SELENIUM TESTING
-FREQUENT INTERVIEW QUESTIONS WITH DETAILED ANSWERS

Reference:
Selenium CheatSheet
Software Automation Testing
Selenium Webdriver

1. How do you start Selenium RC?

Ans:

simple way to start selenium rc

is java -jar selenium-server.jar

to run a suite of Selenese scripts in a

browser java -jar selenium-server.jar -

htmlSuite

2. How do you connect Data base from selenium

Ans:

Connecting to database is language dependent. if we are using Java

A Connection object represents a connection with a database. When we connect to a database by using connection method, we create a Connection Object, which represents theconnection to the database. An application may have one or more than one connections with a single database or many connections with different databases.

We can use the Connection object for the following things:

1). It creates the Statement, PreparedStatement and CallableStatement objects for executing the SQL statements.

2). It helps us to Commit or roll back a jdbc transactionn.

3). If you want to know about the database or data source to which you are connected then the Connection object gathers information about the database or data source by the use of DatabaseMetaData.

4). It helps us to close the data source. The Connection.isClosed() method returns true only if the Connection.close() has been called. This method is used to close all the connection.

Firstly we need to to establish the connection with the database. This is done by using the method DriverManager.getConnection(). This method takes a string containing a URL. The DriverManager class, attempts to locate a driver that can connect to the database represented by the string URL. Whenever the getConnection() method is called the DriverManager class checks the list of all registered Driver classes that can connect to the database specified in the URL.

Syntax:

String url = "jdbc: odbc: makeConnection";

Connection con = DriverManager.getConnection(url, "userID", "password");

3. How do you handle Ajax controls using selenium?

Eg. By typing in search engine how do you capture the auto suggestion?

4. How do you select the 2nd item in a List box or drop

down. Ans:

selenium.select(selectLocator,

optionLocator) selectLocator – a locator for

the select element optionLocator – a locator

for the option element

5. How do you identify an object using selenium?

Ans:

isElementPresent(String locator)
isElementPresent takes a locator as the argument and if found returns a boolean value of True.

6. How do you capture an element loading after the page load?

Ans:

provide a time to check the element(in seconds) Like :

```
public void waitForElementPresent(String element, int timeout) throws

Exception { for (int second = 0;; second++) {

if (second >= timeout)

fail("Timeout. Unable to find the Specified element" +

element); try {

    if (selenium.isElementPresent(element))

break; } catch (Exception e) { }

Thread.sleep(1000);

}
```

}

7. Brief about your framework

8. What is the difference between assert and Verify Commands?

Ans:

There are two mechanisms for validating elements that are available on the application under test. The first is assert: this allows the test to check if the element is on the page. If it is not available, then the test will stop on the step that failed. The second is verify: this also allows the test to check whether the element is on the page, but if it isn't, then the test will carry on executing.

9. Explain about your reporting method

10.How do you verify an object presented in multiple pages.

Ans:

Check on each page

assertTrue(selenium.isElementPresent(locator));

11.What are the locators available in Selenium?

Ans:

1. ID
2. Name
3. Filters
4. DOM
5. CSS
6. Xpath

12.What is the difference between single and double slash in Xpath

Ans:

/

1. start selection from the document node
2. allows you to create 'absolute' path expressions
3. e.g. “/html/body/p” matches all the paragraph elements

//

1. start selection matching anywhere in the docume
2. allows you to create 'relative' path expressions
3. e.g. “//p” matches all the paragraph elements

13.Brief about Selenium Client.

14.Did you write any User Extensions.

User extensions are stored in a separate file that we will tell Selenium IDE or Selenium RC to use. Inside there the new function will be written in JavaScript.

Because Selenium's core is developed in JavaScript, creating an extension follows the standard rules for prototypal languages. To create an extension, we create a function in the following design pattern.

```
Selenium.prototype.doFunctionName = function(){

.

}
```

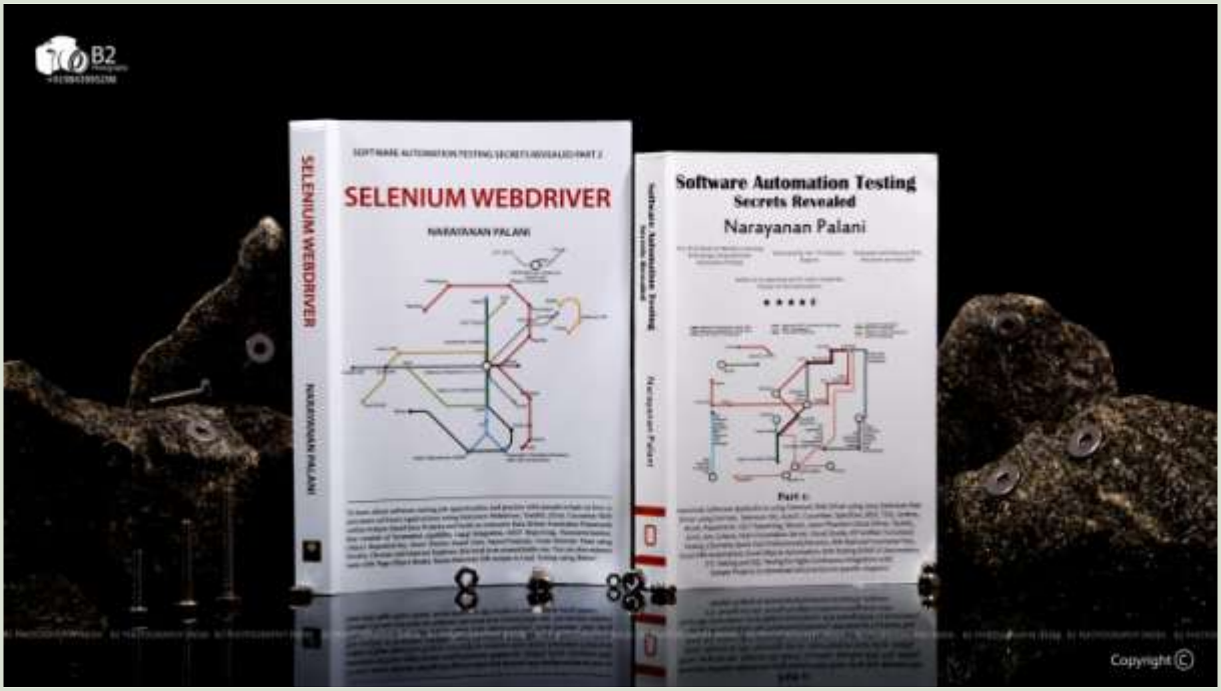
The "do" in front of the function name tells Selenium that this function can be called as a command for a step instead of an internal or private function.

15.What are all things can not be done through selenium IDE

Ans:

1. Easy record and playback.
2. Intelligent field selection will use IDs, names, or XPath as needed.
3. Autocomplete for all common Selenium commands.
4. Walk through tests.
5. Debug and set breakpoints.
6. Save tests as HTML, Ruby scripts, or any other format.

7. Support for Selenium user-extensions.js file.



8. Option to automatically assert the title of every page.

Advantages: Selenium IDE is the only flavor of Selenium, which allows you to record user action on browser window. It can also record user actions in most of the popular languages like Java, C#, Perl, Ruby etc. This eliminates the need of learning new vendor scripting language. For executing scripts created in these languages, you will need to use Selenium Remote Control. If you do not want to use Remote Control than you will need to create your test scripts in HTML format.

Disadvantages: Biggest drawback of Selenium IDE is its limitation in terms of browser support. Though Selenium scripts can be used for most of the browser and operating system, Scripts written using Selenium IDE can be used for only Firefox browser if it is not used with Selenium RC or Selenium Core.

16.Brief about Selenium Grid.

Ans:

Selenium Grid is a tool that dramatically speeds up functional testing of web-apps by leveraging your existing computing infrastructure. It allows you to easily run multiple tests in parallel, on multiple machines, in an heterogeneous enviroment.

Based on the excellent Selenium web testing tool, Selenium Grid allows you to run multiple instances of Selenium Remote Control in parallel. Even better, it makes all these Selenium Remote Controls appear as a single one, so your tests do not have to worry about the actual infrastructure. Selenium Grid cuts down on the time required to run a Selenium test suite to a fraction of the time that a single instance of Selenium instance would take to run. More Answers and Sample Scripts are at Link

17.Is it possible to start the Remote engine more than once in an instance.

18. How to use selenium for performance testing

19. How to start the selenium server from your language class? Ans:

```
try {
    seleniumServer = new SeleniumServer();
    seleniumServer.start();
} catch (Exception e) {
    e.printStackTrace();
}
```

20. Is it possible to handle multiple pop ups in selenium?

22. Give the benefits of SQL Stored procedure in

selenium?

23.What are the difficulties or challenge you faced in selenium?

24. How do you check a single test method in multiple browser?

25. What is the annotation you use to connect the Spread sheet in

Junit. 26.Brief about Junit annotations. Answer: Link

27.How can we speed up the selenium script execution?

28.If the default port of selenium is busy then which port you

use? 29.Explain types of SQL joins.

30.How do you handle the secured connection error in

HTTPS? 31.How do you compare two strings or values are

same.Answer: Link

1) What is Automation ?
A) In general, it is the process of implementing particular work automatically by using a machine, to reduce the need of human work in the production of goods and services...
2) What is meant by Automation in software testing ?
A) It is a process of testing an application(executing the tests, comparing expected and actual results under some controlled conditions and generating the reports) automatically by using a 'Tool' to reduce the need of human effort. This tool may be Selenium / QTP / RFT / SilkTest etc...
3) Why do we need automation in software testing ?
A) Humans can do mistakes... If a work is to be done several times(repetitive), then, we may skip some work intentionally(purposely) or unintentionally(by mistake) due to time pressure, boring task, etc.. Inorder to overcome these problems 'automation testing' has been introduced to reduce manual task, to save cost and time, to improve accuracy, to perform repetitive execution of tests, to customize defect reporting,etc., and hence automation is needed, as it replaces human with great features...
4) When to do automation testing ?
A) It is not always advantageous to automate test cases.. We can do automation,

- *When the application is stable.*

- *For long term projects.*
- *When you have lot of regression work.*

- *When the scenario is easily debuggable.*

5) Which type of testing can be Automated ?
A) We can automate Regression testing, Functional testing, Stress testing, Performance testing, Load testing, Smoke testing, Compatibility testing, Data-Driven testing etc..
6) What are the advantages and disadvantages of Automation Testing ?
A) Advantages :

- *Reduces human resources.*
- *Using an automation tool, test scripts can be executed faster when compared to manual execution and hence saves time.*
- *Repeatable execution of tests may lead to make mistakes when it is done manually, but, when we automate the same task, accuracy will be improved.*
- *Test cases can be reused in various versions of software which saves time and cost.*

Disadvantages:

- *Unemployment rate increases as machine replaces human..*
- *It is not so easy to write automation test scripts, it requires skilled and experienced resources.*
- *We cannot automate everything as it is advantageous only for repeatable and reusable test cases.*
- *Initial cost for automation is very high unless it is open source.*
- *Debugging skills should be high otherwise its effect will be dangerous (mainly it kills time, so, we cannot reach dead-line).*

7) Name some test automation tools ...

- *Selenium (Open Source)*
- *HP QuickTest Professional (Commercial)*
- *IBM Rational Functional Tester (Commercial)*
- *HP WinRunner (Commercial)*
- *SilkTest (Commercial)*
- *HTTP Test Tool (Open Source)*

- *WATIR (Open Source)*
- *Maveryx (Open Source)*
- *eggPlant (Commercial)*

1) What is Selenium ?

A) Selenium is a combination of different software tools with different approach to automate browsers.. Its primary purpose is to automate Web applications for testing purpose and it is developed in JavaScript...

More Reference: **Selenium Webdriver**

2) What is the cost of Selenium ?

A) Since, selenium is an open source, it is free of cost.. We can download the software from www.seleniumhq.org

3) What are the main components / flavors of Selenium ?

- *Selenium IDE (Integrated Development Environment)*
- *Selenium RC (Remote Control)*
- *Selenium Grid*
- *Selenium Webdriver*

4) What tests can selenium do ?

A) Selenium is mainly used for Functional testing, Regression testing and Load/ Stress testing for web based applications...

5) What are the advantages and disadvantages of selenium ?

A) Advantages :

- *Its main advantage is that it is free of cost.*
- *Installation of selenium software is easy.*
- *Record and play back feature is available.*
- *Selenium supports multiple operating systems and runs in many browsers.*
- *It has a feature of converting scripts into other languages like Java, C#, Python, Ruby, etc..*
- *Good support for Agile(methodology) projects.*

Disadvantages :

- *Complete set-up of selenium is somewhat critical.*
- *It is not suitable for Client-Server applications.*
- *Boring error analysis.*

- *Selenium does not support back end test.*
- *Support provided for Selenium would be very less.*

6) Name some browsers that support Selenium ?

- *Firefox*
- *Internet Explorer*
- *Safari*
- *Opera*
- *Google Chrome*

7) Operating systems that support Selenium..

- *Windows*
- *Mac*
- *Linux*
- *Solaris*

8) Programming languages that support Selenium(with RC)..

- *Java*
- *C#*
- *Perl*
- *PHP*
- *Python*
- *Ruby*

9) Name some open source tools otherthan Selenium ?

- *WATIR- Web Application Testing In Ruby, is a functional testing tool for web applications which uses Ruby scripting language..*
- *Sahi- It is also an automation tool used to automate web applications which is developed in java and javascript..*
- *WET- Web Tester is also a web automation testing tool which uses Watir as the library to drive web pages..*

10) Why you have chosen 'selenium' as your automation tool ?

A) As our project owner is not much interested in investing amount on automation, he had suggested us to use an open source tool.. Selenium is perhaps(reasonably) the best option for automating web-based applications.. Due to its popularity with good features, it would be the first choice of a tester or a company for automation testing.. Since, our team has exposure on selenium, our project manager has decided to use 'Selenium' for automation..

11) Compare Selenium with QTP..

- *Selenium is an open source(free of cost) where as QTP(have to purchase) is commercial tool..*
- *Selenium is used for testing only web-based applications where as QTP can be used for testing client-server applications also..*
- *Selenium supports Firefox, Internet Explorer, Safari, opera on operating systems like Windows, Mac, linux etc., however QTP is limited to Internet Explorer on Windows..*
- *Selenium tests has the flexibility to use many languages like Java, C#, Python, Ruby, Perl and PHP where as QTP mainly supports VB script..*
- *More Answers are at: Link*

12)What do you think of Performance Testing?
A) Performance testing is a technical analysis done to determine or validate the speed, scalability and/or stability characteristics of the product under test. Performance-related activities such as testing and tuning are concerned with achieving response times, throughput and resource-utilization levels that meet the performance objectives for the application under test.

13) Which tool you have used for 'Performance Testing' ?
A) We used JMeter to test functional behavior and measure performance. It can be used to simulate a heavy load on a server, network or object to test its strength or to analyze overall performance under different load types. It provides features such as a multi-threaded framework, complete portability across a variety of platforms, capability to load and performance test many different server types, highly extensible, efficient GUI design and support for offline analysis of test results.

Selenium IDE

1) What is Selenium IDE ?
A) Selenium IDE (Integrated Development Environment) is an ideal tool used to develop selenium test scripts... It is the only flavor of selenium which allows us to record user actions on browser window... Here, the scripts are recorded in 'Selenese'(a set of selenium commands like Click, assertTextPresent, storeText, etc,.).. It is not only a time-saver but also an excellent way of learning Selenium scripts syntax... It is a Firefox add-on...

2) How to install Selenium IDE ?

A) click here for detailed steps

I use seleniumhq.org site to download any software regarding selenium.. Here, if we click on the version number of selenium ide it starts downloading the add-ons, just we have to click on 'install now' button and restart the firefox browser.. With-in 5 minutes we can install selenium ide...

3) How do you open/start selenium-ide after installation ?

A) First launch/open firefox browser and then click on 'Tools' tab in the menu bar.. You can see an option called 'selenium ide' , click on it, a small window will be opened where you can start recording scripts...

4) Features of selenium IDE..

A) click here for detailed features of selenium ide

- *Its main feature is record and playback..*
- *Debugging features by setting breakpoints, startpoints, pause..*
- *Identifies element using id, name, xpath etc..*
- *Auto complete for all common selenium commands..*
- *It has an option of asserting title of every page automatically..*
- *Support for selenium user-extensions.js file..*
- *Option to run single test or multiple tests(suite).*
- *It has a feature of exporting testcase/suite into different formats like C#, Java, Ruby, Python..*

5) Advantages and disadvantages of selenium IDE..

A) Advantages :

- *Freeware..*
- *Easy to install..*
- *It is the only flavor of selenium that allows us to record user actions on browser window..*
- *Scripts recorded in IDE can be coverted into other languages like Java, C#, Python and Ruby..*
- *It is not only a time saver but also an excellent way of learning scripts syntax..*

- *We can insert comments in the middle of the script for better understanding and debugging..*

- *Context menu, which allows us to pick from a list of assertions and verifications for the selected location..*

Disadvantages:

- *Main disadvantage of IDE is that it runs only in firefox browser..*
- *Selenium IDE can execute scripts created in selenese only.*
- *Cannot upload files..*
- *It does not directly support loops and conditions..*
- *Reading from external files like .txt, .xls is not possible..*

6) What are the selenium locators and what is the tool you use to identify element ?
A) Selenium locators are the way of finding HTML element on the page to perform Selenium actions... We use firebug(for firefox) to identify elements as it is more popular and powerful web development tool.. It inspects HTML and modify style and layout in real-time.. We can edit, debug and monitor CSS, HTML and Javascript live in any web page..
((click here to download firebug))
-->For Internet Explorer we can choose debugbar.. It views HTML DOM tree, we can view and edit tab attributes..
((click here to download debugbar))

7) How do you locate elements in IDE ?
A) I will focus on the unique attribute values like id, name or other structural information that is stable enough to withstand frequent changes to the web application.. I strongly recommend CSS selectors as locating strategy.. They are considerably faster than xpath and can find the most complicated objects in any HTML document..
8) What is selenese ?
A) Selenium set of commands that run our test is called Selenese.. A sequence of these commands is a test script.. There are three types of selenese..

1. *Actions : They perform some operations like clicking a link or typing text in text box or selecting an option from drop-down box etc..*
2. *Assertions : They verify that the state of application conforms to what is expected.. Ex: 'verify that this checkbox is checked', 'make sure that the page title is X'..*
3. *Accessors : Checks the state of application and store the results in a variable.. Ex: storeText, storeTitle, etc..*

9) How do you add check points or verification points ?
A) They are called as Assertions in selenium.. 'assert', 'verify' and 'waitFor' are

the commands used to add check points..
Ex: assertText, verifyElementPresent, waitForTextPresent, etc..

10) Name some commands that you use frequently in IDE ?
A) Open, click, type, select, assertText, assertTitle, assertTextPresent, verifyText, verifyTextPresent, veriftTitle, waitForText, waitForTextPresent, waitForTitle, store, storeText, storeTitle, check, uncheck, pause, mouseover, etc..

11) What is the difference between assert and verify ?
A) When an 'assert' fails, the test is aborted where as when 'verify' fails, the test will continue execution logging the failure..
'assert' is used when the expected value is mandatory to continue with next set of steps.. However 'verify' is used when the expected value is optional to continue with the next set of steps..

12) Difference between waitFor and pause commands ?
A) 'waitFor' command waits for some condition to become true..
For example, 'waitForPageToLoad(20000)'-- it will wait upto 20 thousand milliseconds to load required page.. If the page is loaded before 20,000ms then it jumps to next step to execute.. If the page is not loaded before 20,000ms then it stops the execution due to time-out error..
--> pause command stops the execution of the test until the specified time.. Ex: pause(10000)-- It stops the execution of test for 10 thousand milliseconds.. After completing 10,000ms it jumps to next command to execute.. I prefer 'waitFor' command than 'pause'..
13) How do you export tests from Selenium IDE to RC ?
A) First i will open the test in IDE, which should be exported to RC.. There after i'l select 'File' from the menu bar.. when we mouseover on 'Export Test Case As' in the file menu, we could see different languages like C#, Java, Python and Ruby.. Select the language you want to export your test and provide the name to save it..

Selenium RC

1) What do you know about selenium RC (Remote Control)?
A) Selenium RC starts up browsers(one at a time) and then runs commands we pass along from our tests.. It allows us to use a programming language for maximum flexibility and extensibility in developing test logic.. It provides an API and library for each of its supports languages like Java, Ruby, Python, Perl and C#..
-->Selenium RC has 2 components.. Selenium server and Client libraries.. Selenium Server launches and kills browser.. Client libraries provide the interface between each programming language and the Selenium RC server.. 2) Briefly explain how Selenium RC executes your scripts ?
A) Client libraries communicate with the Server passing each selenium command

for execution.. Then the server passes the selenium command to the browser using Selenium-Core Java Script commands.. The browser, using its JavaScript interpreter, executes the selenium commands.. This runs the Selenese actions or verifications you specified in your test script..

3) What are the requirements needed to run simple script in RC ? Reference: Website

A) A browser, command prompt, Selenium Server jar file are enough to run simple scripts in RC..

Selenium Server is needed inorder to run selenium RC scripts..

4) How to set up selenium RC completely with eclipse to run junit tests ?

A) First we need to download Selenium Server jar file, Selenium client libraries, junit jar file, eclipse and java software.. There after, open eclipse and click on workbench and then create a java project with meaningful name... Set path to java and jar files... Drag and drop your test scripts(which are exported from IDE) to the package you have created in the project.. Before running any test you must start the server..

5) Why selenium RC is used ?

A) Selenium RC is used to automate web applications with more effective browser actions when compared to SIDE(Selenium IDE).. As selenium RC uses a programming language, we can overcome limitations of SIDE i.e we can handle multiple windows and pop-ups, we can use loops and conditions, capturing screenshot etc.. In addition to that, RC can perform Data-Driven(read/write data from external files) concept, decent report generation and mailing that report to concern person etc..

6) What are the languages and operating systems that support RC ?

A) RC supports languages like Java, C#, Perl, Ruby, Python and PHP.. Operating systems like Windows, Mac OS X, Linux, Solaris etc..

7) What are the advantages and disadvantages of RC ?

A) advantages:

- *Selenium RC can be used for any java script enabled browser..*
- *Support for many operating systems and Programming languages..*
- *We can use loops and conditions for better performance and flexibility..*
- *Decent report generation..*
- *Can handle Dynamic objects and Ajax based UI elements..*
- *Can read/write data from/to .txt, .xls, etc..*

disadvantages:

- *There are very limited features in RC when working with Ajax based UI elements..*
- *Cannot handle on-load alerts..*

- *Controlling multiple windows is somewhat difficult..*

8) In Selenium what are the four parameters you have to pass?
A) Host, port number, browser and URL...
9) Can we handle pop-ups in RC ?
A) Yes, we can handle pop-ups in RC... Using selectWindow method, pop-up window will be selected and windowFocus method will let the control from current window to pop-up window and perform some actions according to our script..

10) Which method will you use for mouse left click and right click ?
A) For mouse left click i use 'click' method and for right click i use 'keyDown' method followed by 'click' and 'keyUp' methods i.e 'keyDown' method will press 'control' key without releasing it yet and then click method will be executed, after that 'keyUp' method will release the 'control' key..... Code will be as follows..

```
        left click        ---> selenium.click(locator)
        right click ---> selenium.keyDown(locator,keysequence)
selenium.click(locator)
selenium.keyUp(locator,keysequence)
```

NOTE : Here, all the three locators belong to same element/object and keysequence will be ASCII value for 'control' key...
11) What is the use of 'chooseOkOnNextConfirmation()' ?
A) This command is used to select/click 'OK' button in the confirmation box and it must be placed before the occurrence of confirmation box...
12) What is a framework and what are the frameworks available in RC ?
A) Framework is nothing but a structure that allows us to do things better and faster... It is a collection of libraries and classes and they are very helpful if testers want to automate test cases.. JUnit, NUnit, TestNG, Bromine, RSpec, unittest are some of the frameworks available in RC ..
13) How do you handle secured connection error in HTTPS ?
A) Create an object to 'RemoteControlConfiguration' class, set 'TrustAllCertificate' flag to true and then pass remotecontrolcofiguration instance to SeleniumServer. i.e.

```
RemoteControlConfiguration r= new RemoteControlConfiguration();
r.setTrustAllCertificate(true);
SeleniumServer s=new SeleniumServer(r);
```

14) If the default port of selenium is busy then which port you will use ? A) We can use any port number which is valid.. First create an object to remote control configuration. Use 'setPort' method and provide valid port number(4545,5555,5655, etc).. There after attach this remote control configuration object to selenium server..i.e

```
RemoteControlConfiguration r= new RemoteControlConfiguration();
r.setPort(4567);
SeleniumServer s= new SeleniumServer(r);
```

15) How do you select second value from a drop down menu ?

A) Define an array of string type.. By using 'getSelectOptions' command provide

locator for that particular drop down and then use 'select' command.. As 'select' command parameters are locator and the label, in-place of label, define array index... i.e,.
String a[]=selenium.getSelectOptions(locator of drop down);
selenium.select("locator of drop down", a[1]);
note: If you want to select 5th value from drop down, then provide '4' in the index of an array because array index starts from 'zero'...
16) What is the difference between sleep() and setSpeed() methods ?
A) Both will delay the speed of execution... When you use Thread.sleep(), then the execution of your test will be stopped until the time you have provided in sleep method, it will wait only once where the command is used where as using setSpeed() method we can set the time of delay which will follow each and every selenium command i.e if you set 5000 milliseconds then your test execution will wait 5 seconds after each and every selenium operation

Selenium interview questions with answers

1. What is Selenium?

Selenium is a suite of tools for browser automation. It is composed of "IDE", a recording and playback mechanism, "WebDriver" and "RC" which provide APIs for browser automation in a wide variety of languages, and "Grid", which allows many tests using the APIs to be run in parallel. It works with most browsers, including Firefox from 3.0 up to 7, Internet Explorer 8, Google Chrome, Safari and Opera 11.5

2. Describe technical problems that you had with Selenium tool?

As with any other type of test automation tools like SilkTest, HP QTP, Watir, Canoo Webtest, Selenium allows to record, edit, and debug tests cases. However there are several problems that seriously affect maintainability of recorded test cases, occasionally Quality Assurance Engineers complain that it takes more time to maintain automated test cases than to perform manual testing; however this is an issue with all automated testing tools and most likely related to improper testing framework design. Another problem is complex ID for an HTML element. If IDs is auto-generated, the recorder test cases may fail during playback. The work around is to use XPath to find required HTML element. Selenium supports AJAX without problems, but QA Tester should be aware that Selenium does not know when AJAX action is completed, so ClickAndWait will not work. Instead QA tester could use pause, but the snowballing effect of several 'pause' commands would really slow down total testing time of test cases. The best solution would be to use waitForElement.

3. What test can Selenium do?

Selenium could be used for the functional, regression, load testing of the web based applications. The automation tool could be implemented for post release validation with continuous integration tools like Jenkins, Hudson, QuickBuild or CruiseControl.

4. What is the price of Selenium license per server?

Selenium is open source software, released under the Apache 2.0 license and can be downloaded and used without charge.

5. How much does Selenium license cost per client machine?

Selenium is open source software, released under the Apache 2.0 license and can be downloaded and used without charge.

6. Where to download Selenium?

Selenium can be downloaded and installed for free from seleniumhq.org

7. What is the latest version of Selenium?

The latest versions are Selenium IDE 1.3.0, Selenium Server (formerly the Selenium RC Server) 2.8.0, Selenium Client Drivers Java 2.8.0, Selenium Client Drivers C# 2.8.0, Selenium Client Drivers Ruby 2.8.0, Selenium Client Drivers Python 2.8.1, Selenium Grid 1.0.8.

8. What is Selenium IDE?

Selenium IDE is a Firefox add-on that records clicks, typing, and other actions to make a test cases, which QA Tester can play back in the Firefox browser or export to Selenium RC. Selenium IDE has the following features: record/play feature, debugging with step-by-step and breakpoints, page abstraction functionality, an extensibility capability allowing the use of add-ons or user extensions that expand the functionality of Selenium IDE

9. What are the limitations of Selenium IDE?

Selenium IDE has many great features and is a fruitful and well-organized test automation tool for developing test cases, in the same time Selenium IDE is missing certain vital features of a testing tool: conditional statements, loops, logging functionality, exception handling, reporting functionality, database testing, re-execution of failed tests and screenshots taking capability. Selenium IDE doesn't for IE, Safari and Opera browsers.

10. What does SIDE stand for?

Selenium IDE. It was a very tricky interview question.

11. What is Selenium Remote Control (RC) tool?

Selenium Remote Control (RC) is the powerful solution for test cases that need more than simple browser actions and linear execution. Selenium-RC allows the developing of complex test scenarios like reading and writing files, querying a database, and emailing test reports. These tasks can be achieved by tweaking test cases in your preferred programming language.

12. What are the advantages using Selenium as testing tool?

If QA Tester would compare Selenium with HP QTP or Micro Focus SilkTest, QA Engineer would easily notice tremendous cost savings for Selenium. In contrast to expensive SilkTest license or QTP license, Selenium automation tool is absolutely free. It means that with almost no investment in purchasing tools, QA Team could easily build the state of the art test automation infrastructure. Selenium allows developing and executing test cases in various programming languages including .NET, Java, Perl, RubyPython, PHP and even HTML. This is a great

Selenium advantage, most likely your software developers already know how to develop and maintain C# or Java code, so they transfer coding techniques and best practices to QA team. Selenium allows simple and powerful DOM-level testing and in the same time could be used for testing in the traditional waterfall or modern Agile environments. Selenium would be definitely a great fit for the continuous integration tools Jenkins, Hudson, CruiseControl, because it could be installed on the server testing box, and controlled remotely from continuous integration build.

13. What is Selenium Grid?

Selenium Grid extends Selenium RC to distribute your tests across multiple servers, saving you time by running tests in parallel.

14. What is Selenium WebDriver?

Selenium WebDriver is a tool for writing automated tests of websites. It is an API name and aims to mimic the behaviour of a real user, and as such interacts with the HTML of the application. Selenium WebDriver is the successor of Selenium Remote Control which has been officially deprecated.

