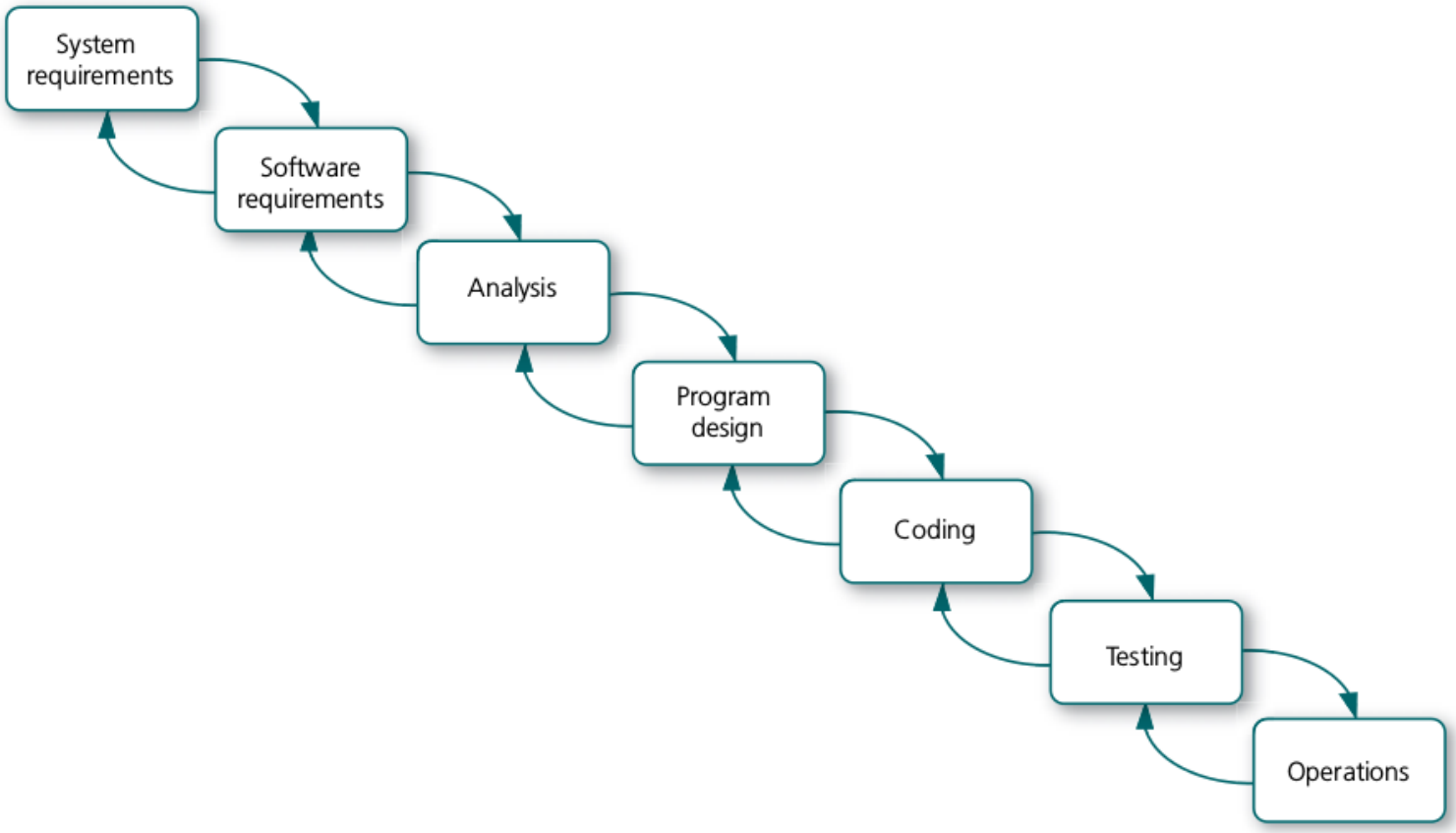

Figure : Waterfall

Note: Larger organisations like NASA, the US Department of Defense and the US Air Force have their own waterfall models.

