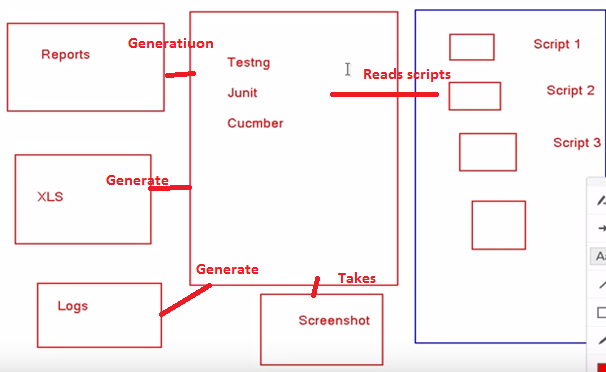
* TestNG/JUnit/Cucumber reads the scripts and generates Reports, xls, logs and also takes screenshots.

### ****Overall Picture****



### ****Features of TestNG****

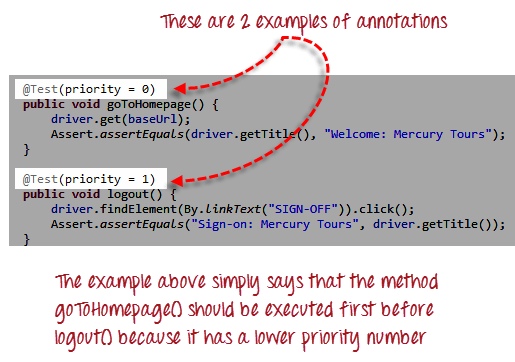
* Support for **annotations**
* Support for **parameterization**
* Advance execution methodology that do not require test suites to be created
* Support for Data Driven Testing using **Data providers**
* Enables user to **set execution priorities** for the test methods
* Supports threat safe environment when executing multiple threads
* Readily supports integration with various tools and plug-ins like build tools (**Ant, Maven** etc.), Integrated Development Environment (Eclipse).
* Facilitates user with effective means of Report Generation using **ReportNG**.

### ****Advantages of TestNG over JUnit****

1. Annotations are easier to understand
2. Test cases can be grouped more easily
3. Parallel testing is possible

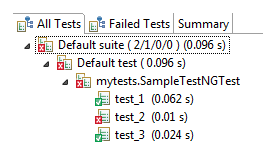
* **Annotations in TestNG are lines of code that can control how the method below them will be executed**.

They are always preceded by the @ symbol.

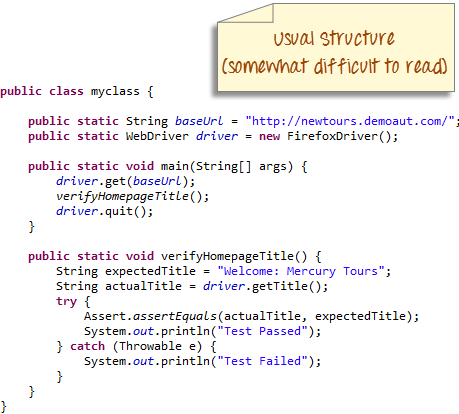


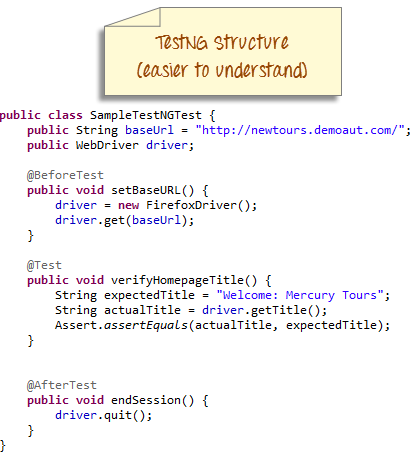
### ****Why do we need TestNG in Selenium****

1. Web Driver has no native mechanism for **generating reports**. Hence TestNG can generate reports based on our Selenium test results.



1. There is no more need for a **static main method** in our tests.



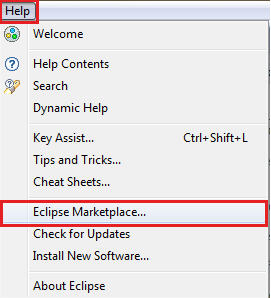


1. Uncaught exceptions are automatically handled by TestNG without terminating the test prematurely. These exceptions are reported as failed steps in the report.