15. How many browsers are supported by Selenium IDE?

Test Engineer can record and playback test with Selenium IDE in Firefox.

16. Can Selenium test an application on iPhone's Mobile Safari browser?

Selenium should be able to handle Mobile Safari browser. There is experimental Selenium IPhone Driver for running tests on Mobile Safari on the iPhone, iPad and iPod Touch.

17. Can Selenium test an application on Android browser?

Selenium should be able to handle Android browser. There is experimental Selenium Android Driver for running tests in Android browser.

18. What are the disadvantages of using Selenium as testing tool?

Selenium weak points are tricky setup; dreary errors diagnosis; tests only web applications

19. How many browsers are supported by Selenium Remote Control?

QA Engineer can use Firefox 7, IE 8, Safari 5 and Opera 11.5 browsers to run actuall tests in Selenium RC.

20. How many programming languages can you use in Selenium RC?

Several programming languages are supported by Selenium Remote Control - C# Java Perl PHP Python Ruby

21. How many testing framework can QA Tester use in Selenium RC?

Testing frameworks aren't required, but they can be helpful if QA Tester wants to automate test cases. Selenium RC supports Bromine, JUnit, NUnit, RSpec (Ruby), Test::Unit (Ruby), TestNG (Java), unittest (Python).

22. How to developer Selenium Test Cases?

Using the Selenium IDE, QA Tester can record a test to comprehend the syntax of Selenium IDE commands, or to check the basic syntax for a specific type of user interface. Keep in mind that Selenium IDE recorder is not clever as QA Testers want it to be. Quality assurance team should never consider Selenium IDE as a "record, save, and run it" tool, all the time anticipate reworking a recorded test cases to make them maintainable in the future.

23. What programming language is best for writing Selenium tests?
The web applications may be written in Java, Ruby, PHP, Python or any other web framework. There are certain advantages for using the same language for writing test cases as application under test. For example, if the team already have the experience with Java, QA Tester could always get the piece of advice while mastering Selenium test cases in Java. Sometimes it is better to choose simpler programming language that will ultimately deliver better success. In this case QA testers can adopt easier programming languages, for example Ruby, much faster comparing with Java, and can become become experts as soon as possible. References: **Selenium Webdriver**

24. Have you read any good books on Selenium?
There are several great books covering Selenium automation tool, you could check the review at Best Selenium Books: Top Recommended page

25. Do you know any alternative test automation tools for Selenium?
Selenium appears to be the mainstream open source tool for browser side testing, but there are many alternatives. Canoo Webtest is a great Selenium alternative and it is probably the fastest automation tool. Another Selenium alternative is Watir, but in order to use Watir QA Tester has to learn Ruby. One more alternative to Selenium is Sahi, but is has confusing interface and small developers community.

26. Compare HP QTP vs Selenium?
When QA team considers acquiring test automation to assist in testing, one of the most critical decisions is what technologies or tools to use to automate the testing. The most obvious approach will be to look to the software market and evaluate a few test automation tools. Read Selenium vs QTP comparison

27. Compare Borland Silktest vs Selenium? Check Selenium vs SilkTest comparison

28. How to test Ajax application with Selenium
Ajax interview questions could be tough for newbie in the test automation, but will be easily cracked by Selenium Tester with a relevant experience. Read the detailed approach at Testing Ajax applications with Selenium in the right way

29. How can I learn to automate testing using Selenium?

Don't be surprised if the interviewer asks you to describe the approach for learning Selenium. This interviewer wants to hear how you can innovative software test automation process the company. Most likely they are looking for software professional with a good Selenium experience, who can do Selenium training for team members and get the team started with test automation. I hope this Selenium tutorial will be helpful in the preparation for this Selenium interview question.

1. What is Selenium?

Selenium is a set of tools that supports rapid development of test automation scripts for web based applications. Selenium testing tools provides a rich set of testing functions specifically designed to fulfill needs of testing of a web based application.

2. What are the main components of Selenium testing

tools? Selenium IDE, Selenium RC and Selenium Grid

3. What is Selenium IDE?

Selenium IDE is for building Selenium test cases. It operates as a Mozilla Firefox add on and provides an easy to use interface for developing and running individual test cases or entire test suites. Selenium-IDE has a recording feature, which will keep account of user actions as they are performed and store them as a reusable script to play back.

4. What is the use of context menu in Selenium IDE?

It allows the user to pick from a list of assertions and verifications for the selected location.

5. Can tests recorded using Selenium IDE be run in other browsers?

Yes. Although Selenium IDE is a Firefox add on, however, tests created in it can also be run in other browsers by using Selenium RC (Selenium Remote Control) and specifying the name of the test suite in command line.

6. What are the advantage and features of Selenium IDE?

a. Intelligent field selection will use IDs, names, or XPath as needed

b. It is a record & playback tool and the script format can be written in various languages including C#, Java, PERL, Python, PHP, HTML

c. Auto complete for all common Selenium commands

d. Debug and set breakpoints

e. Option to automatically assert the title of every page

f. Support for Selenium user-extensions.js file

7. What are the disadvantage of Selenium IDE tool?

a. Selenium IDE tool can only be used in Mozilla Firefox browser.

b. It is not playing multiple windows when we record it.

8. What is Selenium RC (Remote Control)?

Selenium RC allows the test automation expert to use a programming language for maximum flexibility and extensibility in developing test logic. For example, if the application under test returns a result set and the automated test program needs to run tests on each element in the result set, the iteration / loop support of programming language’s can be used to iterate through the result set, calling Selenium commands to run tests on each item. Selenium RC provides an API and library for each of its supported languages. This ability to use Selenium RC with a high level programming language to develop test cases also allows the automated testing to be integrated with the project's automated build environment.

9. What is Selenium Grid?

Selenium Grid in the selenium testing suit allows the Selenium RC solution to scale for test suites that must be run in multiple environments. Selenium Grid can be used to run multiple instances of Selenium RC on various operating system and browser configurations.

10. How Selenium Grid works?
Selenium Grid sent the tests to the hub. Then tests are redirected to an available Selenium RC, which launch the browser and run the test. Thus, it allows for running tests in parallel with the entire test suite.

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Selenium testing suite is highly flexible. There are multiple ways to add functionality to Selenium framework to customize test automation. As compared to other test automation tools, it is Selenium's strongest characteristic. Selenium Remote Control support for multiple programming and scripting languages allows the test automation engineer to build any logic they need into their automated testing and to use a preferred programming or scripting language of one's choice.

Also, the Selenium testing suite is an open source project where code can be modified and enhancements can be submitted for contribution.

12. What test can Selenium do?
Selenium is basically used for the functional testing of web based applications. It can be used for testing in the continuous integration environment. It is also useful for agile testing

13. What is the cost of Selenium test suite?
Selenium test suite a set of open source software tool, it is free of cost.

14. What browsers are supported by Selenium Remote Control?
The test automation expert can use Firefox, IE 7/8, Safari and Opera browsers to run tests in Selenium Remote Control.

15. What programming languages can you use in Selenium
RC? C#, Java, Perl, PHP, Python, Ruby

16. What are the advantages and disadvantages of using Selenium as testing tool?
Advantages: Free, Simple and powerful DOM (document object model) level testing, can be used for continuous integration; great fit with Agile projects.

Disadvantages: Tricky setup; dreary errors diagnosis; can not test client server applications.

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QTP uses scripting language implemented on top of VB Script. However, Selenium test suite has the flexibility to use many languages like Java, .Net, Perl, PHP, Python, and Ruby.

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Silk Test uses 4Test scripting language. However, Selenium test suite has the flexibility to use many languages like Java, .Net, Perl, PHP, Python, and Ruby.

19. What is the difference between an assert and a verify with Selenium commands?
Effectively an “assert” will fail the test and abort the current test case, whereas a “verify” will fail the test and continue to run the test case. Examples: **Software Automation Testing**

20. If a Selenium function requires a script argument, what would that argument look like in general terms?
StoreEval(script, variable) and storeExpression(expression, variableName)

21. If a Selenium function requires a pattern argument, what five prefixes might that argument have?
glob, regexp, exact, regexpi

22. What is the regular expression sequence that loosely translates to "anything or nothing?"
(.* i.e., dot star) This two-character sequence can be translated as “0 or more occurrences of any character” or more simply, “anything or nothing.

23. What is the globbing sequence that loosely translates to "anything or nothing?
(*) which translates to “match anything,” i.e., nothing, a single character, or many characters.

24. What does a character class for all alphabetic characters and digits look like in regular expressions?
[0-9] matches any digit

[A-Za-z0-9] matches any alphanumeric character [A-Za-z] matches any alphabet character

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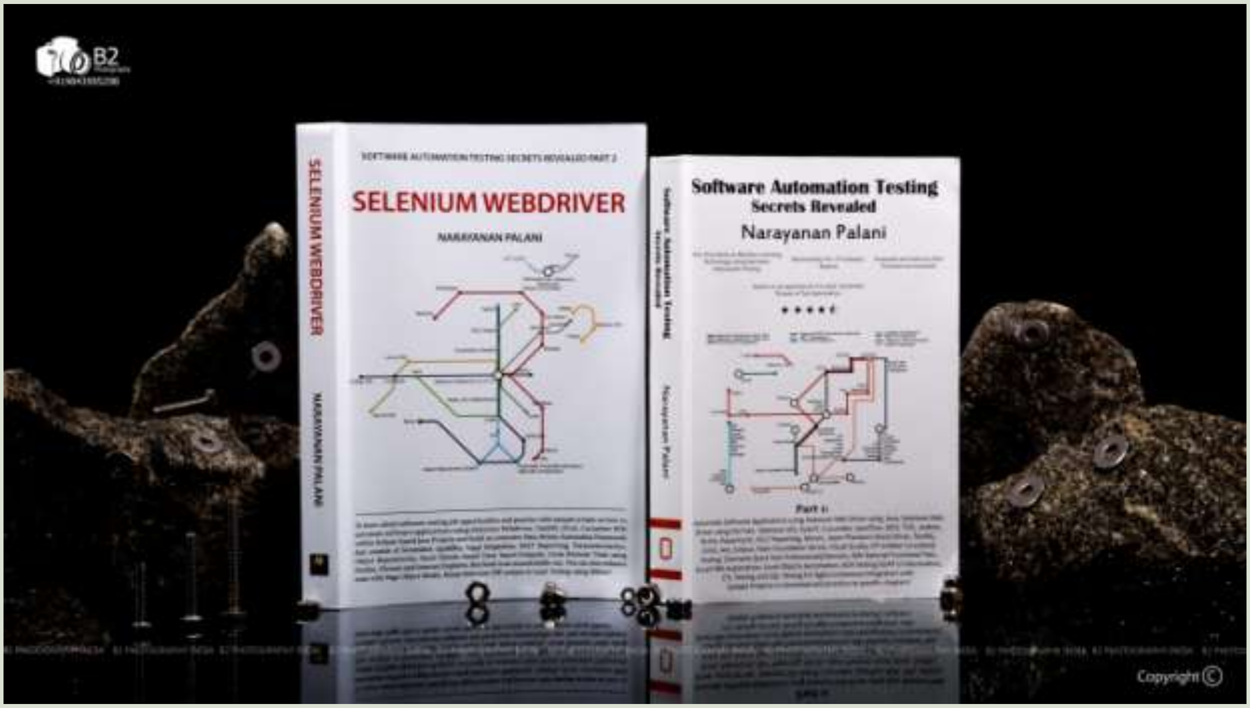

26. What must one set within SIDE in order to run a test from the beginning to a certain point within the test?
Set Toggle BreakPoint.

27. What does a right-pointing green triangle at the beginning of a command in SIDE indicate? Play Entire Test Suite

28. Which wildcards does SIDE support?
*, [ ]

29. What are the four types of regular expression quantifiers which we've studied? Ans : * quantifier: 0 or more of the preceding character (or group)
+ quantifier: 1 or more of the preceding character (or group) ? quantifier: 0 or 1 of the preceding character (or group)
{1,5} quantifier: 1 through 5 of the preceding character (or group)

30. What regular expression special character(s) means "any character?"
(.*)

31. What distinguishes between an absolute and relative URL in SIDE? Absolute URL: Its is base url and this represent domain address. Relative URL: (Absolute URL + Page Path).
Open command uses Base URL (Absolute URL) to navigate web page.

32. How would one access a Selenium variable named "count" from within a JavaScript snippet? ${count}

33. What Selenese command can be used to display the value of a variable in the log file, which can be very valuable for debugging?
echo()

34. If one wanted to display the value of a variable named answer in the log file, what would the first argument to the previous command look like?
echo()

35. Which Selenium command(s) simulates selecting a link?
click, clickandWait, ClickAt, ClickAtandWait, DoubleClick, DoubleClickandWait, doubleClickAt, doubleClickAtandWait

36. Which two commands can be used to check that an alert with a particular message popped up?
The following commands are available within Selenium for processing Alerts:
- getAlert()

- assertAlert()
- assertAlertNotPresent()
- assertAlertPresent()

- storeAlert()
- storeAlertPresent()
- verifyAlert()
- verifyAlertNotPresent()
- verifyAlertPresent()
- waitForAlert()
- waitForAlertNotPresent()
- waitForAlertPresent()

The AlertPresent() and AlertNotPresent() functions check for the existence or not of an alert – regardless of it's content. The Alert() functions allow the caller to specify a pattern which should be matched. The getAlert() method also exists in Selenium RC, and returns the text from the previous Alert displayed.

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Ans. Selenium IDE, Selenium RC and Selenium Grid

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Selenium RC Latest Interview Questions
Here i listed few latest interview questions asked by different MNCs

1. How do you start Selenium RC?
2. How do you connect Data base from selenium
3. How do you handle Ajax controls using selenium?
Eg. By typing in search engine how do you capture the auto suggestion
4. How do you select the 2nd item in a List box or drop down.
5. How do you identify an object using selenium?
6. How do you capture an element loading after the page load?
7. Brief about your framework

8. What is the difference between assert and Verify Commands?
9. Explain about your reporting method
10.How do you verify an object presented in
multiple pages. 11.What are the locators available in
Selenium?
12.What is the difference between single and double slash
in Xpath. 13.Brief about Selenium Client.
14.Did you write any User Extensions.
15.What are all things can not be done through
selenium IDE 16.Brief about Selenium Grid.
17.Is it possible to start the Remote engine more than once in an instance.
18. How to use selenium for performance testing
19. How to start the selenium server from your language class?
20.Is it possible to handle multiple pop ups in selenium?

22. Give the benefits of SQL Stored procedure in selenium? 23.What are the difficulties or challenge you faced in selenium? 24. How do you check a single test method in multiple browser?

25. What is the annotation you use to connect the Spread
sheet in Junit. 26.Brief about Junit annotations.
27.How can we speed up the selenium script execution?
28.If the default port of selenium is busy then which port
you use? 29.Explain types of SQL joins.
30.How do you handle the secured connection error
in HTTPS? 31.How do you compare two strings or
values are same.

1. What are the pre-requisites to run Selenium RC tests with Junit? The pre-requisites to run Selenium RC tests with Junit:

1) Jre 1.5 or better version needs to be installed
2) /jre/bin folder must be added in environment variable "path"
3) Junit folder path must be added to path or build path in eclipse
4) Selenium Java Client drivers needs to be added to the path for execution

2. How to configure Selenium RC with eclipse to run Junit Tests?

1) Download eclipse. click here to download the software
2) Open eclipse -> Workspace Launcher window will open
3) Create a workspace by giving meaningful name
3) Click on Workbench
4) Create a project of type java
5) Create a package under src folder of the package
6) Add Junit to the build path
7) Add selenium rc java client driver to the build path
8) Now drag and drop your test script (.which is exported from Selenium IDE) to the package created

3. Which is the command used for running the Selenium RC Server?

The procedure followed to run the Selenium RC
Server is: 1. Open the command prompt.
2. Change the folder path to Selenium RC Server
3. Issue the command "java -jar selenium-server.jar"
4. For more options on how to start selenium server. Please have a look at Selenium RC Server startup

Options

4. How do you run selenium commands in slow motion in Selenium RC?

   You can run the selenium commands in RC slow motion by
   two ways: selenium.setSpeed
   thread.sleep

5. What is the difference between Thread.Sleep() and Selenium.setSpeed()?

selenium.setSpeed
1. takes a single argument in string format
ex: selenium.setSpeed("2000") - will wait for 2 seconds
2. Runs each command in after setSpeed delay by the number of milliseconds mentioned in setSpeed. thread.sleep
1. takes a single argument in integer
format ex: thread.sleep(2000) - will wait
for 2 seconds
2. Waits for only once at the command given at sleep.

6.Why do you use assert and verify statements in Selenium RC without referring

to selenium? SeleneseTestCase is the class which is having

1. assertTrue
2. verifyTrue
3. assertEquals
4. verifyEquals
We use SeleneseTestCase class to extend the selenium test
class file. For Ex: the test class is declared as follows
public class BookFlightSel1 extends SeleneseTestCase
In the above example SeleneseTestCase is the base class and BookFlightSel1 is the derived class. So, we can directly call and use the parent class methods verify and assert without instantiating the class in BookFlightSel1 class.

7.Which are the annotations generated with JUnit 4 tests in

Selenium IDE? The annotations generated with JUnit 4 tests

in Selenium are:

1. @Before public void method() - Will perform the method() before each test. This method can prepare the test
2. @Test public void method() - Annotation @Test identifies that this method is a test method.environment, e.g. read input data, initialize the class)
3. @After public void method() - Test method must start with test@Before - this annotation is used for executing a method before

8. What are the challenges with Selenium RC test suites when running in JUnit? The challenges with Selenium RC test suites when running in JUnit

   1. Each test case of Selenium RC test will invoke the browser and closes after playing back
   2. All the Test cases cannot run on a single browser session

3. If there is any dependency between the test cases, it is very difficult to execute
4. Running the test suites in junit will be helpful for only independent test cases.

Note: The dependent test case related issues can be addressed by using TestNG with junit

9. What are the advantages of using TestNG

over Junit? The advantages of using TestNG

over Junit:

1. The challenges of junit can be addressed using TestNG read What are the challenges with Selenium RC test suites when running in JUnit? for more details
2. You can execute the test cases dependent with each other read Runnning Selenium RC Tests Sequentially using TestNG for more details
3. You can execute test cases in a group read Use Group in TestNG framework for more details
4. You can generate the reports using TestNg

10. What are the basic annotations used to run TestNG tests in Selenium?

The basic annotations used to run TestNG tests in Selenium RC:

1. @BeforeClass: The annotated method with @BeforeClass will be run before the first test method in the current class is invoked.
2. @AfterClass: The annotated method with @AfterClass will be run after all the test methods in the current class have been run.
3. @BeforeMethod: The annotated method with @BeforeMethod will be run before each test method.
4. @AfterMethod: The annotated method with @AfterMethod will be run after each test method.
5. @Test: Marks a class or a method @Test with as part of the test.

11. How to run test cases with dependent in Selenium using TestNG?

The @Test should be followed by (dependsOnMethods = "testLogin")
Note:- The test case will be executed after the testLogin case
Ex: @Test(dependsOnMethods = "testLogin")
For more details see Runnning the TestNG Tests Sequentially in Selenium RC

12. How to run the test cases in group in Selenium using TestNG?

Test cases in group in Selenium using TestNG will be executed with the below options.
If you want to execute the test cases based on one of the group like regressiontest
or smoketest @Test(groups = {"regressiontest", "smoketest"})
For more details please see Use Group in TestNG framework

13. How to execute the test cases in an XML format using TestNG
in Selenium?

If you want to execute a java file MercTestNgSuite.java which is there in the package com.src.testng. You can use the below mentioned code in a xml file. And the test can be run by right clicking the XML and running as TestNG Suite

```
<!DOCTYPE suite SYSTEM "http://testng.org/testng-1.0.dtd">
<suite thread-count="5" skipfailedinvocationCounts="false" verbose="1"
name="MercPrj" junit="false" parallel="false" annotations="JDK">
<test verbose="2" name="com.src.testng.MercTestNgSuite" junit="false"
annotations="JDK"> <classes>
<class
name="com.src.testng.MercTestNgSuite"/
> </classes>
</test>
</suite>
??
```

14. How to incude or exclude the selenium rc test cases using xml in TestNG?

Including or excluding of selenium rc test cases using xml in TestNG can be done using the keywords include or exlude

For including a test case we need to use <include name="method name"/> under the class whichever the method you want to include

For excluding a test case we need to use <exclude name="method name"/> under the class whichever the method you want to include

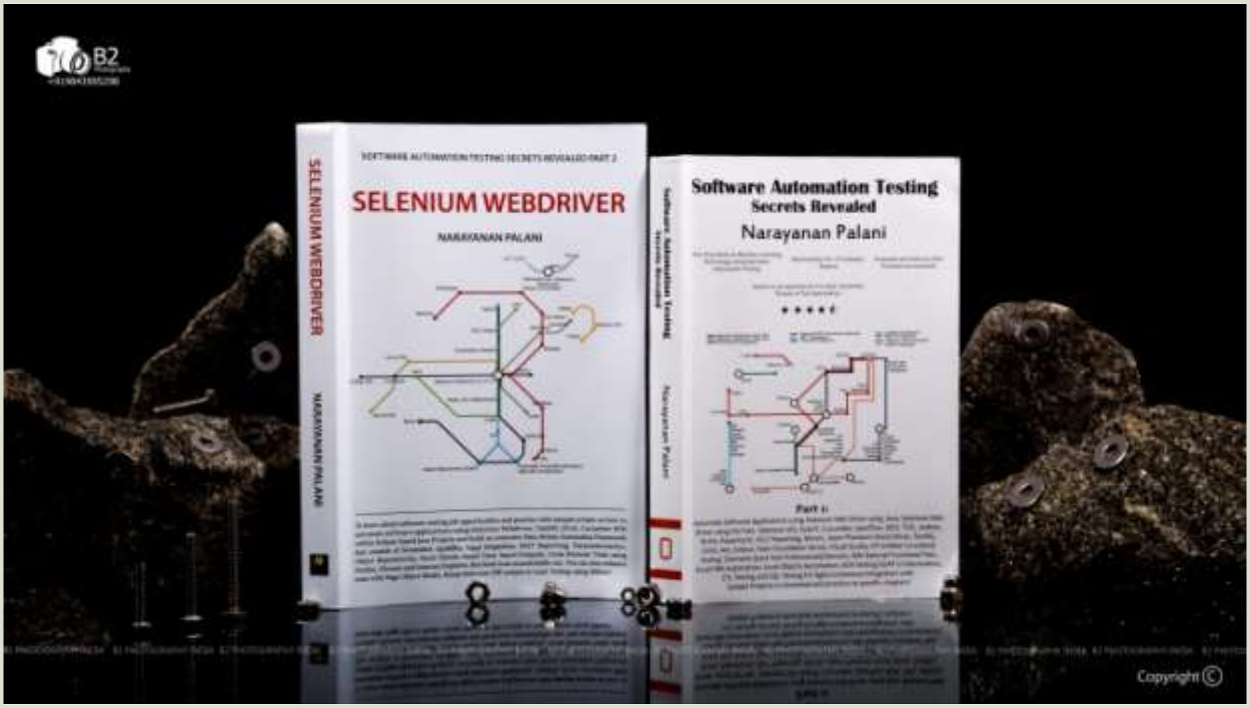
For example if you have a class MercTestNgSuite in package com.src.testng want to include the methods like:

1. testLogin1
2. testFindFlights
3. testSelectFlights
4. testFillUserDetails
5. testVerifyFlightC
onf and exclude
6. testLogout

the xml can be written as mentioned below.

```
<!DOCTYPE suite SYSTEM "http://testng.org/testng-1.0.dtd">
<suite thread-count="5" skipfailedinvocationCounts="false" verbose="1"
name="MercPrj" junit="false" parallel="false" annotations="JDK">
```

```
<test verbose="2" name="com.src.testng.MercTestNgSuite" junit="false"
annotations="JDK"> <classes>
<class
name="com.src.testng.MercTestNgSuite"/
> <methods>
<include
name="testLogin1"/>
<include
name="testFindFlights"/>
```



```
<include
name="testSelectFlights"/>
<include
name="testFillUserDetails"/>
<include
name="testVerifyFlightConf"/>
<exclude name="testLogout"/>
</methods>
</classes>
</test>
```

15. How to execute the selenium test suite with testNG in XML?

Assume that you have two classes which are having suite of test cases with the below mentioned methods.

class1 or suite 1: the class by name MercTestNgSuite in the package com.src.testng with the methods

1. testLogin1
2. testFindFlights
3. testSelectFlights
4. testFillUserDetails

class1 or suite 2:the class by name MercTestNgSuite2 in the package com.src.testng with the methods

1. testLogin1
2. testFindFlights
3. testSelectFlights
4. testFillUserDetails
5. testVerifyFlightConf
6. testLogout

The two class suites can be executed as mentioned

```
<!DOCTYPE suite SYSTEM
"http://testng.org/testng-1.0.dtd">
<suite thread-count="5" skipfailedinvocationCounts="false" verbose="1"
name="MercPrj" junit="false" parallel="false" annotations="JDK">
<test verbose="2" name="com.src.testng.*" junit="false"
annotations="JDK"> <classes>
```

```
<class
name="com.src.testng.MercTestNgSuite"/
> <methods>
<include name="testLogin1"/>
<include
name="testFindFlights"/>
<include
name="testSelectFlights"/>
<include
name="testFillUserDetails"/>
</methods>
<class
name="com.src.testng.MercTestNgSuite2"/
> <methods>
<include
name="testLogin1"/>
<include
name="testFindFlights"/>
```

```
<include
name="testSelectFlights"/>
<include
name="testFillUserDetails"/>
<include
name="testVerifyFlightConf"/>
<include name="testLogout"/>
</methods>
</classes>
</test>
</suite>
```

16. How to run Selenium IDE test suite with user extensions using Selenium Remote Control?

Read this forum topic for How to run Selenium IDE TestSuite with Selenium Remote Control

to run Selenium IDE test suite with user extensions using Selenium Remote Control we need to use the below command.

java -jar selenium-server.jar -userExtensions user-extensions.js -htmlSuite "*<browser>" "<base URL>" "<Selenium test suite file>" "<results log file>" -timeout <millise>

17. How to start selenium rc server with user extensions?

The command used is

java -jar selenium-server.jar -userExtensions user-extensions.js

Note: In this case, the java script file user-extensions.js file name should always fixed. If the name or extension is changed the selenium rc server will not start.

Refer Selenium RC Server startup Options for more details

1. What is Selenium?
2. Selenium is a suite of tools for browser automation. It is composed of "IDE", a recording and playback mechanism, "WebDriver" and "RC" which provide APIs for browser automation in a wide variety of languages, and "Grid", which allows many tests using the APIs to be run in parallel. It

works with most browsers, including Firefox from 3.0 up to 7, Internet Explorer 8, Google Chrome, Safari and Opera 11.5

2. Describe technical problems that you had with Selenium tool?
As with any other type of test automation tools like SilkTest, HP QTP, Watir, Canoo Webtest, Selenium allows to record, edit, and debug tests cases. However there are several problems that seriously affect maintainability of recorded test cases, occasionally Quality Assurance Engineers complain that it takes more time to maintain automated test cases than to perform manual testing; however this is an issue with all

automated testing tools and most likely related to improper testing framework design. Another problem is complex ID for an HTML element. If IDs is auto-generated, the recorder test cases may fail during playback. The work around is to use XPath to find required HTML element. Selenium supports AJAX without problems, but QA Tester should be aware that Selenium does not know when AJAX action is completed, so ClickAndWait will not work. Instead QA tester could use pause, but the snowballing effect of several 'pause' commands would really slow down total testing time of test cases. The best solution would be to use waitForElement.

3. What test can Selenium do?

Selenium could be used for the functional, regression, load testing of the web based applications. The automation tool could be implemented for post release validation with continuous integration tools like Jenkins, Hudson, QuickBuild or CruiseControl.

4. What is the price of Selenium license per server?

Selenium is open source software, released under the Apache 2.0 license and can be downloaded and used without charge.

5. How much does Selenium license cost per client machine?

Selenium is open source software, released under the Apache 2.0 license and can be downloaded and used without charge.

6. Where to download Selenium?

Selenium can be downloaded and installed for free from seleniumhq.org

7. What is the latest version of Selenium?

The latest versions are Selenium IDE 1.3.0, Selenium Server (formerly the Selenium RC Server) 2.8.0, Selenium Client Drivers Java 2.8.0, Selenium Client Drivers C# 2.8.0, Selenium Client Drivers Ruby 2.8.0, Selenium Client Drivers Python 2.8.1, Selenium Grid 1.0.8.

8. What is Selenium IDE?

Selenium IDE is a Firefox add-on that records clicks, typing, and other actions to make a test cases, which QA Tester can play back in the Firefox browser or export to Selenium RC. Selenium IDE has the following features: record/play feature, debugging with step-by-step and breakpoints, page abstraction functionality, an extensibility capability allowing the use of add-ons or user extensions that expand the functionality of Selenium IDE

9. What are the limitations of
Selenium IDE?

Selenium IDE has many great features and is a fruitful and well-organized test automation tool for developing test cases, in the same time Selenium IDE is missing certain vital features of a testing tool: conditional statements, loops, logging functionality, exception handling, reporting functionality, database testing, re-execution of failed tests and screenshots taking capability. Selenium IDE doesn't for IE, Safari and Opera browsers.

10. What does SIDE stand for?
Selenium IDE. It was a very tricky interview question.

11. What is Selenium Remote Control (RC) tool?
Selenium Remote Control (RC) is the powerful solution for test cases that need more than simple browser actions and linear execution. Selenium-RC allows the developing of complex test scenarios like reading and writing files, querying a database, and emailing test reports. These tasks can be achieved by tweaking test cases in your preferred programming language.

12. What are the advantages using Selenium as testing tool?
If QA Tester would compare Selenium with HP QTP or Micro Focus SilkTest, QA Engineer would easily notice tremendous cost savings for Selenium. In contrast to expensive SilkTest license or QTP license, Selenium automation tool is absolutely free. It means that with almost no investment in purchasing tools, QA Team could easily build the state of the art test automation infrastructure. Selenium allows developing and executing test cases in various programming languages including .NET, Java, Perl, RubyPython, PHP and even HTML. This is a great Selenium advantage, most likely your software developers already know how to develop and maintain C# or Java code, so they transfer coding techniques and best practices to QA team. Selenium allows simple and powerful DOM-level testing and in the same time could be used for testing in the traditional waterfall or modern Agile environments. Selenium would be definitely a great fit for the continuous integration tools Jenkins, Hudson, CruiseControl, because it could be installed on the server testing box, and controlled remotely from continuous integration build.

