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Software Testing

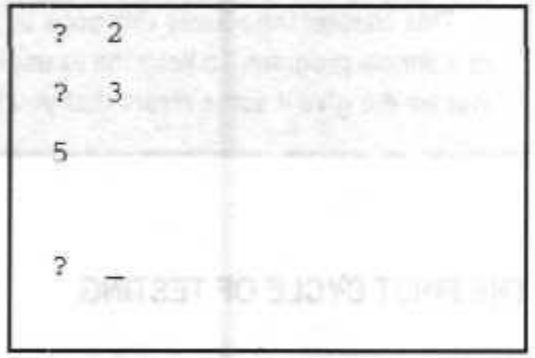
CSC13003

Software Testing Approaches

Exercise 1

- The program's specification
  - This program is designed to add 2 numbers, which you will enter
  - Each number should be one or two digits

Figure 1.2 How the screen looks after the first test



The cursor (beside the question mark at the bottom of the screen) shows you where the next number will be displayed.

Possible Test Cases

- Valid Cases: 199 x 199 = 39,601
  - -99 → -1
  - 0 → 99
- Invalid Cases: INFINITE
  - <= -100
  - >= 100
  - Not a number

The problem

very large or infinite

number of test scenarios

+

finite amount of time

=

impossible to test everything

The solution

Software testing strategies and methods (techniques) exist to

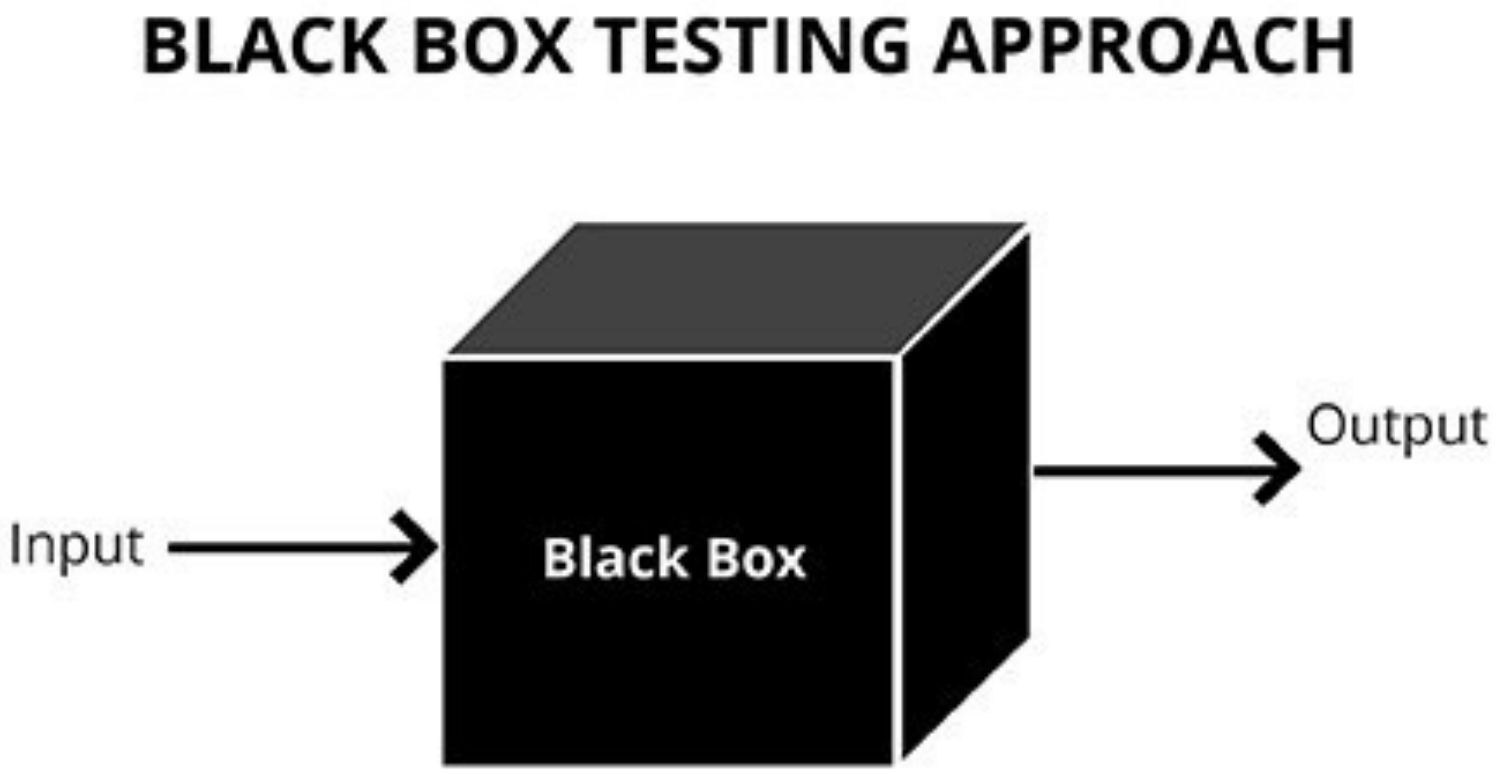
reduce the number of tests to be run

whilst still providing sufficient coverage

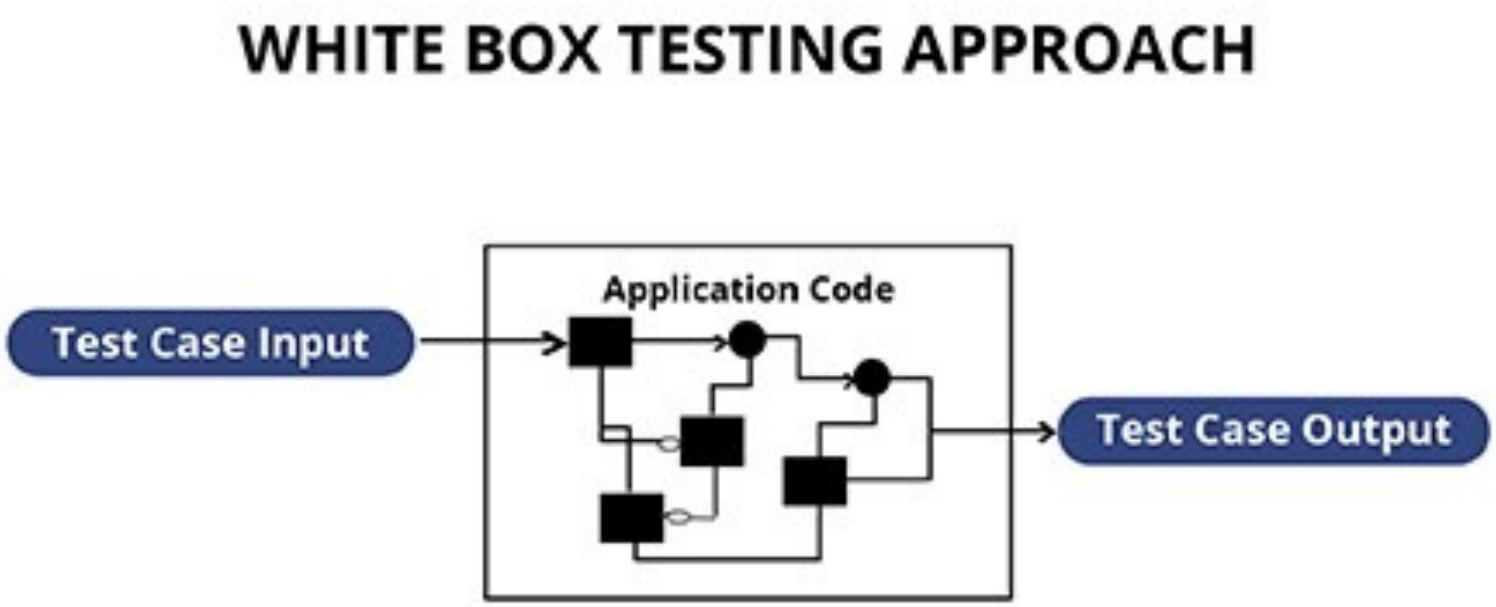
of the system under test

Testing Approaches

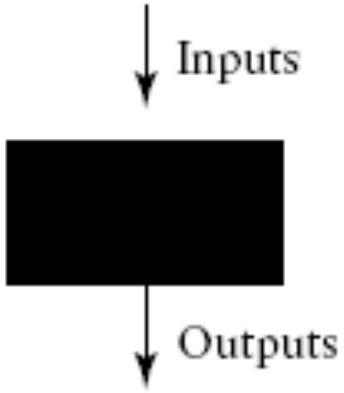
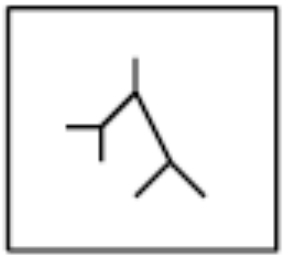
Black Box Testing Approach



