

**DEPARTMENT OF CSE, CSIT & AI&DS**

# **COURSE NAME – ADAPTIVE SOFTWARE ENGINEERING**

**COURSE CODE – 23CI200I**

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**SESSION-24**

**TOPIC:**

**TEST STRATEGIES FOR CONVENTIONAL  
SOFTWARE**

## AIM OF THE SESSION

To familiarize students with the basic concept of System Testing

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### INSTRUCTIONAL OBJECTIVES

This Session is designed to:

1. What is the process of system testing
2. Types of system testing
3. Tools used for system testing
4. Advantages and disadvantages of system testing

### LEARNING OUTCOMES

At the end of this session, you should be able to:

1. Define system testing
2. Importance of system testing in software development

# AGENDA

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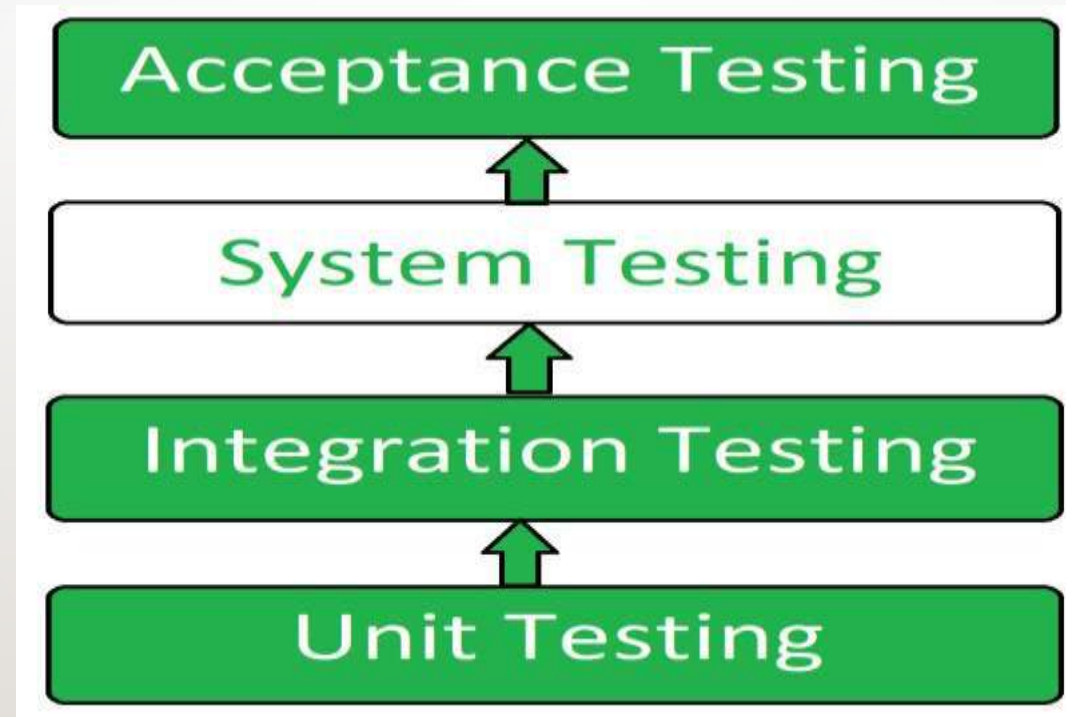
- ❖ **Introduction to system testing**
- ❖ **What is system testing**
- ❖ **What are the types of system testing**
- ❖ **Which tools are used for system testing**
- ❖ **Process of system testing**
- ❖ **Advantages and disadvantages of system testing**

# INTRODUCTION OF SYSTEM TESTING

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- System testing is a type of software testing that evaluates the overall functionality and performance of a complete and fully integrated software solution. It tests if the system meets the specified requirements and if it is suitable for delivery to the end-users. This type of testing is performed after the integration testing and before the acceptance testing.

# SYSTEM TESTING



# WHAT IS SYSTEM TESTING

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- ❖ **System Testing** is a type of testing that is performed on a complete integrated system to evaluate the compliance of the system with the corresponding requirements.
- ❖ **System Testing** is carried out on the whole system in the context of either system requirement specifications or functional requirement specifications or in the context of both.

