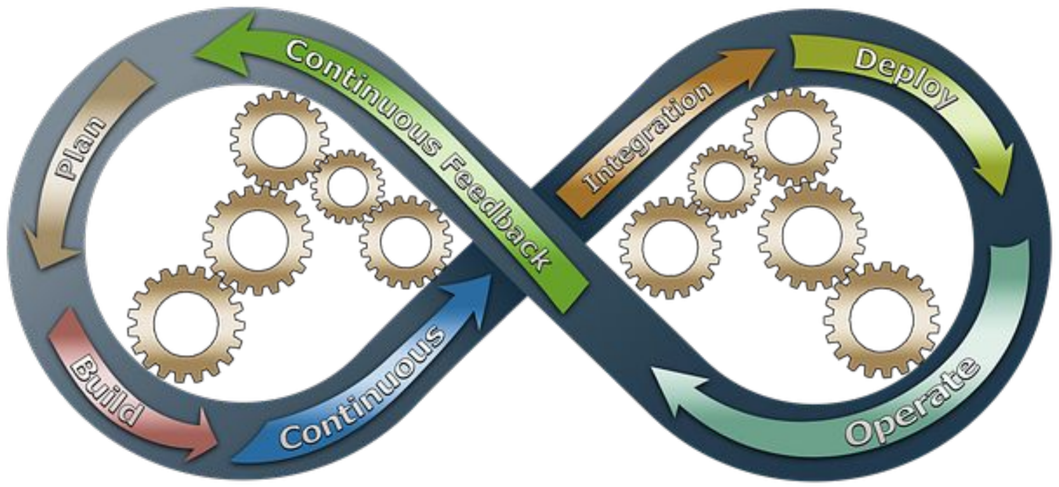

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Session 4.11

TestNG

AN INITIATIVE BY

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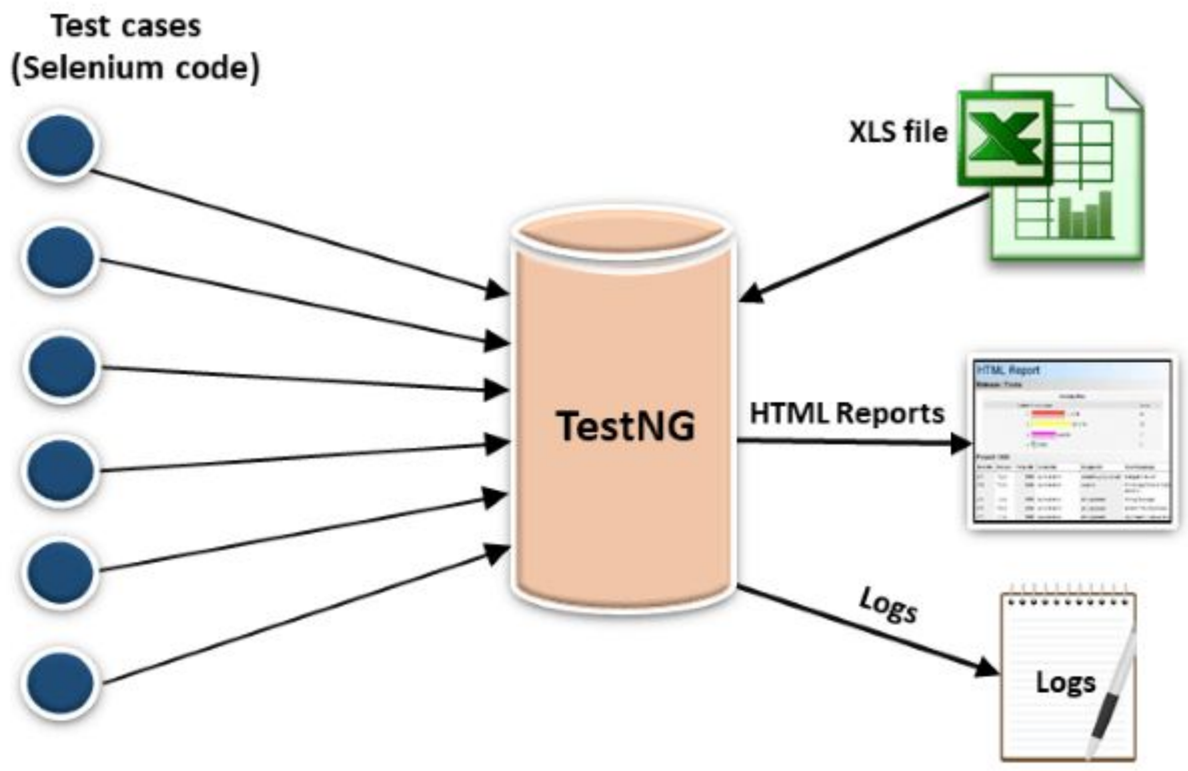
Introduction

Let's go!!!

TestNG

- TestNG is a framework when you are actually developing the framework from scratch level.
- TestNG provides you full control over the test cases and the execution of the test cases. Due to this reason, TestNG is also known as a testing framework.



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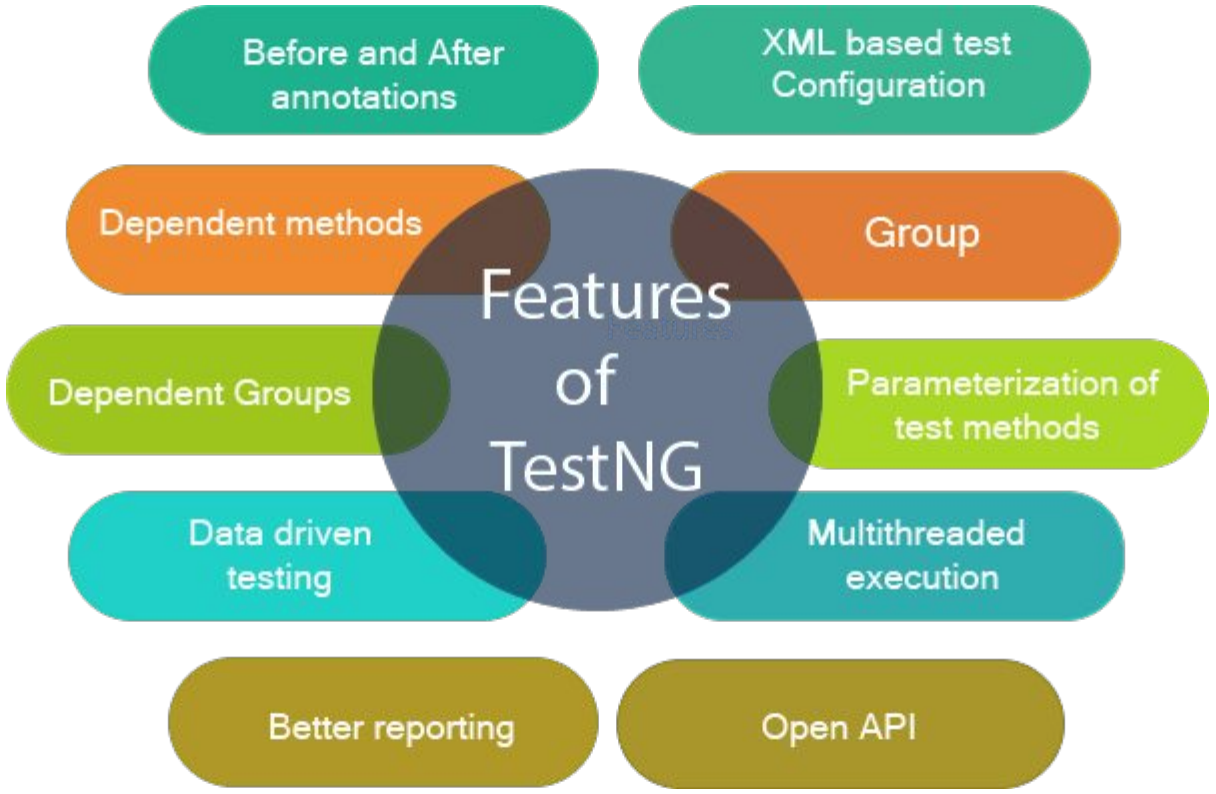
TestNGFeatures



