CH1 Introduction to Software Testing

* Testing is the process of executing software or program or system with intent of finding errors
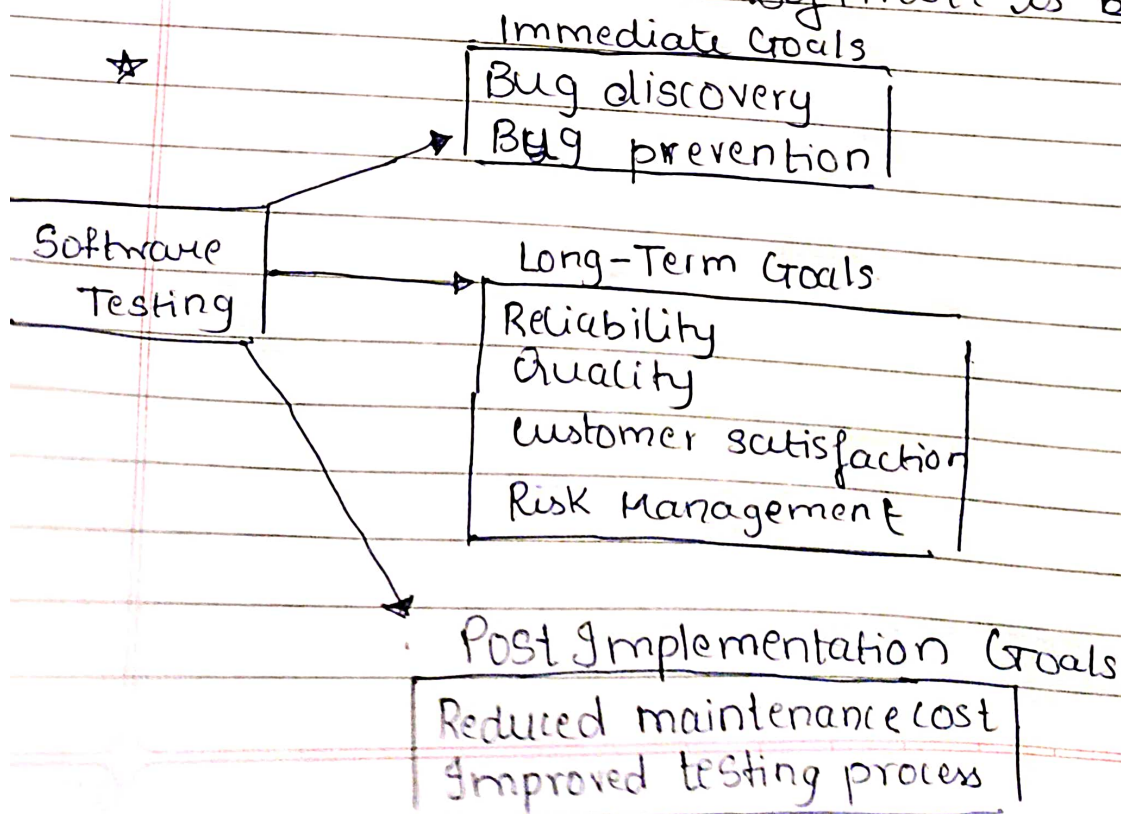
* Advantages
  (I) Ensures that software is being according to client requirements.
  (II) Removes error that leads to failure
  (III) Improves quality of product

* Testing roles
  (I) Test Lead
  (II) Test Architect
  (III) Test Designer
  (IV) Software Tester.

* Main purpose/goal of software testing is to find errors or bugs as early as possible and to fix bugs and to make sure that software is bug-free.

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Immediate Goals
| Bug discovery |
| Bug prevention |

Software Testing

Long-Term Goals
| Reliability |
| Quality |
| Customer satisfaction |
| Risk Management |

Post Implementation Goals
| Reduced maintenance cost |
| Improved testing process |

Bugs	Faults	Failures
* ① All sorts of syntax errors in programming code.	Non-working of programs	Failure during software installation
② System design incorrect	System does not perform its functions as per requirements	End-user implementation failure.
③ Incorret documentation	Operating instructions for the software are not mentioned properly in manual	Users not able to operate systems correctly
④ Poor security	System vulnerable to threats from outside world	system not fully secured.

⭐ Principles

① Testing shows Presence of Defects
② Early Testing
③ Testing is context Dependent.
④ Testing should be according to client Requirements
⑤ Testing should Begin in small" and Progress towards testing "inlarge".

⭐ Testing	Debugging
① Identify defects	① Fix bugs found in system
② Purpose is to show that an error/bug is present	② Purpose is to find those bugs and try to fix them.
③ Testing can be manual or automated	③ Always manual.
④ Proves Programmers failure	④ Programmer Vindication.

* ## Verification

① means "are we building the product right?"

② Does not involve executing the code.

③ Human-based Checking of documents and files

④ catch errors that validation cannot catch.

⑤ low-level exercise

⑥ comes-before validation

Validation.

① means "are we building the right product?"

② It always involves executing the code

③ computer ~~machine~~ based execution of program.

④ catch errors that verification cannot catch.

⑤ high-level exercise

⑥ follows after verification.

★ STLC

Requirement
analysis

Test cycle
closure

Test ~~case~~ planning
~~development~~

Test case
development

Test
execution

Environment
setup