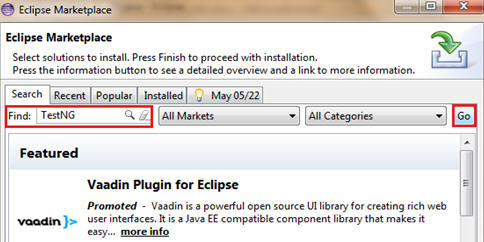
### ****TestNG Installation in Eclipse****

**Follow the below steps to TestNG Download and installation on eclipse:**

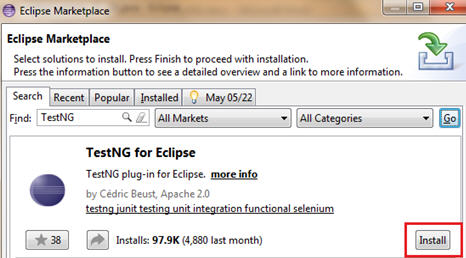
**Step 1:**Launch eclipse IDE -> Click on the Help option within the menu -> Select “Eclipse Marketplace.” option within the dropdown.

[](http://cdn2.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-1.jpg)

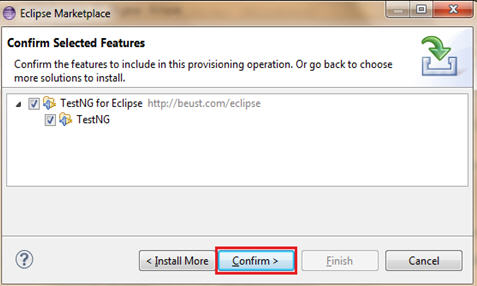
**Step 2:** Enter the keyword “TestNG” in the search textbox and click on “Go” button as shown below.

[](http://cdn.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-2.jpg)

**Step 3:** As soon as the user clicks on the “Go” button, the results matching to the search string would be displayed. Now user can click on the Install button to install TestNG.

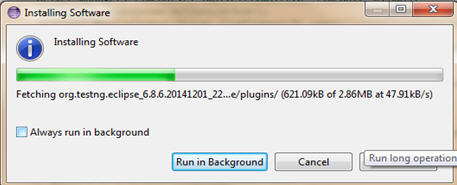
[](http://cdn2.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-3.jpg)

**Step 4:** As soon as the user clicks on the Install button, the user is prompted with a window to confirm the installation. Click on “Confirm” button.

[](http://cdn2.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-4.jpg)

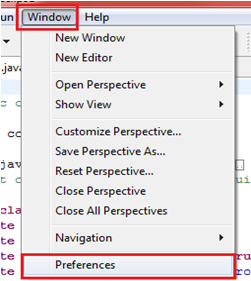
**Step 5:** In the next step, the application would prompt you to accept the license and then click on the “Finish” button.

**Step 6:** The installation is initiated now and the progress can be seen as following:

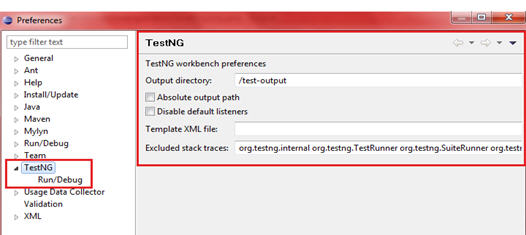
[](http://cdn.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-5.jpg)

We are advised to restart our eclipse so as to reflect the changes made.

Upon restart, user can verify the TestNG installation by navigating to “Preferences” from “Window” option in the menu bar. Refer the following figure for the same.

[](http://cdn.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-6.jpg)

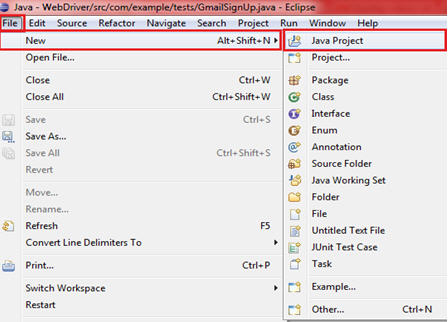
(Click on image to view enlarged)

[](http://cdn2.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-7.jpg)

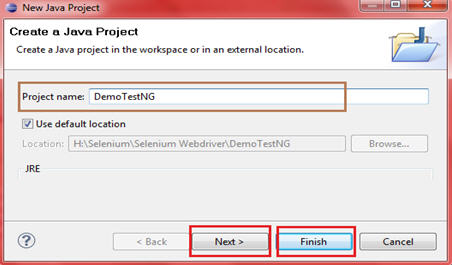
### ****Creation of Sample TestNG project****

Let us begin with the creation of TestNG project in eclipse IDE.