# TYPES OF SYSTEM TESTING

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- **Performance Testing**
- **Load Testing**
- **Stress Testing**
- **Scalability Testing**

# TYPES OF SYSTEM TESTING

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- **Performance Testing:** Performance Testing is a type of software testing that is carried out to test the speed, scalability, stability and reliability of the software product or application.
- **Load Testing:** Load Testing is a type of software Testing which is carried out to determine the behavior of a system or software product under extreme load.

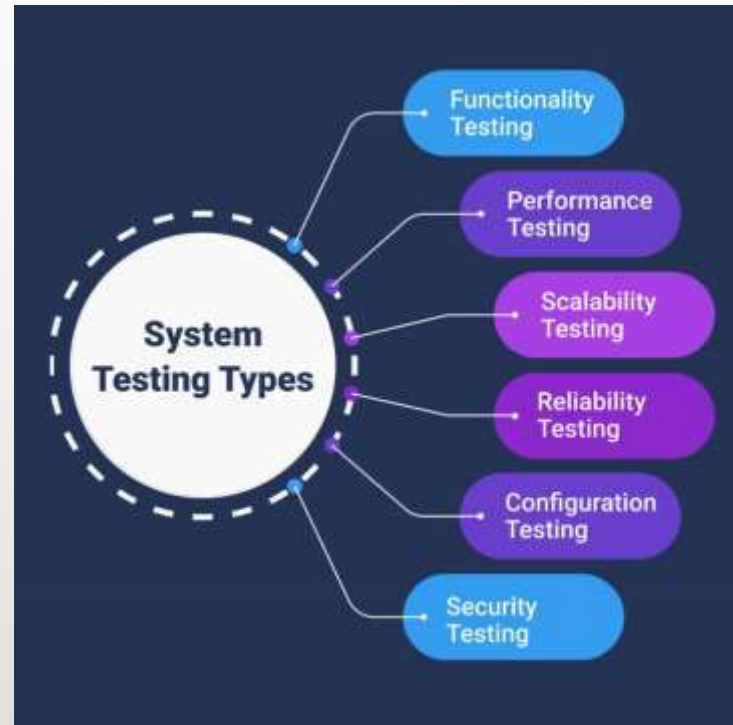


# TYPES OF SYSTEM TESTING

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- **Stress Testing:** Stress Testing is a type of software testing performed to check the robustness of the system under the varying loads.
- **Scalability Testing:** Scalability Testing is a type of software testing which is carried out to check the performance of a software application or system in terms of its capability to scale up or scale down the number of user request load.

# TYPES OF SYSTEM TESTING



# TOOLS FOR SYSTEM TESTING

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- HP Quality Center/ALM
  - IBM Rational Quality Manager
  - Microsoft Test Manager
  - Selenium
  - Appium
  - Load Runner
  - JMeter
  - Apache JServ
  - SoapUI
- The choice of tool depends on various factors like the technology used, the size of the project, the budget, and the testing requirements.