Configure TestNG with Eclipse

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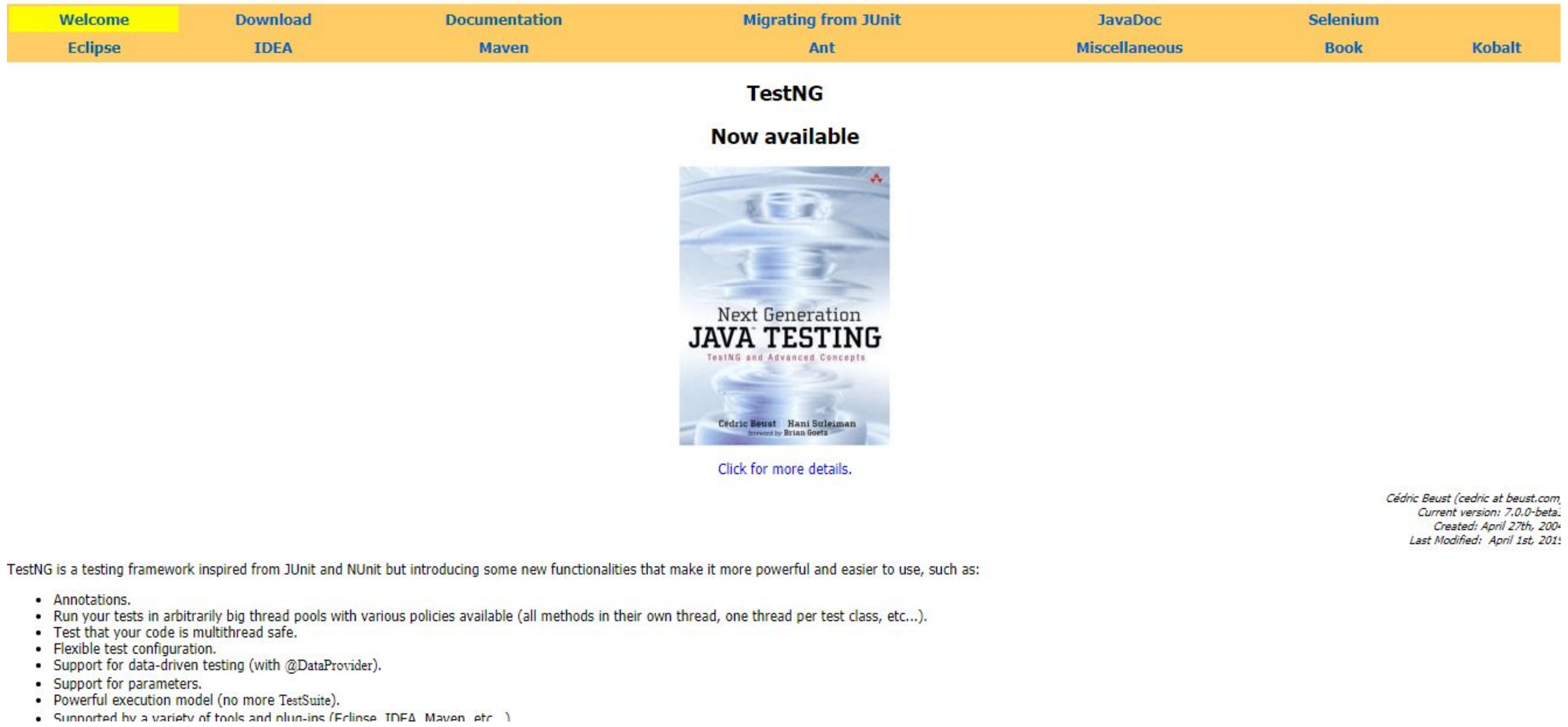
Step 1: Go to the official website of the TestNG. Click on the link given below: https://testng.org/doc/. On clicking the above link, the screen appears as shown below:



TestNG

Now available

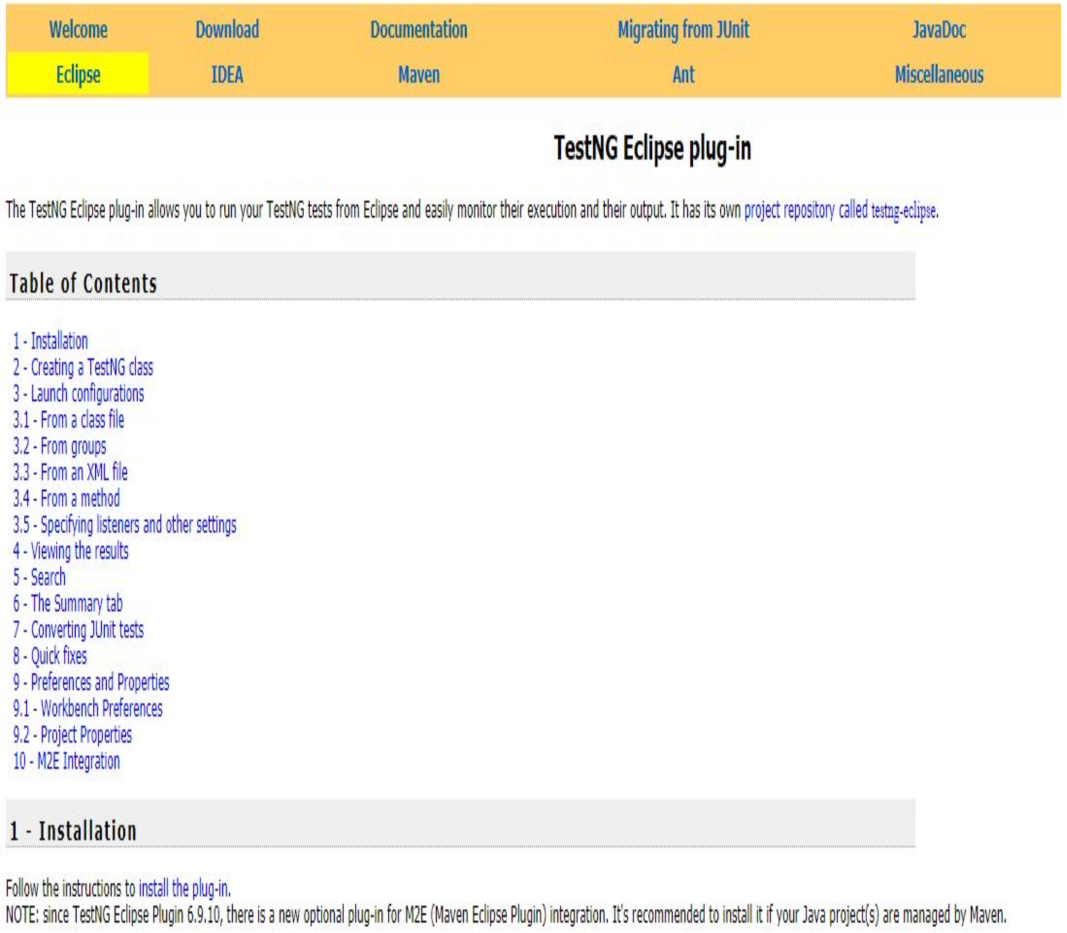
Click for more details.

Cédric Beust (cedric at beust.com
Current version: 7.0.0-beta
Created: April 27th, 200
Last Modified: April 1st, 201

TestNG is a testing framework inspired from JUnit and NUnit but introducing some new functionalities that make it more powerful and easier to use, such as:

- Annotations.
- Run your tests in arbitrarily big thread pools with various policies available (all methods in their own thread, one thread per test class, etc...).
- Test that your code is multithread safe.
- Flexible test configuration.
- Support for data-driven testing (with @DataProvider).
- Support for parameters.
- Powerful execution model (no more TestSuite).
- Supported by a variety of tools and plug-ins (Eclipse, IDEA, Maven, etc...)