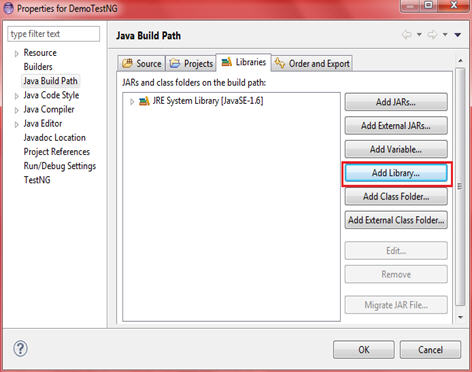
**Step 1:** Click on the File option within the menu -> Click on New -> Select Java Project.

[](http://cdn2.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-8.jpg)

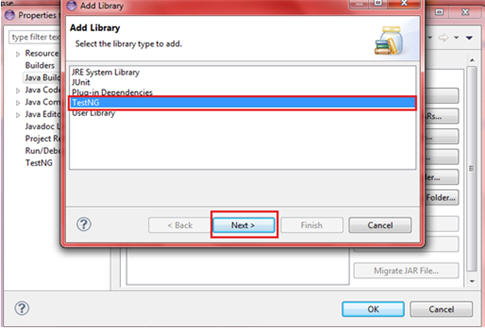
**Step 2:** Enter the project name as “**DemoTestNG**” and click on “Next” button and Click Finish.

[](http://cdn.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-9.jpg)

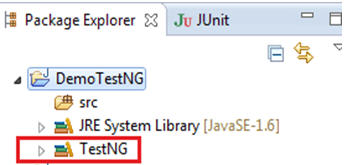
**Step 3:**  Click on “Add library” as shown below.

[](http://cdn.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-10.jpg)

**Step 4:**  Select TestNG.

[](http://cdn2.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-11.jpg)

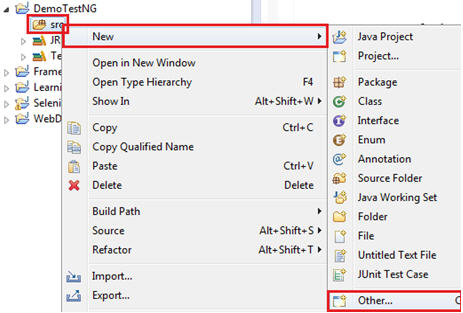
The TestNG is now added to the Java project and the required libraries can be seen in the package explorer upon expanding the project.

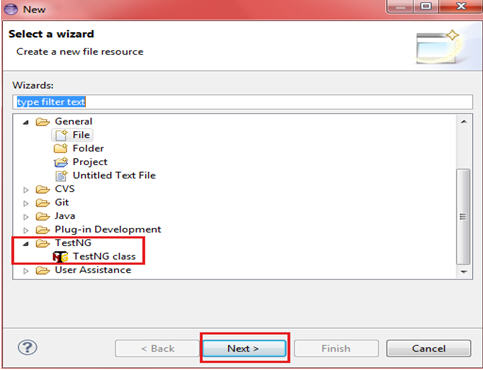
[](http://cdn2.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-12.jpg)

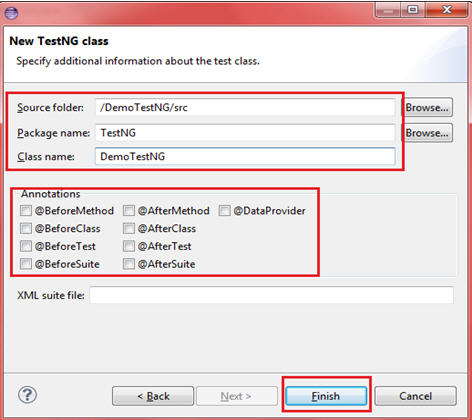
Add all the downloaded Selenium libraries and jars.

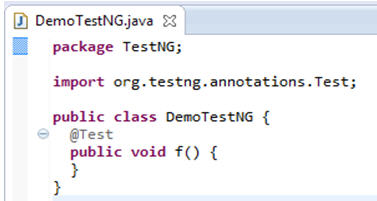
### ****Creating TestNG class****

**Step 1:** Expand the “DemoTestNG” project and go to “src” folder. Right click on the “src” package and navigate to New -> Other.