13. What is Selenium Grid?
Selenium Grid extends Selenium RC to distribute your tests across multiple servers, saving you time by running tests in parallel.

14. What is Selenium WebDriver?

Selenium WebDriver is a tool for writing automated tests of websites. It is an API name and aims to mimic the behaviour of a real user, and as such interacts with the HTML of the application. Selenium WebDriver is the successor of Selenium Remote Control which has been officially deprecated.

15. How many browsers are supported by Selenium IDE?
Test Engineer can record and playback test with Selenium IDE in Firefox.

16. Can Selenium test an application on iPhone's Mobile Safari browser? Selenium should be able to handle Mobile Safari browser.
There is experimental
Selenium IPhone Driver for running tests on Mobile Safari on the iPhone, iPad and iPod Touch.

17. Can Selenium test an application on Android browser?
Selenium should be able to handle Android browser. There is experimental Selenium Android Driver for running tests in Android browser.

18. What are the disadvantages of using Selenium as testing tool?
Selenium weak points are tricky setup; dreary errors diagnosis;
tests only web applications

19. How many browsers are supported by Selenium Remote Control?
QA Engineer can use Firefox 7, IE 8, Safari 5 and Opera 11.5 browsers to run actuall tests in Selenium RC.

20. How many programming languages can you use in Selenium RC?
Several programming languages are supported by Selenium Remote Control - C# Java Perl PHP Python Ruby

21. How many testing framework can QA Tester use in Selenium RC?
Testing frameworks aren't required, but they can be helpful if QA Tester wants to automate test cases. Selenium RC supports Bromine, JUnit, NUnit, RSpec (Ruby), Test::Unit (Ruby), TestNG (Java), unittest (Python).

22. How to developer Selenium Test Cases?
Using the Selenium IDE, QA Tester can record a test to comprehend the syntax of Selenium IDE commands, or to check the basic syntax for a specific type of user interface. Keep in mind that Selenium IDE recorder is

not clever as QA Testers want it to be. Quality assurance team should never consider Selenium IDE as a "record, save, and run it" tool, all the time anticipate reworking a recorded test cases to make them maintainable in the future.

23. What programming language is best for writing Selenium tests?
The web applications may be written in Java, Ruby, PHP, Python or any other web framework. There are certain advantages for using the same language for writing test cases as application under test. For example, if the team already have the experience with Java, QA Tester could always get the piece of advice while mastering Selenium test cases in Java. Sometimes it is better to choose simpler programming language that will ultimately deliver better success. In this case QA testers can adopt easier programming languages, for example Ruby, much faster comparing with Java, and can become become experts as soon as possible.

24. Have you read any good books on Selenium?
There are several great books covering Selenium automation tool, you could check the review at Best Selenium Books: Top Recommended page

25. Do you know any alternative test automation tools for Selenium?
Selenium appears to be the mainstream open source tool for browser side testing, but there are many alternatives. Canoo Webtest is a great Selenium alternative and it is probably the fastest automation tool. Another Selenium alternative is Watir, but in order to use Watir QA Tester has to learn Ruby. One more alternative to Selenium is Sahi, but is has confusing interface and small developers community.

26. Compare HP QTP vs Selenium?
When QA team considers acquiring test automation to assist in testing, one of the most critical decisions is what technologies or tools to use to automate the testing. The most obvious approach will be to look to the software market and evaluate a few test automation tools. Read Selenium vs QTP comparison

27. Compare Borland Silktest vs Selenium? Check Selenium vs SilkTest comparison

28. How to test Ajax application with Selenium
Ajax interview questions could be tough for newbie in the test automation, but will be easily cracked by Selenium Tester with a relevant

experience. Read the detailed approach at Testing Ajax applications with Selenium in the right way

29. How can I learn to automate testing using Selenium?

Don't be surprised if the interviewer asks you to describe the approach for learning Selenium. This interviewer wants to hear how you can innovative software test automation process the company. Most likely they are looking for software professional with a good Selenium experience, who can do Selenium training for team members and get the team started with test automation. I hope this Selenium tutorial will be helpful in the preparation for this Selenium interview question.

30. What are the main components of Selenium testing tools? Selenium IDE, Selenium RC and Selenium Grid

31. What is Selenium IDE?
Selenium IDE is for building Selenium test cases. It operates as a Mozilla Firefox add on and provides an easy to use interface for developing and running individual test cases or entire test suites. Selenium-IDE has a recording feature, which will keep account of user actions as they are performed and store them as a reusable script to play back.

32. What is the use of context menu in Selenium IDE?
It allows the user to pick from a list of assertions and verifications for the selected location.

33. Can tests recorded using Selenium IDE be run in other browsers?
Yes. Although Selenium IDE is a Firefox add on, however, tests created in it can also be run in other browsers by using Selenium RC (Selenium Remote Control) and specifying the name of the test suite in command line.

34. What are the advantage and features of Selenium IDE?
a. Intelligent field selection will use IDs, names, or XPath as needed
b. It is a record & playback tool and the script format can be written in various languages including C#, Java, PERL, Python, PHP, HTML
c. Auto complete for all common Selenium commands
d. Debug and set breakpoints
e. Option to automatically assert the title of every page
f. Support for Selenium user-extensions.js file

35. What are the disadvantage of Selenium IDE tool?
a. Selenium IDE tool can only be used in Mozilla Firefox browser.
b. It is not playing multiple windows when we record it.

36. What is Selenium RC (Remote Control)?

Selenium RC allows the test automation expert to use a programming language for maximum flexibility and extensibility in developing test logic. For example, if the application under test returns a result set and the automated test program needs to run tests on each element in the result set, the iteration / loop support of programming language's can be used to iterate through the result set, calling Selenium commands to run tests on each item. Selenium RC provides an API and library for each of its supported languages. This ability to use Selenium RC with a high level programming language to develop test cases also allows the automated testing to be integrated with the project's automated build environment.

37. What is Selenium Grid?
Selenium Grid in the selenium testing suit allows the Selenium RC solution to scale for test suites that must be run in multiple environments. Selenium Grid can be used to run multiple instances of Selenium RC on various operating system and browser configurations.

38. How Selenium Grid works?
Selenium Grid sent the tests to the hub. Then tests are redirected to an available Selenium RC, which launch the browser and run the test. Thus, it allows for running tests in parallel with the entire test suite.

39. What you say about the flexibility of Selenium test suite?
Selenium testing suite is highly flexible. There are multiple ways to add functionality to Selenium framework to customize test automation. As compared to other test automation tools, it is Selenium's strongest characteristic. Selenium Remote Control support for multiple programming and scripting languages allows the test automation engineer to build any logic they need into their automated testing and to use a preferred programming or scripting language of one's choice.

Also, the Selenium testing suite is an open source project where code can be modified and enhancements can be submitted for contribution.

40. What test can Selenium do?
Selenium is basically used for the functional testing of web based applications. It can be used for testing in the continuous integration environment. It is also useful for agile testing

41. What is the cost of Selenium test suite?
Selenium test suite a set of open source software tool, it is free of cost.

42. What browsers are supported by Selenium Remote Control?

The test automation expert can use Firefox, IE 7/8, Safari and Opera browsers to run tests in Selenium Remote Control.

43. What programming languages can you use in
Selenium RC?

C#, Java, Perl, PHP, Python, Ruby

44. What are the advantages and disadvantages of using Selenium as testing tool? Advantages: Free, Simple and powerful DOM (document object model) level testing, can be used for continuous integration; great fit with Agile projects.

Disadvantages: Tricky setup; dreary errors diagnosis; can not test client server applications.

45. What is difference between QTP and Selenium?
Only web applications can be testing using Selenium testing suite. However, QTP can be used for testing client server applications. Selenium supports following web browsers: Internet Explorer,

Firefox, Safari, Opera or Konqueror on Windows, Mac OS X and Linux. However, QTP is limited to Internet Explorer on Windows.

QTP uses scripting language implemented on top of VB Script. However, Selenium test suite has the flexibility to use many languages like Java, .Net, Perl, PHP, Python, and Ruby.

46. What is difference between Borland Silk test and Selenium?
Selenium is completely free test automation tool, while Silk Test is not. Only web applications can be testing using Selenium testing suite. However, Silk Test can be used for testing client server applications. Selenium supports following web browsers: Internet Explorer, Firefox, Safari, Opera or Konqueror on Windows, Mac OS X and Linux. However, Silk Test is limited to Internet Explorer and Firefox.

Silk Test uses 4Test scripting language. However, Selenium test suite has the flexibility to use many languages like Java, .Net, Perl, PHP, Python, and Ruby.

47. What is the difference between an assert and a verify with Selenium commands? Effectively an “assert” will fail the test and abort the current test case, whereas a “verify” will fail the test and continue to run the test case.

48.If a Selenium function requires a script argument, what would that argument look like in general terms?
StoreEval(script, variable) and storeExpression(expression, variableName)

49.If a Selenium function requires a pattern argument, what five prefixes might that

argument have?
glob, regexp, exact, regexpi

50. What is the regular expression sequence that loosely translates to "anything or nothing?"
(.* i.e., dot star) This two-character sequence can be translated as “0 or more occurrences of any character” or more simply, “anything or nothing.

51. What is the globbing sequence that loosely translates to "anything or nothing?
(*) which translates to “match anything,” i.e., nothing, a single character, or many characters.

52. What does a character class for all alphabetic characters and digits look like in regular expressions?
[0-9] matches any digit
[A-Za-z0-9] matches any alphanumeric
character [A-Za-z] matches any alphabet
character

53. What does a character class for all alphabetic characters and digits look like in globbing?
[0-9] matches any digit
[a-zA-Z0-9] matches any alphanumeric
character [a-zA-Z] matches any alphabet
character

54. What must one set within SIDE in order to run a test from the beginning to a certain point within the test?
Set Toggle BreakPoint.

55. What does a right-pointing green triangle at the beginning of a command in SIDE indicate?
Play Entire Test Suite

56. Which wildcards does SIDE support?
*, [ ]

57. What are the four types of regular expression quantifiers which we've studied? Ans : * quantifier: 0 or more of the preceding character (or group)

+ quantifier: 1 or more of the preceding character
(or group) ? quantifier: 0 or 1 of the preceding
character (or group)
{1,5} quantifier: 1 through 5 of the preceding character (or group)

58. What regular expression special character(s) means "any character?"
(.*)

59. What distinguishes between an absolute and relative
URL in SIDE? Absolute URL: Its is base url and this
represent domain address. Relative URL: (Absolute URL +
Page Path).
Open command uses Base URL (Absolute URL) to navigate web page.

60. How would one access a Selenium variable named "count" from within a JavaScript snippet?
${count}

61. What Selenese command can be used to display the value of a variable in the log file, which can be very valuable for debugging?
echo()

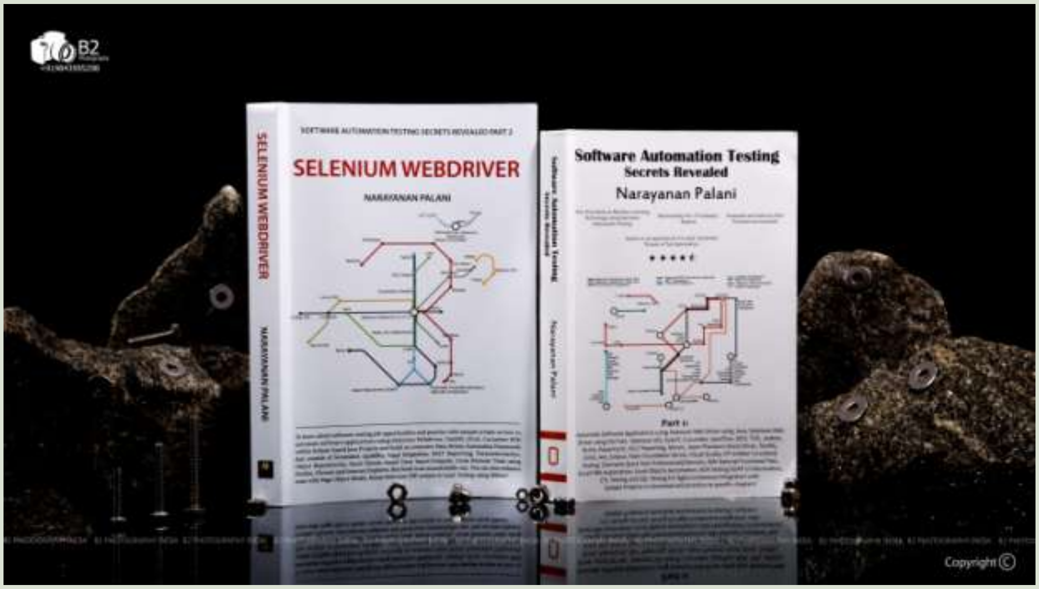
62. If one wanted to display the value of a variable named answer in the log file, what would the first argument to the previous command look like?
echo()

63. Which Selenium command(s) simulates selecting a link?
click, clickandWait, ClickAt, ClickAtandWait, DoubleClick,
DoubleClickandWait, doubleClickAt, doubleClickAtandWait

64. Which two commands can be used to check that an alert with a particular message popped up?
The following commands are available within Selenium for processing Alerts:

- getAlert()
- assertAlert()
- assertAlertNotPresent()
- assertAlertPresent()
- storeAlert()
- storeAlertPresent()
- verifyAlert()
- verifyAlertNotPresent()

- verifyAlertPresent()
- waitForAlert()
- waitForAlertNotPresent()
- waitForAlertPresent()



The AlertPresent() and AlertNotPresent() functions check for the existence or not of an alert – regardless of it's content. The Alert() functions allow the caller to specify a pattern which should be matched. The getAlert() method also exists in Selenium RC, and returns the text from the previous Alert displayed.

Generic Selenium Questions

Question 1:
What is Selenium?
Answer:
Selenium is a browser automation tool which lets you automated operations like – type, click, and selection from a drop down of a web page.

Question 2:
How is Selenium different from commercial browser automation tools?
Answer:
Selenium is a library which is available in a gamut of languages i.e. java, C#, python, ruby, php etc while most commercial tools are limited in their capabilities of being able to use just one language. More over many of those tools have their own proprietary language which is of little use outside the domain of those tools. Most commercial tools focus on record and replay while Selenium emphasis on using Selenium IDE (Selenium record and replay) tool only to get acquainted with Selenium working and then move on to more mature Selenium libraries like Remote control (Selenium 1.0) and Web Driver (Selenium 2.0).
Though most commercial tools have built in capabilities of test reporting, error recovery mechanisms and Selenium does not provide any such features by default. But given the rich set of languages available with Selenium it very easy to emulate such features.

Question3:
What are the set of tools available with Selenium?
Answer:
Selenium has four set of tools – Selenium IDE, Selenium 1.0 (Selenium RC), Selenium 2.0 (WebDriver) and Selenium Grid. Selenium Core is another tool but since it is available as part of Selenium IDE as well as Selenium 1.0, it is not used in isolation.

Question 4:

Which Selenium Tool should I use?

Answer:

It entirely boils down to where you stand today in terms of using Selenium. If you are entirely new to Selenium then you should begin with Selenium IDE to learn Selenium location strategies and then move to Selenium 2 as it is the most stable Selenium library and future of Selenium. Use Selenium Grid when you want to distribute your test across multiple devices. If you are already using Selenium 1.0 than you should begin to migrate your test scripts to Selenium 2.0

Question 5:

What is Selenium IDE?

Answer:

Selenium IDE is a firefox plug-in which is (by and large) used to record and replay test is firefox browser. Selenium IDE can be used only with firefox browser.

More Examples: Software Automation Testing

Question 6:

Which language is used in Selenium IDE?

Answer:

Selenium IDE uses html sort of language called Selenese. Though other languages (java, c#, php etc) cannot be used with Selenium IDE, Selenium IDE lets you convert test in these languages so that they could be used with Selenium 1.0 or Selenium 2.0

Question 7:

What is Selenium 1.0?

Answer:

Selenium 1.0 or Selenium Remote Control (popularly known as Selenium RC) is library available in wide variety of languages. The primary reason of advent of Selenium RC was incapability of Selenium IDE to execute tests in browser other than Selenium IDE and the programmatical limitations of language Selenese used in Selenium IDE.

Question 8:

What is Selenium 2.0?

Answer:

Selenium 2.0 also known as WebDriver is the latest offering of Selenium. It provides

- better API than Selenium 1.0
- does not suffer from java script security restriction which Selenium 1.0 does
- supports more UI complicated UI operations like drag and drop

Question 9:

What are the element locators available with Selenium which could be used to locate elements on web page?

Answer:

There are mainly 4 locators used with Selenium –

- html id
- html name
- XPath locator and
- Css locators

Question 10:

What is Selenium Grid?

Answer:

Selenium grid lets you distribute your tests on multiple machines and all of them at the same time. Hence you can execute test on IE on Windows and Safari on Mac machine using the same test script (well, almost always). This greatly helps in reducing the time of test execution and provides quick feedback to stack holders.

Selenium IDE Questions

Question 11:

What are two modes of views in Selenium IDE?

Answer:

Selenium IDE can be opened either in side bar (View > Side bar > Selenium IDE) or as a pop up window (Tools > Selenium IDE). While using Selenium IDE in browser side bar it cannot record user operations in a pop up window opened by application.

Question 12:

Can I control the speed and pause test execution in Selenium IDE?

Answer:

Selenium IDE provides a slider with Slow and Fast pointers to control the speed of execution.

Question 13:

Where do I see the results of Test Execution in Selenium IDE?

Answer:

Result of test execution can be views in log window in Selenium IDE –

Question 14:

Where do I see the description of commands used in Selenium IDE?
Answer:
Commands of description can be seen in Reference section –

Question 15:
Can I build test suite using Selenium IDE?
Answer:
Yes, you can first record individual test cases and then group all of them in a test suite. Following this entire test suite could be executed instead of executing individual tests.

Question 16:
What verification points are available with Selenium?
Answer:
There are largely three type of verification points available with Selenium –

- Check for page title
- Check for certain text
- Check for certain element (text box, drop down, table etc)

Question 17:
I see two types of check with Selenium – verification and assertion, what's the difference between tow?
Answer:

- A verification check lets test execution continue even in the wake of failure with check, while assertion stops the test execution. Consider an example of checking text on page, you may like to use verification point and let test execution continue even if text is not present. But for a login page, you would like to add assertion for presence of text box login as it does not make sense continuing with test execution if login text box is not present.

Question 18:
I don't see check points added to my tests while using Selenium IDE□, how do I get them added to my tests?
Answer:
You need to use context menu to add check points to your Selenium IDE tests –

Question 19:
How do I edit tests in Selenium IDE?

Answer:

There are two ways to edit tests in Selenium IDE; one is the table view while other looking into the source code of recorded commands –

Question 20:

What is syntax of command used in Selenium?

Answer:

There are three entities associated with a command –

- Name of Command

- Element Locator (also known as Target)
- Value (required when using echo, wait etc)

Question 21:

There are tons of Selenium Command, am I going to use all of them

Answer:

This entirely boils down to operations you are carrying out with Selenium. Though you would definitely be using following Selenium Commands more often –

- Open: opens a web page.
- click/clickAndWait: click on an element and waits for a new page to load.
- Select: Selects a value from a drop down value.
- verifyTitle/assertTitle: verifies/asserts page title.
- verify/assert ElementPresent: verifies/asserts presence of element, in the page.
- verify/assert TextPresent verifies/asserts expected text is somewhere on the page.

Question 22:

How do I use html id and name while using Selenium IDE

Answer:

Html id and name can be used as it is in selenium IDE. For example Google search box has name – “q” and id – “list-b” and they can be used as target in selenium IDE –

Question 23:

What is XPath? When would I have to use XPath in Selenium IDE?

Answer:

XPath is a way to navigate in xml document and this can be used to identify elements in a web page. You may have to use XPath when there is no

name/id associated with element on page or only partial part of name/ide is constant.
Direct child is denoted with - /
Relative child is denoted with - //
Id, class, names can also be used with XPath –

- //input[@name=’q’]
- //input[@id=’lst-ib’]
- //input[@class=’ lst’]

If only part of id/name/class is constant than “contains” can be used as –

- //input[contains(@id,'lst-ib')]

Question 24:
What is CSS location strategy in Selenium?
Answer:

CSS location strategy can be used with Selenium to locate elements, it works using cascade style sheet location methods in which -
Direct child is denoted with – (a space)
Relative child is denoted with - >
Id, class, names can also be used with XPath –

- css=input[name=’q’]
- css=input[id=’lst-ib’] or input#lst-ib
- css=input[class=’ lst’] or input.lst

If only part of id/name/class is constant than “contains” can be used as –

- css=input[id*=' lst-ib ')]

Element location strategy using inner text

- css = a:contains(‘log out’)

Question 25:
There is id, name, XPath, CSS locator, which one should I use?
Answer:
If there are constant name/id available than they should be used instead of XPath and CSS locators. If not then css locators should be given preference as their evaluation is faster than XPath in most modern browsers.

Question 26:
I want to generate random numbers, dates as my test data, how do I do this in Selenium IDE?
Answer:
This can be achieved by executing java script in Selenium. Java script can be executed using following syntax –

type
css=input#s

```
javascript{Math.random()}
```

And for date –

```
type
css=input#s
javascript{new Date()}
```

Question 27:

Can I store result of an evaluation and use it later in my test?

Answer:

You can use "store" command to achieve this. You can save result of an evaluation in a variable and use it later in your Selenium IDE script. For example we can store value from a text box as following, and later use it to type it in another text box –

```
storeText
css=input#s
var1
type
css=input#d
${var1}
```

Question 28:

I have stored result of an evaluation; can I print it in IDE to check its value?

Answer:

You can use echo command as following to check the stored value in Selenium IDE –

```
storeText
css=input#s
var1
echo
${var1}
```

Question 29:

Can I handle java script alert using Selenium?

Answer

You could use verify/assertAlert to check presence of alert on page. Since selenium cannot click on "Ok" button on js alert window, the alert itself does not appear on page when this check is carried out.

Question 30:

Selenium has recorded my test using XPath, how do I change them to css locator?

Answer

You can use drop down available next to Find in Selenium to change element locator used by Selenium –

Question 31:

I have written my own element locator, how do I test it?

Answer

You can use Find button of Selenium IDE to test your locator. Once you click on it, you would see element being highlighted on screen provided your element locator is right Else one error message would be displayed in log window.

Question 32:

I have written one js extension; can I plug it in Selenium and use it?

Answer

You could specify you js extension in "Options" window of Selenium IDE –

Question 33:

How do I convert my Selenium IDE tests from Selenese to another language?

Answer

You could use Format option of Selenium IDE to convert tests in another programming language –

Example: **Software Automation Testing**

Question 34:

I have converted my Selenium IDE tests to java but I am not able to execute them, execution options as well as Table tab of Selenium IDE is disabled

Answer

This is because Selenium IDE does not support execution of test in any other language than Selenese (language of Selenium IDE). You can convert Selenium IDE in a language of your choice and then use Selenium 1.0 to execute these tests in that language.

Question 35:

I want to use only Selenese as my test script language but still want to execute tests in other browsers, how do I do that?
Answer
You can execute you Selenese test in another browser by specifying the "-htmlSuite" followed by path of your Selenese suite while starting the Selenium Server. Selenium Server would be covered in details in question about Selenium RC.

Question 36:
I have added one command in middle of list of commands, how do I test only this new command?
Answer
You can double click on newly added command and Selenium IDE would execute only that command in browser.

Question 37:
Can I make Selenium IDE tests begin test execution from a certain command and not from the very first command?
Answer
You could set a command as "start" command from context menu. When a command is set as start command then a small green symbol appears before command. Same context menu can be used to toggle this optio

Question 38:
Are there other tools available outside Selenium IDE to help me tests my element locators
Answer
You could XPath checker - https://addons.mozilla.org/en-US/firefox/addon/xpath-checker/ to test you XPath locators and Firefinder (a firebug add on) to test you css locators – https://addons.mozilla.org/en-US/firefox/addon/firefinder-for-firebug/
Firefinder can also be used to test XPath locators.

Question 39:
What is upcoming advancement in Selenium IDE?
Answer
The latest advancement in Selenium IDE would be to have capabilities of converting Selenium IDE tests in Webdriver (Selenium 2.0) options. This would help generating quick and dirty tests for Selenium 2.0

Question 40:
How can I use looping option (flow control) is Selenium IDE
Answer

Selenese does not provide support for looping, but there is extension which could be used to achieve same. This extension can be download from here - http://51elliot.blogspot.com/2008/02/selenium-ide-goto.html
This extension can be added under "Selenium IDE Extension" section to use loop feature in Selenium IDE.

Question 41:
Can I use screen coordinate while using click command? I want to click at specific part of my element.
Answer
You would need to use clickAT command to achieve. clickAt command accepts element locator and x, y coordinates as arguments –
clickAt(locator, coordString)

Question 42:
How do I verify presence of drop down options using Selenium?
Answer
Use assertSelectOptions as following to check options in a drop down list –

```
assertSelectOptions
```

Question 43:
Can I get data from a specific html table cell using Selenium IDE?
Answer
Use storeTable command to get data from a specific cell in an html table, following example store text from cell 0,4 from an html table –

```
storeTable
css=#tableId.0.4
textFromCell
```

Question 44:
I want to make Selenium IDE record and display css locator followed by other locators, is it possible to give high priority to css locator in Selenium IDE?
Answer
You can change default behavior of Selenium IDE > element locator preference by crating js file with following–
LocatorBuilders.order = ['css:name', 'css:id', 'id', 'link', 'name', 'xpath:attributes'];

And add this file under "Selenium IDE Extension" under Selenium Options.

Question 45:
My application has dynamic alerts which don't always appear, how do I handle them?
Answer
If you want to simulate clicking "ok " on alert than use – chooseOkOnNextConfirmation and if you want to simulate clicking "cancel" on alert than use - chooseCancelOnNextConfirmation ( )

Question 46:
Can I right click on a locator?
Answer

You can use command - contextMenu (locator) to simulate right click on an element in web page.

Question 47:
How do I capture screen shot of page using Selenium IDE?
Answer

Use command – captureEntirePageScreenshot to take screen shot of page.

Question 48:
I want to pause my test execution after certain command.
Answer

Use pause command which takes time in milliseconds and would pause test execution for specified time – pause (waitTime)

Question 49:
I used open command to launch my page, but I encountered time out error
Answer

This happens because open commands waits for only 30 seconds for page to load. If you application takes more than 30 sec then you can use "setTimeout (timeout)" to make selenium IDE wait for specified time, before proceeding with test execution.
Question 50:
What's the difference between type and typeKeys commands?
Answer

type command simulates enter operations at one go while typeKeys simulates keystroke key by key.
typeKeys could be used when typing data in text box which bring options (like Google suggestion list) because such operation are not usually simulated using type command.

Selenium RC (Selenium 1.0) Questions

Question 51:
What is Selenium RC (also known as Selenium 1.0)?
Answer

Selenium RC is an offering from SeleniumHQ which tries to overcome following draw backs of Selenium IDE –

- Able to execute tests only with Firefox
- Not able to use full-fledged programming language and being limited to Selenese

Question 52:
What are the main components of Selenium RC?
Answer

Selenium RC has two primary components –

- Client libraries which let you writes tests in language of your preference i.e. java, C#, perl, php etc
- Selenium sever which acts as a proxy between browser and application under test (aut)

Question 53:
Why do I need Selenium Server?
Answer

Selenium uses java script to drives tests on a browser; Selenium injects its own js to the response which is returned from aut. But there is a java script security restriction (*same origin policy*) which lets you modify html of page using js only if js also originates from the same domain as html. This security restriction is of utmost important but spoils the working of Selenium. This is where Selenium server comes to play an important role. Selenium server stands between aut and browser and injects selenium js to the response received from aut and then it is delivered to broswer. Hence browser believes that entire response was delivered from aut.

Question 54:
What is Selenium core? I have never used it!!!
Answer

Selenium core is the core js engine of Selenium which executes tests on browser, but because of same origin policy it needs to be deployed on app server itself, which is not always feasible. Hence Selenium core is not used in isolation. Selenium IDE as well as Selenium RC use Selenium core to drive tests while over coming same origin policy. In case of Selenium IDE tests are run in context of browser hence it is not hindered by same origin policy and with Selenium RC, Selenium Server over comes same origin policy.

Question 55:
Where is executable for Selenium RC, how do I install it?
Answer

Installation is a misnomer for Selenium RC. You don’t install Selenium RC you only add client libraries to you project. For example in case of java you add client driver and Selenium server jars in Eclipse or IntelliJ which are java editors.

Question 56:
I have downloaded Selenium Server and Client libraries, how do I start Selenium Server?
Answer

To start Selenium Server, you need to navigate to installation directory of Selenium server and execute following command –

```
Java -jar .jar
```

This will start Selenium server at port 4444 by default.
Notice that you need to have java version 1.5 or higher available on your system to be able to use Selenium server.

Question 57:
On my machine port 4444 is not free . How do Use another port?
Answer

You can specify port while running the selenium server as –

```
Java -jar .jar –port 5555
```

Question 58:
I am new to programming; can Selenium generate sample code from my Selenese scripts?
Answer

You can first record tests in Selenium IDE and then use format option to convert them in a language of your choice.

Question 59:
Can I start Selenium server from my program instead of command line
Answer

If you are using java then you can start Selenium server using SeleniumServer class. For this you need to instantiate SeleniumServer and then call start() method on it.

```
        seleniumServer = new SeleniumServer();
   seleniumServer.start();
```

Question 60:
And how do I start the browser?
Answer

While using java you need to create instance of DefaultSelenium class and pass it four parameters –

```
selenium = new DefaultSelenium(serverHost, serverPort, browser,
appURL);
       selenium.start();
```

Herein you need to pass,

host where Selenium server is running,
port of Selenium server,
browser where tests are to be executed and
application URL

Question 61:
I am not using java to program my tests, do I still have to install java on my system?