Step 2: Click on the Eclipse appearing on the menu bar. After clicking on the Eclipse, the screen appears as shown below:



TestNG Eclipse plug-in

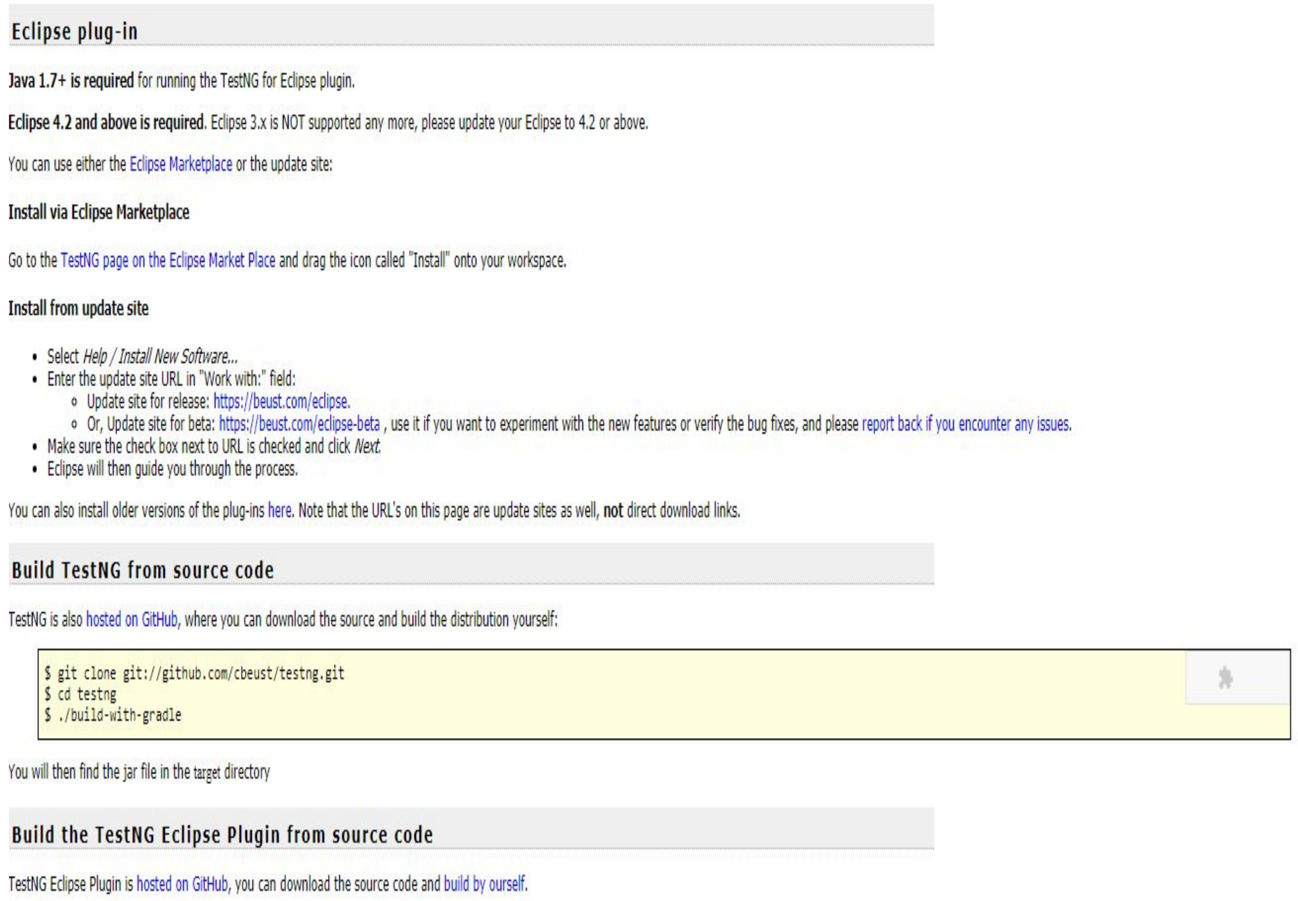
The TestNG Eclipse plug-in allows you to run your TestNG tests from Eclipse and easily monitor their execution and their output. It has its own project repository called testng-eclipse.

Table of Contents

1 - Installation

Follow the instructions to install the plug-in.
NOTE: since TestNG Eclipse Plugin 6.9.10, there is a new optional plug-in for M2E (Maven Eclipse Plugin) integration. It's recommended to install it if your Java project(s) are managed by Maven.

Step 3: Click on the Installation appearing on the top of the Table of Contents, and then click on the "**install the plug-in**". On clicking on the link "**install the plug in**", the screen appears as shown below:



Eclipse plug-in

Java 1.7+ is required for running the TestNG for Eclipse plugin.

Eclipse 4.2 and above is required. Eclipse 3.x is NOT supported any more, please update your Eclipse to 4.2 or above.

You can use either the Eclipse Marketplace or the update site:

Install via Eclipse Marketplace

Go to the TestNG page on the Eclipse Market Place and drag the icon called "Install" onto your workspace.

Install from update site

- Select *Help / Install New Software...*
- Enter the update site URL in "Work with:" field:
  - Update site for release: https://beust.com/eclipse.
  - Or, Update site for beta: https://beust.com/eclipse-beta , use it if you want to experiment with the new features or verify the bug fixes, and please report back if you encounter any issues.
- Make sure the check box next to URL is checked and click *Next*.
- Eclipse will then guide you through the process.

You can also install older versions of the plug-ins here. Note that the URL's on this page are update sites as well, **not** direct download links.

Build TestNG from source code

TestNG is also hosted on GitHub, where you can download the source and build the distribution yourself:

```
$ git clone git://github.com/cbeust/testng.git
$ cd testng
$ ./build-with-gradle
```

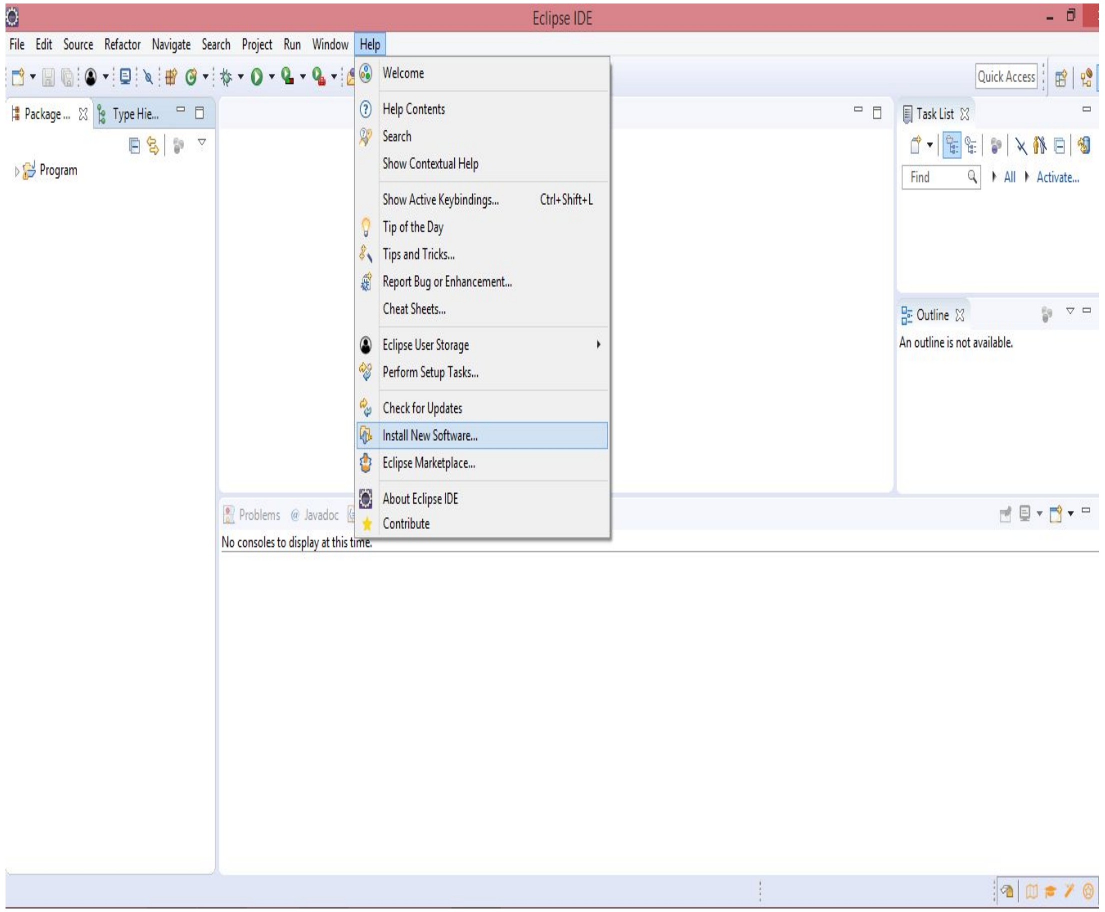
You will then find the jar file in the target directory

Build the TestNG Eclipse Plugin from source code

TestNG Eclipse Plugin is hosted on GitHub, you can download the source code and build by ourself.

