

# Testing, Simulation and Debugging Techniques and Tools:

## Lesson-2

### **Testing Methods Software Engineering Approach**

# White Box Testing Method

- Testing internals
- Testing performed for each unit of a system in integrated or individual system
- Tests the coverage of statements in the data-flow graphs, control flow graphs, branches of each decision block, and threads.

# Black Box Testing Method

- Functionality Test of a unit of a system in integrated or individual system for the test data sets or cases.
- Test cases and procedures
- Test design techniques for a system
- Does not look into internals but higher levels of the functionalities

# Bug Tracking

- A **bug tracking system (BTS)** is an application, which tracks all the bugs found during the tests of a system in development phases
- Software records of reported software bugs during system testing
- Database updated

# Unit Testing

- Software divided into number of units  
unit may be task or thread or process in a multi-tasking system or a method or function or procedure or routine or interrupt-service routine.
- Unit may be a Class or Interface or object.

# Regression testing

- Tests saved at first version development
- New version uses previously saved tests are applied
- A regression test fast
- New specifications, addition in the saved tests

# Choosing Test Cases

- Test case means a set of variables or conditions or test suites.
- Test cases two types: formal and informal.

# Functional tests

- Test for the functions, which are required in a system
- All the functions listed and functional tests developed



# Coverage tests

- All the blocks of codes or decision blocks or loops in all the functional tests listed.
- Code coverage study
- Finding what blocks of codes or decision blocks or loops or tasks are already tested for functions and found bug-free.

# Performance testing

- Define a measure of performance for a system and test
- Whether expected performance matches with the measured results

# Maintenance Tests

- Maintenance means considering the up-gradation of system, modifying the software and hardware components, and taking care-of changing requirements in a system

# Summary

# We learnt

- Software Engineering Approach For Testing
- White Box Test
- Black Box Test
- Bug Tracking
- Unit Test

# We learnt

- Regression Test
- Functional Test
- Coverage Test
- Performance Test
- Maintenance Test

End of Chapter 15 Lesson 02 on  
**Testing Methods**  
**Software Engineering Approach**