Answer

Yes, since Selenium server is written in java you need java to be installed on your system to be able to use it. Even though you might not be using java to program your tests.

Question 62:
What are the browsers offering from Selenium?
Answer

Following browsers could be used with Selenium –
*firefox
*firefoxproxy
*pifirefox
*chrome
*iexploreproxy
*iexplore
*firefox3
*safariproxy
*googlechrome
*konqueror
*firefox2
*safari
*piiexplore
*firefoxchrome
*opera
*iehta
*custom
Here pi and proxy stand for proxy injection mode of Selenium server

Question 63:
During execution of tests I see two browser windows; one my test application another window shows commands being executed. Can I limit it to just one window?
Answer

Yes you can instruct Selenium Server to launch just one window. To do so you must specify –singleWindow while starting the Selenium server as –

```
Java -jar .jar –singleWindow
```

Question 64:
My tests usually time out. Can I specify bigger time out?
Answer

This usually happens while using open method with Selenium. One way to overcome this is to use setTimeOut method in your test script another way is to specify time out while starting Selenium server as following –

```
Java -jar .jar –timeout
```

Question 65:

My system is behind corporate network, how do I specify my corporate proxy?
Answer

You can specify your corporate proxy as following while starting Selenium Server –
java -jar .jar -Dhttp.proxyHost= -Dhttp.proxyPort= -Dhttp.proxyUser= -Dhttp.proxyPassword=

Question 66:
I am switching domains in my test scripts. I move from "yahoo.com" to "google.com" and my tests encounter permission denied error
Answer

Changing domains is also a security restriction from java script. To overcome this you should start you Selenium server in proxy injection mode as –

```
java -jar .jar –proxyInjectionMode
```

Now Selenium server would act as proxy server for all the content going to test application

Question 67:
Can I execute my Selenese tests in another browser using Selenium server? I want to use only Selenese script my tests but still want to execute my test in non firefox browsers
Answer

Yes you can. To do so you need to specify following parameters while starting Selenium server –

Browser
Test domain
Path to html suite (you Selenese tests) and
Path to result

java -jar <>.jar -htmlSuite

Question 68:
Can I log more options during test execution?
Answer

If you want to log browser side option during test execution then you should start Selenium server as following –

```
java -jar <>.jar –browserSideLog
```

Question 69:
Can I use Selenium RC on my UNIX/Mac also?
Answer
You can use Selenium RC on any system which is capable I running Java. Hence you can use it on RC and UNIX machines also

Question 70:
I want to test my scripts on new experimental browser, how do I do that?

Answer
You can specify *custom followed by path to browser to execute your tests on any browser while starting Selenium server

```
*custom
```

Question 71:
I executed my tests cases but where is the test report?
Answer
Selenium RC itself does not provide any mechanism for test reporting. Test reporting is driven from the framework you use for Selenium. For example with java client driver of Selenium –

- if you are using JUnit then you can use ant plug-in of JUnit to generate test report
- if you are using TestNG then TestNG generates reports for you

Same reporting option is available with PHP unit and other client libraries you are using.

Question 72:
How do I use recovery scenarios with Selenium? I used to use them with QTP.
Answer

Power of recovery scenarios lies with the programming language you use. If you are using java then you can use Exception handling to overcome same. For example if you are reading data from a file and file is not available then you should keep you code statements in "try catch" block so that test execution could continue even in the wake of errors. Such mechanism entirely boils down the errors you want to recover from, while being able to continue with test execution.

Question 73:
How do I iterate through options in my test script.
Answer
You can use loop features of the programming language, for example you can use "for" loop in java as following to type different test data in a text box –

```
            // test data collection in an array
           String[] testData = {"test1", "test2", "test3"};

     // iterate through each test data
     for (String s : testData) {
             selenium.type("elementLocator", testData);
     }
```

Question 74:
Can I execute java script from my tests? I want to count number of images on my page.
Answer
You can use method getEval() to evaluate java script. For example if you want to count number of images then you can pass following dom statement to getEval() as following –

```
           selenium.getEval("window.document.images.length;");
```

Or to get All anchor objects from a page

```
selenium.getEval("window.document.getElementsByTagName('a');");
```

Question 75:
Is there a way for me to know all available options when I start Selenium Server?
Answer

If you want to see all options available while starting Selenium server then you should use option “-h” while starting Selenium server -

```
Java –jar .jar –h
```

It would display you all the options which you can use while starting the Selenium server.

Question 76:

I have created my own firefox profile; can I execute my test scripts on it

Answer

You may like to create your own firefox profile because Selenium always created a clean firefox profile while executing the tests and none of your FF settings and plug-in are considered with this clean profile. If you want to execute tests on FF with your settings then you should create custom profile for FF.

To be able to execute tests on a custom firefox profile you should specify its path while starting Selenium server. For example if your new profile is stored at “awesome location” in your directory then you should start Selenium server as following –

```
Java –jar .jar -firefoxProfileTemplate   "awesome location"
```

Question 77:

How do I capture server side log from Selenium server?

Answer

Start your Selenium Server as following –

```
java -jar .jar -log selenium.log
```

And Selenium would start logging server side info, i.e.

```
20:44:25 DEBUG [12]
org.openqa.selenium.server.SeleniumDriverResourceHandler -
Browser 12345/:top frame1 posted START NEW
```

Question 78:

What are Heightened Privileges Browsers?

Answer

Firefox and IE have browser modes which are not restricted by java script’s same origin policy. These browsers are known as browsers with elevated security privileges. In case of Firefox it is known as chrome (It’s not the Google browser) and in case of IE it is known as iehta

Question 79:

My application has lots of pop up window, how do I work with them?

Answer

You need to know the Window ID of pop window to be able to work with them.

First you need to bring control on pop up window; execute selenium commands there, close the pop up window and then bring control back to main window. Consider following example where click on an image brings a pop up window –

```
                    // click on image brings pop up window
          selenium.click("css=img");

// wait for pop up window identified using anchor target "ss"
        selenium.waitForPopUp("ss", getWaitPeriod());
        selenium.selectWindow("ss");

        // Some more operations on popup window
// Close the pop up window and Select the main application window
        // Main window is selected by adding null as argument
        selenium.close();
        selenium.selectWindow("null");
        // continue with usual operation □
```

Question 80:

While trying to execute my tests with firefox I encountered following error – “Firefox Refused Shutdown While Preparing a Profile”. How do I solve it?

Answer

This message simply means that Selenium is not able to launch FF browser as it is already running on your system. To overcome this you should close all running instances of FF browser.

You should also check your system process if there is any hidden FF profile running which is not visible on screen. You should kill all FF processes and following this your tests should run smooth

Question 80:

While trying to execute my tests with firefox I encountered following error – “Firefox Refused Shutdown While Preparing a Profile”. How do I solve it?

Answer

This message simply means that Selenium is not able to launch FF browser as it is already running on your system. To overcome this you should close all running instances of FF browser.
You should also check your system process if there is any hidden FF profile running which is not visible on screen. You should kill all FF processes and following this your tests should run smooth

Question 81:
My application uses Ajax heavily how do I use Selenium RC to work with Ajax operations?
Answer
Ajax operations don’t reload a page like normal form submission but they make http requests behind the scene. You cannot use waitForPageToLoad for such operations and instead should use conditional wait for change in state of application. This could as well mean waiting for presence of an element before continuing with test operations. Consider following example in which type operation triggers Ajax operation which is followed by conditional wait for presence of a text box –

```
// type operation brings element “q” on screen without loading the page
selenium.type("elementLocator", "testData");

// conditional wait for element “q”
for (int second = 0;; second++) {
    if (second >= 60) fail("timeout");
try { if (selenium.isElementPresent("q")) break; } catch (Exception e) {}
        Thread.sleep(1000);
}
```

Question 82:
How do I upload a file using Selenium? I need to upload a word file during test execution.
Answer
If you are using Firefox then you can use “type” command to type in a File Input box of upload file. But type operation does not work with IE and you would have to use “Robot” class in java to work make file upload work.

Question 83:
Why do I get “permission denied” error during execution of Selenium tests?
Answer

The primary reason of permission denied error is same origin policy restriction from java script. To overcome this error you can use browsers with elevated security privileges. In case of Firefox you should use *chrome and in case of IE you should use *iehta as browser for working with Selenium.

Question 84:
I am not able to use “style” attribute to locate element with IE browser
Answer
This is because IE expects attribute values to be in caps while other browsers expect it to be lower case letters. Hence

//tr[@style="background-color:yellow"] works with other browsers
//tr[@style="BACKGROUND-COLOUR:yellow"] works with IE

Question 85:
Are there any technical limitations while using Selenium RC?
Answer
Besides notorious “same origin policy” restriction from js, Selenium is also restricted from exercising anything which is outside browser. For example you cannot click on “Tools” option of your browser by just using Selenium.

Question 86:
But my tests need me to exercise objects outside browser, how do I achieve it?
Answer
You can use Robot class in java to achieve this, but it would be dirty solution even if you get through this.

Question 87:
Does Selenium have any offering for mobile browsers?
Answer
Selenium 2.0 (WebDriver) provides iPhone as well Android drivers which could be used to drive tests on mobile browsers

Question 88:
How does Selenium RC stand with other commercial tools?
Answer
The biggest advantage of Selenium RC is that it is absolutely free and has vast support of languages and browsers (almost always). Selenium lags when it comes to test reporting as Selenium does not have any in built reporting but this can be easily achieved using the programming language

you decide to work on with Selenium. A bigger drawback is not being able to exercise objects which are outside browser window, for example clicking on folder on your desktop.

Question 89:
How does Selenium RC stand with other commercial tools?
Answer
The biggest advantage of Selenium RC is that it is absolutely free and has vast support of languages and browsers (almost always). Selenium lags when it comes to test reporting as Selenium does not have any in built reporting but this can be easily achieved

Question 90:
Can I just use Selenium RC to drive tests on two different browsers on one operating system without using Selenium Grid?
Answer
If you are using java client driver of Selenium then java testing framework TestNG lets you achieve this. You can set tests to be executed in parallel using "parallel=test" attribute and define two different tests, each using a different browser. Whole set up would look as (notice the highlighted sections for browser in test suite)–

```
xml version="1.0" encoding="utf-8"?>
DOCTYPE suite SYSTEM "http://testng.org/testng-1.0.dtd" >

<suite name="Test Automation" verbose="10">

    <parameter name="serverHost" value="localhost" />
    <parameter name="appURL" value="http://tamil.yahoo.com"/>
    <parameter name="proxyInjection" value="false" />
    <parameter name="serverPort" value="4444"/>

    <test name="Web Test1">
        <parameter name="browser" value="*chrome" />
        <parameter name="m" value="1">parameter>
<classes><class name="com.core.tests.TestClass1">class>classes>
    test>

    <test name="Web Test2">
        <parameter name="browser" value="*iehta" />
        <parameter name="m" value="2">parameter>
<classes><class name="com.core.tests.TestClass1">class>classes>
    test>
```

suite>

Selenium Grid Questions

Question 91:
How do I cut down text execution time for my selenium tests? I want to execute my tests on a combination of different machines and browsers.
Answer
Selenium grid is your friend. Selenium grid lets you distribute tests across browsers and machines of your choice.

Question 92:
How does Selenium grid works?

Answer
Selenium grid uses combination of Selenium RC servers to execute tests in multiple browsers on different machine. Herein one Selenium RC server works as hub while other RC servers work as slaves, which could be controlled by hub. Whenever there is a request for a specific configuration for test execution then hub looks for a free RC slave server and if available then test execution begins on it. Once test execution is over then RC slave server would be available for next set of test execution.

Question 93:
Can you show me one diagram which describes functionality of Selenium grid?
Answer
In the following diagram Selenium hub is controlling three Selenium RC servers which are running for configurations –

- IE on Windows
- FF on Linux
- FF on windows

Question 94:
Which jar files are needed to works with Selenium GRID?
Answer
You need to download and add following jar files to your Selenium set up to be able to work with Selenium. These jar files are –

- selenium-grid-remote-control-standalone-.jar
- selenium-grid-hub-standalone-.jar
- selenium-grid-tools-standalone-.jar

Question 95:
How do I start Selenium Grid hub from my machine?
Answer
You should have "ant" set up on your system to be able to work with Grid. Once you have downloaded Selenium Grid, navigate to its distribution directory and execute following command -

```
ant launch-hub
```

This would start grid hub on port 4444 locally. You can verify this by navigating to following URL - http://localhost:4444/console

Question 96:
How do I start Selenium Grid Slave Server from my system?
Answer
Navigate to download directory of Selenium gird and execute following command –

```
ant launch-remote-control
```

This would launch remote control server at port 555. At this point if you navigate to http://localhost:4444/console then you would see this remote control listed under "Available Remote Controls"

Question 97:
How do I start Selenium grid slave on a different port than 5555?
Answer
You can use option "-Dport" followed by port number to start grid slave on a specific port.

```
ant -Dport=1111 launch-remote-control
ant -Dport=2222 launch-remote-control
```

Question 98:
How do I start grid RC slaves on a different system than my local host so than hub could control and contact a specific configuration?
Answer
You should specify following configuration while starting RC slave –

```
ant -Dport= -Dhost= -DhubURL= launch-remote-control
```

Herein "hostname" is the host where RC slave is running and "hub url" is URL of machine where grid hub is running.

Question 99:
How do I specify an environment while starting grid slave machine?
Answer
You could specify an environment using "-Denvironment" while starting a slave machine.

ant -Denvironment=”Safari on Mac” launch-remote-control

Herein Safari on Mac is the environment which would be used to recognize configuration of RC slave.

Question 100:

How do I use machine specific configuration in my Selenium tests?

Answer

You could specify machine specific configuration while instantiating Selenium as –

Selenium = new DefaultSelenium("localhost", 4444, **'Safari on Mac'**, 'http://yahoo.com');

And then you use this selenium instance to carryout operation on your web application.

Question 101:

But how does my tests know that ‘Safari on Mac’ mean a safari browser? How does mapping between names like ‘Safari on Mac’ and original browser options available in Selenium work?

Answer

Selenium grid uses a file called “grid_configuration.yml” which defines configurations of all browsers. You would have to add this in your project. This file looks like –

Question 102:

How does Selenium grid hub keeps in touch with RC slave machine?

Answer

Selenium grid hub keeps polling all RC slaves at predefined time to make sure they are available for testing. If not then Selenium hub disconnect any unavailable RC slaves and makes it clear that any RC slave is not available for testing. The deciding parameter is called – “remoteControlPollingIntervalInSeconds” and is defined in “grid_configuration.yml” file.

Question 103:

My RC becomes unresponsive at times and my Selenium grid hub keeps waiting for RC slave to respond. How do I let hub know to give up on RC slave after a certain time?

Answer

You could state Selenium grid hub to wait for RC slave for a predefined time, and if RC slave does not responds with in this time then hub disconnects test execution on that slave. This parameter is called “sessionMaxIdleTimeInSeconds” and this parameter can be defined in “grid_configuration.yml” file.

Question 104:
What if my hub goes down while Selenium RC slaves are up and running?
Answer
There is one heart beat mechanism from RC slave to hub which is reciprocal to mechanism used by hub to slave machines. RC slaves use a parameter called "hubPollerIntervalInSeconds" to keep track of running grid hub. This parameter can be defined while starting the hub as –
ant -DhubPollerIntervalInSeconds= launch-hub
if hub does not respond within this time then RC slaves deregister themselves from hub.

Question 105:
Can Selenium grid be used for performance testing?
Answer
Selenium grid is for functional testing of application across different configuration. Performance testing is usually not carried out on actual devices but on a simulated http request/response mechanism. If you want to use Selenium Grid for performance testing then you would have to invest heavily on s/w and h/w infrastructure.

Question 106:
Are there additional logs available while working with Selenium grid?
Answer
You can find Selenium grid hub logs in "log/hub.log" and Remote Control logs in "log/rc-*.log" folder.

Question 107:
There are various options available while starting a Selenium server, how do I use them with Selenium grid?
Answer
You can use "seleniumArgs" Java property while launching the remote control and specify any of the option which you would with normal Selenium set up. For example you can run Selenium RC slave in single window mode using following command –

```
        ant -DseleniumArgs="-singleWindow -debug" launch-remote-control
```

Question 108:
I see duplicate entries in my hub console, same RC slave listed more than once :-O
Answer
This is because you are killing RC slave very ferociously. For example you if you just close the console without actually ending the process in more civil manner. To avoid this you should kill all RC slaves in more civil manner. If you encounter this error then you should restart Selenium hub and RC slaves would them register themselves to hub.

Question 109:
How do I specify my corporate proxy while starting Selenium grid hub or slave machines?
Answer
You could use setting for “http.proxyHost” abd “http.proxyPort” while starting hub and remote control machines –
ant -Dhttp.proxyHost= -Dhttp.proxyPort= launch-hub
ant -Dhttp.proxyHost= -Dhttp.proxyPort= launch-remote-control

Question 110:
How do I use Selenium Grid while using Java, .Net or Ruby
Answer
With java you can take advantage of parallel testing capabilities of TestNG to drive your Selenium grid tests
With .Net you can use “Gallio” to execute your tests in parallel
With Ruby you can use “DeepTest” to distribute your tests

Question 111:
How about the test report when I use Selenium grid for test execution?
Answer
This entirely boils down to framework you use to write your tests. For example in case of java, TestNG reports should suffice.

Web Driver (Selenium 2.0) Questions

Question 112:
What is Selenium 2.0? I have heard this buzz word many times.
Answer
Selenium 2.0 is consolidation of two web testing tools – Selenium RC and WebDriver, which claims to give best of both words – Selenium and WebDriver. Selenium 2.0 was officially released only of late.

Question 113:
Why are two tools being combined as Selenium 2.0, what’s the gain?

Answer
Selenium 2.0 promises to give much cleaner API then Selenium RC and at the same time not being restricted by java script Security restriction like same origin policy, which have been haunting Selenium from long. Selenium 2.0 also does not warrant you to use Selenium Server.

Question 114:
So everyone is going to use Selenium 2.0?

Answer

Well no, for example if you are using Selenium Perl client driver than there is no similar offering from Selenium 2.0 and you would have to stick to Selenium 1.0 till there is similar library available for Selenium 2.0

Question 115:

So how do I specify my browser configurations with Selenium 2.0?

Answer

Selenium 2.0 offers following browser/mobile configuration –

- AndroidDriver,
- ChromeDriver,
- EventFiringWebDriver,
- FirefoxDriver,
- HtmlUnitDriver,
- InternetExplorerDriver,
- IPhoneDriver,
- IPhoneSimulatorDriver,
- RemoteWebDriver

And all of them have been implemented from interface WebDriver. To be able to use any of these drivers you need to instantiate their corresponding class.

Question 116:

How is Selenium 2.0 configuration different than Selenium 1.0?

Answer

In case of Selenium 1.0 you need Selenium jar file pertaining to one library for example in case of java you need java client driver and also Selenium server jar file. While with Selenium 2.0 you need language binding (i.e. java, C# etc) and Selenium server jar if you are using Remote Control or Remote WebDriver.

Question 117:

Can you show me one code example of setting Selenium 2.0?

Answer

Here is java example of initializing firefox driver and using Google Search engine –

```
        protected WebDriver webDriver;

    //@BeforeClass(alwaysRun=true)
    public void startDriver(){
    webDriver = new FirefoxDriver();
    // Get Google search page and perform search on term “Test”
        webDriver.get("http://www.google.com");
    webDriver.findElement(By.name("q")).sendKeys("Test");
```

```
webDriver.findElement(By.name("btnG")).click();
```

Question 118:
Which web driver implementation is fastest?
Answer
HTMLUnitDriver. Simple reason is HTMLUnitDriver does not execute tests on browser but plain http request – response which is far quick than launching a browser and executing tests. But then you may like to execute tests on a real browser than something running behind the scenes

Question 119:
What all different element locators are available with Selenium 2.0?
Answer
Selenium 2.0 uses same set of locators which are used by Selenium 1.0 – id, name, css, XPath but how Selenium 2.0 accesses them is different. In case of Selenium 1.0 you don't have to specify a different method for each locator while in case of Selenium 2.0 there is a different method available to use a different element locator. Selenium 2.0 uses following method to access elements with id, name, css and XPath locator –

```
driver.findElement(By.id("HTMLid"));
driver.findElement(By.name("HTMLname"));
driver.findElement(By.cssSelector("cssLocator"));
driver.findElement(By.xpath("XPathLocator));
```

Question 120:
How do I submit a form using Selenium?
Answer
You can use "submit" method on element to submit form –

```
element.submit();
```

Alternatively you can use click method on the element which does form submission.

Question 121:
Can I simulate pressing key board keys using Selenium 2.0?
Answer
You can use "sendKeys" command to simulate key board keys as –

```
element.sendKeys(" and some", Keys.ARROW_UP);
```

You can also use “sendKeys” to type in text box as –

```
            HTMLelement.sendKeys("testData");
```

Question 122:

How do I clear content of a text box in Selenium 2.0

Answer

You can use “clear” method on text box element to clear its content –

```
            textBoxElement.clear();
```

Question 123:

How do I select a drop down value using Selenium2.0?

Answer

To select a drop down value, you first need to get the select element using one of element locator and then you can select element using visible text –

```
Select selectElement
= new Select(driver.findElement(By.cssSelector("cssSelector")));
          selectElement.selectByVisibleText("India");
```

Question 124:

What are offering to deal with popup windows while using Selenium 2.0?

Answer

You can use “switchTo” window method to switch to a window using window name. There is also one method “getWindowHandles” which could be used to find all Window handles and subsequently bring control on desired window using window handle –

```
            webDriver.switchTo().window("windowName");

          for (String handle : driver.getWindowHandles()) {
              driver.switchTo().window(handle);
          }
```

Question 125:

How about handling frames using Selenium 2.0?

Answer

You can use “switchTo” frame method to bring control on an HTML frame –

```
            driver.switchTo().frame("frameName");
```

You can also use index number to specify a frame –

```
            driver.switchTo().frame("parentFrame.4.frameName");
```

This would bring control on frame named – “frameName” of the 4th sub frame names “parentFrame”

Question 126:

Can I navigate back and forth in a browser in Selenium 2.0?

Answer

You can use Navigate interface to go back and forth in a page. Navigate method of WebDriver interface returns instance of Navigation. Navigate interface has methods to move back, forward as well as to refresh a page –

```
        driver.navigate().forward();
        driver.navigate().back();
        driver.navigate().refresh();
```

Question 127:

What is the order of fastest browser implementation for WebDriver?

Answer

HTMLUnitDriver is the fastest browser implementation as it does not involves interaction with a browser, This is followed by Firefox driver and then IE driver which is slower than FF driver and runs only on Windows.

Question 128:

Is it possible to use Selenium RC API with Selenium 2.0?

Answer

You can emulate Selenium 1.0 API with Selenium 2.0 but not all of Selenium 1.0 methods are supported. To achieve this you need to get Selenium instance from WebDriver and use Selenium methods. Method executions might also be slower while simulating Selenium 1.0 with in Selenium 2.0

Question 129:

Can you show me one example of using Selenium 1.0 in Selenium 2.0?

Answer

Code Sample:

```
        // Create web driver instance
    WebDriver driver = new FirefoxDriver();

    // App URL
    String appUrl = "http://www.google.com";

    // Get Selenium instance
Selenium selenium = new WebDriverBackedSelenium(driver, appUrl);

    // Tests using selenium
    selenium.open(appURL);
    selenium.type("name=q", "testData");
    selenium.click("name=btnG");

    // Get back the WebDriver instance
WebDriver driverInstance = ((WebDriverBackedSelenium)
selenium).getUnderlyingWebDriver();
```

Question 130:
I had support of lots of browsers while using Selenium 1.0 and it seems lacking with Selenium 2.0, for example how do I use < awesome> browser while using Selenium 2.0?
Answer
There is a class called Capabilities which lets you inject new Capabilities in WebDriver. This class can be used to set testing browser as Safari –

```
         //Instantiate Capabilities
    Capabilities capabilities = new DesiredCapabilities()

    //Set browser name
    capabilities.setBrowserName("this awesome browser");

    //Get your browser execution capabilities
CommandExecutor executor
= new SeleneseCommandExecutor("http:localhost:4444/", "http://www.goo
gle.com/", capabilities);

    //Setup driver instance with desired Capabilities
WebDriver driver = new RemoteWebDriver(executor, capabilities);
```

Question 131:
Are there any limitations while injecting capabilities in WebDriver to perform tests on a browser which is not supported by WebDriver?
Answer
Major limitation of injecting Capabilities is that “fundElement” command may not work as expected. This is because WebDriver uses Selenium Core to make “Capability injection” work which is limited by java script security policies.

Question 132:
Can I change User-Agent while using FF browser? I want to execute my tests with a specific User-Agent setting.

Answer

You can create FF profile and add additional Preferences to it. Then this profile could be passed to Firefox driver while creating instance of Firefox –

```
        FirefoxProfile profile = new FirefoxProfile();
profile.addAdditionalPreference("general.useragent.override", "User Agent
String");
    WebDriver driver = new FirefoxDriver(profile);
```

Question 133:

Is there any difference in XPath implementation in different WebDriver implementations?

Answer

Since not all browsers (like IE) have support for native XPath, WebDriver provides its own implementation for XPath for such browsers. In case of HTMLUnitDriver and IEDriver, html tags and attributes names are considered lower cased while in case of FF driver they are considered case in-sensitive.

Question 134:

My application uses ajax highly and my tests are suffering from time outs while using Selenium 2.0⍰.

Answer

You can state WebDriver to implicitly wait for presence of Element if they are not available instantly. By default this setting is set to 0. Once set, this value stays till the life span of WebDriver object. Following example would wait for 60 seconds before throwing ElementNotFound exception –

```
        WebDriver driver = new FirefoxDriver();
driver.manage().timeouts().implicitlyWait(60, TimeUnit.SECONDS);
WebElement element = driver.findElement(By.id("elementID"));
```

Question 135:

What if I don’t want to use implicit wait and want to wait only for presence of certain elements?

Answer

You can use explicit wait in this situation to wait for presence of certain element before continuing with test execution. You can use “WebDriverWait” and “ExpectedCondition” to achieve this –

```
        WebDriver driver = new FirefoxDriver();
WebElement myDynamicElement = (new WebDriverWait(driver,
60)).until(new ExpectedCondition<WebElement>(){
    @Override
public WebElement apply(WebDriver d) {
    return d.findElement(By.id("myDynamicElement"));
}});
```

This is going to wait up to 60 seconds before throwing ElementNotFound exception.

Question 136:

What is RemoteWebDriver? When would I have to use it?

Answer

RemoteWebDriver is needed when you want to use HTMLUnitDriver. Since HTMLUnitDriver runs in memory, you would not see a browser getting launched –

```
// Create HTMLUnitDriver instance
WebDriver driver = new HtmlUnitDriver();

// Launch Yahoo.com
driver.get("http://www.yahoo.com");
```

Question 137:

What all languages available to be used with WebDriver?

Answer

Java and C# are on the forefront of WebDriver languages. Support is also available for Python and Ruby. There is also one java script library available for Friefox.

Question 138:

How do I handle java script alert using WebDriver?

Answer

WebDriver would support handling js alerts using Alert interface.

```
        // Bring control on already opened alert
Alert alert = driver.switchTo().alert();

// Get the text of the alert or prompt
alert.getText();

  // Click ok on alert
alert.accept();
```

Question 139:
Could I safely execute multiple instances of WebDriver implementations?
Answer
As far as HTMLUnitDriver and FF drivers are concerned, each instance would be independent of other. In case of IE driver there could be only one instance of IE driver running on Windows. If you want to execute more than one instance of IE driver then you should consider using RemoteWebDriver and virtual machines.

Question 140:
Is it possible to interact with hidden elements using WebDriver?
Answer
Since WebDriver tries to exercise browser as closely as real users would, hence simple answer is No, But you can use java script execution capabilities to interact with hidden elements.

Question 141:
I have all my tests written in Selenium 1.0 (Selenium RC), why should I migrate to Selenium 2.0 (WebDriver)?

Answer
Because –

- WebDriver has more compact and object oriented API than Selenium 1.0
- WebDriver simulates user behaviour more closely than Selenium 1.0, for example if a text box is disabled WebDriver would not be able to type text in it while Selenium 1.0 would be
- WebDriver is supported by Browser vendor themselves i.e. FF, Opera, Chrome etc

Question 142:
My XPath and CSS locators don’t always work with Selenium 2.0, but they used to with Selenium 1.0.
Answer
In case of XPath, it is because WebDriver uses native browser methods unless it is not available. And this cause complex XPath to be broken. In case of Selenium 1.0 css selectors are implemented using Sizzle Library and not all the capabilities like “contains” are available to be used with Selenium 2.0

Question 143:
How do I execute Java Script in Selenium 2.0?
Answer

You need to use JavaScriptExecutor to execute java script in Selenium 2.0, For example if you want to find tag name of an element using Selenium 2.0 then you can execute java script as following –

```
WebElement element = driver.findElement(By.id("elementLocator"));
String name = (String) ((JavascriptExecutor) driver).executeScript(
    "return arguments[0].tagName", element);
```

Question 144:
Why does not my java script execution return any value?
Answer
This might happen when you forget to add "return" keyword while executing java script. Notice the "return" keyword in following statement –

```
((JavascriptExecutor) driver).executeScript("return window.title;");
```

Question 145:
Are there any limitations from operating systems while using WebDriver?
Answer
While HTMLUnitDriver, FF Driver and Chrome Driver could be used on all operating systems, IE Driver could be used only with Windows.

Question 146:
Give me architectural overview of WebDriver.
Answer
WebDriver tries to simulate real user interaction as much as possible. This is the reason why WebDriver does not have "fireEvent" method and "getText" returns the text as a real user would see it. WebDriver implementation for a browser is driven by the language which is best to driver it. In case of FF best fit languages are Javascript in an XPCOM component and in IE it is C++ using IE automation. Now the implementation which is available to user is a thin wrapper around the implementation and user need not know about implementation.