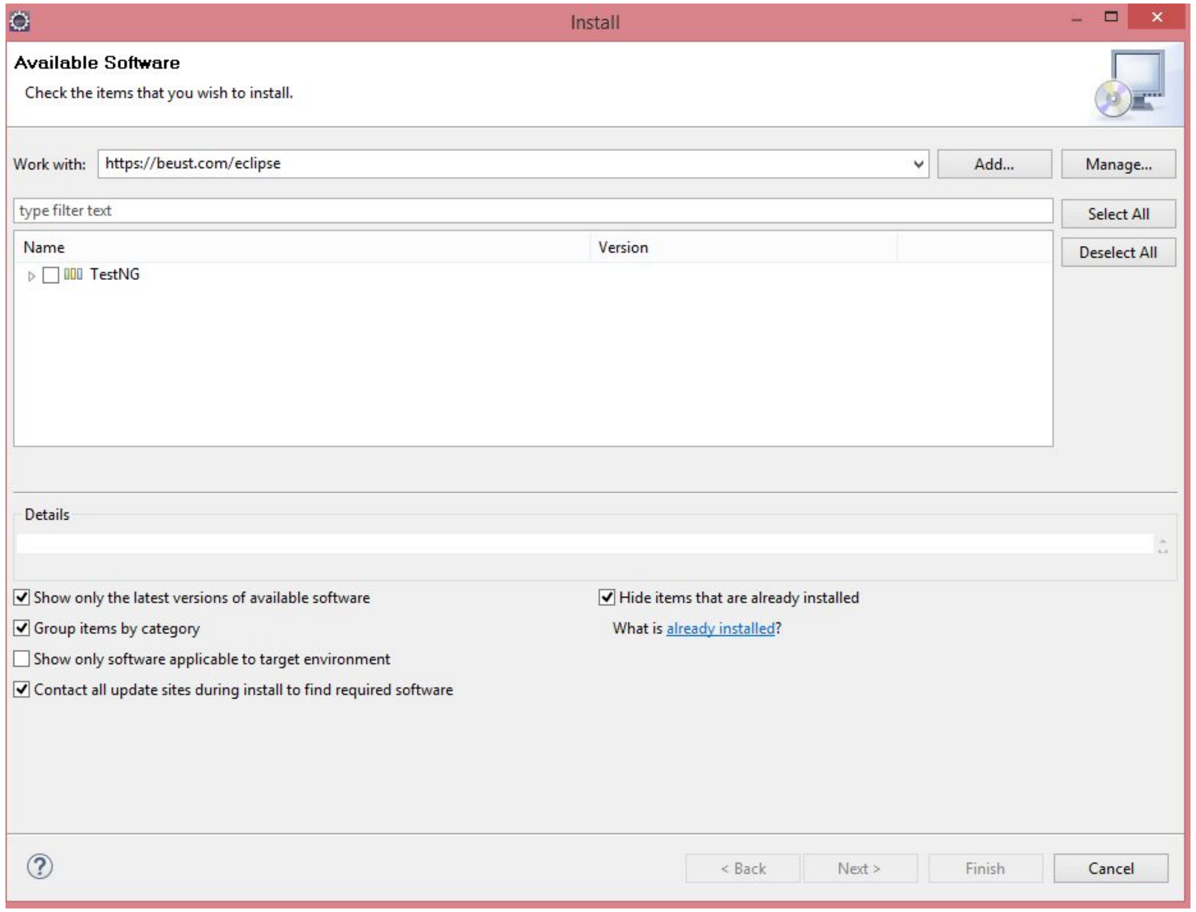
Step 4: Open the Eclipse. Click on the **Help** appearing on the menu bar and then click on the **Install New Software**.

Step 5: Copy the URL https://beust.com/eclipse. Once you paste the URL, then press the Enter. However, in your case, you will see **Pending** for few seconds, thereafter you will see that TestNG plug-in has been loaded.



An outline is not available.

No consoles to display at this time.



Available Software

Check the items that you wish to install.

Work with: https://beust.com/eclipse

type filter text

Name	Version
☐ TestNG	

☑ Show only the latest versions of available software
☑ Hide items that are already installed
☑ Group items by category
What is already installed?
☐ Show only software applicable to target environment
☑ Contact all update sites during install to find required software

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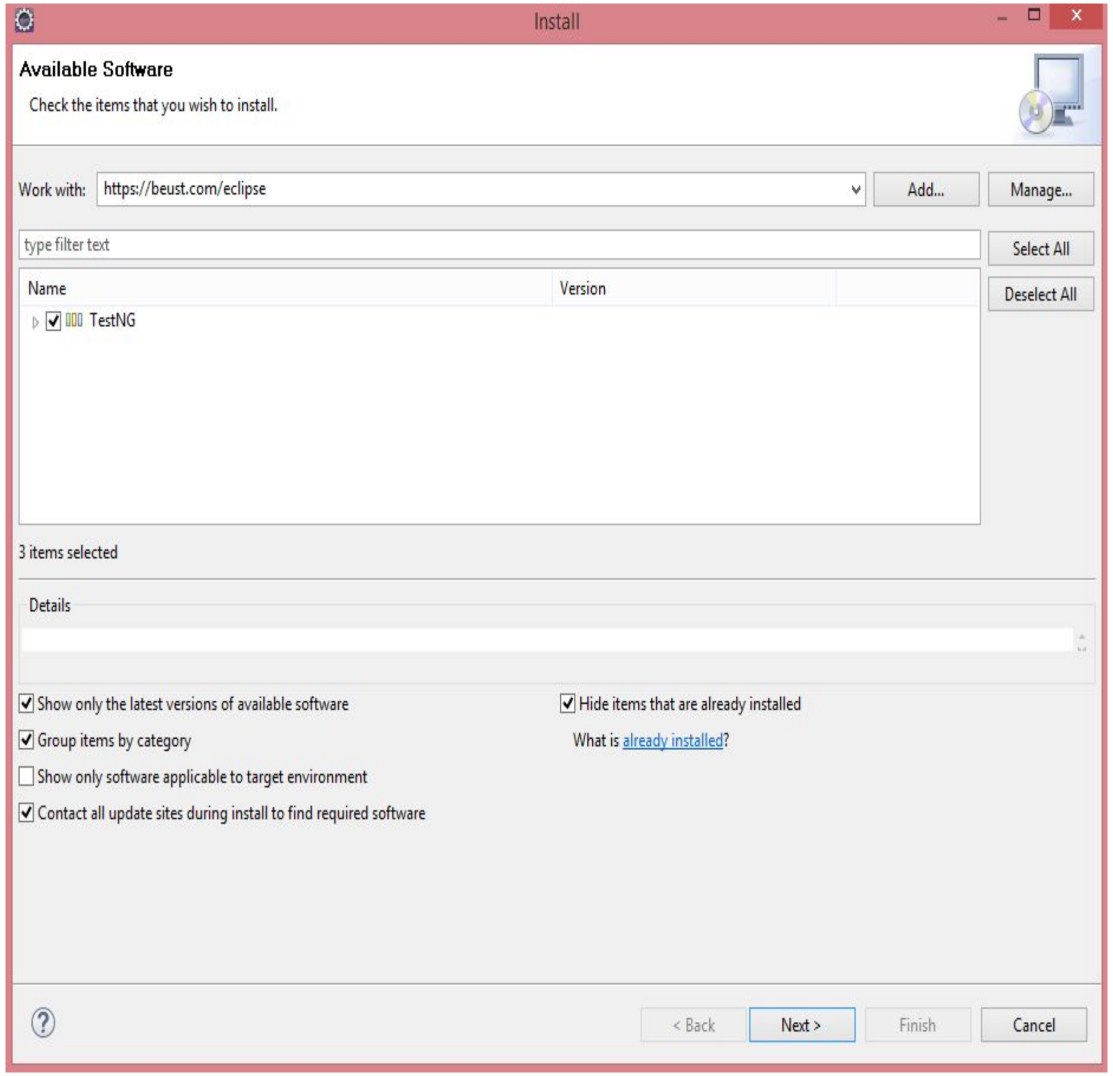
Step 6: Click on the TestNG checkbox.


Install

Available Software

Check the items that you wish to install.

