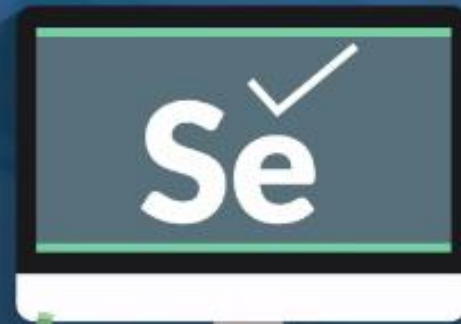


edureka!



## Selenium Tutorial

# What Will You Learn Today?

- ✓ Challenges with manual testing
- ✓ How automation testing beats manual testing
- ✓ Selenium as an automation testing tool
- ✓ Advantages & disadvantages of Selenium
- ✓ Selenium vs. other tools
- ✓ Selenium suite of tools – ( IDE, RC, Grid, WebDriver )
- ✓ Hands-on
  - ✓ Setting up Selenium environment
  - ✓ Automating test cases with Selenium



You Must Be Aware Of  
Manual Testing

## Registration Form

Sign up

Username

Password

Name

Address

Country

Email

Sex

- ☐ Male  
☐ Female

Language

- ☐ English  
☐ Non English

Submit

Testing web apps manually involves:

- Loading all transactions
- Downloading those transactions
- Creating pass/ fail reports for each
- Validating the form
- Taking screenshots for each validation



WEB APPLICATION



# Manual Testing & It's Challenges

## Registration Form

Sign up

Username

Password

Name

Address

Country

Email

Sex

- ☐ Male  
☐ Female

Language

- ☐ English  
☐ Non English

Submit

Testing web apps manually involves:

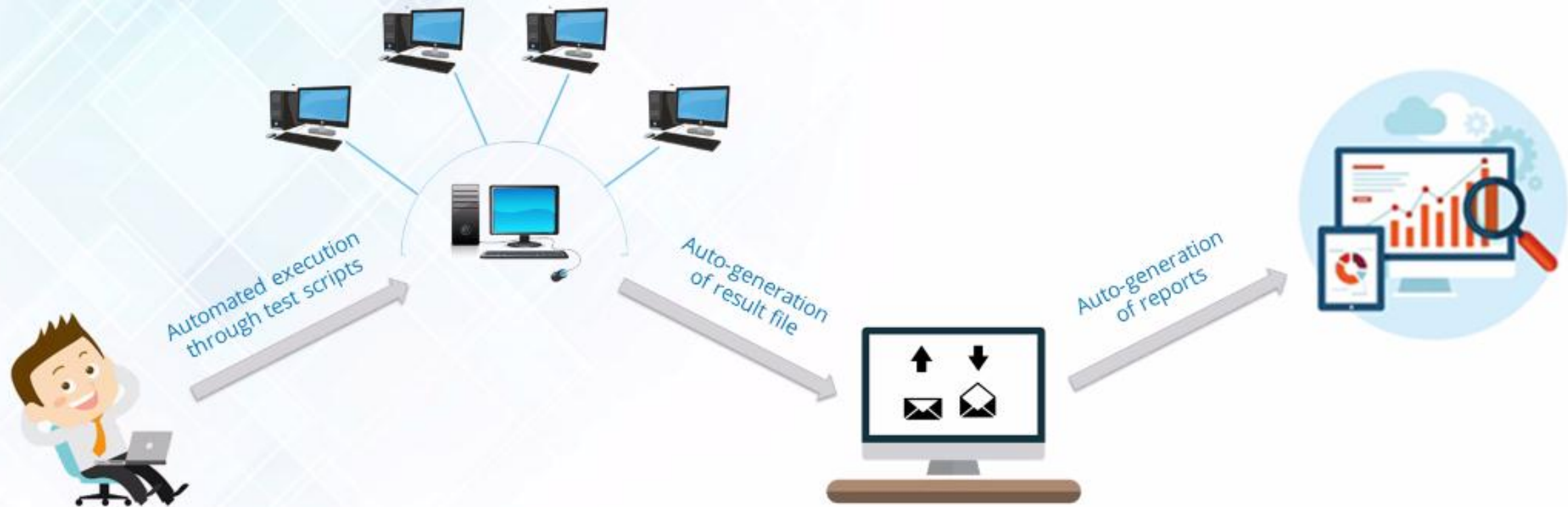
- Loading all transactions
- Downloading those transactions
- Creating pass/ fail reports for each
- Validating the form
- Taking screenshots for each validation