Effects of Testing - Waterfall Model

- Testing done with the whole system
- Documentation will be there so easy for doing testing.
- Quality we cannot assure

Effects of Testing - V Model

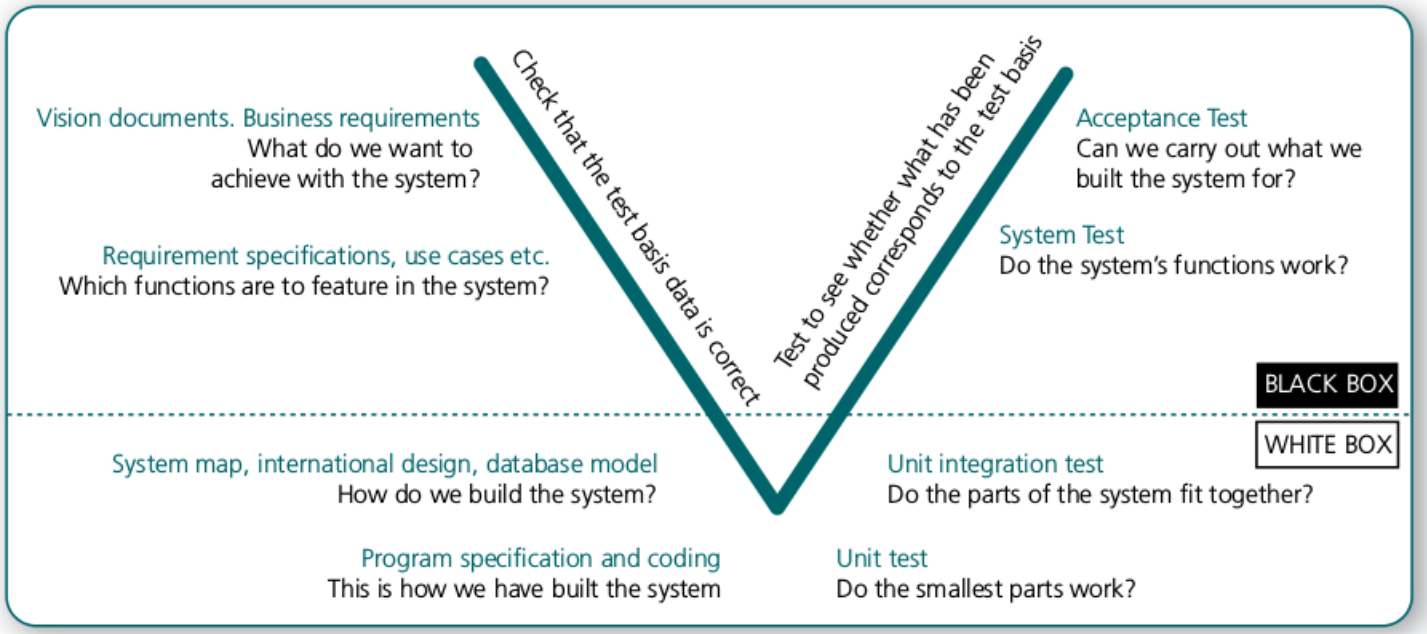

Figure : V Model

Effects of Testing - V Model

- V model relates test basis and testing
- In the figure, test basis (the information that the tests are based on) is in the left side and test activity is in the right side.
- We can customize the model according to our project
- In the given model there is only system test, If the system being tested has many external system connections, you can add an extra level between the system test and the acceptance test, which is called a system integration test.
- A test designer should involve at the early stage to check the Quality of the test basis documents especially requirements documents.