Work with: https://beust.com/eclipse

type filter text

Name	Version
☑ TestNG	

3 items selected

Details

☑ Show only the latest versions of available software

☑ Hide items that are already installed

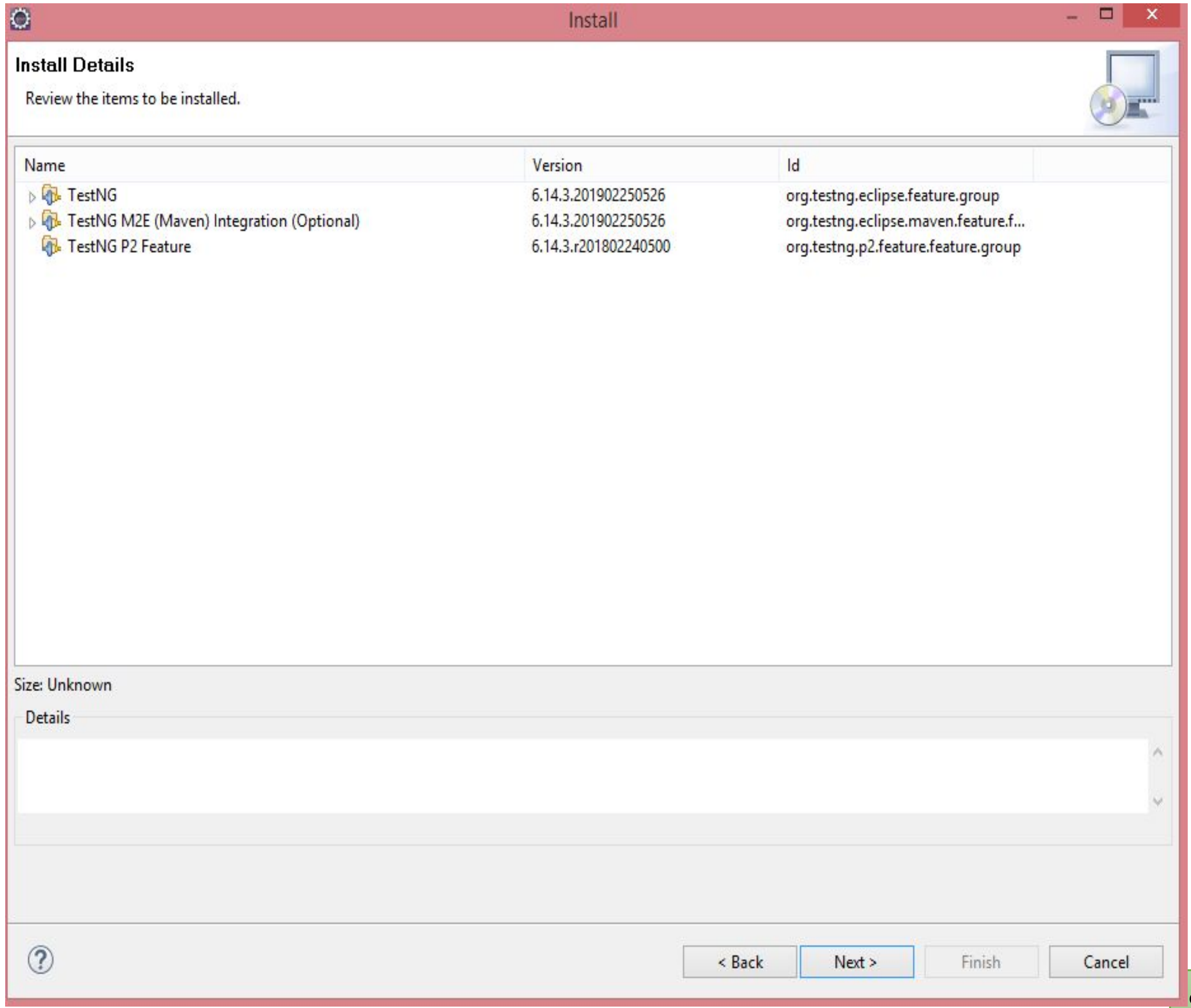
☑ Group items by category

What is already installed?

☐ Show only software applicable to target environment

☑ Contact all update sites during install to find required software

Step 7: In the below screen, three dependencies of TestNG are shown. Now click on the Next.


Install

Install Details

Review the items to be installed.

Name	Version	Id
TestNG	6.14.3.201902250526	org.testng.eclipse.feature.group
TestNG M2E (Maven) Integration (Optional)	6.14.3.201902250526	org.testng.eclipse.maven.feature.f...
TestNG P2 Feature	6.14.3.r201802240500	org.testng.p2.feature.feature.group

Size: Unknown

Details

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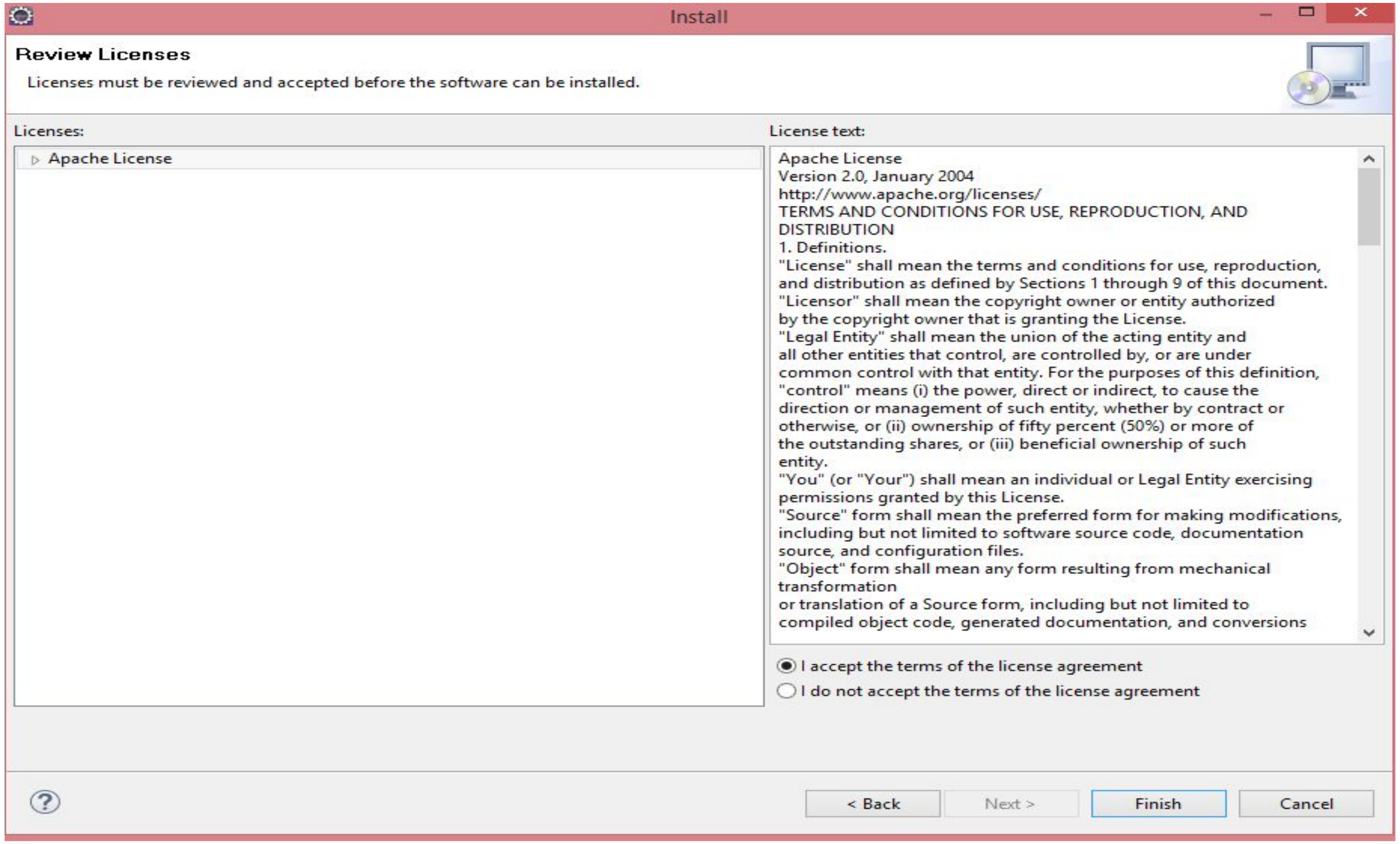
Step 8: Accept the license and then click on the Finish.