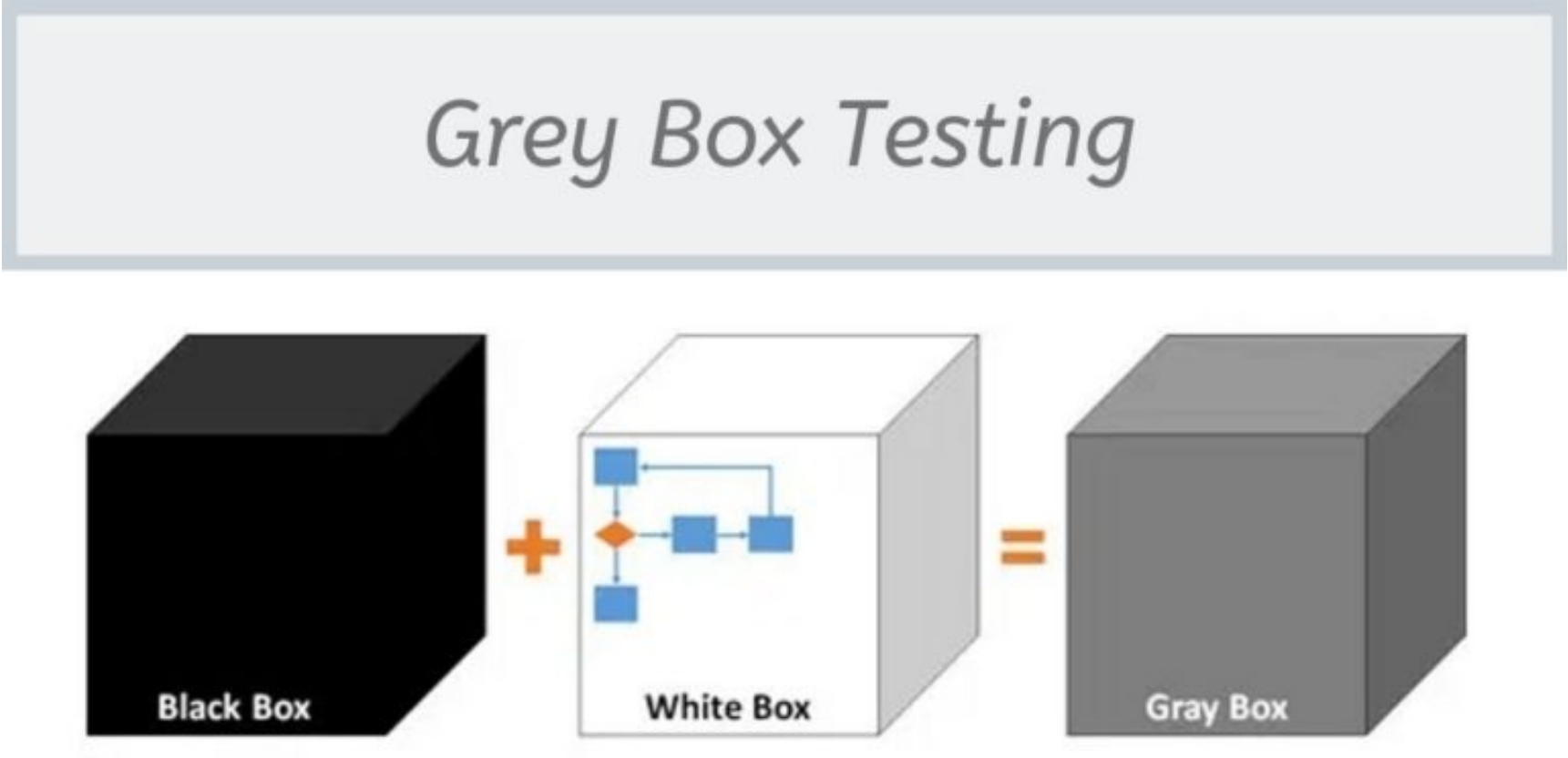
White Box Testing Approach



The two basic testing strategies

Test Strategy	Tester's View	Knowledge Sources	Methods
Black box		Requirements document Specifications Domain knowledge Defect analysis data	Equivalence class partitioning Boundary value analysis State transition testing Cause and effect graphing Error guessing
White box		High-level design Detailed design Control flow graphs Cyclomatic complexity	Statement testing Branch testing Path testing Data flow testing Mutation testing Loop testing

Grey Box Testing



Black – Grey – White Box Testing