Question 147:
What is Remote WebDriver Server?
Answer
Remote WebDriver Server has two components – client and server. Client is WebDriver while Server is java servlet. Once you have downloaded selenium-server-standalone-.jar file you can start it from command line as –

```
java -jar selenium-server-standalone-<version-number>.jar
```

Question 148:
Is there a way to start Remote WebDriver Server from my code?
Answer
First add Remote WebDriver jar in your class path. You also need another server called “Jetty” to use it. You can start sever as following –

```
                WebAppContext context = new WebAppContext();
      context.setContextPath("");
      context.setWar(new File("."));
      server.addHandler(context);

      context.addServlet(DriverServlet.class, "/wd/*");

SelectChannelConnector connector = new SelectChannelConnector();
      connector.setPort(3001);
      server.addConnector(connector);

      server.start();
```

Question 149:
But what are the advantages of using Remote WebDriver over WebDriver?
Answer
You can use Remote WebDriver when –

- When you want to execute tests on a browser not available to you locally
- Introduction to extra latency to tests

But there is one disadvantage of using Remote WebDriver that you would need external servlet container.

Question 150:
Can you show me code example of using Remote WebDriver?
Answer

```
        // Any driver could be used for test
DesiredCapabilities capabilities = new DesiredCapabilities();

       // Enable javascript support
       capabilities.setJavascriptEnabled(true);

       // Get driver handle
       WebDriver driver = new RemoteWebDriver(capabilities);

       // Launch the app
       driver.get("http://www.google.com");
```

Question 151:
What are the modes of Remote WebDriver
Answer
Remote WebDriver has two modes of operations –
Client Mode: This is where language bindings connect to remote instance. FF drive and RemoteWebDriver clients work this way.
Server Mode: In this mode language bindings set up the server. ChromeDriver works this way.

Question 152:
What Design Patterns could be used while using Selenium 2.0?
Answer
These three Design Patterns are very popular while writing Selenium 2.0 tests –

1. Page Objects – which abstracts UI of web page
2. Domain Specific Language – which tries to write tests which could be understood by a normal user having no technical knowledge
3. Bot Style Tests – it follows "command-like" test scripting

Question 153:
So do I need to follow these Design patterns while writing my tests?
Answer
Not at all, these Design Patterns are considered best practices and you can write you tests without following any of those Design Patterns, or you may follow a Design Pattern which suites your needs most.

Question 154:
Is there a way to enable java script while using HTMLUnitDriver?
Answer
Use this –

```
HtmlUnitDriver driver = new HtmlUnitDriver();
    driver.setJavascriptEnabled(true);
```

or this –

```
    HtmlUnitDriver driver = new HtmlUnitDriver(true);
```

Question 155:
Is it possible to emulate a browser with HTMLUnitDriver?
Answer
You can emulate browser while using HTMLUnitDriver but it is not recommended as applications are coded irrespective of browser you use. You could emulate Firefox 3 browser with HTMLUnitDriver as –

```
HtmlUnitDriver driver
= new HtmlUnitDriver(BrowserVersion.FIREFOX_3);
```

Or you can inject desired capabilities while instantiating HTMLUnitDriver as –

```
    HtmlUnitDriver driver = new HtmlUnitDriver(capabilities);
```

Question 156:
How do I use iPhone Driver?
Answer
You should start iPhone SDK and build iPhone driver. Down load iPhone development tools and provision profile. Now iPhone driver can connect through HTTP to the iphone simulator. You can also run simulator on another machine in your network and WebDriver could connect to it remotely.

Question 157:
Is it possible to convert Selenium IDE test to WebDriver test?
Answer
~~For now there is no formatter available to convert Selenium IDE tests to corresponding WebDriver tests, hence simple answer is No.~~ Yes WebDriver style of code can be generated from Selenium IDE

Question 158:
Can WebDriver handle UntrustedSSLCertificates?
Answer
This feature is currently supported in Firefox browser and is awaiting implementation in IE and Chrome drivers.

Question 159:

Can I carry out multiple operations at once while using WebDriver?

Answer

You can use Builder pattern to achieve this. For example if you want to move an element from one place to another you can use this –

```
Actions builder = new Actions(driver);

Action dragAndDrop = builder.clickAndHold(element)
       .moveToElement(otherElement)
       .release(otherElement)
       .build();

dragAndDrop.perform();
```

Question 160:

How do I simulate keyboard keys using WebDriver?

Answer

There is a KeyBoard interface which has three methods to support keyboard interaction –

- sendKeys(CharSequence)- Sends character sequence
- pressKey(Keys keyToPress) - Sends a key press without releasing it.
- releaseKey(Keys keyToRelease) - Releases a modifier key

Question 161:

What about Mouse Interaction?

Answer

Mouse interface lets you carry out following operations –

- click(WebElement element) – Clicks an element
- doubleClick(WebElement element) - Double-clicks an element.
- void mouseDown(WebElement element) - Holds down the left mouse button on an element.
- mouseUp(WebElement element) - Releases the mouse button on an element.
- mouseMove(WebElement element) - Moves element form current location to another element.

- contextClick(WebElement element) - Performs a context-click (right click) on an element.

Question 162:
How does Android Webdriver works?
Answer
Android WebDriver uses Remote WebDriver. Client Side is test code and Server side is application installed on android emulator or actual device. Here client and server communicate using JSON wire protocol consisting of Rest requests.

Question 163:
What are the advantages of using Android WebDriver?
Answer
Android web driver runs on Android browser which is best real user interaction. It also uses native touch events to emulated user interaction. But there are some drawbacks also like, it is slower than headless WebKit driver. XPath is not natively supported in Android web view.

Question 164:
Is there a built-in DSL (domain specific language) support available in WebDriver?
Answer
There is not, but you can easily build your own DSL, for example instead of using –

```
webDriver.findElement(By.name("q")).sendKeys("Test");
```

You can create a more composite method and use it –

```
public static void findElementAndType(WebDriver webDriver, String
elementLocator, String testData) {

webDriver.findElement(By.name(elementLocator)).sendKeys(testData);
    }
```

And now you just need to call method findElementAndType to do type operation.

Question 165:
What is grid2?

Answer

Grid2 is Selenium grid for Selenium 1 as well as WebDriver, This allows to –

- Execute tests on parallel on different machines
- Managing multiple environments from one point

Question 166:

How do I start hub and slaves machines in grid 2?

Answer

Navigate to you selenium server standalone jar download and execute following command –

```
java -jar selenium-server-standalone-.jar -role hub
```

And you start Slave machine by executing following command –

```
Java –jar selenium-server-.jar –role webdriver  -hub
http://localhost:4444/grid/register -port 6666
```

Question 167:

And how do I run tests on grid?

Answer

You need to use the RemoteWebDriver and the DesiredCapabilities object to define browser, version and platform for testing. Create Targeted browser capabilities as –

```
DesiredCapabilities capability = DesiredCapabilities.firefox();
```

Now pass capabilities to Remote WebDriver object –

```
WebDriver driver = new RemoteWebDriver(new
URL("http://localhost:4444/wd/hub"), capability);
```

Following this, hub will take care of assigning tests to a slave machine

Question 168:

What parameters can be passed to grid2?

Answer

You can pass following parameters to grid 2 –

- -port 4444 (default 4444)

- -nodeTimeout (default 30) the timeout in seconds before the hub automatically releases a node that hasn't received any requests for more than the specified number of seconds.
- -maxConcurrent 5 (5 is default) The maximum number of browsers that can run in parallel on the node.

Selenium Tool Implementation Misc Questions

Question 169:
How do I implement data driven testing using Selenium?
Answer
Selenium, unlike others commercial tools does not have any direct support for data driven testing. Your programming language would help you achieving this. You can you jxl library in case of java to read and write data from excel file. You can also use Data Driven Capabilities of TestNG to do data driven testing.
Question 170:
What is equivalent to test step, test scenario and test suite in Selenium.
Answer
If you are using Java client driver of Selenium then TestNG test method could be considered equivalent to test step, a test tag could be considered as test scenario and a suite tag could be considered equivalent to a test suite.

Question 171:
How do I get attribute value of an element in Selenium?

Answer
You could use getAttribute method
With Selenium 1.0 –

```
    String var = selenium.getAttribute("css=input[name='q']@maxlength");
    System.out.println(var);
```

With Selenium 2.0 –

```
        String var =
        webDriver.findElement(By.cssSelector("input[name='q']")).getAttribute("maxlength")
    System.out.println(var);
```

Question 172:
How do I do database testing using Selenium?

Answer

Selenium does not support database testing but your language binding does. For example while using java client driver you can use java data base connectivity (jdbc) to establish connection to data base, fetch/write data to data base and doing data comparison with front end.

Question 173:

I completed test execution and now I want to email test report.

Answer

If you are using “ant” build tool then you can use “mail” task to deliver your test results. Similar capabilities are available in Continuous Build Integration tools like – Hudson.

Question 174:

How do I make my tests more comprehensible?

Answer

Selenium tests which are written as –

```
    selenium.click("addForm:_ID74:_ID75:0:_ID79:0:box”);
```

Make it tough to understand the element which is being exercised upon. Instead of hard coding element locator in tests you should externalize them. For example with java you can use properties file to contain element locators and then locator reference is given in test script. Following this approach previous test step would look as –

```
   selenium.click(PolicyCheckbox);
```

And this is far more comprehensible.

Question 175:

Why should I use Page Object?

Answer

Page object is a design pattern which distinguishes the code carrying out operations on page and code which carries out tests (assertion/verification). While implementing page object you abstract functioning of a page or part of it in a dedicated “Classs” which is then used by test script to perform actions on page and reach a stage when actual test could be performed.

Advantage of using page object is the fact that if application lay out changes then you only need to modify the navigation part and test would function intact.

Generic Selenium Questions

Question 1:
What is Selenium?
Answer:
Selenium is a browser automation tool which lets you automated operations like – type, click, and selection from a drop down of a web page.

Question 2:
How is Selenium different from commercial browser automation tools?
Answer:
Selenium is a library which is available in a gamut of languages i.e. java, C#, python, ruby, php etc while most commercial tools are limited in their capabilities of being able to use just one language. More over many of those tools have their own proprietary language which is of little use outside the domain of those tools. Most commercial tools focus on record and replay while Selenium emphasis on using Selenium IDE (Selenium record and replay) tool only to get acquainted with Selenium working and then move on to more mature Selenium libraries like Remote control (Selenium 1.0) and Web Driver (Selenium 2.0).
Though most commercial tools have built in capabilities of test reporting, error recovery mechanisms and Selenium does not provide any such features by default. But given the rich set of languages available with Selenium it very easy to emulate such features.

Question3:
What are the set of tools available with Selenium?
Answer:
Selenium has four set of tools – Selenium IDE, Selenium 1.0 (Selenium RC), Selenium 2.0 (WebDriver) and Selenium Grid. Selenium Core is another tool but since it is available as part of Selenium IDE as well as Selenium 1.0, it is not used in isolation.

Question 4:
Which Selenium Tool should I use?
Answer:
It entirely boils down to where you stand today in terms of using Selenium. If you are entirely new to Selenium then you should begin with Selenium IDE to learn Selenium location strategies and then move to Selenium 2 as it is the most stable Selenium library and future of Selenium. Use Selenium

Grid when you want to distribute your test across multiple devices. If you are already using Selenium 1.0 than you should begin to migrate your test scripts to Selenium 2.0

Question 5:

What is Selenium IDE?

Answer:

Selenium IDE is a firefox plug-in which is (by and large) used to record and replay test is firefox browser. Selenium IDE can be used only with firefox browser.

Question 6:

Which language is used in Selenium IDE?

Answer:

Selenium IDE uses html sort of language called Selenese. Though other languages (java, c#, php etc) cannot be used with Selenium IDE, Selenium IDE lets you convert test in these languages so that they could be used with Selenium 1.0 or Selenium 2.0

Question 7:

What is Selenium 1.0?

Answer:

Selenium 1.0 or Selenium Remote Control (popularly known as Selenium RC) is library available in wide variety of languages. The primary reason of advent of Selenium RC was incapability of Selenium IDE to execute tests in browser other than Selenium IDE and the programmatical limitations of language Selenese used in Selenium IDE.

Question 8:

What is Selenium 2.0?

Answer:

Selenium 2.0 also known as WebDriver is the latest offering of Selenium. It provides

- better API than Selenium 1.0
- does not suffer from java script security restriction which Selenium 1.0 does
- supports more UI complicated UI operations like drag and drop

Question 9:

What are the element locators available with Selenium which could be used to locate elements on web page?

Answer:

There are mainly 4 locators used with Selenium –

- html id
- html name

- XPath locator and
- Css locators

Question 10:
What is Selenium Grid?
Answer:
Selenium grid lets you distribute your tests on multiple machines and all of them at the same time. Hence you can execute test on IE on Windows and Safari on Mac machine using the same test script (well, almost always). This greatly helps in reducing the time of test execution and provides quick feedback to stack holders.

Selenium IDE Questions

Question 11:
What are two modes of views in Selenium IDE?
Answer:
Selenium IDE can be opened either in side bar (View > Side bar > Selenium IDE) or as a pop up window (Tools > Selenium IDE). While using Selenium IDE in browser side bar it cannot record user operations in a pop up window opened by application.

Question 12:
Can I control the speed and pause test execution in Selenium IDE?
Answer:
Selenium IDE provides a slider with Slow and Fast pointers to control the speed of execution.

Question 13:
Where do I see the results of Test Execution in Selenium IDE?
Answer:
Result of test execution can be views in log window in Selenium IDE –

Question 14:
Where do I see the description of commands used in Selenium IDE?
Answer:
Commands of description can be seen in Reference section –

Question 15:
Can I build test suite using Selenium IDE?
Answer:

Yes, you can first record individual test cases and then group all of them in a test suite. Following this entire test suite could be executed instead of executing individual tests.

Question 16:
What verification points are available with Selenium?
Answer:
There are largely three type of verification points available with Selenium –

- Check for page title
- Check for certain text
- Check for certain element (text box, drop down, table etc)

Question 17:
I see two types of check with Selenium – verification and assertion, what's the difference between tow?
Answer:

- A verification check lets test execution continue even in the wake of failure with check, while assertion stops the test execution. Consider an example of checking text on page, you may like to use verification point and let test execution continue even if text is not present. But for a login page, you would like to add assertion for presence of text box login as it does not make sense continuing with test execution if login text box is not present.

Question 18:
I don't see check points added to my tests while using Selenium IDE☹, how do I get them added to my tests?
Answer:
You need to use context menu to add check points to your Selenium IDE tests –

Question 19:
How do I edit tests in Selenium IDE?
Answer:
There are two ways to edit tests in Selenium IDE; one is the table view while other looking into the source code of recorded commands –

Question 20:
What is syntax of command used in Selenium?
Answer:
There are three entities associated with a command –

- Name of Command

- Element Locator (also known as Target)
- Value (required when using echo, wait etc)

Question 21:
There are tons of Selenium Command, am I going to use all of them
Answer:
This entirely boils down to operations you are carrying out with Selenium. Though you would definitely be using following Selenium Commands more often –

- Open: opens a web page.
- click/clickAndWait: click on an element and waits for a new page to load.
- Select: Selects a value from a drop down value.
- verifyTitle/assertTitle: verifies/asserts page title.
- verify/assert ElementPresent: verifies/asserts presence of element, in the page.
- verify/assert TextPresent verifies/asserts expected text is somewhere on the page.

Question 22:
How do I use html id and name while using Selenium IDE
Answer:
Html id and name can be used as it is in selenium IDE. For example Google search box has name – "q" and id – "list-b" and they can be used as target in selenium IDE –

Question 23:
What is XPath? When would I have to use XPath in Selenium IDE?
Answer:
XPath is a way to navigate in xml document and this can be used to identify elements in a web page. You may have to use XPath when there is no name/id associated with element on page or only partial part of name/ide is constant.
Direct child is denoted with - /
Relative child is denoted with - //
Id, class, names can also be used with XPath –

- //input[@name='q']
- //input[@id='lst-ib']
- //input[@class=' lst']

If only part of id/name/class is constant than "contains" can be used as –

- //input[contains(@id,'lst-ib')]

Question 24:
What is CSS location strategy in Selenium?
Answer:

CSS location strategy can be used with Selenium to locate elements, it works using cascade style sheet location methods in which -
Direct child is denoted with – (a space)
Relative child is denoted with - >
Id, class, names can also be used with XPath –

- css=input[name=’q’]
- css=input[id=’lst-ib’] or input#lst-ib
- css=input[class=’ lst’] or input.lst

If only part of id/name/class is constant than “contains” can be used as –

- css=input[id*=' lst-ib ')]

Element location strategy using inner text

- css = a:contains(‘log out’)

Question 25:
There is id, name, XPath, CSS locator, which one should I use?
Answer:
If there are constant name/id available than they should be used instead of XPath and CSS locators. If not then css locators should be given preference as their evaluation is faster than XPath in most modern browsers.

Question 26:
I want to generate random numbers, dates as my test data, how do I do this in Selenium IDE?
Answer:
This can be achieved by executing java script in Selenium. Java script can be executed using following syntax –

```
type
css=input#s
javascript{Math.random()}
```

And for date –

```
type
css=input#s
javascript{new Date()}
```

Question 27:

Can I store result of an evaluation and use it later in my test?

Answer:

You can use “store” command to achieve this. You can save result of an evaluation in a variable and use it later in your Selenium IDE script. For example we can store value from a text box as following, and later use it to type it in another text box –

```
    storeText
    css=input#s
    var1
    type
    css=input#d
    ${var1}
```

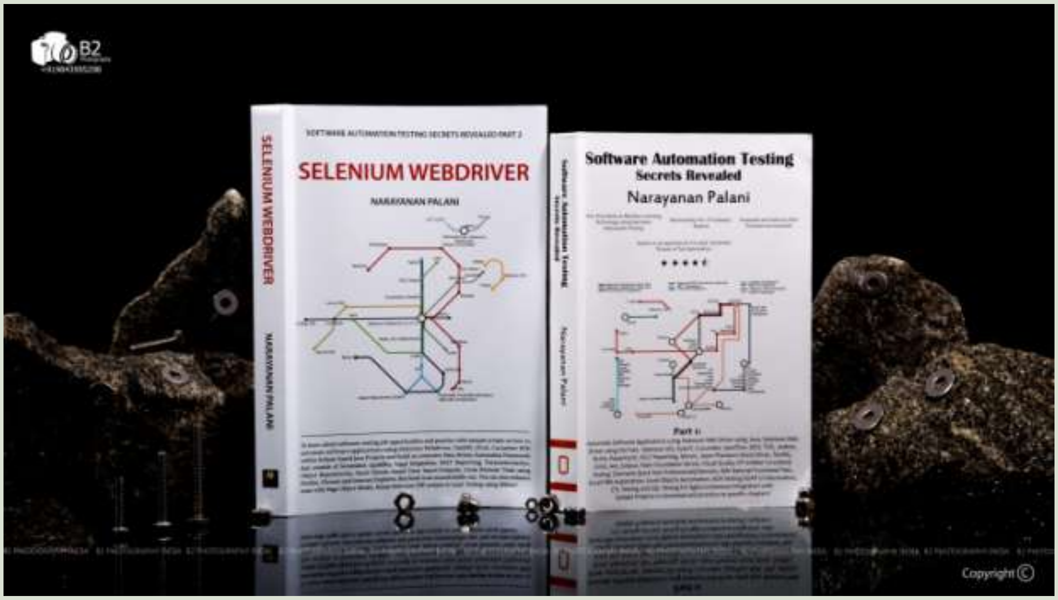
Question 28:

I have stored result of an evaluation; can I print it in IDE to check its value?

Answer:

You can use echo command as following to check the stored value in Selenium IDE –

```
    storeText
    css=input#s
    var1
    echo
    ${var1}
```



Question 29:

Can I handle java script alert using Selenium?

Answer

You could use verify/assertAlert to check presence of alert on page. Since selenium cannot click on "Ok" button on js alert window, the alert itself does not appear on page when this check is carried out.

Question 30:

Selenium has recorded my test using XPath, how do I change them to css locator?

Answer

You can use drop down available next to Find in Selenium to change element locator used by Selenium –

Question 31:

I have written my own element locator, how do I test it?

Answer

You can use Find button of Selenium IDE to test your locator. Once you click on it, you would see element being highlighted on screen provided your element locator is right Else one error message would be displayed in log window.

Question 32:

I have written one js extension; can I plug it in Selenium and use it?

Answer

You could specify you js extension in "Options" window of Selenium IDE –

Question 33:

How do I convert my Selenium IDE tests from Selenese to another language?

Answer

You could use Format option of Selenium IDE to convert tests in another programming language –

Question 34:

I have converted my Selenium IDE tests to java but I am not able to execute them☹, execution options as well as Table tab of Selenium IDE is disabled☹☹

Example available at: **Selenium Webdriver**

Answer

This is because Selenium IDE does not support execution of test in any other language than Selenese (language of Selenium IDE). You can convert Selenium IDE in a language of your choice and then use Selenium 1.0 to execute these tests in that language.

Question 35:
I want to use only Selenese as my test script language but still want to execute tests in other browsers, how do I do that?
Answer
You can execute you Selenese test in another browser by specifying the "-htmlSuite" followed by path of your Selenese suite while starting the Selenium Server. Selenium Server would be covered in details in question about Selenium RC.

Question 36:
I have added one command in middle of list of commands, how do I test only this new command?
Answer
You can double click on newly added command and Selenium IDE would execute only that command in browser.

Question 37:
Can I make Selenium IDE tests begin test execution from a certain command and not from the very first command?
Answer
You could set a command as "start" command from context menu. When a command is set as start command then a small green symbol appears before command. Same context menu can be used to toggle this optio

Question 38:
Are there other tools available outside Selenium IDE to help me tests my element locators
Answer
You could XPath checker - https://addons.mozilla.org/en-US/firefox/addon/xpath-checker/ to test you XPath locators and Firefinder (a firebug add on) to test you css locators – https://addons.mozilla.org/en-US/firefox/addon/firefinder-for-firebug/
Firefinder can also be used to test XPath locators.

Question 39:
What is upcoming advancement in Selenium IDE?
Answer

The latest advancement in Selenium IDE would be to have capabilities of converting Selenium IDE tests in Webdriver (Selenium 2.0) options. This would help generating quick and dirty tests for Selenium 2.0

Question 40:
How can I use looping option (flow control) is Selenium IDE
Answer
Selenese does not provide support for looping, but there is extension which could be used to achieve same. This extension can be download from here - http://51elliot.blogspot.com/2008/02/selenium-ide-goto.html
This extension can be added under "Selenium IDE Extension" section to use loop feature in Selenium IDE.

Question 41:
Can I use screen coordinate while using click command? I want to click at specific part of my element.
Answer
You would need to use clickAT command to achieve. clickAt command accepts element locator and x, y coordinates as arguments – clickAt(locator, coordString)

Question 42:
How do I verify presence of drop down options using Selenium?
Answer
Use assertSelectOptions as following to check options in a drop down list –

    assertSelectOptions

Question 43:
Can I get data from a specific html table cell using Selenium IDE?
Answer
Use storeTable command to get data from a specific cell in an html table, following example store text from cell 0,4 from an html table –

    storeTable
    css=#tableId.0.4
    textFromCell

Question 44:
I want to make Selenium IDE record and display css locator followed by other locators, is it possible to give high priority to css locator in Selenium IDE?
Answer

You can change default behavior of Selenium IDE > element locator preference by crating js file with following–
LocatorBuilders.order = ['css:name', 'css:id', 'id', 'link', 'name', 'xpath:attributes'];

And add this file under "Selenium IDE Extension" under Selenium Options.

Question 45:
My application has dynamic alerts which don't always appear, how do I handle them?
Answer
If you want to simulate clicking "ok " on alert than use – chooseOkOnNextConfirmation and if you want to simulate clicking "cancel" on alert than use - chooseCancelOnNextConfirmation ( )

Question 46:
Can I right click on a locator?
Answer

You can use command - contextMenu (locator) to simulate right click on an element in web page.

Question 47:
How do I capture screen shot of page using Selenium IDE?
Answer

Use command – captureEntirePageScreenshot to take screen shot of page.

Question 48:
I want to pause my test execution after certain command.
Answer

Use pause command which takes time in milliseconds and would pause test execution for specified time – pause (waitTime)

Question 49:
I used open command to launch my page, but I encountered time out error☹
Answer

This happens because open commands waits for only 30 seconds for page to load. If you application takes more than 30 sec then you can use "setTimeout (timeout)" to make selenium IDE wait for specified time, before proceeding with test execution.

Question 50:
What's the difference between type and typeKeys commands?
Answer

type command simulates enter operations at one go while typeKeys simulates keystroke key by key.
typeKeys could be used when typing data in text box which bring options (like Google suggestion list) because such operation are not usually simulated using type command.

Selenium RC (Selenium 1.0) Questions

Question 51:
What is Selenium RC (also known as Selenium 1.0)?
Answer

Selenium RC is an offering from SeleniumHQ which tries to overcome following draw backs of Selenium IDE –

- Able to execute tests only with Firefox
- Not able to use full-fledged programming language and being limited to Selenese

Question 52:
What are the main components of Selenium RC?
Answer

Selenium RC has two primary components –

- Client libraries which let you writes tests in language of your preference i.e. java, C#, perl, php etc
- Selenium sever which acts as a proxy between browser and application under test (aut)

Question 53:
Why do I need Selenium Server?
Answer

Selenium uses java script to drives tests on a browser; Selenium injects its own js to the response which is returned from aut. But there is a java script security restriction (*same origin policy*) which lets you modify html of page using js only if js also originates from the same domain as html. This security restriction is of utmost important but spoils the working of Selenium. This is where Selenium server comes to play an important role. Selenium server stands between aut and browser and injects selenium js to the response received from aut and then it is delivered to broswer. Hence browser believes that entire response was delivered from aut.

Question 54:
What is Selenium core? I have never used it!!!
Answer

Selenium core is the core js engine of Selenium which executes tests on browser, but because of same origin policy it needs to be deployed on app server itself, which is not always feasible. Hence Selenium core is not used in isolation. Selenium IDE as well as Selenium RC use Selenium core to drive tests while over coming same origin policy. In case of Selenium IDE tests are run in context of browser hence it is not hindered by same origin policy and with Selenium RC, Selenium Server over comes same origin policy.

Question 55:
Where is executable for Selenium RC, how do I install it?
Answer

Installation is a misnomer for Selenium RC. You don't install Selenium RC you only add client libraries to you project. For example in case of java you add client driver and Selenium server jars in Eclipse or IntelliJ which are java editors.

Question 56:
I have downloaded Selenium Server and Client libraries, how do I start Selenium Server?
Answer

To start Selenium Server, you need to navigate to installation directory of Selenium server and execute following command –

```
        Java -jar .jar
```

This will start Selenium server at port 4444 by default.
Notice that you need to have java version 1.5 or higher available on your system to be able to use Selenium server.

Question 57:
On my machine port 4444 is not free☹ . How do Use another port?

Answer

You can specify port while running the selenium server as –

```
                  Java -jar .jar –port 5555
```

Question 58:
I am new to programming; can Selenium generate sample code from my Selenese scripts?
Answer

You can first record tests in Selenium IDE and then use format option to convert them in a language of your choice.

Question 59:
Can I start Selenium server from my program instead of command line
Answer

If you are using java then you can start Selenium server using SeleniumServer class. For this you need to instantiate SeleniumServer and then call start() method on it.

```
         seleniumServer = new SeleniumServer();
    seleniumServer.start();
```

Question 60:
And how do I start the browser?
Answer

While using java you need to create instance of DefaultSelenium class and pass it four parameters –

```
selenium = new DefaultSelenium(serverHost, serverPort, browser,
appURL);
        selenium.start();
```

Herein you need to pass,

host where Selenium server is running,
port of Selenium server,
browser where tests are to be executed and
application URL

Question 61:
I am not using java to program my tests, do I still have to install java on my system?

Answer

Yes, since Selenium server is written in java you need java to be installed on your system to be able to use it. Even though you might not be using java to program your tests.

Question 62:
What are the browsers offering from Selenium?
Answer

Following browsers could be used with Selenium –
*firefox
*firefoxproxy
*pifirefox
*chrome
*iexploreproxy
*iexplore
*firefox3
*safariproxy
*googlechrome
*konqueror
*firefox2
*safari
*piiexplore
*firefoxchrome
*opera
*iehta
*custom
Here pi and proxy stand for proxy injection mode of Selenium server

Question 63:
During execution of tests I see two browser windows; one my test application another window shows commands being executed. Can I limit it to just one window?
Answer

Yes you can instruct Selenium Server to launch just one window. To do so you must specify –singleWindow while starting the Selenium server as –

```
Java -jar .jar –singleWindow
```

Question 64:
My tests usually time out☹. Can I specify bigger time out?
Answer

This usually happens while using open method with Selenium. One way to overcome this is to use setTimeOut method in your test script another way is to specify time out while starting Selenium server as following –

```
Java -jar .jar –timeout
```

Question 65:
My system is behind corporate network, how do I specify my corporate proxy?
Answer

You can specify your corporate proxy as following while starting Selenium Server –

```
java -jar .jar -Dhttp.proxyHost= -Dhttp.proxyPort= -Dhttp.proxyUser= -Dhttp.proxyPassword=
```

Question 66:
I am switching domains in my test scripts. I move from "yahoo.com" to "google.com" and my tests encounter permission denied error☹
Answer

Changing domains is also a security restriction from java script. To overcome this you should start you Selenium server in proxy injection mode as –

```
java -jar .jar –proxyInjectionMode
```

Now Selenium server would act as proxy server for all the content going to test application

Question 67:
Can I execute my Selenese tests in another browser using Selenium server? I want to use only Selenese script my tests but still want to execute my test in non firefox browsers
Answer

Yes you can. To do so you need to specify following parameters while starting Selenium server –

Browser
Test domain
Path to html suite (you Selenese tests) and
Path to result

```
java -jar <>.jar -htmlSuite
```

Question 68:
Can I log more options during test execution?
Answer

If you want to log browser side option during test execution then you should start Selenium server as following –

```
java -jar <>.jar –browserSideLog
```

Question 69:
Can I use Selenium RC on my UNIX/Mac also?
Answer
You can use Selenium RC on any system which is capable I running Java. Hence you can use it on RC and UNIX machines also

Question 70:
I want to test my scripts on new experimental browser, how do I do that?