Install
Review Licenses
Licenses must be reviewed and accepted before the software can be installed.
Licenses:
Apache License
License text:

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/
TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION
1. Definitions.
"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.
"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.
"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.
"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.
"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.
"Object" form shall mean any form resulting from mechanical transformation
or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions

[✓ I accept the terms of the license agreement]
I do not accept the terms of the license agreement

TestNG Annotations

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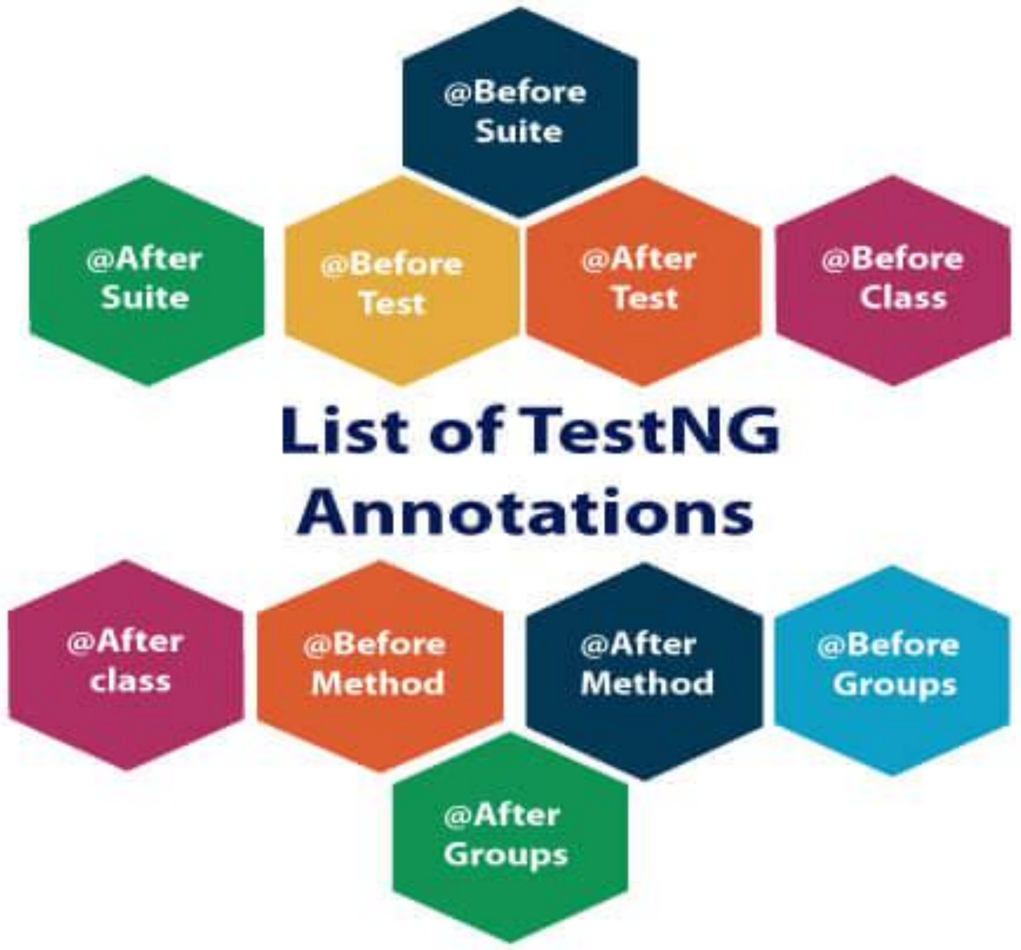

TestNG Annotations

TestNG Annotation	Description
@BeforeSuite	The @BeforeSuite annotated method will run before the execution of all the test methods in the suite.
@AfterSuite	The @AfterSuite annotated method will run after the execution of all the test methods in the suite.
@BeforeTest	The @BeforeTest annotated method will be executed before the execution of all the test methods of available classes belonging to that folder.
@AfterTest	The @AfterTest annotated method will be executed after the execution of all the test methods of available classes belonging to that folder.
@BeforeClass	The @BeforeClass annotated method will be executed before the first method of the current class is invoked.
@AfterClass	The @AfterClass annotated method will be invoked after the execution of all the test methods of the current class.
@BeforeMethod	The @BeforeMethod annotated method will be executed before each test method will run.
@AfterMethod	The @AfterMethod annotated method will run after the execution of each test method.
@BeforeGroups	The @BeforeGroups annotated method run only once for a group before the execution of all test cases belonging to that group.
@AfterGroups	The @AfterGroups annotated method run only once for a group after the execution of all test cases belonging to that group.

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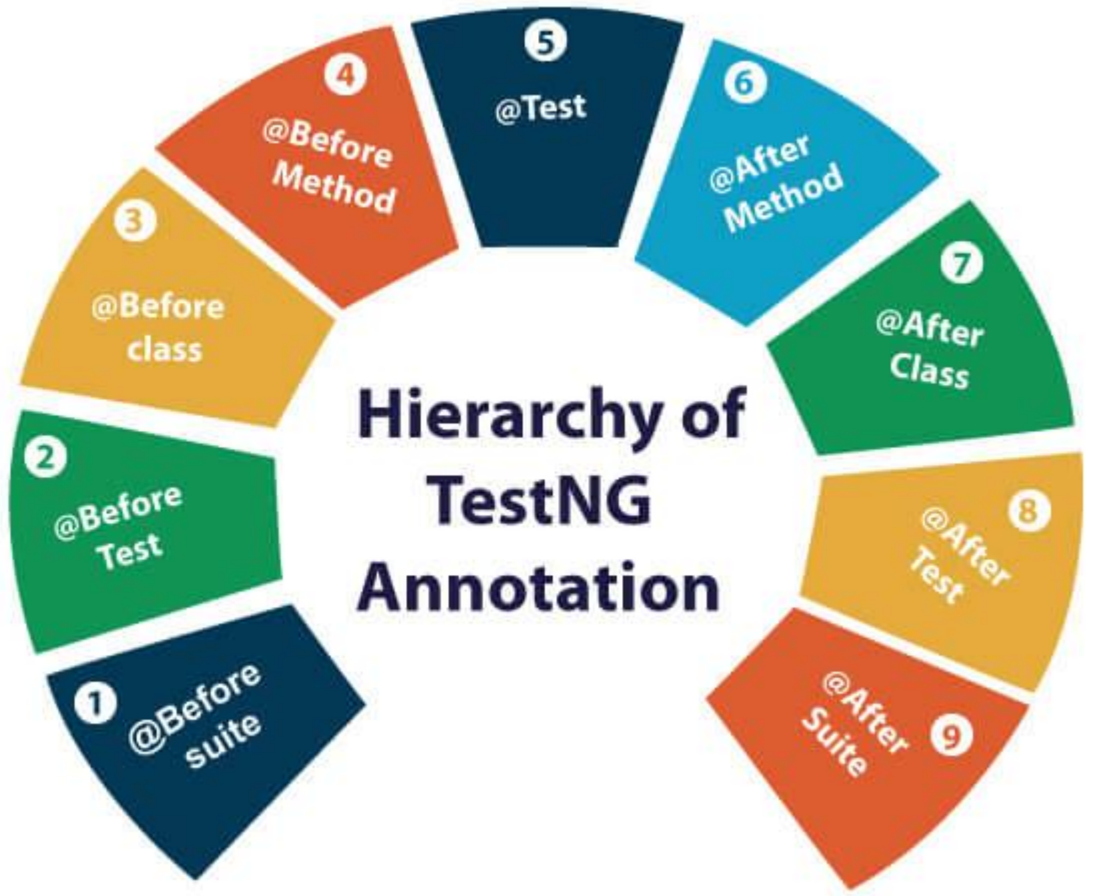
Hierarchy of the TestNG Annotations:



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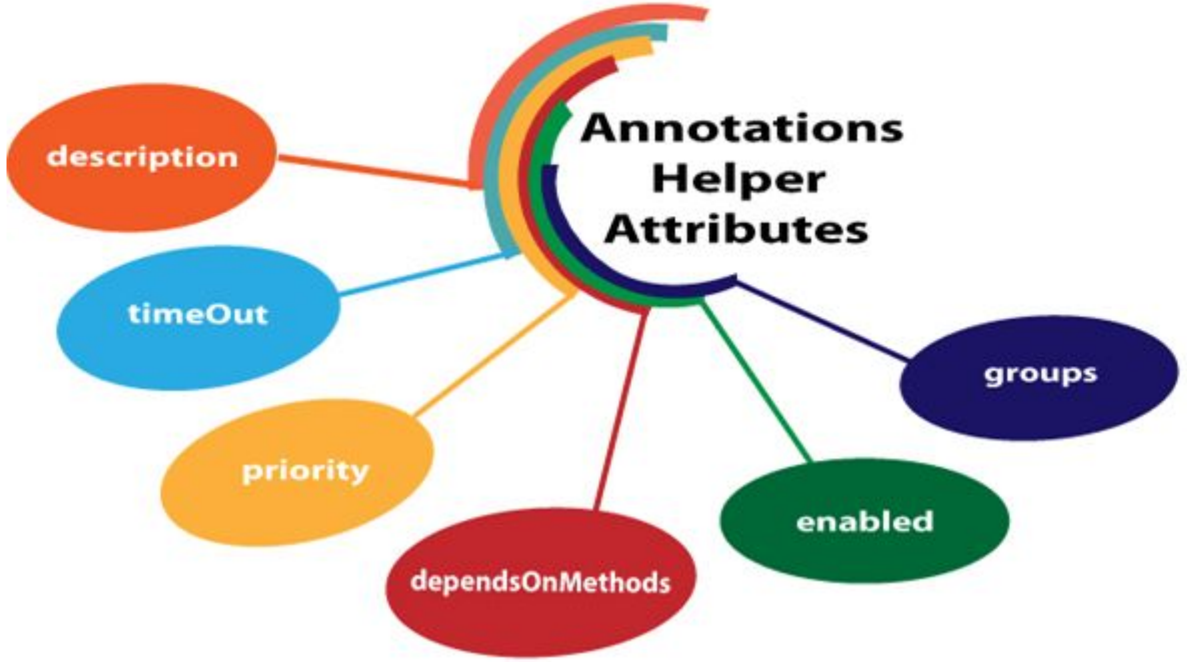
Benefits of using TestNG Annotations:

- TestNG Annotations made the life of testers very easy. Based on your requirements, you can access the test methods, i.e., it has no predefined pattern or format.
- You can pass the additional parameters to TestNG annotations.
- In the case of TestNG annotations, you do not need to extend any test classes.
- TestNG Annotations are strongly typed, i.e., errors are detected at the compile time.

TestNG Annotations Common Attributes:



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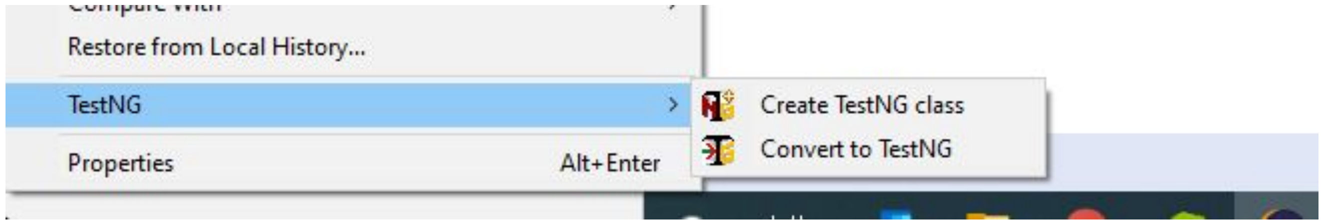
Integrate Selenium Scripts with TestNG

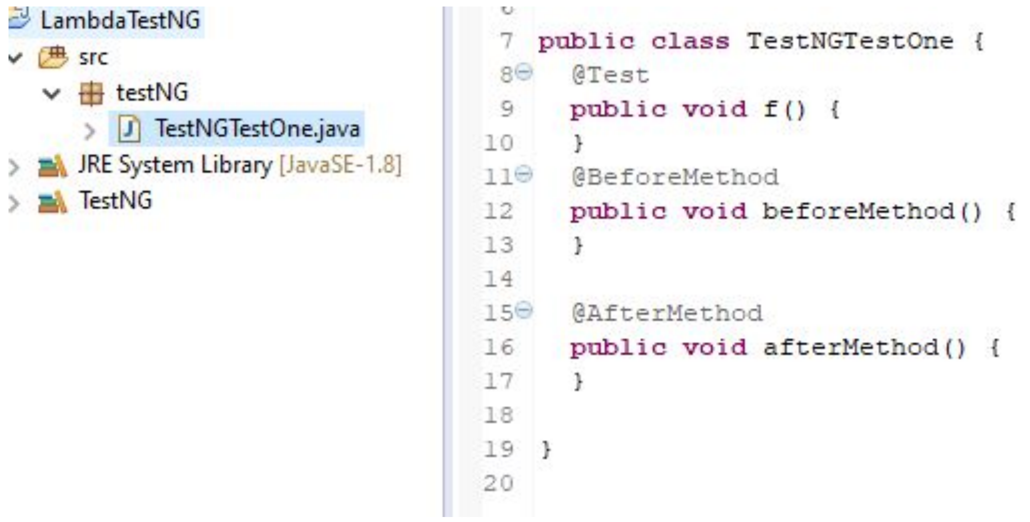
Creating a TestNG class in Eclipse:

- **Step 1:** Navigate to src from the project folder and right-click the same. You will see TestNG as an option in the dropdown towards the bottom. Click on it and you will now see two sub-options to either create a TestNG class or convert the class to TestNG. As we are creating a new TestNG class, you need to select the first option.



- **Step 2:** Generally, the source folder name is auto-filled but if it is not, you can simply browse through the same. Next, you can give any name to your class, for example, '**TestNGTestOne**' and its package. For now, we will keep the basic annotations selected **@BeforeMethod** and **@AfterMethod**. However, Annotations can be configured at a later stage as well depending upon your test scenario.

- **Step 3:** You will now see a class(**TestNGTestOne.java**) in your project directory with default methods, viz f(), as well as beforeMethod() and afterMethod() that you can see were checked in the screenshot above.



```
LambdaTestNG
  src
    testNG
      TestNGTestOne.java
  JRE System Library [JavaSE-1.8]
  TestNG
```

```java
public class TestNGTestOne {
    @Test
    public void f() {
    }
    @BeforeMethod
    public void beforeMethod() {
    }

    @AfterMethod
    public void afterMethod() {
    }

}
```

- You are now all set to write code in your first TestNG class

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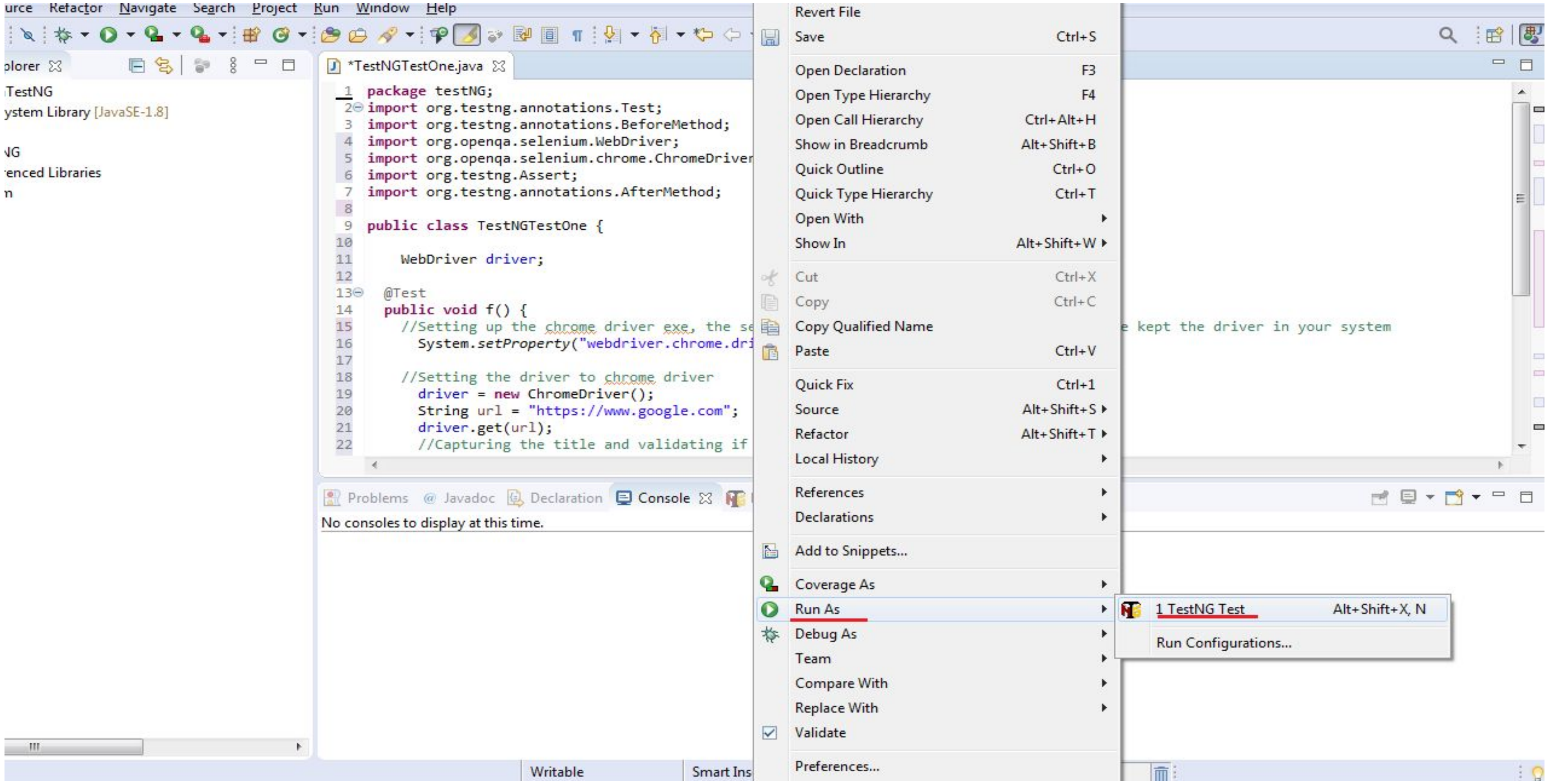
Write Test Case using Selenium and TestNG:

- Right-click on the test script and navigate to **Run As >> TestNG Test**.



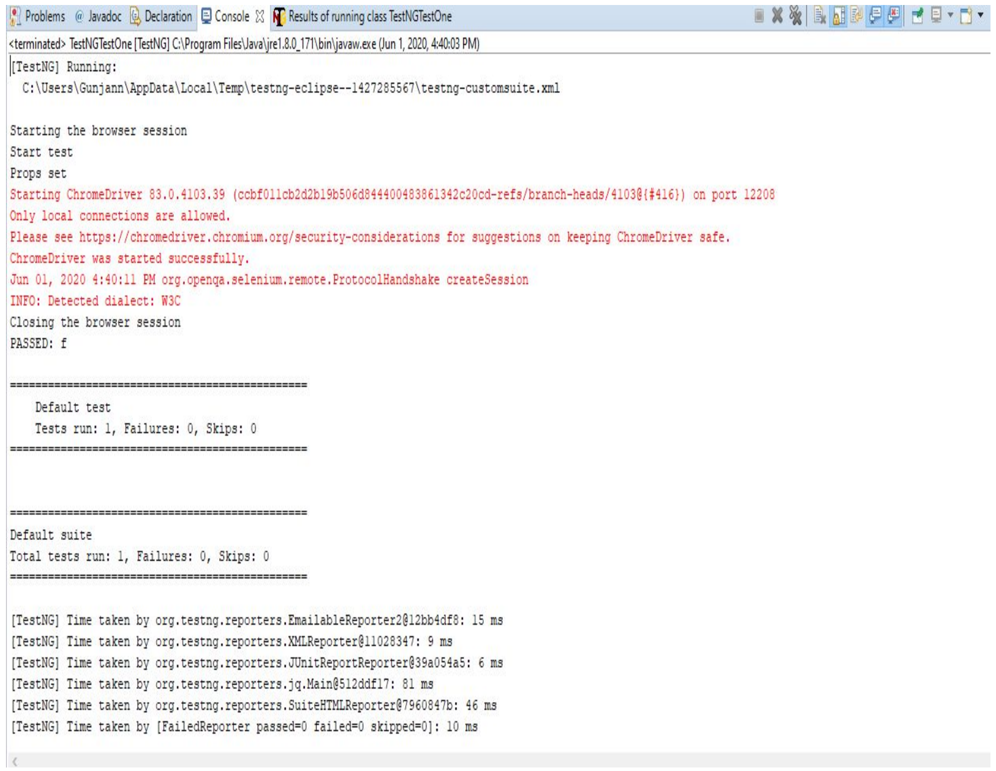
```
package testNG;
import org.testng.annotations.Test;
import org.testng.annotations.BeforeMethod;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver
import org.testng.Assert;
import org.testng.annotations.AfterMethod;

public class TestNGTestOne {

    WebDriver driver;

  @Test
  public void f() {
    //Setting up the chrome driver exe, the se                e kept the driver in your system
      System.setProperty("webdriver.chrome.dri

    //Setting the driver to chrome driver
      driver = new ChromeDriver();
      String url = "https://www.google.com";
      driver.get(url);
      //Capturing the title and validating if
```

No consoles to display at this time.

After running the test script, as shown above, you can verify the results of the test. This can be seen either on the TestNG reports or the console itself.

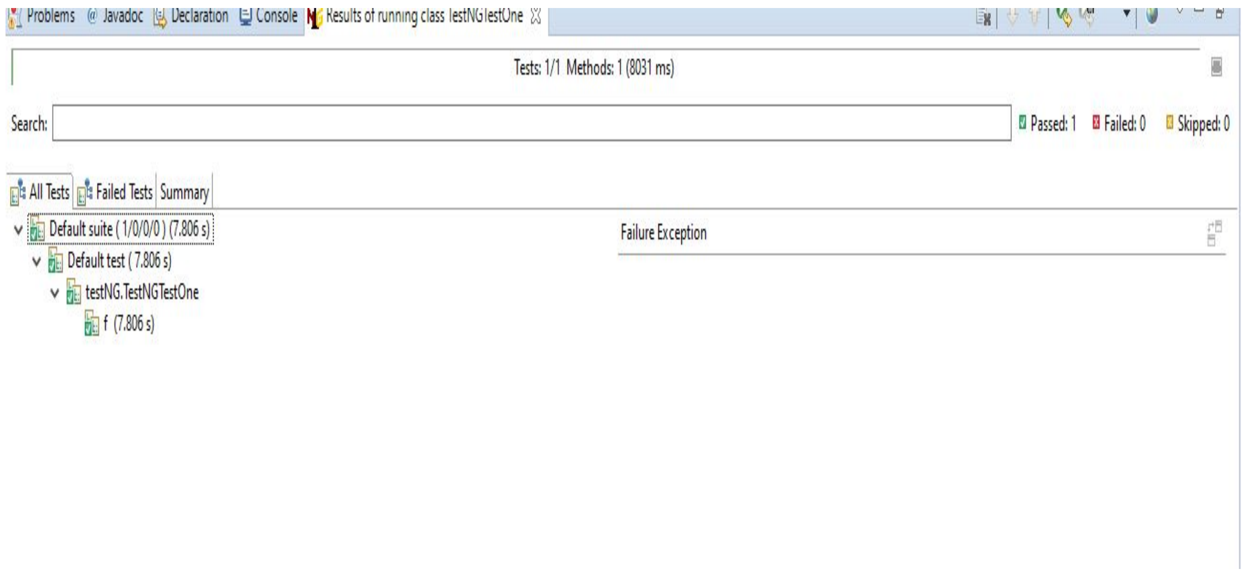
TestNG Reports and Results:

Console :-



```
<terminated> TestNGTestOne [TestNG] C:\Program Files\Java\jre1.8.0_171\bin\javaw.exe (Jun 1, 2020, 4:40:03 PM)
[TestNG] Running:
  C:\Users\Gunjann\AppData\Local\Temp\testng-eclipse--1427285567\testng-customsuite.xml

Starting the browser session
Start test
Props set
Starting ChromeDriver 83.0.4103.39 (ccbf011cb2d2b19b506d844400483861342c20cd-refs/branch-heads/4103@{#416}) on port 12208
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
Jun 01, 2020 4:40:11 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Closing the browser session
PASSED: f

===============================================
    Default test
    Tests run: 1, Failures: 0, Skips: 0
===============================================


===============================================
Default suite
Total tests run: 1, Failures: 0, Skips: 0
===============================================

[TestNG] Time taken by org.testng.reporters.EmailableReporter2@12bb4df8: 15 ms
[TestNG] Time taken by org.testng.reporters.XMLReporter@11028347: 9 ms
[TestNG] Time taken by org.testng.reporters.JUnitReportReporter@39a054a5: 6 ms
[TestNG] Time taken by org.testng.reporters.jq.Main@512ddf17: 81 ms
[TestNG] Time taken by org.testng.reporters.SuiteHTMLReporter@7960847b: 46 ms
[TestNG] Time taken by [FailedReporter passed=0 failed=0 skipped=0]: 10 ms
```

TestNG Results:–



Session Recap

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