WEB APPLICATION

Now Let's See How  
Automation Testing >> Manual Testing

# Automation Testing Beats Manual Testing





# Automation Testing Beats Manual Testing

edureka!

**Faster Execution**



**More Accurate**



**Lesser Investment In Human Resource**



Features of Automation Testing



**Supports Regression Testing**



**Frequent Executions**



**Supports Lights Out Execution**



# Selenium As An Automation Testing Tool

Selenium is a suite of software tools to automate web browsers.  
It is open source and mainly used for functional testing and regression testing.



- Supports different PL → [Java](#), [Python](#), [C#](#), [PHP](#), [Ruby](#), [Perl](#), [JavaScript](#)
- Supports different OS → [Windows](#), [Mac](#), [Linux](#), [iOS](#), [Android](#)
- Supports different Browsers → [IE](#), [Firefox](#), [Chrome](#), [Safari](#), [Opera](#)

# Advantages & Disadvantages Of Selenium

## DISADVANTAGES

Supports only web applications



Only user communities available



Difficult to setup and use



No reporting facility



Limited support for image based testing



## ADVANTAGES



Open source software



Supports multiple programming languages



Supports almost every OS



Supports multiple browsers



Supports parallel test execution

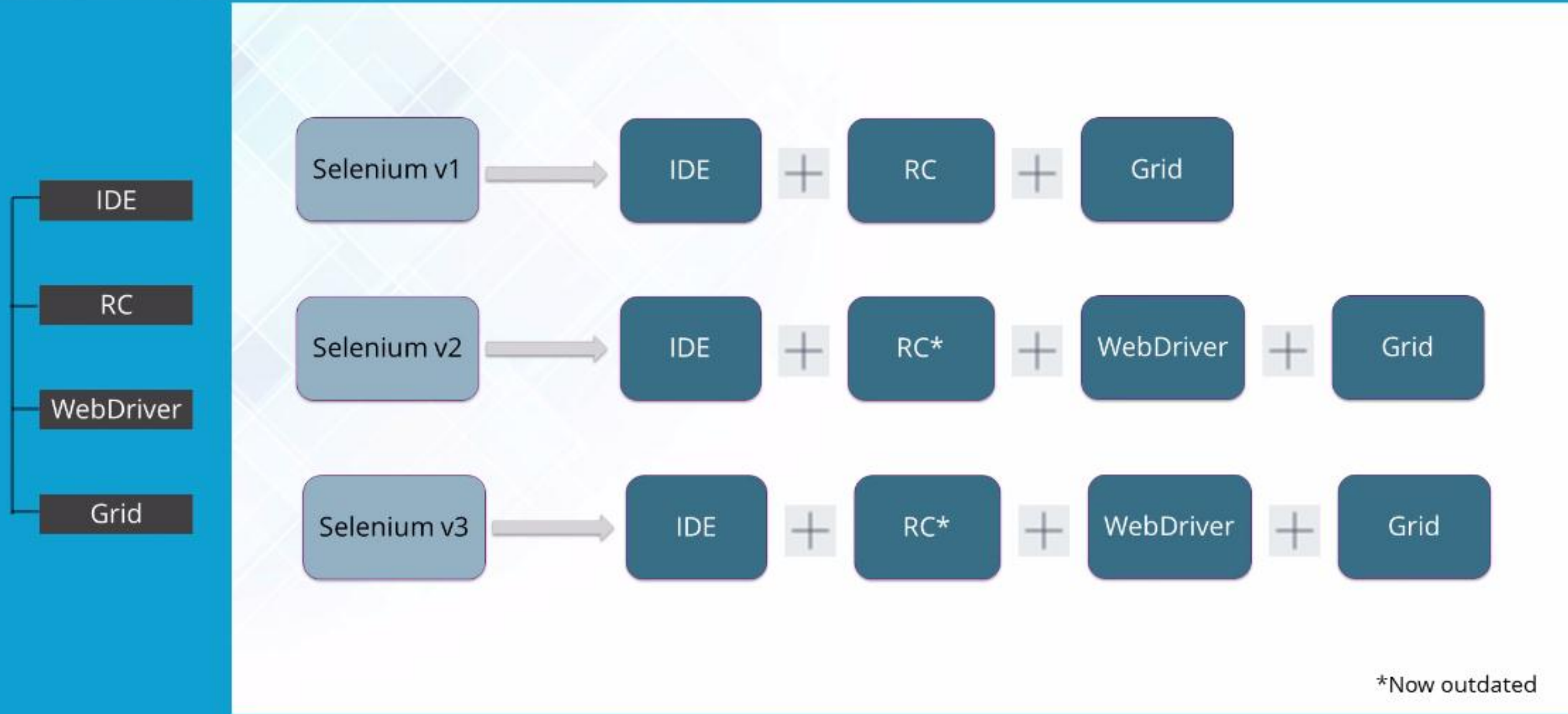


Provides support for frameworks: TestNG, JUnit & NUnit

# Selenium vs. Other Tools

Features	QTP	IBM RFT	Selenium
License	Required	Required	Open Source
Cost	High	High	Less because it is open-source
Customer Support	Dedicated HP support	Dedicated IBM support	Open Source Community
Hardware resource consumption during script execution	High	High	Low
Coding experience	Not Much	Required	Should be very good along with technical capabilities of integrating the framework
Environment support	Only for Windows	Only for Windows	Windows, Linux, Solaris OS X (If browser & JVM or JavaScript support exists)
Language Support	VB Script	Java and C#	Java, C#, Ruby, Python, Perl, PHP, JavaScript







- 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](#) etc.