Effects of Testing - W Model

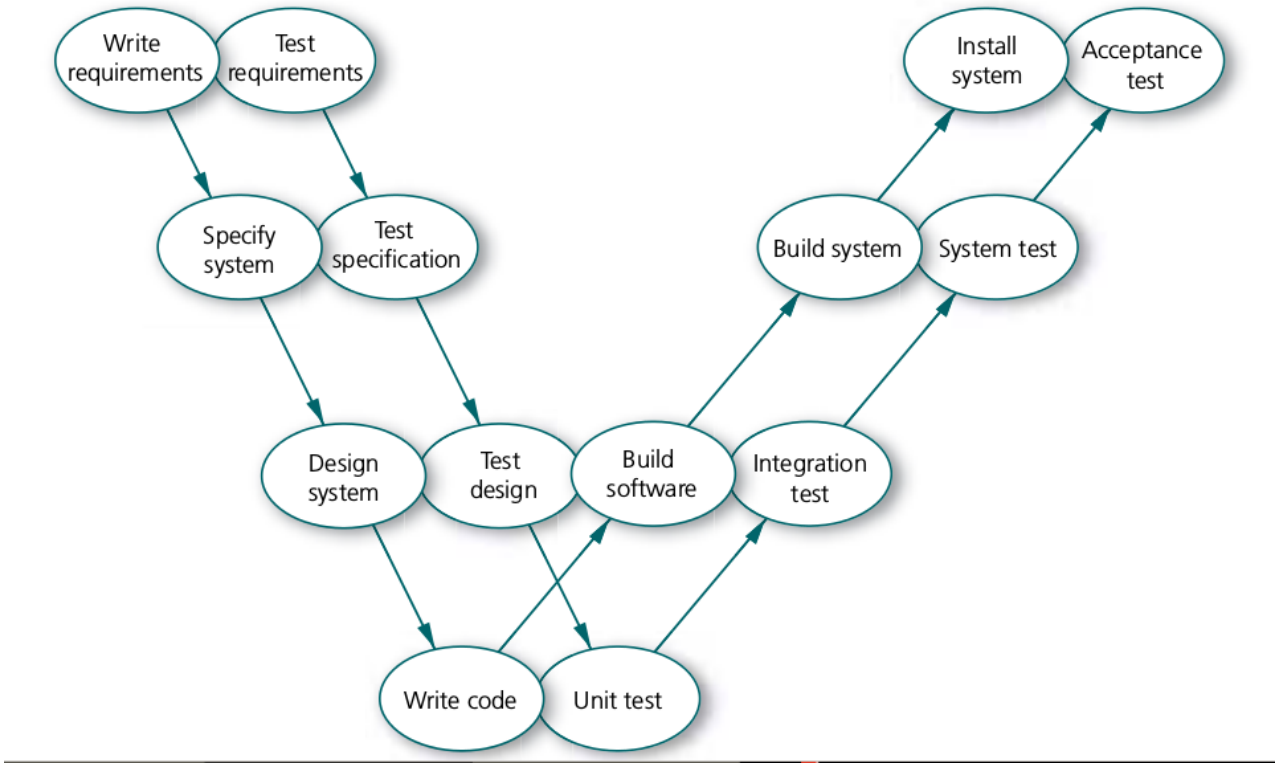

Figure : W Model

Effects of Testing - W Model

- Introduced by Paul Herzlich in 1993.
- In this Model, every activity in the chain of development, there is a corresponding test activity.
- Serious flaw in V model is the one-to-one mapping from test basis to testing, here it is addressed.
- Every development activity has a corresponding test activity. The aim of the test activities is to determine whether the delivered product fulfi ls its requirements.

Effects of Testing - Unified Process

Each phase containing one or more iterations and delivers something which is totally complete and, in most cases, they are rounded off by testing

- Inception - why this new system is needed.
- Elaboration- focuses on architecture.
- Construction - where the system is developed
- Transition - Deliver the product to customer with quality.

- Develop iteratively small sections, on a risk-driven basis
- Handle requirements use cases, requirement analysis
- Use component-based architecture on an object-orientated basis
- Model software visually graphical models
- Verify software quality continuously early testing
- Handle changes to the software control over changes

Testing is involved in each phase of Unified process model.

- Inception - No execution of test cases but Verification will be done.
- Elaboration - Testing on architecture during Elaboration has the aim of proving that the architecture holds together.
- Construction has more of the classic type of test work about it, but divided into iterations.
- Transition, acceptance testing does occur.

Effects of Testing - Agile

- Develop quickly and, at the same time, handle change by using a flexible process.
- All system development processes claim to address the problem with influential changes
- The Agile development processes have enjoyed great success in promoting useful methodology in testing and quality assurance.
- In Extreme Programming test-driven development, which involves code forcomponent testing being written before the coding work for the program is started.

