

SOFTWARE TESTING FUNDAMENTALS

LECTURE # 3 I

Lecture by Engr.Sidra



OBJECTIVES

- When you have read the chapter you will:
 - Understand testability, test case design
 - Difference between black box and white box testing
 - Different testing methods of software testing techniques



TESTABILITY

- The ease with which a computer program can be tested.
- IEEE: Defines testability as
 - “The degree to which a system or component facilitates the establishment of test criteria and performance of tests to determine whether those criteria have been met”.



CHARACTERISTICS OF TESTABLE SOFTWARE

- Operability: “The better it works, the more efficiently it can be tested.”
- Observability: “What you see is what you test.”
- Controllability: “The better we can control the software, the more the testing can be automated and optimized.”
- Decomposability: “By controlling the scope of testing, we can more quickly isolate problems and perform smarter retesting.”



CHARACTERISTICS OF TESTABLE SOFTWARE

- Simplicity: “The less there is to test, the more quickly we can test it.”
- Stability: “The fewer the changes, the fewer the disruptions to testing.”
- Understandability: “The more information we have, the smarter we will test.”



WHAT IS A “GOOD” TEST?

- A good test has a high probability of finding an error
- A good test is not redundant.
- A good test *should* be “best of breed”
- A good test should be neither too simple nor too complex



TEST CASE

- A test case is a document, which has a set of test data, preconditions, expected results and post conditions, developed for a particular test scenario in order to verify compliance against a specific requirement.
- Test Case acts as the starting point for the test execution, and after applying a set of input values, the application has a definitive outcome and leaves the system at some end point or also known as execution post condition.



TEST CASE DESIGN

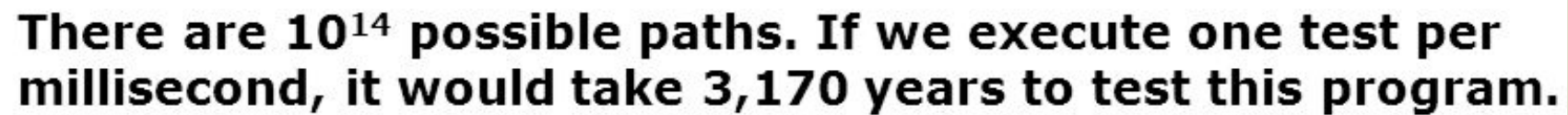
- **Test case design** refers to how you set-up your **test cases**.
- It is important that your **tests** are designed well, or you could fail to identify bugs and defects in your **software** during **testing**.
- There are many different **test case design** techniques used to **test** the functionality and various features of your **software**.

OBJECTIVE to uncover errors

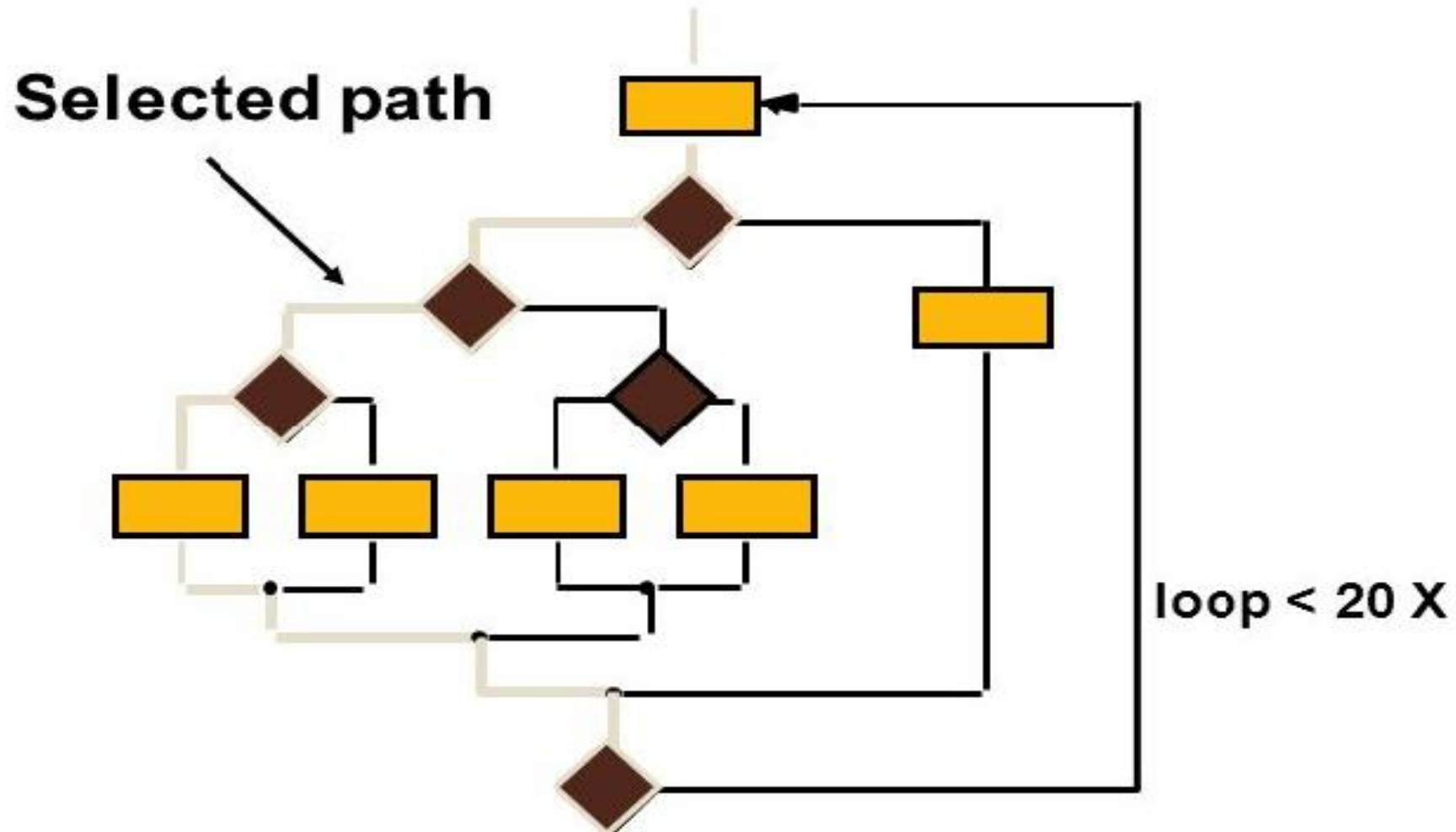
CRITERIA in a complete manner

CONSTRAINT with a minimum of effort and time





SELECTIVE TESTING



INTERNAL AND EXTERNAL VIEWS

- Any engineered product (and most other things) can be tested in one of two ways:
 - Knowing the specified function that a product has been designed to perform, tests can be conducted that demonstrate each function is fully operational while at the same time searching for errors in each function;
 - Knowing the internal workings of a product, tests can be conducted to ensure that "all gears mesh," that is, internal operations are performed according to specifications and all internal components have been adequately exercised.

