**TestNG**

TestNG :  is an automation testing framework in which NG stands for "Next Generation". TestNG is inspired from[JUnit](https://www.guru99.com/junit-tutorial.html)which uses the annotations @.

Generate the report in a proper format including a number of test cases runs, the number of test cases passed, the number of test cases failed, and the number of test cases skipped.

Multiple test cases can be grouped more easily by converting them into testng.xml file. In which you can make priorities which test case should be executed first.

The same test case can be executed multiple times without loops just by using keyword called 'invocation count.'

Using testNG, you can execute multiple test cases on multiple browsers, i.e., cross browser testing.

The testing framework can be easily integrated with tools like Maven, Jenkins, etc.

Annotations used in the testing are very easy to understand ex: @BeforeMethod, @AfterMethod, @BeforeTest, @AfterTest

WebDriver has no native mechanism for generating reports. TestNG can generate the report in a readable format like the one shown below.

By default, methods annotated by @Test are executed alphabetically.

If you want the methods to be executed in a different order, use the parameter

"priority". **Parameters are keywords that modify the annotation's function**.

@Test( Priority = 3)

**@BeforeSuite**: The annotated method will be run before all tests in this suite have run.

**@AfterSuite**: The annotated method will be run after all tests in this suite have run.

**@BeforeTest**: The annotated method will be run before any test method belonging to the classes inside the tag is run.

**@AfterTest**: The annotated method will be run after all the test methods belonging to the classes inside the tag have run.

**@BeforeGroups**: The list of groups that this configuration method will run before. This method is guaranteed to run shortly before the first test method that belongs to any of these groups is invoked.

**@AfterGroups**: The list of groups that this configuration method will run after. This method is guaranteed to run shortly after the last test method that belongs to any of these groups is invoked.

**@BeforeClass**: The annotated method will be run before the first test method in the current class is invoked.

**@AfterClass**: The annotated method will be run after all the test methods in the current class have been run.

**@BeforeMethod**: The annotated method will be run before each test method.

**@AfterMethod**: The annotated method will be run a fter each test method.

**@Test**: The annotated method is a part of a test case

**Parallel Tests** with Selenium

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There are situations where you want to run multiple tests at the same time.

Parallel Execution & Session Handling in Selenium

The parallel attribute of suite tag can accept four values:

tests All the test cases inside <test> tag of Testing xml file will run parallel.

classes All the test cases inside a Java class will run parallel

methods All the methods with @Test annotation will execute parallel.

instances Test cases in same instance will execute parallel but two methods of two different instances will run in different thread.

The attribute thread-count allows you to specify how many threads should be allocated for this execution.

Parallel Execution & Session Handling in Selenium

TestNG.XML

<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE suite SYSTEM "http://testng.org/testng-1.0.dtd">

<suite name="TestSuite" thread-count="3" parallel="methods" >

<test name="testGuru">

<classes>

<class name="TestGuru99MultipleSession">

</class>

</classes>

</test>

</suite>

**What is Listeners in TestNG?**

Listener is defined as interface that modifes the default TestNG's behavior. As the name suggests Listeners "listen" to the event defined in the selenium script and behave accordingly. It is used in selenium by implementing Listeners Interface. It allows customizing TestNG reports or logs. There are many types of TestNG listeners available.