Answer
You can specify *custom followed by path to browser to execute your tests on any browser while starting Selenium server

```
*custom
```

Question 71:
I executed my tests cases but where is the test report?
Answer
Selenium RC itself does not provide any mechanism for test reporting. Test reporting is driven from the framework you use for Selenium. For example with java client driver of Selenium –

- if you are using JUnit then you can use ant plug-in of JUnit to generate test report
- if you are using TestNG then TestNG generates reports for you

Same reporting option is available with PHP unit and other client libraries you are using.

Question 72:
How do I use recovery scenarios with Selenium? I used to use them with QTP.
Answer
Power of recovery scenarios lies with the programming language you use. If you are using java then you can use Exception handling to overcome same. For example if you are reading data from a file and file is not available then you should keep you code statements in "try catch" block so that test execution could continue even in the wake of errors. Such mechanism entirely boils down the errors you want to recover from, while being able to continue with test execution.

Question 73:
How do I iterate through options in my test script.
Answer
You can use loop features of the programming language, for example you can use "for" loop in java as following to type different test data in a text box –

```
            // test data collection in an array
           String[] testData = {"test1", "test2", "test3"};

     // iterate through each test data
     for (String s : testData) {
             selenium.type("elementLocator", testData);
     }
```

Question 74:
Can I execute java script from my tests? I want to count number of images on my page.
Answer
You can use method getEval() to evaluate java script. For example if you want to count number of images then you can pass following dom statement to getEval() as following –

```
           selenium.getEval("window.document.images.length;");
```

Or to get All anchor objects from a page

```
selenium.getEval("window.document.getElementsByTagName('a');");
```

Question 75:

Is there a way for me to know all available options when I start Selenium Server?

Answer

If you want to see all options available while starting Selenium server then you should use option "-h" while starting Selenium server -

```
Java –jar .jar –h
```

It would display you all the options which you can use while starting the Selenium server.

Question 76:

I have created my own firefox profile; can I execute my test scripts on it

Answer

You may like to create your own firefox profile because Selenium always created a clean firefox profile while executing the tests and none of your FF settings and plug-in are considered with this clean profile. If you want to execute tests on FF with your settings then you should create custom profile for FF.

To be able to execute tests on a custom firefox profile you should specify its path while starting Selenium server. For example if your new profile is stored at "awesome location" in your directory then you should start Selenium server as following –

```
Java –jar .jar -firefoxProfileTemplate   "awesome location"
```

Question 77:

How do I capture server side log from Selenium server?

Answer

Start your Selenium Server as following –

```
java -jar .jar -log selenium.log
```

And Selenium would start logging server side info, i.e.

```
20:44:25 DEBUG [12]
org.openqa.selenium.server.SeleniumDriverResourceHandler -
Browser 12345/:top frame1 posted START NEW
```

Question 78:

What are Heightened Privileges Browsers?

Answer

Firefox and IE have browser modes which are not restricted by java script's same origin policy. These browsers are known as browsers with elevated security privileges. In case of Firefox it is known as chrome (It's not the Google browser) and in case of IE it is known as iehta

Question 79:
My application has lots of pop up window, how do I work with them?
Answer
You need to know the Window ID of pop window to be able to work with them.
First you need to bring control on pop up window; execute selenium commands there, close the pop up window and then bring control back to main window. Consider following example where click on an image brings a pop up window –

```
                    // click on image brings pop up window
          selenium.click("css=img");

// wait for pop up window identified using anchor target "ss"
        selenium.waitForPopUp("ss", getWaitPeriod());
        selenium.selectWindow("ss");

        // Some more operations on popup window
// Close the pop up window and Select the main application window
        // Main window is selected by adding null as argument
        selenium.close();
        selenium.selectWindow("null");
        // continue with usual operation ☺
```

Question 80:
While trying to execute my tests with firefox I encountered following error – "Firefox Refused Shutdown While Preparing a Profile". How do I solve it?
Answer
This message simply means that Selenium is not able to launch FF browser as it is already running on your system. To overcome this you should close all running instances of FF browser.
You should also check your system process if there is any hidden FF profile running which is not visible on screen. You should kill all FF processes and following this your tests should run smooth

Question 80:

While trying to execute my tests with firefox I encountered following error – “Firefox Refused Shutdown While Preparing a Profile”. How do I solve it?

Answer

This message simply means that Selenium is not able to launch FF browser as it is already running on your system. To overcome this you should close all running instances of FF browser.

You should also check your system process if there is any hidden FF profile running which is not visible on screen. You should kill all FF processes and following this your tests should run smooth

Question 81:

My application uses Ajax heavily how do I use Selenium RC to work with Ajax operations?

Answer

Ajax operations don’t reload a page like normal form submission but they make http requests behind the scene. You cannot use waitForPageToLoad for such operations and instead should use conditional wait for change in state of application. This could as well mean waiting for presence of an element before continuing with test operations. Consider following example in which type operation triggers Ajax operation which is followed by conditional wait for presence of a text box –

```
// type operation brings element “q” on screen without loading the page
selenium.type("elementLocator", "testData");

// conditional wait for element “q”
for (int second = 0;; second++) {
    if (second >= 60) fail("timeout");
try { if (selenium.isElementPresent("q")) break; } catch (Exception e) {}
        Thread.sleep(1000);
}
```

Question 82:

How do I upload a file using Selenium? I need to upload a word file during test execution.

Answer

If you are using Firefox then you can use “type” command to type in a File Input box of upload file. But type operation does not work with IE and you would have to use “Robot” class in java to work make file upload work.

Question 83:
Why do I get “permission denied” error during execution of Selenium tests?
Answer
The primary reason of permission denied error is same origin policy restriction from java script. To overcome this error you can use browsers with elevated security privileges. In case of Firefox you should use *chrome and in case of IE you should use *iehta as browser for working with Selenium.

Question 84:
I am not able to use “style” attribute to locate element with IE browser☹
Answer
This is because IE expects attribute values to be in caps while other browsers expect it to be lower case letters. Hence

//tr[@style="background-color:yellow"] works with other browsers
//tr[@style="BACKGROUND-COLOUR:yellow"] works with IE

Question 85:
Are there any technical limitations while using Selenium RC?
Answer
Besides notorious “same origin policy” restriction from js, Selenium is also restricted from exercising anything which is outside browser. For example you cannot click on “Tools” option of your browser by just using Selenium.
More details on the latest versions: Selenium Webdriver

Question 86:
But my tests need me to exercise objects outside browser, how do I achieve it?
Answer
You can use Robot class in java to achieve this, but it would be dirty solution even if you get through this.

Question 87:
Does Selenium have any offering for mobile browsers?
Answer
Selenium 2.0 (WebDriver) provides iPhone as well Android drivers which could be used to drive tests on mobile browsers

Question 88:
How does Selenium RC stand with other commercial tools?
Answer

The biggest advantage of Selenium RC is that it is absolutely free and has vast support of languages and browsers (almost always). Selenium lags when it comes to test reporting as Selenium does not have any in built reporting but this can be easily achieved using the programming language you decide to work on with Selenium. A bigger drawback is not being able to exercise objects which are outside browser window, for example clicking on folder on your desktop.

Question 89:
How does Selenium RC stand with other commercial tools?
Answer
The biggest advantage of Selenium RC is that it is absolutely free and has vast support of languages and browsers (almost always). Selenium lags when it comes to test reporting as Selenium does not have any in built reporting but this can be easily achieved

Question 90:
Can I just use Selenium RC to drive tests on two different browsers on one operating system without using Selenium Grid?
Answer
If you are using java client driver of Selenium then java testing framework TestNG lets you achieve this. You can set tests to be executed in parallel using “parallel=test” attribute and define two different tests, each using a different browser. Whole set up would look as (notice the highlighted sections for browser in test suite)–

```
xml version="1.0" encoding="utf-8"?>
DOCTYPE suite SYSTEM "http://testng.org/testng-1.0.dtd" >

<suite name="Test Automation" verbose="10">

    <parameter name="serverHost" value="localhost" />
    <parameter name="appURL" value="http://tamil.yahoo.com"/>
    <parameter name="proxyInjection" value="false" />
    <parameter name="serverPort" value="4444"/>

    <test name="Web Test1">
        <parameter name="browser" value="*chrome" />
        <parameter name="m" value="1">parameter>
<classes><class name="com.core.tests.TestClass1">class>classes>
    test>

    <test name="Web Test2">
        <parameter name="browser" value="*iehta" />
        <parameter name="m" value="2">parameter>
<classes><class name="com.core.tests.TestClass1">class>classes>
    test>

suite>
```

Selenium Grid Questions

Question 91:
How do I cut down text execution time for my selenium tests? I want to execute my tests on a combination of different machines and browsers.
Answer
Selenium grid is your friend☺. Selenium grid lets you distribute tests across browsers and machines of your choice.

Question 92:
How does Selenium grid works?

Answer
Selenium grid uses combination of Selenium RC servers to execute tests in multiple browsers on different machine. Herein one Selenium RC server works as hub while other RC servers work as slaves, which could be controlled by hub. Whenever there is a request for a specific configuration for test execution then hub looks for a free RC slave server and if available then test execution begins on it. Once test execution is over then RC slave server would be available for next set of test execution.

Question 93:
Can you show me one diagram which describes functionality of Selenium grid?
Answer
In the following diagram Selenium hub is controlling three Selenium RC servers which are running for configurations –

- IE on Windows
- FF on Linux
- FF on windows

Question 94:
Which jar files are needed to works with Selenium GRID?

Answer

You need to download and add following jar files to your Selenium set up to be able to work with Selenium. These jar files are –

- selenium-grid-remote-control-standalone-.jar
- selenium-grid-hub-standalone-.jar
- selenium-grid-tools-standalone-.jar

Question 95:

How do I start Selenium Grid hub from my machine?

Answer

You should have "ant" set up on your system to be able to work with Grid. Once you have downloaded Selenium Grid, navigate to its distribution directory and execute following command -

```
ant launch-hub
```

This would start grid hub on port 4444 locally. You can verify this by navigating to following URL - http://localhost:4444/console

Question 96:

How do I start Selenium Grid Slave Server from my system?

Answer

Navigate to download directory of Selenium gird and execute following command –

```
ant launch-remote-control
```

This would launch remote control server at port 555. At this point if you navigate to http://localhost:4444/console then you would see this remote control listed under "Available Remote Controls"

Question 97:

How do I start Selenium grid slave on a different port than 5555?

Answer

You can use option "-Dport" followed by port number to start grid slave on a specific port.

```
ant -Dport=1111 launch-remote-control
ant -Dport=2222 launch-remote-control
```

Question 98:

How do I start grid RC slaves on a different system than my local host so than hub could control and contact a specific configuration?

Answer

You should specify following configuration while starting RC slave –

```
ant -Dport= -Dhost= -DhubURL= launch-remote-control
```

Herein "hostname" is the host where RC slave is running and "hub url" is URL of machine where grid hub is running.

Question 99:
How do I specify an environment while starting grid slave machine?
Answer
You could specify an environment using “-Denvironment” while starting a slave machine.

```
ant -Denvironment=”Safari on Mac” launch-remote-control
```

Herein Safari on Mac is the environment which would be used to recognize configuration of RC slave.

Question 100:
How do I use machine specific configuration in my Selenium tests?
Answer
You could specify machine specific configuration while instantiating Selenium as –

```
Selenium = new DefaultSelenium("localhost", 4444, **'Safari on Mac'**, 'http://yahoo.com');
```

And then you use this selenium instance to carryout operation on your web application.

Question 101:
But how does my tests know that ‘Safari on Mac’ mean a safari browser? How does mapping between names like ‘Safari on Mac’ and original browser options available in Selenium work?
Answer
Selenium grid uses a file called “grid_configuration.yml” which defines configurations of all browsers. You would have to add this in your project. This file looks like –

Question 102:
How does Selenium grid hub keeps in touch with RC slave machine?
Answer
Selenium grid hub keeps polling all RC slaves at predefined time to make sure they are available for testing. If not then Selenium hub disconnect any unavailable RC slaves and makes it clear that any RC slave is not available for testing. The deciding parameter is called – “remoteControlPollingIntervalInSeconds” and is defined in “grid_configuration.yml” file.

Question 103:
My RC becomes unresponsive at times and my Selenium grid hub keeps waiting for RC slave to respond☹. How do I let hub know to give up on RC slave after a certain time?
Answer

You could state Selenium grid hub to wait for RC slave for a predefined time, and if RC slave does not responds with in this time then hub disconnects test execution on that slave. This parameter is called “sessionMaxIdleTimeInSeconds” and this parameter can be defined in “grid_configuration.yml” file.

Question 104:
What if my hub goes down while Selenium RC slaves are up and running?
Answer
There is one heart beat mechanism from RC slave to hub which is reciprocal to mechanism used by hub to slave machines. RC slaves use a parameter called “hubPollerIntervalInSeconds” to keep track of running grid hub. This parameter can be defined while starting the hub as –
ant -DhubPollerIntervalInSeconds= launch-hub
if hub does not respond within this time then RC slaves deregister themselves from hub.
Question 105:
Can Selenium grid be used for performance testing?
Answer
Selenium grid is for functional testing of application across different configuration. Performance testing is usually not carried out on actual devices but on a simulated http request/response mechanism. If you want to use Selenium Grid for performance testing then you would have to invest heavily on s/w and h/w infrastructure.
Question 106:
Are there additional logs available while working with Selenium grid?
Answer
You can find Selenium grid hub logs in “log/hub.log” and Remote Control logs in “log/rc-*.log” folder.
Question 107:
There are various options available while starting a Selenium server, how do I use them with Selenium grid?
Answer
You can use “seleniumArgs” Java property while launching the remote control and specify any of the option which you would with normal Selenium set up. For example you can run Selenium RC slave in single window mode using following command –

```
        ant -DseleniumArgs="-singleWindow -debug" launch-remote-control
```

Question 108:
I see duplicate entries in my hub console, same RC slave listed more than once :-O
Answer

This is because you are killing RC slave very ferociously. For example you if you just close the console without actually ending the process in more civil manner. To avoid this you should kill all RC slaves in more civil manner. If you encounter this error then you should restart Selenium hub and RC slaves would them register themselves to hub.

Question 109:
How do I specify my corporate proxy while starting Selenium grid hub or slave machines?
Answer
You could use setting for "http.proxyHost" abd "http.proxyPort" while starting hub and remote control machines –
ant -Dhttp.proxyHost= -Dhttp.proxyPort= launch-hub
ant -Dhttp.proxyHost= -Dhttp.proxyPort= launch-remote-control

Question 110:
How do I use Selenium Grid while using Java, .Net or Ruby
Answer
With java you can take advantage of parallel testing capabilities of TestNG to drive your Selenium grid tests
With .Net you can use "Gallio" to execute your tests in parallel
With Ruby you can use "DeepTest" to distribute your tests

Question 111:
How about the test report when I use Selenium grid for test execution?
Answer
This entirely boils down to framework you use to write your tests. For example in case of java, TestNG reports should suffice.

Web Driver (Selenium 2.0) Questions

Question 112:
What is Selenium 2.0? I have heard this buzz word many times.
Answer
Selenium 2.0 is consolidation of two web testing tools – Selenium RC and WebDriver, which claims to give best of both words – Selenium and WebDriver. Selenium 2.0 was officially released only of late.

Question 113:
Why are two tools being combined as Selenium 2.0, what's the gain?

Answer

Selenium 2.0 promises to give much cleaner API then Selenium RC and at the same time not being restricted by java script Security restriction like same origin policy, which have been haunting Selenium from long. Selenium 2.0 also does not warrant you to use Selenium Server.

Question 114:
So everyone is going to use Selenium 2.0?
Answer
Well no, for example if you are using Selenium Perl client driver than there is no similar offering from Selenium 2.0 and you would have to stick to Selenium 1.0 till there is similar library available for Selenium 2.0

Question 115:
So how do I specify my browser configurations with Selenium 2.0?
Answer
Selenium 2.0 offers following browser/mobile configuration –

- AndroidDriver,
- ChromeDriver,
- EventFiringWebDriver,
- FirefoxDriver,
- HtmlUnitDriver,
- InternetExplorerDriver,
- IPhoneDriver,
- IPhoneSimulatorDriver,
- RemoteWebDriver

And all of them have been implemented from interface WebDriver. To be able to use any of these drivers you need to instantiate their corresponding class.

Question 116:
How is Selenium 2.0 configuration different than Selenium 1.0?
Answer
In case of Selenium 1.0 you need Selenium jar file pertaining to one library for example in case of java you need java client driver and also Selenium server jar file. While with Selenium 2.0 you need language binding (i.e. java, C# etc) and Selenium server jar if you are using Remote Control or Remote WebDriver.

Question 117:
Can you show me one code example of setting Selenium 2.0?
Answer
Here is java example of initializing firefox driver and using Google Search engine –

```
        protected WebDriver webDriver;
```

```
//@BeforeClass(alwaysRun=true)
public void startDriver(){
webDriver = new FirefoxDriver();
// Get Google search page and perform search on term “Test”
     webDriver.get("http://www.google.com");
webDriver.findElement(By.name("q")).sendKeys("Test");
webDriver.findElement(By.name(“btnG”)).click();
```

Question 118:

Which web driver implementation is fastest?

Answer

HTMLUnitDriver. Simple reason is HTMLUnitDriver does not execute tests on browser but plain http request – response which is far quick than launching a browser and executing tests. But then you may like to execute tests on a real browser than something running behind the scenes

Question 119:

What all different element locators are available with Selenium 2.0?

Answer

Selenium 2.0 uses same set of locators which are used by Selenium 1.0 – id, name, css, XPath but how Selenium 2.0 accesses them is different. In case of Selenium 1.0 you don’t have to specify a different method for each locator while in case of Selenium 2.0 there is a different method available to use a different element locator. Selenium 2.0 uses following method to access elements with id, name, css and XPath locator –

```
driver.findElement(By.id("HTMLid"));
driver.findElement(By.name("HTMLname"));
driver.findElement(By.cssSelector("cssLocator"));
driver.findElement(By.xpath("XPathLocator));
```

Question 120:

How do I submit a form using Selenium?

Answer

You can use “submit” method on element to submit form –

```
element.submit();
```

Alternatively you can use click method on the element which does form submission.

Question 121:
Can I simulate pressing key board keys using Selenium 2.0?
Answer
You can use “sendKeys” command to simulate key board keys as –

```
element.sendKeys(" and some", Keys.ARROW_UP);
```

You can also use “sendKeys” to type in text box as –

```
HTMLelement.sendKeys("testData");
```

Question 122:
How do I clear content of a text box in Selenium 2.0
Answer
You can use “clear” method on text box element to clear its content –

```
textBoxElement.clear();
```

Question 123:
How do I select a drop down value using Selenium2.0?
Answer
To select a drop down value, you first need to get the select element using one of element locator and then you can select element using visible text –

```
Select selectElement
= new Select(driver.findElement(By.cssSelector("cssSelector")));
    selectElement.selectByVisibleText("India");
```

Question 124:
What are offering to deal with popup windows while using Selenium 2.0?
Answer
You can use “switchTo” window method to switch to a window using window name. There is also one method “getWindowHandles” which could be used to find all Window handles and subsequently bring control on desired window using window handle –

```
webDriver.switchTo().window("windowName");

for (String handle : driver.getWindowHandles()) {
   driver.switchTo().window(handle);
}
```

Question 125:
How about handling frames using Selenium 2.0?
Answer
You can use “switchTo” frame method to bring control on an HTML frame –

```
driver.switchTo().frame("frameName");
```

You can also use index number to specify a frame –

```
driver.switchTo().frame("parentFrame.4.frameName");
```

This would bring control on frame named – “frameName” of the 4th sub frame names “parentFrame”

Question 126:

Can I navigate back and forth in a browser in Selenium 2.0?

Answer

You can use Navigate interface to go back and forth in a page. Navigate method of WebDriver interface returns instance of Navigation. Navigate interface has methods to move back, forward as well as to refresh a page –

```
driver.navigate().forward();
driver.navigate().back();
driver.navigate().refresh();
```

Question 127:

What is the order of fastest browser implementation for WebDriver?

Answer

HTMLUnitDriver is the fastest browser implementation as it does not involves interaction with a browser, This is followed by Firefox driver and then IE driver which is slower than FF driver and runs only on Windows.

Question 128:

Is it possible to use Selenium RC API with Selenium 2.0?

Answer

You can emulate Selenium 1.0 API with Selenium 2.0 but not all of Selenium 1.0 methods are supported. To achieve this you need to get Selenium instance from WebDriver and use Selenium methods. Method executions might also be slower while simulating Selenium 1.0 with in Selenium 2.0

Question 129:

Can you show me one example of using Selenium 1.0 in Selenium 2.0?

Answer

Code Sample:

```
        // Create web driver instance
   WebDriver driver = new FirefoxDriver();

   // App URL
```

```
    String appUrl = "http://www.google.com";

    // Get Selenium instance
Selenium selenium = new WebDriverBackedSelenium(driver, appUrl);

    // Tests using selenium
    selenium.open(appURL);
    selenium.type("name=q", "testData");
    selenium.click("name=btnG");

    // Get back the WebDriver instance
WebDriver driverInstance = ((WebDriverBackedSelenium)
selenium).getUnderlyingWebDriver();
```

Question 130:

I had support of lots of browsers while using Selenium 1.0 and it seems lacking with Selenium 2.0, for example how do I use < awesome> browser while using Selenium 2.0?

Answer

There is a class called Capabilities which lets you inject new Capabilities in WebDriver. This class can be used to set testing browser as Safari –

```
         //Instantiate Capabilities
    Capabilities capabilities = new DesiredCapabilities()

    //Set browser name
    capabilities.setBrowserName("this awesome browser");

    //Get your browser execution capabilities
CommandExecutor executor
= new SeleneseCommandExecutor("http:localhost:4444/", "http://www.google.com/", capabilities);

    //Setup driver instance with desired Capabilities
WebDriver driver = new RemoteWebDriver(executor, capabilities);
```

Question 131:

Are there any limitations while injecting capabilities in WebDriver to perform tests on a browser which is not supported by WebDriver?

Answer

Major limitation of injecting Capabilities is that “fundElement” command may not work as expected. This is because WebDriver uses Selenium Core to make “Capability injection” work which is limited by java script security policies.

Question 132:
Can I change User-Agent while using FF browser? I want to execute my tests with a specific User-Agent setting.
Answer
You can create FF profile and add additional Preferences to it. Then this profile could be passed to Firefox driver while creating instance of Firefox –

```
FirefoxProfile profile = new FirefoxProfile();
profile.addAdditionalPreference("general.useragent.override", "User Agent String");
WebDriver driver = new FirefoxDriver(profile);
```

Question 133:
Is there any difference in XPath implementation in different WebDriver implementations?
Answer
Since not all browsers (like IE) have support for native XPath, WebDriver provides its own implementation for XPath for such browsers. In case of HTMLUnitDriver and IEDriver, html tags and attributes names are considered lower cased while in case of FF driver they are considered case in-sensitive.

Question 134:
My application uses ajax highly and my tests are suffering from time outs while using Selenium 2.0☹.
Answer
You can state WebDriver to implicitly wait for presence of Element if they are not available instantly. By default this setting is set to 0. Once set, this value stays till the life span of WebDriver object. Following example would wait for 60 seconds before throwing ElementNotFound exception –

```
WebDriver driver = new FirefoxDriver();
driver.manage().timeouts().implicitlyWait(60, TimeUnit.SECONDS);
WebElement element = driver.findElement(By.id("elementID"));
```

Question 135:
What if I don’t want to use implicit wait and want to wait only for presence of certain elements?
Answer

You can use explicit wait in this situation to wait for presence of certain element before continuing with test execution. You can use "WebDriverWait" and "ExpectedCondition" to achieve this –

```
        WebDriver driver = new FirefoxDriver();
WebElement myDynamicElement = (new WebDriverWait(driver, 
60)).until(new ExpectedCondition<WebElement>(){

        @Override
    public WebElement apply(WebDriver d) {
        return d.findElement(By.id("myDynamicElement"));
    }});
```

This is going to wait up to 60 seconds before throwing ElementNotFound exception.

Question 136:
What is RemoteWebDriver? When would I have to use it?
Answer
RemoteWebDriver is needed when you want to use HTMLUnitDriver. Since HTMLUnitDriver runs in memory, you would not see a browser getting launched –

```
      // Create HTMLUnitDriver instance
      WebDriver driver = new HtmlUnitDriver();

      // Launch Yahoo.com
      driver.get("http://www.yahoo.com");
```

Question 137:
What all languages available to be used with WebDriver?
Answer
Java and C# are on the forefront of WebDriver languages. Support is also available for Python and Ruby. There is also one java script library available for Friefox.

Question 138:
How do I handle java script alert using WebDriver?
Answer
WebDriver would support handling js alerts using Alert interface.

```
    // Bring control on already opened alert
Alert alert = driver.switchTo().alert();

// Get the text of the alert or prompt
alert.getText();

 // Click ok on alert
alert.accept();
```

Question 139:
Could I safely execute multiple instances of WebDriver implementations?
Answer
As far as HTMLUnitDriver and FF drivers are concerned, each instance would be independent of other. In case of IE driver there could be only one instance of IE driver running on Windows. If you want to execute more than one instance of IE driver then you should consider using RemoteWebDriver and virtual machines.

Question 140:
Is it possible to interact with hidden elements using WebDriver?
Answer
Since WebDriver tries to exercise browser as closely as real users would, hence simple answer is No, But you can use java script execution capabilities to interact with hidden elements.

Question 141:
I have all my tests written in Selenium 1.0 (Selenium RC), why should I migrate to Selenium 2.0 (WebDriver)?

Answer
Because –

- WebDriver has more compact and object oriented API than Selenium 1.0
- WebDriver simulates user behaviour more closely than Selenium 1.0, for example if a text box is disabled WebDriver would not be able to type text in it while Selenium 1.0 would be
- WebDriver is supported by Browser vendor themselves i.e. FF, Opera, Chrome etc

Question 142:
My XPath and CSS locators don't always work with Selenium 2.0, but they used to with Selenium 1.0☹.
Answer
In case of XPath, it is because WebDriver uses native browser methods unless it is not available. And this cause complex XPath to be broken. In

case of Selenium 1.0 css selectors are implemented using Sizzle Library and not all the capabilities like “contains” are available to be used with Selenium 2.0

Question 143:
How do I execute Java Script in Selenium 2.0?
Answer
You need to use JavaScriptExecutor to execute java script in Selenium 2.0, For example if you want to find tag name of an element using Selenium 2.0 then you can execute java script as following –

```
WebElement element = driver.findElement(By.id("elementLocator"));
String name = (String) ((JavascriptExecutor) driver).executeScript(
    "return arguments[0].tagName", element);
```

Question 144:
Why does not my java script execution return any value?
Answer
This might happen when you forget to add “return“ keyword while executing java script. Notice the “return” keyword in following statement –

```
((JavascriptExecutor) driver).executeScript("return window.title;");
```

Question 145:
Are there any limitations from operating systems while using WebDriver?
Answer
While HTMLUnitDriver, FF Driver and Chrome Driver could be used on all operating systems, IE Driver could be used only with Windows.

Question 146:
Give me architectural overview of WebDriver.
Answer
WebDriver tries to simulate real user interaction as much as possible. This is the reason why WebDriver does not have “fireEvent” method and “getText” returns the text as a real user would see it. WebDriver implementation for a browser is driven by the language which is best to driver it. In case of FF best fit languages are Javascript in an XPCOM component and in IE it is C++ using IE automation. Now the implementation which is available to user is a thin wrapper around the implementation and user need not know about implementation.

Question 147:
What is Remote WebDriver Server?
Answer
Remote WebDriver Server has two components – client and server. Client is WebDriver while Server is java servlet. Once you have downloaded selenium-server-standalone-.jar file you can start it from command line as –

```
    java -jar selenium-server-standalone-<version-number>.jar
```

Question 148:
Is there a way to start Remote WebDriver Server from my code?
Answer
First add Remote WebDriver jar in your class path. You also need another server called "Jetty" to use it. You can start sever as following –

```
                WebAppContext context = new WebAppContext();
        context.setContextPath("");
        context.setWar(new File("."));
        server.addHandler(context);

        context.addServlet(DriverServlet.class, "/wd/*");

SelectChannelConnector connector = new SelectChannelConnector();
        connector.setPort(3001);
        server.addConnector(connector);

        server.start();
```

Question 149:
But what are the advantages of using Remote WebDriver over WebDriver?
Answer
You can use Remote WebDriver when –

- When you want to execute tests on a browser not available to you locally
- Introduction to extra latency to tests

But there is one disadvantage of using Remote WebDriver that you would need external servlet container.

Question 150:
Can you show me code example of using Remote WebDriver?
Answer

```
        // Any driver could be used for test
DesiredCapabilities capabilities = new DesiredCapabilities();

        // Enable javascript support
        capabilities.setJavascriptEnabled(true);
```

```
// Get driver handle
WebDriver driver = new RemoteWebDriver(capabilities);

// Launch the app
driver.get("http://www.google.com");
```

Question 151:

What are the modes of Remote WebDriver

Answer

Remote WebDriver has two modes of operations –

Client Mode: This is where language bindings connect to remote instance. FF drive and RemoteWebDriver clients work this way.

Server Mode: In this mode language bindings set up the server. ChromeDriver works this way.

Question 152:

What Design Patterns could be used while using Selenium 2.0?

Answer

These three Design Patterns are very popular while writing Selenium 2.0 tests –

1. Page Objects – which abstracts UI of web page
2. Domain Specific Language – which tries to write tests which could be understood by a normal user having no technical knowledge
3. Bot Style Tests – it follows “command-like” test scripting

Question 153:

So do I need to follow these Design patterns while writing my tests?

Answer

Not at all, these Design Patterns are considered best practices and you can write you tests without following any of those Design Patterns, or you may follow a Design Pattern which suites your needs most.

Question 154:

Is there a way to enable java script while using HTMLUnitDriver?

Answer

Use this –

```
HtmlUnitDriver driver = new HtmlUnitDriver();
    driver.setJavascriptEnabled(true);
```

or this –

```
    HtmlUnitDriver driver = new HtmlUnitDriver(true);
```

Question 155:

Is it possible to emulate a browser with HTMLUnitDriver?