[](http://cdn.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-13.jpg)

**Step 2:**  click “TestNG” class option [](http://cdn2.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-14.jpg)

**Step 3:** Specify the Source folder, package name and the TestNG class name and click on the Finish button.[](http://cdn.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-15.jpg)

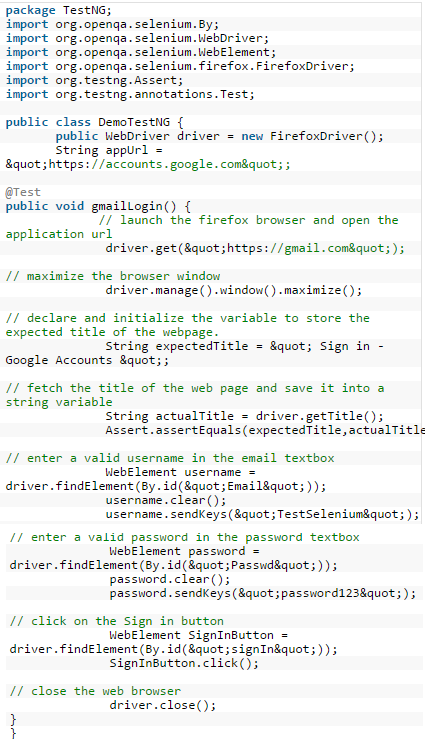
[](http://cdn.softwaretestinghelp.com/wp-content/qa/uploads/2014/10/Selenium-TestNG-tutorial-16.jpg)

Now that we have created the basic foundation for the TestNG test script, let us now inject the actual test code. We are using the same code we used in the previous session.

**Scenario:**

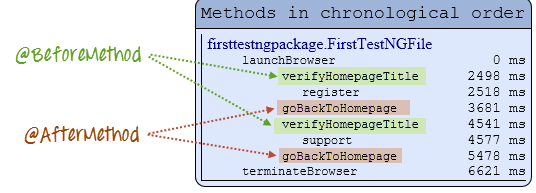
* Launch the browser and open “gmail.com”.
* Verify the title of the page and print the verification result.
* Enter the username and Password.
* Click on the Sign in button.
* Close the web browser.

**Code:**



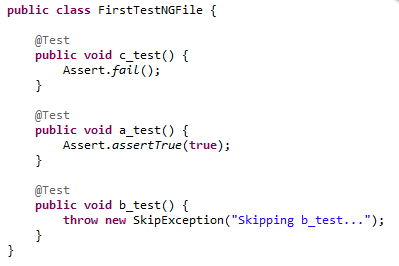
**Summary of TestNG Annotations**

* **@BeforeSuite:** The annotated method will be run before all tests in this suite have run.
* **@AfterSuite:** This method will be run after all tests in this suite have run.
* **@BeforeTest:** This method will be run before any test method belonging to the classes inside the tag is run i.e prior to the first test case in the TestNG file.
* **@AfterTest:** This method will be run after all the test methods belonging to the classes inside the tag have run i.e after all test cases in the TestNG file are executed.
* **@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:** This method will be run before the first test method in the current class is invoked.
* **@AfterClass:** This method will be run after all the test methods in the current class have been run.
* **@BeforeMethod:** This method will be run before each test method.
* **@AfterMethod:** This method will be run after each test method.
* **@Test:** This method is a part of a test case.

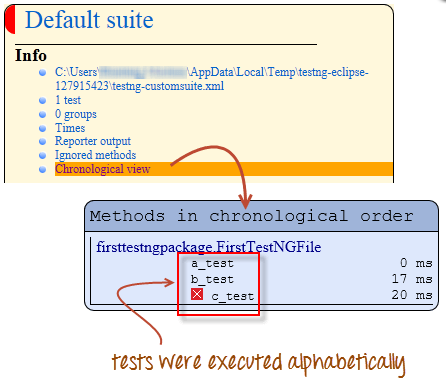


**Multiple Test Cases**

* We can use multiple @Test annotations in a single TestNG file. By default, methods annotated by @Test are executed alphabetically. See the code below. Though the methods **c\_test, a\_test, and b\_test** are not arranged alphabetically in the code, they will be executed as such.

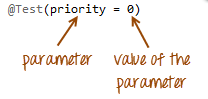


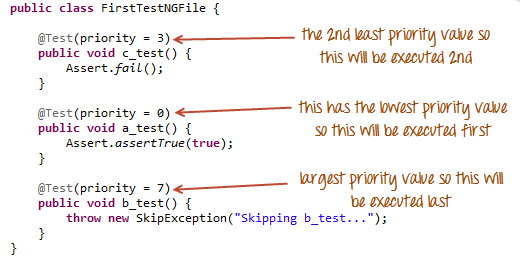
* Run this code and on the generated index.html page, click "Chronological view".



**Parameters**

* If you want the methods to be executed in a different order, use the parameter "priority".





* The TestNG HTML report will confirm that the methods were executed based on the ascending value of priority.

