TestNG – Complete Guide for Automation Testers

Annotations • Selenium Examples • Exercises • Interview Q&A;

1. Introduction to TestNG

TestNG (Test Next Generation) is a powerful testing framework inspired by JUnit and NUnit, designed to cover all categories of tests such as unit, functional, end-to-end, and integration testing.

2. TestNG Annotation Lifecycle

1. @BeforeSuite – Runs once before the entire suite
2. @BeforeTest – Runs before tag in testng.xml
3. @BeforeClass – Runs before first test method in the class
4. @BeforeMethod – Runs before each @Test method
5. @Test – Actual test case
6. @AfterMethod – Runs after each @Test method
7. @AfterClass – Runs after all methods in the class
8. @AfterTest – Runs after
9. @AfterSuite – Runs once after suite execution

3. Selenium + TestNG Example

A BaseTest class is used to manage browser setup and teardown. Test classes extend BaseTest to reuse setup logic.

4. Screenshot on Failure

ITestResult is used inside @AfterMethod to detect test failure and capture screenshots.

5. Practice Exercises

1 Print execution order of all annotations

2 Create tests with priority and observe order

3 Create dependent tests and force failure

4 Execute grouped tests using testng.xml

5 Use invocationCount to repeat tests

6 Apply timeout and observe failures

6. Interview Questions & Answers

1 Difference between @BeforeTest and @BeforeClass

2 When to use @BeforeMethod?

3 What happens if a dependent method fails?

4 How to run tests in parallel in TestNG?

5 How to retry failed tests?

6 How to capture screenshots on failure?

7. Best Practices

1 Use BaseTest class for setup and teardown

2 Use groups for selective execution

3 Avoid deep dependency chains

4 Keep tests independent

5 Always capture screenshots on failure