# PROCESS OF SYSTEM TESTING

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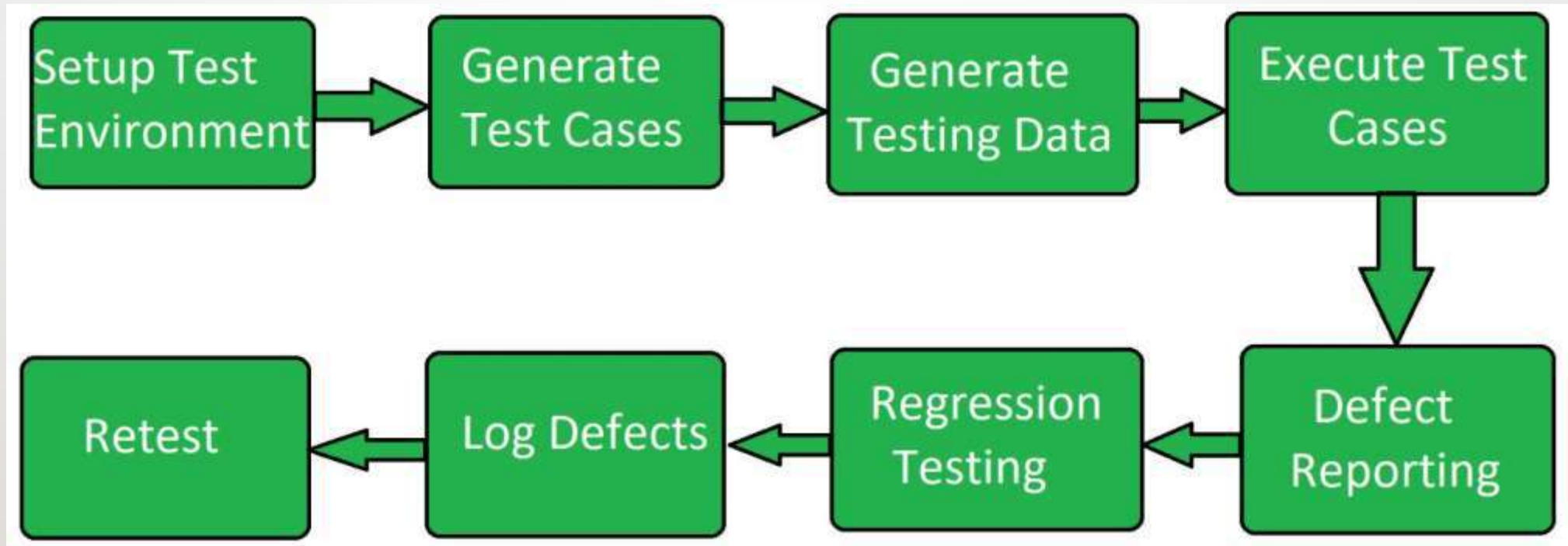
- **Test Environment Setup**
- **Create Test Case**
- **Create Test Data**
- **Execute Test Case**
- **Defect Reporting**
- **Regression Testing**
- **Log Defects**
- **Retest**

# PROCESS OF SYSTEM TESTING

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- **Test Environment Setup:** Create testing environment for the better quality testing.
- **Create Test Case:** Generate test case for the testing process.
- **Create Test Data:** Generate the data that is to be tested.
- **Execute Test Case:** After the generation of the test case and the test data, test cases are executed.
- **Defect Reporting:** Defects in the system are detected.
- **Regression Testing:** It is carried out to test the side effects of the testing process.
- **Log Defects:** Defects are fixed in this step.
- **Retest:** If the test is not successful then again test is performed.

# PROCESS OF SYSTEM TESTING



# ADVANTAGES OF SYSTEM TESTING

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- 1.The testers do not require more knowledge of programming to carry out this testing.
- 2.It will test the entire product or software so that we will easily detect the errors or defects which cannot be identified during the unit testing and integration testing.
- 3.The testing environment is similar to that of the real time production or business environment.
- 4.It checks the entire functionality of the system with different test scripts and also it covers the technical and business requirements of clients.
- 5.After this testing, the product will almost cover all the possible bugs or errors and hence the development team will confidently go ahead with acceptance testing.

# DISADVANTAGES OF SYSTEM TESTING

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- 1.This testing is time consuming process than another testing techniques since it checks the entire product or software.
- 2.The cost for the testing will be high since it covers the testing of entire software.
- 3.It needs good debugging tool otherwise the hidden errors will not be found.



# SELF-ASSESSMENT QUESTIONS

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1. Define system testing.
2. What is the importance of system testing .

# REFERENCES FOR FURTHER LEARNING OF THE SESSION

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## TEXTBOOKS:

1. Roger S.Pressman, “Software Engineering – A Practitioner’s Approach” 7th Edition, Mc Graw Hill,(2014).
2. Ian Sommerville, “Software Engineering”, Tenth Edition, Pearson Education, (2015).
3. Agile Software Development Ecosystems, Jim Highsmith, Addison Wesley; ISBN: 0201760436; 1<sup>st</sup> edition

## Reference Book

Agile Modelling: Effective Practices for Extreme Programming and the Unified Process Scott Amber John Wiley & Sons; ISBN: 0471202827; 1st edition.

## WEB REFERNCES/MOOCs:

<https://www.digite.com/kanban/what-is-kanban/>  
<http://www.scaledagileframework.com>  
<https://www.guru99.com/test-driven-development.html>  
<https://junit.org/junit5/>

THANK YOU



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