SELENIUM AND ITS HISTORY.

What is Selenium? Selenium automates web browser. In another word Selenium is an automated functional testing tool for web application following test design framework like j-unit and Test-NG. Selenium is an open source, free and easy to use Jar library. Selenium supports 6 languages in writing test scripts, such as java, ruby , pearl, python, php and c#.

History:-selenium first came into life at 2004 when Jason Huggins working for Thoughtworks was testing an internal application. Being a smart guy, he realized there were better uses of his time than manually stepping through the same tests with every change he made. He developed a Javascript library that could drive interactions with the page, allowing him to automatically rerun tests against multiple browsers. That library eventually became Selenium Core, which underlies all the functionality of Selenium Remote Control (RC) and Selenium IDE. Selenium RC was ground-breaking because no other product allowed you to control a browser from a language of choice. Soon after he started it started showing its drawbacks in other words showing its disadvantages too. As it was completely based on javascript based application and security limitations browsers only apply to javascript a lot of things became impossible to do. Taking that in mind in 2006 Simon Stewart an engineer from Google started a project named Webdriver

What is j-unit and Test NG:- Both are open source jar library that helps selenium in building testscripts. J-unit has 5 annotations @before class, @before, @ test, @after @after class and Test NG has 10 annotations @before suite, @ after suite @ before test @ after test @ before group @ after group @ before class @ after class @before method @after method. All these annotations help selenium building a strong test framework in an integrated development environment as Eclipse. Selenium is also known as an external jar(library file)

TYPES OF SELENIUM:-

There are 4 types of Selenium.

1. Selenium IDE b. Selenium RC c. Web Driver 4. Selenium Grid.

What is selenium IDE:-

Selenium IDE which is integrated development environment is a prototyping tool for automated testing. It is a fire fox add in and provides an easy to use interface for developing automated tests. It has a unique recording features which records user action as they are performed and exports to a re useable scripts that can later be executed. Though selenium IDE is a fire fox add on text created in IDE can also be run on other browsers like selenium RC and specifying the name of the test suite in command line. There are few features, advantages and disadvantages of selenium IDE. a. Intelligent field selections will use IDs, names or xpath. b. 2.It is a record & playback tool and the script format can be written in various languages including : C#, Java, PEARL, Python, PHP, HTML .c. auto complete for all selenium commands

d. debug and set breakpoints. E. option to automatically assert the title of every page. Instead of having a lot of advantages as it is a fire fox add on it cannot play in multiple windows when we record it.

Selenium RC:-Selenium remote control is an automated testing tool that allows us to write automated web application UI tests in any programming language against any HTTP website using mainstream javascript. Selenium RC has two sides . a. client side which deals with the programming language and support the programming language. B. server side which is a proxy server which helps user to open and close browser. In Selenium RC we need to run the server then send the request to server and server communicates the java script command and java script accesses and manipulates the browser. Selenium RC is followed by parameter like (“local host”, port, ”browser”, ”URL”) Example:-Defaultselenium (obj name)=new Defaultselenium(“localhost”4444,”fire fox”, ”url”);.Selenium RC has 32 methods that follows with object needed to be reviewed. Defaultselenium is a class of RC library.

Web Driver:- Selenium Web driver is the successor of selenium RC known as version 2:0 is created for a robust browser based automation scale to distribute scripts across many environments in many different languages. Selenium Web driver follows the following browser with the operating system it compatible with.

Browsers:- Google Chrome 12.0.712.0+ Internet Explorer 6, 7, 8, 9 - 32 and 64-bit where applicable Firefox 3.0, 3.5, 3.6, 4.0, 5.0, 6, 7 Opera 11.5+ HtmlUnit? 2.9 Android – 2.3+ for phones and tablets (devices & emulators) iOS 3+ for phones (devices & emulators) and 3.2+ for tablets (devices & emulators). The greatest advantage of Web driver is that we do not have to start the server as we do it in selenium RC.

Selenium Grid:- Selenium Grid is a parallel testing tool. At a time to run test in multiple browsers and environment selenium Grid is perfect specially cross browser and cross platform testing. Selenium Grid has 2 side 1.Hub and node. Hub is the main computer where all test are written and node are the remote computers where tests are run and sent to the hub.

Advantages and disadvantages of selenium:- Selenium is an easy, open source and free to use jar file and it supports as many as 6 programming languages(earlier discussed) and scripting language to build test scripts which helps test automated engineers to build logic they need in their automated testing and it also has multiple ways to add functionality in test automation which is a great advantage of selenium. Disadvantages are like selenium are for web based application it cannot run client/ server application and cannot test window application. Since selenium is a freeware tool it does not get any help with the browser application. Selenium cannot generate report right away. Bitmap comparison is not supported by selenium.