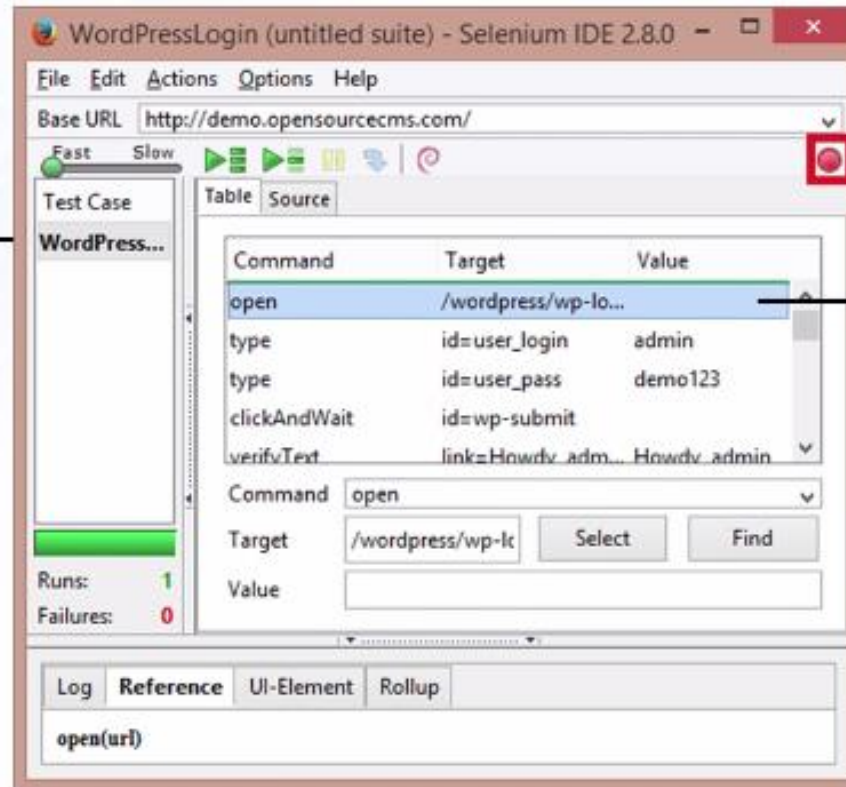
IDE

RC

WebDriver

Grid

List of  
executable  
test cases



Record  
button

Interactions  
Recorded

IDE

RC

WebDriver

Grid

## Selenium IDE features



Create and edit test cases



Create and execute test suites



Debug and enhance test cases



Test cases can be exported to different PL



Enables learning of Selenium's script syntax

Selenium - Web Browser A... x

www.seleniumhq.org

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Browser Automation

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## What is Selenium?

*Selenium automates browsers.* That's it! What you do with that power is entirely up to you. Primarily, it is for automating web applications for testing purposes, but is certainly not limited to just that. Boring web-based administration tasks can (and should!) also be automated as well.

Selenium has the support of some of the largest browser vendors who have taken (or are taking) steps to make Selenium a native part of their browser. It is also the core technology in countless other browser automation tools, APIs and frameworks.

## Which part of Selenium is appropriate for me?

### Selenium WebDriver

Se

Se

If you want to

- create robust, browser-based regression automation suites and tests
- scale and distribute scripts across many environments

Then you want to use [Selenium WebDriver](#); a collection of language specific bindings to drive a browser... the way it is meant to be.

### Selenium IDE

Se

If you want to

- create quick bug reproduction scripts
- create scripts to aid in automation-aided exploratory testing

Then you want to use [Selenium IDE](#); a Firefox add-on that will do simple

Se

✓

### Selenium is a suite of tools

to automate web browsers across many platforms.

Selenium...

- runs in [many browsers](#) and [operating systems](#)
- can be controlled by many [programming languages](#) and [testing frameworks](#).

Download Selenium

### Donate to Selenium

with PayPal

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Browser Automation

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You can [sponsor the Selenium project](#) if you'd like some public recognition of your generous contribution.

Selenium Sponsors

See who [supports the Selenium project](#).

 BrowserStack

 SAUCE LABS

Downloads

Below is where you can find the latest releases of all the Selenium components. You can also find a list of [previous releases](#), [source code](#), and additional information for [Maven users](#) (Maven is a popular Java build tool).

Selenium Standalone Server

The Selenium Server is needed in order to run Remote Selenium WebDriver. Selenium 3.X is no longer capable of running Selenium RC directly, rather it does it through emulation and the WebDriverBackedSelenium interface.

Download version [3.1.0](#)

To run Selenium tests exported from IDE, use the [Selenium Html Runner](#).

To use the Selenium Server in a Grid configuration [see the wiki page](#).

The Internet Explorer Driver Server

This is required if you want to make use of the latest and greatest features of the WebDriver InternetExplorerDriver. Please make sure that this is available on your \$PATH (or %PATH% on Windows) in order for the IE Driver to work as expected.

Download version 3.1 for (recommended) [32 bit Windows IE](#) or [64 bit Windows IE](#)

[CHANGELOG](#)

Selenium Client & WebDriver Language Bindings

In order to create scripts that interact with the Selenium Server (Selenium RC, Selenium Remote WebDriver) or create local Selenium WebDriver scripts, you need to make use of language-specific client drivers. These languages include both 1.x and 2.x style clients.

While language bindings for [other languages exist](#), these are the core ones that are supported by the main project hosted on google code.