Tesing Level

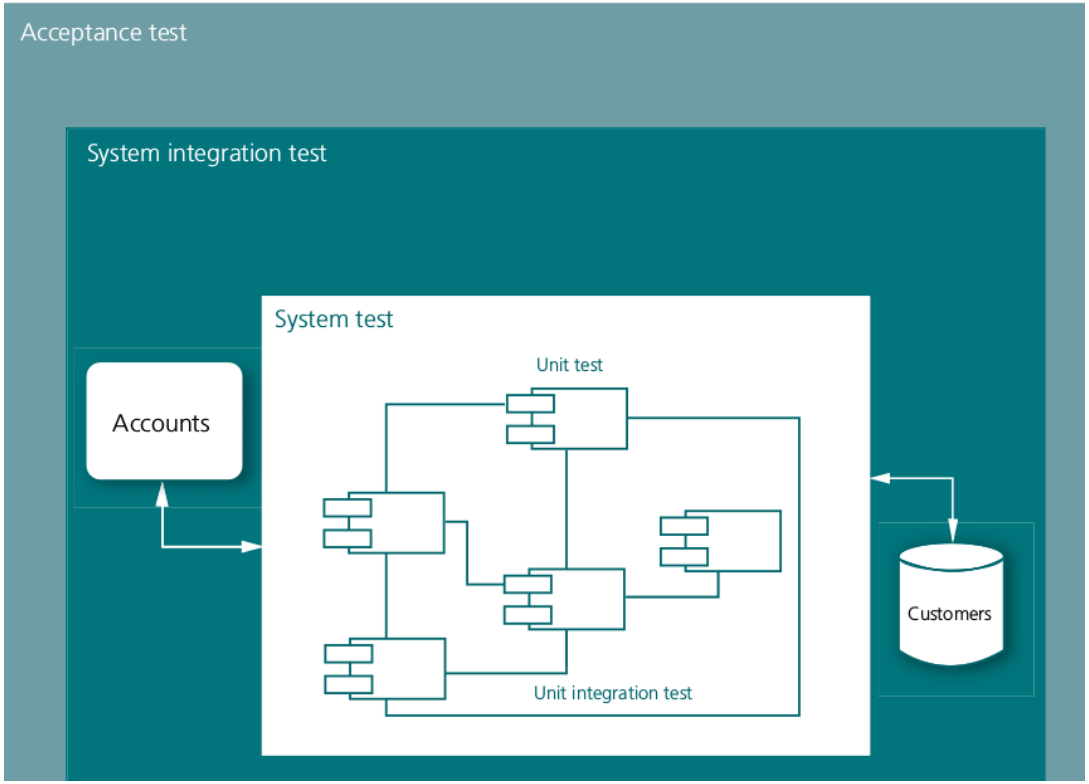

Figure : Various Levels of Testing

Note: Component testing is carried out by the developers, system testing by the development projects testers, and acceptance testing by the person who ordered the system. Every level has a different focus.

Unit Testing

- Also called as Module testing or Component testing
- stubs, drivers or some form of tool are used to make it complete.
- Need techinical knowledge, mostly done by the developers.
- program and design specifications are used as test basis.
- Test techniques suitable for this are control flow testing and data flow testing

Unit-integration Testing

- verifies interfaces between components in a system.
- piecing together components in preparation for the system tests.
- It is a kind structural test and its focus is on whether the internal logic works.

System Testing

- Testing done from user perspective.
- functional and non-functional aspects are included.
- we Perform behaviour-based tests, which involve focusing on external functionality, rather than the softwares inner structure..

System integration Testing

- To check whether all the communication parts working fine

Acceptance Testing - Case Study

Company B orders a new administrative system for handling insurance policies, again at a fixed price. The consultancy taking on the assignment quotes a price lower than its competitors and therefore wins the competition stage. Since the estimate is so much lower than the others, Company B actually decides to check that they are getting what they ordered. They deploy a practised test manager, who sets up a thorough acceptance test with support from a group of operations experts. Over the fi rst three deliveries, the acceptance tests show that the system does not succeed in meeting the requirements in the contract, and is therefore returned to the supplier. Only after lengthy delays does the supplier get approval on its system. The work put in on the acceptance test by Company B saved several millions on the fi nal bill.

References I

[1] Torbjrn Ryber *"ESSENTIAL SOFTWARE TEST DESIGN "*, Chapter 4 Chapter 5

Thank you