Answer

You can emulate browser while using HTMLUnitDriver but it is not recommended as applications are coded irrespective of browser you use. You could emulate Firefox 3 browser with HTMLUnitDriver as –

```
HtmlUnitDriver driver
= new HtmlUnitDriver(BrowserVersion.FIREFOX_3);
```

Or you can inject desired capabilities while instantiating HTMLUnitDriver as –

```
         HtmlUnitDriver driver = new HtmlUnitDriver(capabilities);
```

Question 156:

How do I use iPhone Driver?

Answer

You should start iPhone SDK and build iPhone driver. Down load iPhone development tools and provision profile. Now iPhone driver can connect through HTTP to the iphone simulator. You can also run simulator on another machine in your network and WebDriver could connect to it remotely.

Question 157:

Is it possible to convert Selenium IDE test to WebDriver test?

Answer

~~For now there is no formatter available to convert Selenium IDE tests to corresponding WebDriver tests, hence simple answer is No.~~ Yes WebDriver style of code can be generated from Selenium IDE

Question 158:
Can WebDriver handle UntrustedSSLCertificates?
Answer
This feature is currently supported in Firefox browser and is awaiting implementation in IE and Chrome drivers.

Question 159:
Can I carry out multiple operations at once while using WebDriver?
Answer
You can use Builder pattern to achieve this. For example if you want to move an element from one place to another you can use this –

```
Actions builder = new Actions(driver);

Action dragAndDrop = builder.clickAndHold(element)
      .moveToElement(otherElement)
      .release(otherElement)
      .build();

dragAndDrop.perform();
```

Question 160:
How do I simulate keyboard keys using WebDriver?
Answer
There is a KeyBoard interface which has three methods to support keyboard interaction –

- sendKeys(CharSequence)- Sends character sequence
- pressKey(Keys keyToPress) - Sends a key press without releasing it.
- releaseKey(Keys keyToRelease) - Releases a modifier key

Question 161:
What about Mouse Interaction?

Answer
Mouse interface lets you carry out following operations –

- click(WebElement element) – Clicks an element
- doubleClick(WebElement element) - Double-clicks an element.

- void mouseDown(WebElement element) - Holds down the left mouse button on an element.
- mouseUp(WebElement element) - Releases the mouse button on an element.
- mouseMove(WebElement element) - Moves element form current location to another element.
- contextClick(WebElement element) - Performs a context-click (right click) on an element.

Question 162:
How does Android Webdriver works?
Answer
Android WebDriver uses Remote WebDriver. Client Side is test code and Server side is application installed on android emulator or actual device. Here client and server communicate using JSON wire protocol consisting of Rest requests.

Question 163:
What are the advantages of using Android WebDriver?
Answer
Android web driver runs on Android browser which is best real user interaction. It also uses native touch events to emulated user interaction. But there are some drawbacks also like, it is slower than headless WebKit driver. XPath is not natively supported in Android web view.

Question 164:
Is there a built-in DSL (domain specific language) support available in WebDriver?
Answer
There is not, but you can easily build your own DSL, for example instead of using –

```
        webDriver.findElement(By.name("q")).sendKeys("Test");
```

You can create a more composite method and use it –

```
public static void findElementAndType(WebDriver webDriver, String
elementLocator, String testData) {

webDriver.findElement(By.name(elementLocator)).sendKeys(testData);
    }
```

And now you just need to call method findElementAndType to do type operation.

Question 165:
What is grid2?
Answer
Grid2 is Selenium grid for Selenium 1 as well as WebDriver, This allows to –

- Execute tests on parallel on different machines
- Managing multiple environments from one point

Question 166:
How do I start hub and slaves machines in grid 2?
Answer
Navigate to you selenium server standalone jar download and execute following command –

```
java -jar selenium-server-standalone-.jar -role hub
```

And you start Slave machine by executing following command –

```
Java –jar selenium-server-.jar –role webdriver  -hub
http://localhost:4444/grid/register -port 6666
```

Question 167:
And how do I run tests on grid?
Answer
You need to use the RemoteWebDriver and the DesiredCapabilities object to define browser, version and platform for testing. Create Targeted browser capabilities as –

```
DesiredCapabilities capability = DesiredCapabilities.firefox();
```

Now pass capabilities to Remote WebDriver object –

```
WebDriver driver = new RemoteWebDriver(new
URL("http://localhost:4444/wd/hub"), capability);
```

Following this, hub will take care of assigning tests to a slave machine

Question 168:
What parameters can be passed to grid2?
Answer
You can pass following parameters to grid 2 –

- -port 4444 (default 4444)
- -nodeTimeout (default 30) the timeout in seconds before the hub automatically releases a node that hasn't received any requests for more than the specified number of seconds.
- -maxConcurrent 5 (5 is default) The maximum number of browsers that can run in parallel on the node.

Selenium Tool Implementation Misc Questions

Question 169:
How do I implement data driven testing using Selenium?
Answer
Selenium, unlike others commercial tools does not have any direct support for data driven testing. Your programming language would help you achieving this. You can you jxl library in case of java to read and write data from excel file. You can also use Data Driven Capabilities of TestNG to do data driven testing.
Question 170:
What is equivalent to test step, test scenario and test suite in Selenium.
Answer
If you are using Java client driver of Selenium then TestNG test method could be considered equivalent to test step, a test tag could be considered as test scenario and a suite tag could be considered equivalent to a test suite.

Question 171:
How do I get attribute value of an element in Selenium?

Answer
You could use getAttribute method
With Selenium 1.0 –

```
String var = selenium.getAttribute("css=input[name='q']@maxlength");
System.out.println(var);
```

With Selenium 2.0 –

```
        String var =
        webDriver.findElement(By.cssSelector("input[name='q']")).getAttr
        ibute("maxlength")
    System.out.println(var);
```

Question 172:
How do I do database testing using Selenium?
Answer
Selenium does not support database testing but your language binding does. For example while using java client driver you can use java data base connectivity (jdbc) to establish connection to data base, fetch/write data to data base and doing data comparison with front end.

Question 173:
I completed test execution and now I want to email test report.
Answer
If you are using “ant” build tool then you can use “mail” task to deliver your test results. Similar capabilities are available in Continuous Build Integration tools like – Hudson.

Question 174:
How do I make my tests more comprehensible?
Answer
Selenium tests which are written as –

```
    selenium.click("addForm:_ID74:_ID75:0:_ID79:0:box”);
```

Make it tough to understand the element which is being exercised upon. Instead of hard coding element locator in tests you should externalize them. For example with java you can use properties file to contain element locators and then locator reference is given in test script. Following this approach previous test step would look as –

```
   selenium.click(PolicyCheckbox);
```

And this is far more comprehensible.

Question 175:
Why should I use Page Object?
Answer
Page object is a design pattern which distinguishes the code carrying out operations on page and code which carries out tests

(assertion/verification). While implementing page object you abstract functioning of a page or part of it in a dedicated "Classs" which is then used by test script to perform actions on page and reach a stage when actual test could be performed.

Advantage of using page object is the fact that if application lay out changes then you only need to modify the navigation part and test would function intact.

1. How do you start Selenium RC?

Ans:

simple way to start selenum rc is

```
 java -jar selenium-server.jar
```

to run a suite of Selenese scripts in a browser

```
java -jar selenium-server.jar -htmlSuite
```

2. How do you connect Data base from selenium

Ans:

Connecting to database is lanuage dependent. if we are using Java

A Connection object represents aconnection with a database. When we connect to a database by using connection method, we create a Connection Object, which represents theconnection to the database. An application may have one or more than one connections with a single database or many connections with different databases.

We can use the Connection object for the following things:

1). It creates the Statement, PreparedStatement and CallableStatement objects for executing the SQL statements.

2). It helps us to Commit or roll back a jdbc transactionn.

3). If you want to know about the database or data source to which you are connected then the Connection object gathers information about the database or data source by the use of DatabaseMetaData.

4). It helps us to close the data source. The Connection.isClosed() method returns true only if the Connection.close() has been called. This method is used to close all the connection.

Firstly we need to to establish the connection with the database. This is done by using the method DriverManager.getConnection(). This method takes a string containing a URL. The DriverManager class, attempts to locate a driver that can connect to the database represented by the string URL. Whenever the getConnection() method is called the DriverManager class checks the list of all registered Driver classes that can connect to the database specified in the URL.

Syntax:

String url = "jdbc: odbc: makeConnection";

Connection con = DriverManager.getConnection(url, "userID", "password");

3. How do you handle Ajax controls using selenium?

Eg. By typing in search engine how do you capture the auto suggestion

4. How do you select the 2nd item in a List box or drop down.

Ans:

selenium.select(selectLocator, optionLocator)

selectLocator – a locator for the select element

optionLocator – a locator for the option element

5. How do you identify an object using selenium?

Ans:

isElementPresent(String locator)
isElementPresent takes a locator as the argument and if found returns a boolean value of True.

More examples: **Software Automation Testing**

6. How do you capture an element loading after the page load?

Ans:

provide a time to check the element(in seconds) Like :

```
public void waitForElementPresent(String element, int timeout) throws
Exception {

for (int second = 0;; second++) {

if (second >= timeout)

fail("Timeout. Unable to find the Specified element" + element);

try {

      if (selenium.isElementPresent(element)) break;

} catch (Exception e) { }

Thread.sleep(1000);

}

}
```

7. Brief about your framework

8. What is the difference between assert and Verify Commands?

Ans:

There are two mechanisms for validating elements that are available on the application under test. The first is assert: this allows the test to check if the element is on the page. If it is not available, then the test will stop on the step that failed. The second is verify: this also allows the test to check whether the element is on the page, but if it isn't, then the test will carry on executing.

9. Explain about your reporting method

10.How do you verify an object presented in multiple pages.

Ans:

Check on each page

assertTrue(selenium.isElementPresent(locator));

11.What are the locators available in Selenium?

Ans:

1. ID
2. Name
3. Filters
4. DOM
5. CSS
6. Xpath

12.What is the difference between single and double slash in Xpath

Ans:

/

1. start selection from the document node
2. allows you to create 'absolute' path expressions
3. e.g. “/html/body/p” matches all the paragraph elements

//

1. start selection matching anywhere in the docume
2. allows you to create 'relative' path expressions
3. e.g. “//p” matches all the paragraph elements

13.Brief about Selenium Client.

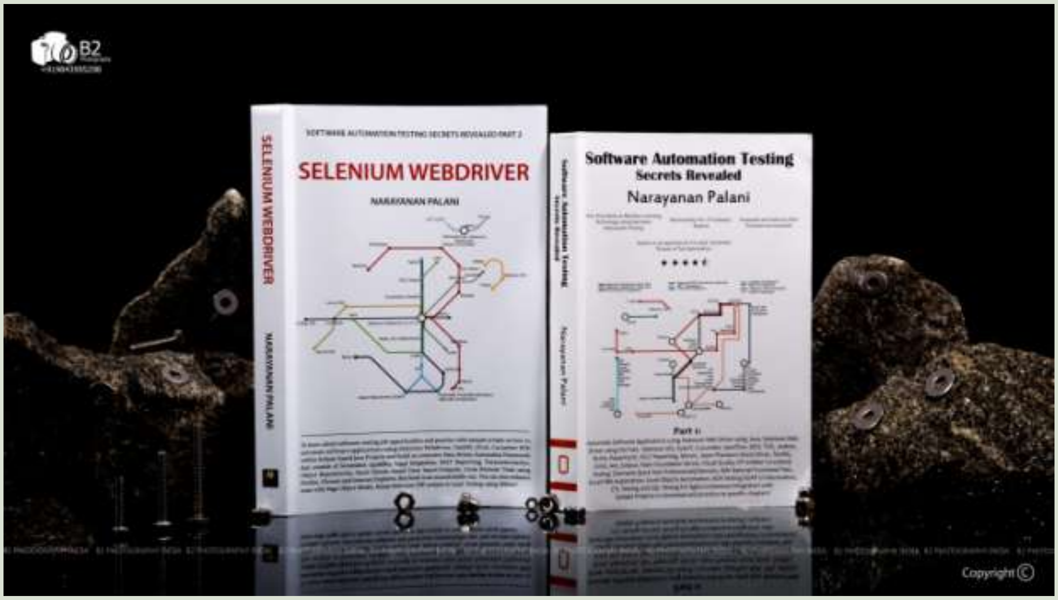
14.Did you write any User Extensions.

User extensions are stored in a separate file that we will tell Selenium IDE or Selenium RC to use. Inside there the new function will be written in JavaScript.

Because Selenium's core is developed in JavaScript, creating an extension follows the standard rules for prototypal languages. To create an extension, we create a function in the following design pattern.

```
Selenium.prototype.doFunctionName = function(){

.

}
```

The "do" in front of the function name tells Selenium that this function can be called as a command for a step instead of an internal or private function.



15.What are all things can not be done through selenium IDE

Ans:

1. Easy record and playback.
2. Intelligent field selection will use IDs, names, or XPath as needed.
3. Autocomplete for all common Selenium commands.
4. Walk through tests.
5. Debug and set breakpoints.
6. Save tests as HTML, Ruby scripts, or any other format.
7. Support for Selenium user-extensions.js file.
8. Option to automatically assert the title of every page.

Advantages: Selenium IDE is the only flavor of Selenium, which allows you to record user action on browser window. It can also record user actions in most of the popular languages like Java, C#, Perl, Ruby etc. This eliminates the need of learning new vendor scripting language. For executing scripts created in these languages, you will need to use Selenium Remote Control. If you do not want to use Remote Control than you will need to create your test scripts in HTML format.

Disadvantages: Biggest drawback of Selenium IDE is its limitation in terms of browser support. Though Selenium scripts can be used for most of the browser and operating system, Scripts written using Selenium IDE can be used for only Firefox browser if it is not used with Selenium RC or Selenium Core.

16.Brief about Selenium Grid.

Ans:

Selenium Grid is a tool that dramatically speeds up functional testing of web-apps by leveraging your existing computing infrastructure. It allows you to easily run multiple tests in parallel, on multiple machines, in an heterogeneous enviroment.

Based on the excellent Selenium web testing tool, Selenium Grid allows you to run multiple instances of Selenium Remote Control in parallel. Even better, it makes all these Selenium Remote Controls appear as a single one, so your tests do not have to worry about the actual infrastructure. Selenium Grid cuts down on the time required to run a Selenium test suite to a fraction of the time that a single instance of Selenium instance would take to run.

17.Is it possible to start the Remote engine more than once in an instance.

18. How to use selenium for performance testing

19. How to start the selenium server from your language class?

Ans:

```
try {

    seleniumServer = new SeleniumServer();

    seleniumServer.start();
} catch (Exception e) {

      e.printStackTrace();

}
```

20. Is it possible to handle multiple pop ups in selenium?

22. Give the benefits of SQL Stored procedure in selenium?

23.What are the difficulties or challenge you faced in selenium?

24. How do you check a single test method in multiple browser?

25. What is the annotation you use to connect the Spread sheet in Junit.

26.Brief about Junit annotations.

27.How can we speed up the selenium script execution?

28.If the default port of selenium is busy then which port you use?

29.Explain types of SQL joins.

30.How do you handle the secured connection error in HTTPS?

31.How do you compare two strings or values are same.

1. Difference between Absolute path & Relative path.
Absolute path will start with root path (/) and Relative path will from current path (//)
Click Here for Detailed Answer

2. Tell me some TestNG Annotations.
@Test,@Parameters,@Listeners,@BeforeSuite,@AfterSuite,@BeforeTest,@AfterTest,
@DataProvider,@BeforeGroups,@AfterGroups,@BeforeClass,@AfterClass,
@BeforeMethod,@AfterMethod,@Factory
http://testng.org/doc/documentation-main.html#annotations

3. What are desiredcapabilities?
Desired Capabilities help to set properties for the Web Driver. A typical use case would be to

set the path for the Firefox Driver if your local installation doesn't correspond to the default
settings.
https://code.google.com/p/selenium/wiki/DesiredCapabilities

4. Difference between Selenium RC and Selenium
Web driver.

Selenium RC	Selenium Web driver
Selenium RC's architecture is way more complicated.	Web Driver's architecture is simpler than Selenium RC's.
Selenium RC is slower since it uses a JavaScript program called Selenium Core. This Selenium Core is the one that directly controls the browser, not you.	Web Driver is faster than Selenium RC since it speaks directly to the browser uses the browser's own engine to control it.
Selenium Core, just like other JavaScript codes, can access disabled elements.	Web Driver interacts with page elements in a more realistic way.
Selenium RC's API is more matured but contains redundancies and often confusing commands.	Web Driver's API is simpler than Selenium RC's. It does not contain redundant and confusing commands.
Selenium RC cannot support the headless HtmlUnit browser. It needs a real, visible browser to operate on.	Web Driver can support the headless HtmlUnit browser.
Selenium RC Has Built-In Test Result Generator. Selenium RC automatically generates an HTML file of test results.	Web Driver has no built-in command that automatically generates a Test Results File.
Selenium RC needs the help of the RC Server in order to do so.	web Driver directly talks to the browser
Selenium RC can support new browsers	It cannot readily support new browsers

5. Difference between Web driver listener and
TestNG Listener.

TestNG and Web driver Listener have different interfaces to implement and call them. They both
modify respective behaviour. You can use Listeners in Annotation. Below 2 URL gives the
detailed list of listener and their interfaces.

http://testng.org/doc/documentation-main.html#testng-listeners
http://selenium.googlecode.com/git/docs/api/java/org/openqa/selenium/support/events/
AbstractWebDriverEventListener.html

6. Describe your framework.
Click Here for Hybrid Framework

7. Which is the best way to locate an element?
Finding elements by ID is usually going to be the fastest option, because at its root, it eventually calls down to document.getElementById(), which is optimized by many browsers.

Finding elements by XPath is useful for finding elements using very complex selectors, and is the most flexible selection strategy, but it has the potential to be very slow, particularly in IE. In IE 6, 7, or 8, finding by XPath can be an order of magnitude slower than doing the same in Firefox. IE provides no native XPath-over-HTML solution, so the project must use a JavaScript XPath implementation, and the JavaScript engine in legacy versions of IE really is that much slower.

If you have a need to find an element using a complex selector, I usually recommend using CSS Selectors, if possible. It's not quite as flexible as XPath, but will cover many of the same cases, without exhibiting the extreme performance penalty on IE that XPath can.

8. Why we refer Firefox driver to the web driver
inheritance.
web Driver driver = new FireFoxDriver();
WebDriver is an interface which contain several abstract methods such as get(...), findElamentBy(...) etc.
We simply create reference of web Driver and we can assign objects (Firefox driver, CromeDriver, IEDriver, Andriod driver etc) to it.
Ex :
WebDriver driver = new FireFoxDriver();-----------(1)
If we are using (1) we can do the same thing by using
FireFoxDriver driver = new FireFoxDriver();---------(2)
We can use (1) and (2) for same purpose but if we want to switch to another browser in same program
then again we have to create the object of other class as for example
CromeDriver driver = new CromeDriver();.

creating object of several class is not good. So we create the reference of WebDriver and
we assign the objects of another class as for example
WebDriver driver; // it is created only one time in the program
driver = new FireFoxDriver();// any where in the program
driver = new CromeDriver(); // any where in the program

9. What are the features of TestNG?
TestNG is a testing framework designed to simplify a broad range of testing needs, from
unit testing (testing a class in isolation of the others) to integration testing (testing entire
systems made of several classes, several packages and even several external frameworks,
such as application servers). You can use test suite,annotations, automatically generation
of report and much more.

10. What is the difference between thread.Sleep()
and selenium. Set Speed ("2000")?
If the application is taking time to load the page then we use selenium.waitforpageload(" "). This command is doesn't wait upto the given time whenever the page load is completed.
If the application is taking time to refresh the page, then we use Thread. Sleep ( ).it is a standard wait it simply wait to the given time.
selenium.setSpeed
1. Takes a single argument in string format
Ex: selenium.setSpeed("2000") - will wait for 2 seconds
2. Runs each command in after setSpeed delay by the number of milliseconds mentioned in set Speed.
thread.sleep
1. Takes a single argument in integer format
ex: thread. Sleep(2000) - will wait for 2 seconds
2. Waits for only once at the command given at sleep.

11. In what situation selenium finding element
get fails?

- Element loading issue
- Dynamic id of web element

12. What is the difference between "GET" and
"NAVIGATE" to open a web page in selenium
web driver?

Get method will get a page to load or get page source or get text that's all whereas navigate will guide through the history like refresh, back, forward.For example if we want to move forward and do some functionality and back to the home page this can be achieved through navigate() only. driver.get will wait till the whole page gets loaded and driver.navigate will just redirect to that page and will not wait

13. Please tell me the difference b/w implicitly Wait and Explicit wait.

Implicit Wait sets internally a timeout that will be used for all consecutive Web Element searches. It will try lookup the element again and again for the specified amount of time before throwing a NoSuchElementException if the element could not have been found. It does only this and can't be forced into anything else - it waits for elements to show up.

Explicit Wait or just Wait is a one-timer used by you for a particular search. It is more extendible in the means that you can set it up to wait for any condition you might like. Usually, you can use some of the prebuilt Expected Conditions to wait for elements to become clickable, visible, invisible, etc., or just write your own condition that suits your needs.

14. How we can retrieve the dynamically changing Ids? When we login Facebook the login label's id changes dynamically thus resulting in failure.

We have a hierarchy of locators and Facebook Is dynamic in nature,so we are not able to use "id" for identification for after that we have remaining 7 locator's for that :2. xpath ().. 3. name..4. css.. 5. link text.. 6. partiallinktext...7.tag name. so u can use any one for identifying it. Most probably u can use "xpath" or "css-locator" and if there r tag then link text or partial-link text. it depend on u . But we never use id's in Ajax application because it’s not possible.

More Answers: **Software Automation Testing**

15.What is the difference between driver.Close() and driver.Quit () method?
Close() - It is used to close the browser or page currently which is having the focus.
Quit() - It is used to shut down the web driver instance or destroy the web driver instance
(Close all the windows)

16. How to scroll web element?--not browser—

```
FirefoxProfile profile=new FirefoxProfile();
profile.setEnableNativeEvents(true);
WebDriver driver=new FirefoxDriver(profile);
driver.navigate("http://jqueryui.com/draggable/");
Thread.sleep(6000L);
WebElement
element=driver.findElement(By.xpath("//div[@id='draggable']"));
Actions actn=new Actions(driver);
actn.dragAndDropBy(element, 50, 50).build().perform();
}
```

17. What is the basic use of Firefox profiles and how can we use them using selenium?
A profile in Firefox is a collection of bookmarks, browser settings, extensions, passwords,
and history; in short, all of your personal settings.
We use them to change user agent, changing default download directory, changing versions etc.
http://code.google.com/p/selenium/wiki/FirefoxDriver

18. Customize the name of file going to be downloaded?
You have to download AUTO IT.exe file and has to be install
and later you have create .au3 file (in this file you have to specify the commands in
VB script like your file name, where have to save, it will be easy may be 3 or 4 steps)
using AUTOIT...then right click the .au3 file you have to compile ....after that you will
get the .exe file with the name of .au3 file ..In eclipse you will give the code like this
<----ProcessBuildder ps = new ProcessBuilder("path of the .exe file of au3") .start();--->

19. How to handle internationalisation through
web driver?
FirefoxProfile profile = new FirefoxProfile();
profile.set Preference("intl.accept_languages","jp");
Web driver driver = new FirefoxDriver(profile); driver.get(google.com) will open google in
Japanese Lang

20. How to overcome same origin policy through
web driver?
· Proxy server.
DesiredCapabilities capability=new DesiredCapabilities.firefox();
capability.setCapability(CapabilityType.PROXY,"your desire proxy")
WebDriver driver=new FirefoxDriver(capability);

21. How to put text in Facebook search box using
selenium web driver.
· driver.findElement(By.xpath("//div[contains(@class, '_586i')]")).sendKeys("abc");

22. Difference between flex and flash application.
In flash there is no code just based on creativity(design) we will complete the
work(time consuming process) whereas flex contain some small functions which is integrated with mxml,PHP..(no tool is there to develop
flex we want to use the properties of css and style sheet)

23. What is Error Collector in TestNG?
What is its use?
This class allows the collection of errors during the process of retrieving the
test data for the test method parameters
http://testngdatabind.sourceforge.net/apidocs/net/sf/testng/databinding/core/error/
ErrorCollector.html

24. How can we get the font size, font color,
font type used for a particular text on a web
page using Selenium web driver?
driver.findelement(By.Xpath("Xpath ").getcssvalue("font-size);
driver.findelement(By.Xpath("Xpath ").getcssvalue("font-colour);
driver.findelement(By.Xpath("Xpath ").getcssvalue("font-type);

```
driver.findelement(By.Xpath("Xpath ").getcssvalue("background-colour);
```

25. How to run tests in multiple browser parallel?
 Is there any other option other than selenium grid?

Testng has provided us an option through its Parameter feature, through which we could run same test script written in WebDriver parallel to all our installed Browser on our system.

Scripts and Steps to execute Script

1- Go to your Eclipse Project –> Right Click on Project –> Click On New–> others–> Pop up would appear–> Click on XML –> Select XML File –> Click on Next –> New XML File pop up would appear–> Enter the name of XML and click on Finish

2- Your XML file would appear like this

```
<!–?xml version=”1.0″  encoding=”UTF-8″?>–>
```

Replace this with this code

```
<suite name=”Suite1″  verbose=”1″  parallel=”tests”>

<test name=”Generic test” >
<parameter name=”browser” value=”FF”></parameter>

<classes>
<class name=”com.testng.Test” />
</classes>
</test>

<test name=”Generic test_ie” >
<parameter name=”browser” value=”IE”></parameter>
<classes>
<class name=”com.testng.Test” />
</classes>
</test>
<!–suite>–>
```

Download xml file from here

Now understand the tags of XML that I have marked Bold in XML file
Parallel: this is being used to run tests parallely in different browser
suite name: This is the name of your test suit
test name : kind of test cases (you may give name like this Regression, Sanity,Smoke, or any thing that make you to make better test execution) like i have given name to this test case as Generic test
Classes: name of class that you want to add in this test execution
Most important one is
<parameter name=”browser” value=”FF”></parameter> Here I have browser

as parameter name(u can have any name to it) and Value here I have given FF for Firefox,IE for Internet Explorer, and Chrome for Chrome Browser.

3- Now its time to understand how we have to use parameter name in Java program. Since parameter is defined for Browsers. Since we are trying to use Testng framework we would write two function first one to launch Browser and Second one to close Browser

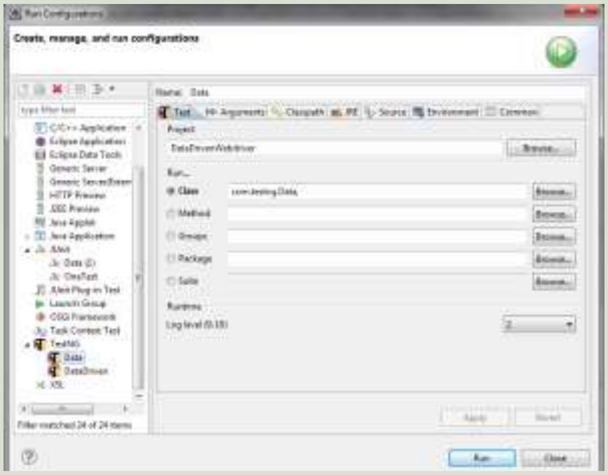
Create new java class in your Java Project
Steps to create new java class:: right click on project ||New|| Click on Class||Enter the name of class and Hit on finish.
Name of my java class is Browser.java

```
package com.testng;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.ie.InternetExplorerDriver;
import org.testng.annotations.AfterMethod;
import org.testng.annotations.Parameters;
//import org.testng.annotations.AfterTest;
import org.testng.annotations.BeforeMethod;

public class Browser {

WebDriver driver;
@BeforeMethod   /* The annotated method will be run before all tests in
this suite have run */

//browser is the name of parameter that we have used in xml
@Parameters(“browser”)  /* this annotation is used to insert parameter in
test*/
public void openBroswer(String browser){

/*Comparing the value of parameter name if this is FF then It would launch
Firefox and script that would run is as follows */
if(browser.equalsIgnoreCase(“FF”))
{
System.out.println(“Firefox driver would be used”);
driver = new FirefoxDriver();
}
else
{
System.out.println(“Ie webdriver would be used”);
driver = new InternetExplorerDriver();
}
}
@AfterMethod /* this annotation would run once test script execution
would complete*/
public void closeBrowser()
{try{
driver.wait(15000);
}
catch(Exception e){}
driver.close();
driver.quit();
}
}
```

4- Since we have created Browser class in which we have used the parameter defined in XML, Now we should create one more class that is our Test class, This class would inherit Browser class for launching Browser before executing scripts under @Test annotation and for Closing Browser once execution of scipt under @Test annotation get completed.
here I have given the name of this class is Test

```
package com.testng;
import org.openqa.selenium.By;
import org.testng.Reporter;
import org.testng.annotations.Test;
@Test
public class Test extends Browser{
public void test(){
/* in this test we are searching selenium in Google and clicking on first link
in Google Result*/
driver.get("http://www.google.com");
driver.findElement(By.id("gbqfq")).sendKeys("selenium");
//driver.manage().timeouts().implicitlyWait(15, TimeUnit.SECONDS);
try {
Thread.sleep(5000);
} catch (InterruptedException e) {
// TODO Auto-generated catch block
e.printStackTrace();
}
driver.findElement(By.xpath("//ol[@id='rso']/li[1]//h3/a")).click();
try {
Thread.sleep(5000);
} catch (InterruptedException e) {
// TODO Auto-generated catch block
e.printStackTrace();
}
}
}
```

5- Now its time to execute Test-Case
Steps:
Right Click on Test.java file and –> Run As –> Run Confinguration –> In pop up Go Testng –> Right Click on Testng and Click on New –> Give name to your Run Configuration, Browser Class and select your Xml just by Browsing in front of Suit –> hit on Finish and this would run your test



Create, manage, and run configurations

Name: Data

Project: DataDrivenWebdriver

Run...

● Class com.testing.Data

Log level (0-10) 2

Filter matched 24 of 24 items

Hope this post would help you to run parallel WebDriver test case .