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Downloads

www.seleniumhq.org/download/

Search

Language	Client Version	Release Date			
Java	3.1.0	2017-02-16	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">Javadoc</a>
C#	3.1.0	2017-02-16	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">API docs</a>
Ruby	3.1.0	2017-02-14	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">API docs</a>
Python	3.0.2	2016-11-29	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">API docs</a>
Javascript (Node)	3.1.0	2017-02-15	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">API docs</a>

### C# NuGet

NuGet latest release is 3.1.0, Released on 2017-02-16

- [RC](#)
- [WebDriver](#)
- [WebDriverBackedSelenium](#)
- [Support](#)

### SafariDriver - DEPRECATED - use Apple's SafariDriver with Safari 10+

SafariDriver now requires manual installation of the extension prior to automation

- Latest release [2.48.0](#)
- [Wiki Page](#)

### Selenium IDE

Selenium IDE is a Firefox plugin which records and plays back user interactions with the browser. Use this to either create simple scripts or assist in exploratory testing. It can also export Remote Control or WebDriver scripts, though they tend to be somewhat brittle and should be overhauled into some sort of Page Object-y structure for any kind of resiliency.

Download latest released version [from addons.mozilla.org](#) or view the [Release Notes](#) and then [install some plugins](#).

Download [previous versions here](#).

https://addons.mozilla.org/en-US/firefox/addon/selenium-ide/

Selenium IDE :: Add-ons fo... x


Mozilla Foundation (US)https://addons.mozilla.org/en-US/firefox/addon/selenium-ide/

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mozilla

Selenium IDE



# Add-ons

EXTENSIONS THEMES COLLECTIONS MORE...



## Selenium IDE

2.9.1.1-signed **REQUIRES RESTART**

by [Jason Huggins](#), [Adam Goucher](#), [Shinya Kasatani](#), [Dave Hunt](#), [Samit Badle](#)

Selenium IDE is an integrated development environment for Selenium tests. It is implemented as a Firefox extension, and allows you to record, edit, and debug tests.



