1. **Difference Between Selenium IDE, WebDriver, Grid:**

**Selenium IDE:**

Selenium IDE is a Firefox plugin which is used to create and execute test cases

It records and plays back the interactions which the user had with the web browser. Using IDE, you can export the programming code in different languages: Java, Ruby, Python and so on. The Results are not accurate when the complexity of the Program Increases.

**Selenium WebDriver:**

Selenium WebDriver supports Mobile Automation as well which make Selenium more powerful. It also supports all browsers like Firefox, IE, Chrome, Safari, Opera etc. It contains Shorts methods so that the execution is easy to handle.

**Selenium Grid:**

We can Execute multiple programs using parallel execution.

1. **Simple Selenium Script to open Google:**

**static** WebDriver *driver*=**null**;

//first way (Here driver is the object for ChromeDriver class and not webdriver interface)

driver = new ChromeDriver();

//driver = new EdgeDriver();

//driver= new FirefoxDriver();

//Second way

//ChromeDriver driver1= new ChromeDriver();

//get() will load the given url in the current browser

driver.get("https://www.google.com");

driver.manage().window().maximize();

Thread.sleep(2000); //2000 milliseconds= 2 secs

driver.close();

1. **Selenium and its Use:**

Selenium is an open-source, automated testing tool used to test web applications across various browsers. Selenium can only test web applications, unfortunately, so desktop and mobile apps can’t be tested. However, other tools like Appium and HP’s QTP can be used to test software and mobile applications.

The Selenium is used because of it’s,

Language and Framework Support

Open-Source Availability

Multi-Browser Support

Support Across Various Operating Systems

Ease Of Implementation

Reusability and Integrations

Flexibility

Parallel Test Execution and Faster Go-to-Market

1. **Browser Drivers Used in Selenium:**

|  |  |  |
| --- | --- | --- |
| Google Chrome / Chromium | [ChromeDriver](https://chromedriver.chromium.org/downloads) | Windows/macOS/Linux |
| Mozilla Firefox | [GeckoDriver](https://github.com/mozilla/geckodriver/releases) | Windows/macOS/Linux |
| Microsoft Edge | [Microsoft Edge WebDriver](https://developer.microsoft.com/en-us/microsoft-edge/tools/webdriver/) | Windows/macOS/Linux |
| Safari | SafariDriver (in-built) | macOS High Sierra and newer |
| Internet Explorer | [InternetExplorerDriver](https://www.selenium.dev/downloads) | Windows |

1. **Steps for a Simple WebDriver Script:**

**Drop Down Box:**

static WebDriver driver=null;

try

{

driver = new ChromeDriver();

driver.get("https://demoqa.com/select-menu");

driver.manage().window().maximize();

System.out.println("The title is -->"+driver.getTitle());

System.out.println("The url is "+driver.getCurrentUrl());

Select st = new Select(driver.findElement(By.id("oldSelectMenu")));

st.selectByIndex(6);

Thread.sleep(2000);

st.selectByValue("1");

Thread.sleep(2000);

st.selectByVisibleText("Aqua");

Thread.sleep(2000);

}

catch(Exception ex)

{

ex.printStackTrace();

}