26. How to prepare Customized html Report using TestNG in hybrid framework.

Below are the 3 ways:

- Junit: with the help of ANT.
- TestNG: using inbuilt default.html to get the HTML report. Also XST reports from ANT, Selenium, TestNG combination.
- Using our own customized reports using XSL jar for converting XML content to HTML.

27. “What’s the hierarchy of TestNG annotations? Explain me about annotation hierarchy & execution order?

1. org.testng.annotations.Parameters (implements java.lang.annotation.Annotation)
2. org.testng.annotations.Listeners (implements java.lang.annotation.Annotation)

3. org.testng.annotations.Test (implements java.lang.annotation.Annotation)
4. org.testng.annotations.AfterMethod (implements java.lang.annotation.Annotation)
5. org.testng.annotations.BeforeTest (implements java.lang.annotation.Annotation)
6. org.testng.annotations.BeforeMethod (implements java.lang.annotation.Annotation)
7. org.testng.annotations.Optional (implements java.lang.annotation.Annotation)
8. org.testng.annotations.AfterTest (implements java.lang.annotation.Annotation)
9. org.testng.annotations.Guice (implements java.lang.annotation.Annotation)
10. org.testng.annotations.BeforeGroups (implements java.lang.annotation.Annotation)
11. org.testng.annotations.ExpectedExceptions (implements java.lang.annotation.Annotation)
12. org.testng.annotations.TestInstance (implements java.lang.annotation.Annotation)
13. org.testng.annotations.NoInjection (implements java.lang.annotation.Annotation)
14. org.testng.annotations.AfterSuite (implements java.lang.annotation.Annotation)
15. org.testng.annotations.AfterClass (implements java.lang.annotation.Annotation)
16. org.testng.annotations.AfterGroups (implements java.lang.annotation.Annotation)
17. org.testng.annotations.DataProvider (implements java.lang.annotation.Annotation)
18. org.testng.annotations.BeforeSuite (implements java.lang.annotation.Annotation)
19. org.testng.annotations.BeforeClass (implements java.lang.annotation.Annotation)
20. org.testng.annotations.Factory (implements java.lang.annotation.Annotation)
21. org.testng.annotations.Configuration (implements java.lang.annotation.Annotation)

22. org.testng.annotations.ObjectFactory (implements java.lang.annotation.Annotation)

28. How the TestNG interacts with Selenium Core?
Explain me steps and internal architecture?"
http://www.guru99.com/all-about-testng-and-selenium.html

29. Is it possible test web services using selenium?
Using Jmeter we can test how one website is talking to each other means time taken to
send data, feeds, messages from one website to other website. Jmeter does a nice job
of doubling for performance and api tests.

30. How to refresh a page without using context
click?
1.Using sendKeys.Keys method
2.Using navigate.refresh() method
3.Using navigate.refresh() method
4.Using get() method
5.Using sendKeys() method
1.Using sendKeys.Keys method

```
driver.get("https://accounts.google.com/SignUp");
driver.findElement(By.id("firstname-placeholder")).sendKeys(Keys.F5);
```

2.Using navigate.refresh() method

```
driver.get("http://ruchi-myseleniumblog.blogspot.in/2013/12/100-selenium-interview-questions.html");
driver.navigate().refresh();
```

3.Using navigate.to() method

```
driver.get("http://ruchi-myseleniumblog.blogspot.in/2014/01/selenium-hybrid-framework-using.html");
driver.navigate().to(driver.getCurrentUrl());
```

4.Using get() method

```
driver.get("http://ruchi-myseleniumblog.blogspot.in/2013/12/basic-core-java-interview-questions.html");
driver.get(driver.getCurrentUrl());
```

5.Using sendKeys() method

```
driver.get("https://accounts.google.com/SignUp");
driver.findElement(By.id("firstname-placeholder")).sendKeys("\uE035");
```

31. Can u send a code for printing in selenium?
There are two cases:
Case1. Any hyperlink/button on a web page, n clicking that link/button a print dialog box
opens. (Performing an action on web page)
Case2.or do u want to open print dialog box within ur own script, not by performing any
action on web page.
So If Case 1: just a call for WebElement.click() event will work to open it.
If Case 2: Call a Printer Job object (Use Awt API).
For code: Google it.
http://code.google.com/p/selenium/issues/detail?id=1815

32. How to find broken images in a page using
Selenium Web driver.
1. Get xpath and then using tag name; get all the links in the page
2. Click on each and every link in the page
3. In the target page title, look for 404/500 error.

```
package programs;

import java.util.List;
import org.apache.http.HttpResponse;
import org.apache.http.client.methods.HttpGet;
import org.apache.http.impl.client.DefaultHttpClient;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.firefox.FirefoxDriver;

public class findbrokenimages {
static int invalidimg;
static WebDriver driver ;
public static void main(String[] args) {
 try {
  driver = new FirefoxDriver();
  driver.get("http://ruchi-myseleniumblog.blogspot.in");
  invalidimg = 0;
  List allImages  = driver.findElements(By.tagName("img"));
  System.out.println("Total  images are " + allImages.size());
  for (int i = 0; i < allImages.size(); i++) {
   WebElement img = (WebElement) allImages.get(i);
   if (img != null) {
    verifyimgActive(img);
   }
  }

  System.out.println("Total invalid images are " + invalidimg);
  driver.quit();
 } catch (Exception e) {
  e.printStackTrace();
  System.out.println(e.getMessage());
 }
}



public static void verifyimgActive(WebElement img) {
 try {
  HttpResponse response = new DefaultHttpClient().execute(new
HttpGet(img.getAttribute("src")));
    if (response.getStatusLine().getStatusCode() != 200)
   invalidimg++;
  }
 catch (Exception e) {
  e.printStackTrace();
 }
}
}
```

33. How to handle Ajax popup window?
By using getWindowHandles() and obj.switchTo.window(windowid) we can handle popups using explicit wait and driver.swtchTo.window("name") commands for your requirements.

34. How to handle auto complete box in web driver?
By typing in box and capturing list elements

```
driver.findElement(By.id("your searchBox")).sendKeys("your partial keyword");
Thread.sleep(3000);
List <WebElement> listItems = driver.findElements(By.xpath("your list item locator"));
listItems.get(0).click();
driver.findElement(By.id("your searchButton")).click();
```

35. How to get the name of browser using Web Driver?

```
public class JsExecute
```

```
{
WebDriver driver;
JavascriptExecutor js;
@Before
public void setUp() throws Exception
{
driver=new FirefoxDriver();
driver.get("http://www.google.com");
}
@Test
public void test()
{
JavascriptExecutor js = (JavascriptExecutor) driver;
System.out.println(js.executeScript("return navigator.appCodeName"));
}}
```

OR

```
String s = (String) ((JavascriptExecutor) driver).executeScript("return
navigator.userAgent;");
System.out.println("Browser name : " + s);
```

36. How to handle colors in web driver?

Use getCssValue(argo) function to get the colors by sending 'color' string as an argument.

Example

```
String col = driver.findElement(By.id(locator)).getCssValue("color");
```

37. How to pass parameters from testng.xml into test case.

```
package programs;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.htmlunit.HtmlUnitDriver;
import org.openqa.selenium.ie.InternetExplorerDriver;
import org.testng.annotations.BeforeTest;
import org.testng.annotations.Parameters;
import org.testng.annotations.Test;

public class Parallelexecution {

private WebDriver driver = null;

@BeforeTest
@Parameters({ "BROWSER" })
public void setup(String BROWSER) {
 System.out.println("Browser: " + BROWSER);

 if (BROWSER.equals("FF")) {
  System.out.println("Firefox Browser is selected");
  driver = new FirefoxDriver();
 } else if (BROWSER.equals("IE")) {
  System.out.println("Internet Explorer Browser is selected");
  driver = new InternetExplorerDriver();
 } else if (BROWSER.equals("HU")) {
  System.out.println("Html Unit Browser is selected");
  driver = new HtmlUnitDriver();
 } else if (BROWSER.equals("CH")) {
  System.out.println("Google chrome Browser is selected");
  driver = new ChromeDriver();
 }
}

@Test
public void testParallel() throws Exception {
 driver.get("http://ruchi-myseleniumblog.blogspot.in/2013/12/100-
selenium-interview-questions.html");

}
}
```

38. How to get text from captcha image??

```
driver.findElement(By.xpath(".//*[@id='SkipCaptcha']")).click();
String attr =
ie.findElement(By.xpath(".//*[@id='SkipCaptcha']")).getAttribute("value");
System.out.println("The value of the attribute 'Name' is " + attr);
```

39. Is there a way to click hidden LINK in web driver?

```
String Block1 = driver.findElement(By.id("element ID"));
JavascriptExecutor js1=(JavascriptExecutor)driver;
js1.executeScript("$("+Block1+").css({'display':'block'});");
```

40. What Class Extends Web Driver?

- AndroidDriver, ChromeDriver, EventFiringWebDriver, FirefoxDriver, HtmlUnitDriver, InternetExplorerDriver, IPhoneDriver, PhantomJSDriver, RemoteWebDriver, SafariDriver

41. What are the APIs that support Web Driver?

- API are nothing but collection of all selenium commands for Locating UI Elements
(WebElements),Fetching a Page,User Input etc...

42. How to disable cookies in browser.

- Using deleteAllVisibleCookies() in selenium

43. "We have heard about frameworks well it can be
broadly classified into these TDD, BDD and ATDD frameworks .What's the Difference?"

- For Details please see:
http://assertselenium.com/2012/11/05/difference-between-tdd-bdd-atdd/

44. How to change user agent in Firefox by selenium
web driver.

```
FirefoxProfile profile = new FirefoxProfile();
profile.setPreference("general.useragent.override", "some UA string");
Web Driver driver = new FirefoxDriver(profile);
```

45. What is Selenese?

Selenese is HTML language based command, which is used in Selenium IDE.

46. Differences between QTP and selenium.

1) Selenium generates a proxy while starting browser. QTP does not
2) QTP uses only Vb script. Selenium is available in many languages
3) QTP is paid and selenium is free.
4) You can run script from a particular line in QTP but in selenium, you cannot.
5) Selenium works on all browsers. QTP only works on IE, mozilla. Support from chrome has been introduced lately.
6) QTP is more organized and user friendly
7) Selenium requires more technical skills
8) QTP can also be used on desktop based applications but selenium cannot be used

47. What is the MOST challenging test problem in my
career in Automation?

In my career

- Changing XPATHS' between testing server and production server-by keeping generic xpath
- Keep separate property files for production and UAT
- automating flash apps
- Mobile Automation

48. “Suppose developer changed the existing image to new image with same xpath. Is test case pass or fail?"

· Pass

49. How to handle network latency using selenium?

· Using driver.manage.pageLoadingtime for network latency

50. How does u handle dynamic elements without using xpath (with example?)

· By using classname or css.

51. What are the different types of driver implementation?

· AndroidDriver, AndroidWebDriver, ChromeDriver, EventFiringWebDriver, FirefoxDriver, HtmlUnitDriver, InternetExplorerDriver, IPhoneDriver, IPhoneSimulatorDriver, RemoteWebDriver, SafariDriver, WebDriverBackedSelenium

52. Code for Opening Firefox browser?

· Webdriver driver=new FireFoxdriver();

53. Which repository you have used to store the test scripts?

I have created scripts in excel file and store them in Test cases folder under src .

54. How to work with radio button in web driver?

We can select the value from the drop down by using 3 methods.

selectByVisibleText - select by the text displayed in drop down
selectByIndex - select by index of option in drop down
selectByValue - select by value of option in drop down

```
<select id="44"> <option value="1">xyz</option>
 <option value="2">abc</option>
 <option value="3">pqr</option>
</select>
```

```
WebElement e = driver.findElement(By.id("44"));
Select selectElement=new Select(e);
// both of the below statements will select first option in the weblist
selectElement.selectByVisibleText("xyz");
selectElement.selectByValue("1");
```

55. How to work with dynamic web table?
You can get the total number of <tr> tags within a <td> tag by giving the xpath of the
<td> element by using this function -
List<WebElement> ele = driver.findElements(By.xpath("Xpath of the table"));
Now you can use a for each loop to loop through each of the <tr> tags in the above list
and then read each value by using getText() method.

56. Detail about TestNG Test Output folder.
It is the directory where reports are generated. Every time tests run in a suite, TestNG
creates index.html and other files in the output directory.

57. In frame if no frame Id as well as no frame
name then which attribute I should consider
throughout our script.
You can go like this.....driver.findElements(By.xpath("//iframe"))...
Then it will return List of frames then switch to each and every frame and search for
the locator which you want then break the loop

58. What is object repository?
It is collection of object names their properties, attributes and their values .It maye be
excel, XML,property file or text file

59. TestNG vs. Junit?
Advantages of TestNG over Junit

- In Junit we have to declare @BeforeClass and @AfterClass which is a constraint where as in TestNG there is no constraint like this.
- Additional Levels of setUp/tearDown level are available in TestNG like @Before/AfterSuite,@Before/AfterTest and @Before/AfterGroup
- No Need to extend any class in TestNG.
- There is no method name constraint in TestNG as in Junit. You can give any name to the test methods in TestNG
- In TestNG we can tell the test that one method is dependent on another method where as in Junit this is not possible. In Junit each test is independent of another test.
- Grouping of testcases is available in TestNG where as the same is not available in Junit.
- Execution can be done based on Groups. For ex. If you have defined many cases and segregated them by defining 2 groups as Sanity and

Regression. Then if you only want to execute the "Sanity" cases then just tell TestNG to execute the "Sanity" and TestNG will automatically execute the cases belonging to the "Sanity" group.

- Also using TestNG your selenium test case execution can be done in parallel.

60. What is the difference between @before
method and @beforeclass.
In JUnit4 @Before is used to execute set of preconditions before executing a test.
For example, if there is a need to open some application and create a user before
executing a test, then this annotation can be used for that method. Method that is
marked with @Before will be executed before executing every test in the class.
If a JUnit test case class contains lot of tests which all together need a method
which sets up a precondition and that needs to be executed before executing the
Test Case class then we can utilise "@BeforeClass" annotation.

61. What are the different Parameters for @Test
annotation?
Parameters are keywords that modify the annotation's function.
For more details Go to: http://testng.org/doc/documentation-main.html#parameters

62. Can we run group of test cases using TestNG?
Test cases in group in Selenium using TestNG will be executed with the below options.
If you want to execute the test cases based on one of the group like regression test or smoke test
@Test(groups = {"regressiontest", "smoketest"})
For more details please see: http://testng.org/doc/documentation-main.html#test-groups
63. Differences between Selenium web driver,
IDE and RC?
http://qtpselenium.com/selenium-tutorial/difference-between-ide-rc-webdriver/

Difference details

Selenium IDE	Selenium RC	Webdriver
Works only on mozilla	Works on almost all	Works on latest

	browsers.Does not work on latest version of firefox/IE	versions of almost all browsers - Firefox, IE(6,7,8), OPera, Chrome
Record and run tool	No Record and run	No Record and run
No server required to start	Server is required to start	No server required to start
Core engine is Javascript based	Core engine is Javascript based	Interacts natively with browser application
Very simple to use. If using User extentoins, you require knowledge on javascript which makes the work a little bit tough.	Its a simple and small API	Complex and a bit large API as compared to RC
Not at all object oriented	Less Object orinted API	Purely Object oriented API
Cannot move mouse with it	Cannot move mouse with it	Can move mouse cursor
Full xpaths have to be appended with 'xapth=\\' syntax	Full xpaths have to be appended with 'xapth=\\' syntax	No need to append 'xpath=\\'
No Listeners	No Listeners	Implementation of Listeners is provided
Cannot test iphone/Android applications	Cannot test iphone/Android applications	Can test iphone/Android applications
Cannot test iphone/Android applications	Cannot test iphone/Android applications	Can test iphone/Android applications

64. How to highlight an object like qtp/uft does through selenium and java?

```
public void highlightElement(WebDriver driver, WebElement element) {
for (int i = 0; i < 2; i++)
{
JavascriptExecutor js = (JavascriptExecutor) driver;
js.executeScript("arguments[0].setAttribute('style', arguments[1]);",
element, "color: yellow; border: 2px solid yellow;");
js.executeScript("arguments[0].setAttribute('style', arguments[1]);",
element, "");
}}
```

Call the highlightElement method and pass webdriver and WebElement which you want to highlight as arguments.

65. What are the different assertions in SIDE?
Assertions are like Accessors, but they verify that the state of the application conforms to what is expected. Examples include "make sure the page title is X" and "verify that this checkbox is checked".
All Selenium Assertions can be used in 3 modes: "assert", "verify", and "waitFor".

For example, you can "assertText", "verifyText" and "waitForText". When an "assert" fails, the test is aborted. When a "verify" fails, the test will continue execution, logging the failure. This allows a single "assert" to ensure that the application is on the correct page, followed by a bunch of "verify" assertions to test form field values, labels, etc.

"waitFor" commands wait for some condition to become true (which can be useful for testing Ajax applications). They will succeed immediately if the condition is already true. However, they will fail and halt the test if the condition does not become true within the current timeout setting (see the setTimeout action below).
66. How to store a value which is text box using
web driver?

```
driver.findElement(By.id("your Textbox")).sendKeys("your keyword");
```

67. How to handle alerts and confirmation boxes.
Confirmation boxes and Alerts are handled in same way in selenium.

```
var alert = driver.switchTo().alert();
alert.dismiss();  //Click Cancel or Close window operation
alert.accept();   //Click OK
```

Handle Confirmation boxes via JavaScript,

```
driver.executeScript("window.confirm = function(message){return true;};");
```

68. How to mouse hover on an element?

```
Actions action = new Actions(webdriver);
WebElement we =
webdriver.findElement(By.xpath("html/body/div[13]/ul/li[4]/a"));
action.moveToElement(we).moveToElement(webdriver.findElement(By.xpath("/expression-here"))).click().build().perform();
```

69. How to switch between the windows?

```
private void handlingMultipleWindows(String windowTitle) {
        Set<String> windows = driver.getWindowHandles();
        for (String window : windows) {
```

```
driver.switchTo().window(window);
if (driver.getTitle().contains(windowTitle)) {   return;   }     }     }
```

70. How to switch between frames?
WebDriver's driver.switchTo().frame() method takes one of the three possible arguments:

- A number.

Select a frame by its (zero-based) index. That is, if a page has three frames, the first frame would be at index "0", the second at index "1" and the third at index "2". Once the frame has been selected, all subsequent calls on the WebDriver interface are made to that frame.

- A name or ID.

Select a frame by its name or ID. Frames located by matching name attributes are always given precedence over those matched by ID.

- A previously found WebElement.

Select a frame using its previously located WebElement.
Get the frame by it's id/name or locate it by driver.findElement() and you'll be good.

71. What is actions class in web driver?
Actions class with web Driver help is Sliding element, Resizing an Element, Drag & Drop,
hovering a mouse, especially in a case when dealing with mouse over menus.
Actions class with web Driver help is Sliding element, Resizing an Element, Drag & Drop
Hovering a mouse, especially in a case when dealing with mouse over menus.

Dragging & Dropping an Element:

```
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.interactions.Actions;
public class testDragandDrop {
  public static void main(String[] args) throws InterruptedException {
   WebDriver driver = new FirefoxDriver();

driver.get("http://jqueryui.com/resources/demos/droppable/default.html")
;
  WebElement draggable =
driver.findElement(By.xpath("//*[@id='draggable']"));
```

```
  WebElement droppable =
driver.findElement(By.xpath("//*[@id='droppable']"));
  Actions action = new Actions(driver);
action.dragAndDrop(draggable, droppable).perform();
  }
}
```

Sliding an Element:

```
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.interactions.Actions;
public class testSlider {
  /**
  * @param args
  * @throws InterruptedException
  */
 public static void main(String[] args) throws InterruptedException {
   WebDriver driver = new FirefoxDriver();
  driver.get("http://jqueryui.com/resources/demos/slider/default.html");
  WebElement slider = driver.findElement(By.xpath("//*[@id='slider']/a"));
  Actions action = new Actions(driver);
  Thread.sleep(3000);
  action.dragAndDropBy(slider, 90, 0).perform();
  }
}
```

Re-sizing an Element:

```
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.interactions.Actions;
public class testResizable {
  public static void main(String[] args) throws InterruptedException {
   WebDriver driver = new FirefoxDriver();
  driver.get("http://jqueryui.com/resources/demos/resizable/default.html");
    WebElement resize =
driver.findElement(By.xpath("//*[@id='resizable']/div[3]"));
  Actions action = new Actions(driver);
  action.dragAndDropBy(resize, 400, 200).perform();
    }
}
```

72. Difference between the selenium1.0 and
selenium 2.0?
Selenium 1 = Selenium Remote Control.
Selenium 2 = Selenium Web driver, which combines elements of Selenium 1 and Web driver.

73. Difference between find element () and
findelements ()?
findElement() :
Find the first element within the current page using the given "locating mechanism".
Returns a single WebElement.
Syntax: WebElement findElement(By by)
Ex:

```
driver.get("http://ruchi-myseleniumblog.blogspot.in/");
WebElement widget = driver.findElement(By
.xpath(".//*[@id='BlogArchive1_ArchiveList']"));
widget.click();
```

findElements() :
Find all elements within the current page using the given "locating mechanism".
Returns List of WebElements.
Syntax:

```
       WebElement ullist = driver.findElement(By.className("posts"));
 List<WebElement> posts = ullist.findElements(By.tagName("li"));
 System.out.println("List of Posts are Below");
 for (int i = 0; i < posts.size(); i++) {
  String post = posts.get(i).findElement(By.tagName("a")).getText();

  System.out.println(post);
 }
```

Sample Program:

```
package programs;

import java.util.List;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.testng.annotations.Test;

public class Sample {
```

```
WebDriver driver;

@Test
public void test() {

 driver = new FirefoxDriver();
 driver.get("http://ruchi-myseleniumblog.blogspot.in/");
 WebElement widget = driver.findElement(By
   .xpath(".//*[@id='BlogArchive1_ArchiveList']"));
 WebElement hierarchy = widget.findElement(By.className("hierarchy"));
 System.out.println("Year is "
   + hierarchy.findElement(By.className("post-count-link"))
   .getText());
 System.out.println("Year-Posts size  is "
   + hierarchy.findElement(By.className("post-count")).getText());
 WebElement sublist = hierarchy.findElement(By.className("hierarchy"));
 System.out.println("Month is "
   + sublist.findElement(By.className("post-count-link"))
   .getText());
 System.out.println("Month-Posts size  is "
   + sublist.findElement(By.className("post-count")).getText());
 WebElement ullist = driver.findElement(By.className("posts"));
 List<WebElement> posts = ullist.findElements(By.tagName("li"));
 System.out.println("List of Posts are Below");
 for (int i = 0; i < posts.size(); i++) {
  String post = posts.get(i).findElement(By.tagName("a")).getText();

  System.out.println(post);
 }
 driver.close();
}


}
```

74. How to take the screen shots in selenium2.0?

```
// store screenshots
public static void captureScreenShot(String filePath) {
 File scrFile =
((TakesScreenshot)driver).getScreenshotAs(OutputType.FILE);
   try {
  FileUtils.copyFile(scrFile, new File(filePath));
 } catch (IOException e) {
  // TODO Auto-generated catch block
  e.printStackTrace();

 }
  }
```

75. What is the default time for selenium Ide and webdriver?
Default timeout in selenium ide is 30 seconds.
For web driver go to below URL:
http://assertselenium.com/2013/01/29/webdriver-wait-commands/

76. Write down scenarios which we can't automate?
Barcode Reader, Captcha etc.

77. In TestNG I have some test's Test1-Test2-Test3-Test4-Test5I want to run my execution order is Test5-Test1-Test3-Test2-Test4.How do you set the execution order can you explain for that?

- Use priority parameter in @test annotation or TestNG annotations.

Click Here for Sample Program Code

78. Differences between jxl and ApachePOI.

- jxl does not support XLSX files
- jxl exerts less load on memory as compared to ApachePOI
- jxl doesn't support rich text formatting while ApachePOI does.
- jxl has not been maintained properly while ApachePOI is more up to date.
- Sample code on Apache POI is easily available as compare to jxl.

79. How to ZIP files in Selenium with an Example?
Click Here for Sample Program Code

80. What is default port no?
4444

81. If Default port no is busy how to change port no?
We can use any port number which is valid.. First create an object to remote control configuration.
Use 'setPort' method and provide valid port number(4545,5555,5655, etc).. There after attach this
remote control configuration object to selenium server..i.e

```
RemoteControlConfiguration r= new RemoteControlConfiguration();
r.setPort(4567);
SeleniumServer s= new SeleniumServer(r);
```

82. Does Selenium support https protocols?
Yes
83. Majorly asked test scenario with framework in Interviews?
Majorly asked are:

- Login for Gmail scenario
- Goggle search and finding no of results
- Downloading a file and save it
- Checking mails and deleting them
- Do shopping in flipkart.com

84. Selenium support mobile applications?
No, it is browser automation tool, it only automates Websites opening in mobile browser, and mobile APPs can't be automated.

85. What is wraps Driver?
For casting selenium instance to selenium2 (webdriver). wraps driver is used.
For more details.
http://selenium-junit4-runner.btmatthews.com/apidocs/com/btmatthews/selenium/junit4/runner/WrappedDriverFactory.html

86. Can you explain Junit Annotation? If there are 1000 test cases. 500 test cases are executed. How will you execute the rest of the test cases by using annotation?"
The annotations generated with JUnit 4 tests in Selenium are:
1. @Before public void method() - Will perform the method() before each test. This method can prepare the test
2. @Test public void method() - Annotation @Test identifies that this method is a test method.environment,e.g. read input data, initialize the class)
3. @After public void method() - Test method must start with test@Before - this annotation is used for executing a method before

87. Difference between assert and verify in selenium web driver.

· When an “assert” fails, the test will be aborted. Assert is best used when the
check value has to pass for the test to be able to continue to run log in.
· Where if a “verify” fails, the test will continue executing and logging the failure.
Verify is best used to check non critical things. Like the presence of a
headline element.

88. "I want to find the location of ""b"" in the below
code, how can I find out without using xpath, name,
id, csslocator, index.<div>
<Button>a</button>
<Button>b</button>
<Button>c</button>
</div>
· driver.findElement(By.xpath("//*[contains(text(),'b')]")).click(); or
· //div/button[contains(text(),'b']
·

89. How to do Applet testing using selenium?
Please see below URLs:
http://docs.codehaus.org/display/FEST/Selenium
https://code.google.com/p/festselenium/

90. Name 5 different exceptions you had in
selenium web driver and mention what instance
you got it and how do you resolve it?
· WebDriverException
· NoAlertPresentException
· NoSuchWindowException
· NoSuchElementException
· TimeoutException
• WebDriverException
WebDriver Exception comes when we try to perform any action on the non-existing
driver.

```
WebDriver driver = new InternetExplorerDriver();
driver.get("http://google.com");
driver.close();
driver.quit();
```

• NoAlertPresentException
When we try to perform an action i.e., either accept() or dismiss() which is not required

at a required place; gives us this exception.

```
try{
driver.switchTo().alert().accept();
}
catch (NoAlertPresentException E){
E.printStackTrace();
}
```

- NoSuchWindowException

When we try to switch to an window which is not present gives us this exception:

```
WebDriver driver = new InternetExplorerDriver();
driver.get("http://google.com");
driver.switchTo().window("Yup_Fail");
driver.close();
```

In the above snippet, line 3 throws us an exception, as we are trying to switch to an
window that is not present.• NoSuchFrameException

- Similar to Window exception, Frame exception mainly comes during switching between
the frames.

```
WebDriver driver = new InternetExplorerDriver();
driver.get("http://google.com");
driver.switchTo().frame("F_fail");
driver.close();
```

In the above snippet, line 3 throws us an exception, as we are trying to switch to an
frame that is not present.

- NoSuchElementException

This exception is thrown when we WebDriver doesn't find the web-element in the DOM.

```
WebDriver driver = new InternetExplorerDriver();
driver.get("http://google.com");
driver.findElement(By.name("fake")).click();
```

- TimeoutException

Thrown when a command does not complete in enough time.
All the above exceptions were handled using try catch exceptions.

91. How do you manage the code versions in
your project?

- Using SVN or other versioning tools

92. Latest version of Firefox and selenium in market and the version on which you are testing which you are testing.

- FF Latest version till Dec,2013 for windows7,64 bit :26.0.I use FF 25.0.1 (ur ans. may differ)
- Selenium web driver latest version till dec,2013- 2.39.0 I use selenium 2.37 see latest at http://www.seleniumhq.org/download/

93. How to know all the methods supported in web driver and its syntax.

- In Org.openqa.selenium package, web driver interface has all the main methods that can be used in Selenium Web driver
- HTTP://docs.seleniumhq.org/docs/03_webdriver.jsp

94. How do you create html test report from your test script?

- I would see below 3 ways:
- Junit: with the help of ANT.
- TestNG: using inbuilt default.html to get the HTML report. Also XLST reports from ANT, Selenium, TestNG combination.
- Using our own customized reports using XSL jar for converting XML content to HTML.

95. List the browsers, OS supported by the Selenium

	Windows	Linux	Mac
IE	Y	NA	NA
FF	Y	Y	Y
Safari	Y	N	Y
Opera	Y	Y	Y
Chrome	Y	Y	Y

96. Can you explain Selenium Mobile Automation?
Click Here for Sample Program Code

97. What mobile devices it may Support?
Selenium Web driver supports all the mobile devices operating on Android, IOS operating Systems

- Android – for phones and tablets (devices & emulators)
- iOS for phones (devices & emulators) and for tablets (devices & emulators)

98. What is the difference between single and
 double slash
 in Xpath?
Click Here for Answer

99. What are the test types supported by Selenium?
Selenium supports UI and functional testing. As well it can support performance testing
for reasonable load using selenium grid.

100. In what all case we have to go for
“JavaScript executor”.
Consider FB main page after you login. When u scrolls down, the updates get loaded. To
 handle this activity, there is no selenium command. So you can go for javascript to set
the scroll down value like driver.executeScript("window.scrollBy(0,200)", "");

Further Reference

https://play.google.com/store/books/details?id=AK44DwAAQBAJ

https://play.google.com/store/books/details/Narayanan_Palani_Selenium_Webdriver?id=MSphDQAAQBAJ