**+ Add to Firefox**

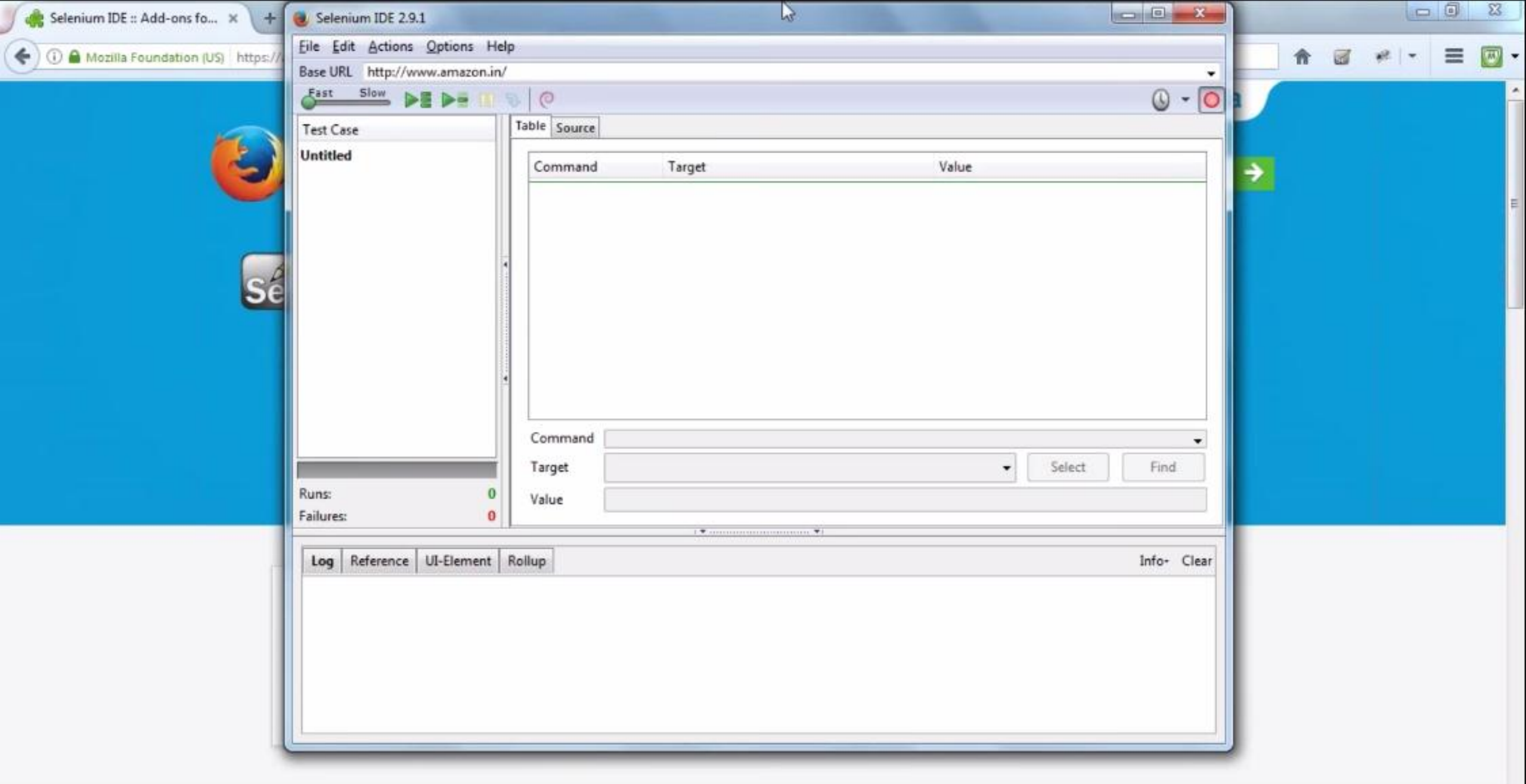
This add-on has been marked as experimental by its developers

★★★★☆

[22 user reviews](#)

111,814 users





Amazon.in Today's Deals: ...

www.amazon.in/gp/goldbox/ref=...

All Deals

Showing 1-12 of 12 results for Books

Department

Clear

☐ Artwork

☐ Baby Products

☐ Beauty

☒ Books

☐ Business Industrial & Scientific Supplies

☐ Cameras & Photography

☐ Car & Motorbike Accessories

☐ Clothing (Baby)

☐ Clothing (Boys')

☐ Clothing (Girls')

☐ Clothing (Men's)

☐ Clothing (Women's)

See more

Deal Type

Deal of the Day

Lightning Deals

Savings & Sales

Coupons

Prime Early Access Deals

App Only Access Deals

Availability

Untitled (untitled suite) - Selenium IDE 2.9.1

File Edit Actions Options Help

Base URL http://www.amazon.in/

Fast Slow

Test Case

Untitled \*

Runs: 0

Failures: 0

Table

Source

Command	Target	Value
open	/	
click	id=nav-xshop-container	
clickAndWait	link=Today's Deals	
click	xpath=//input[@name=""])[4]	

Command

Target

Value

Log

Reference

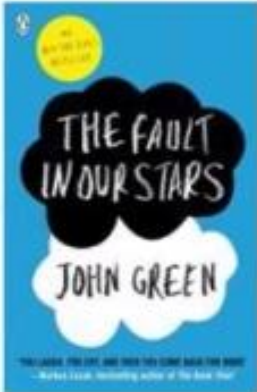
UI-Element

Rollup

Info


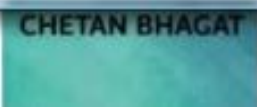
Clear

Sort by Relevance



40% off or more on Children's Books

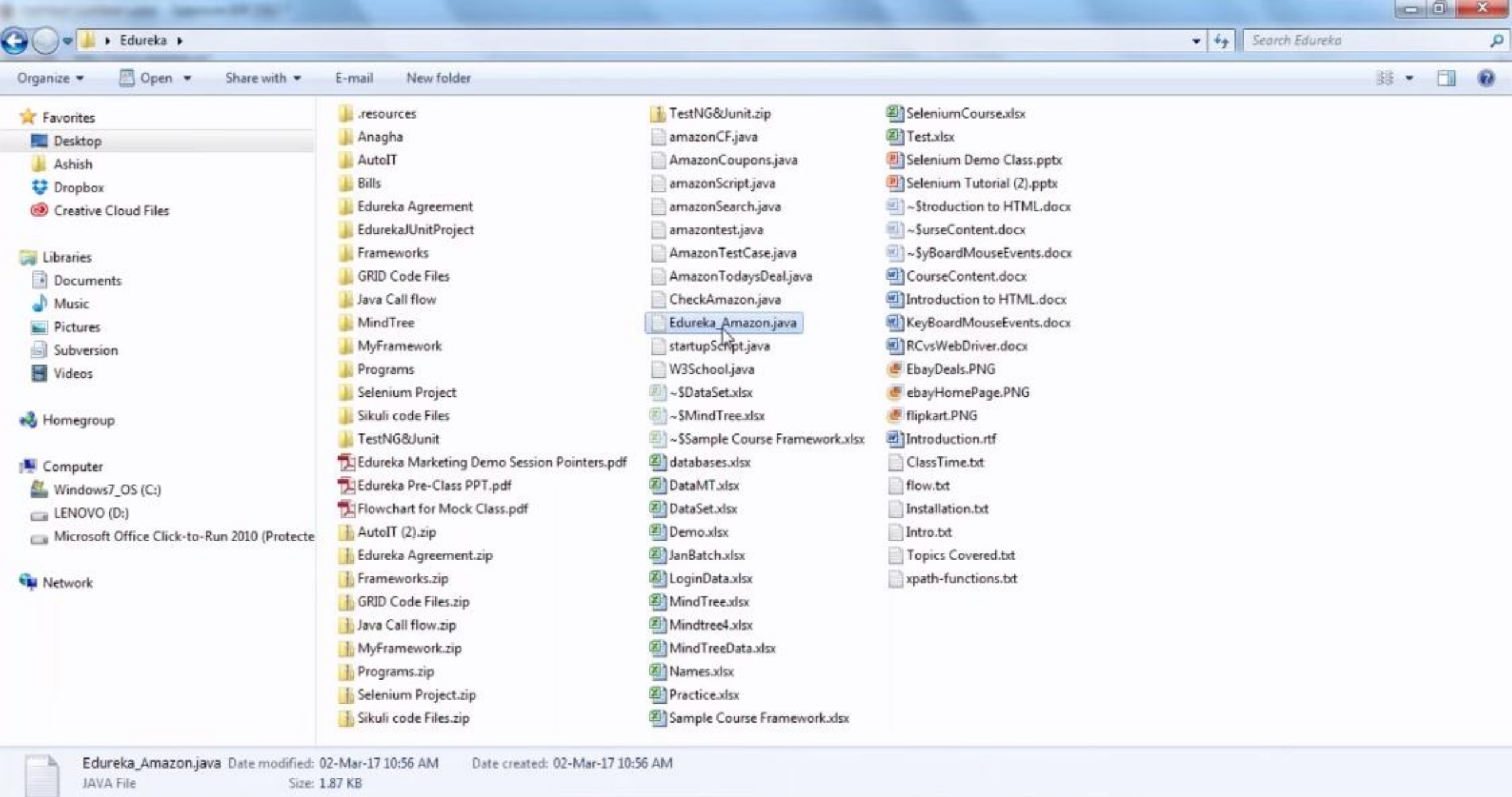
View Deal

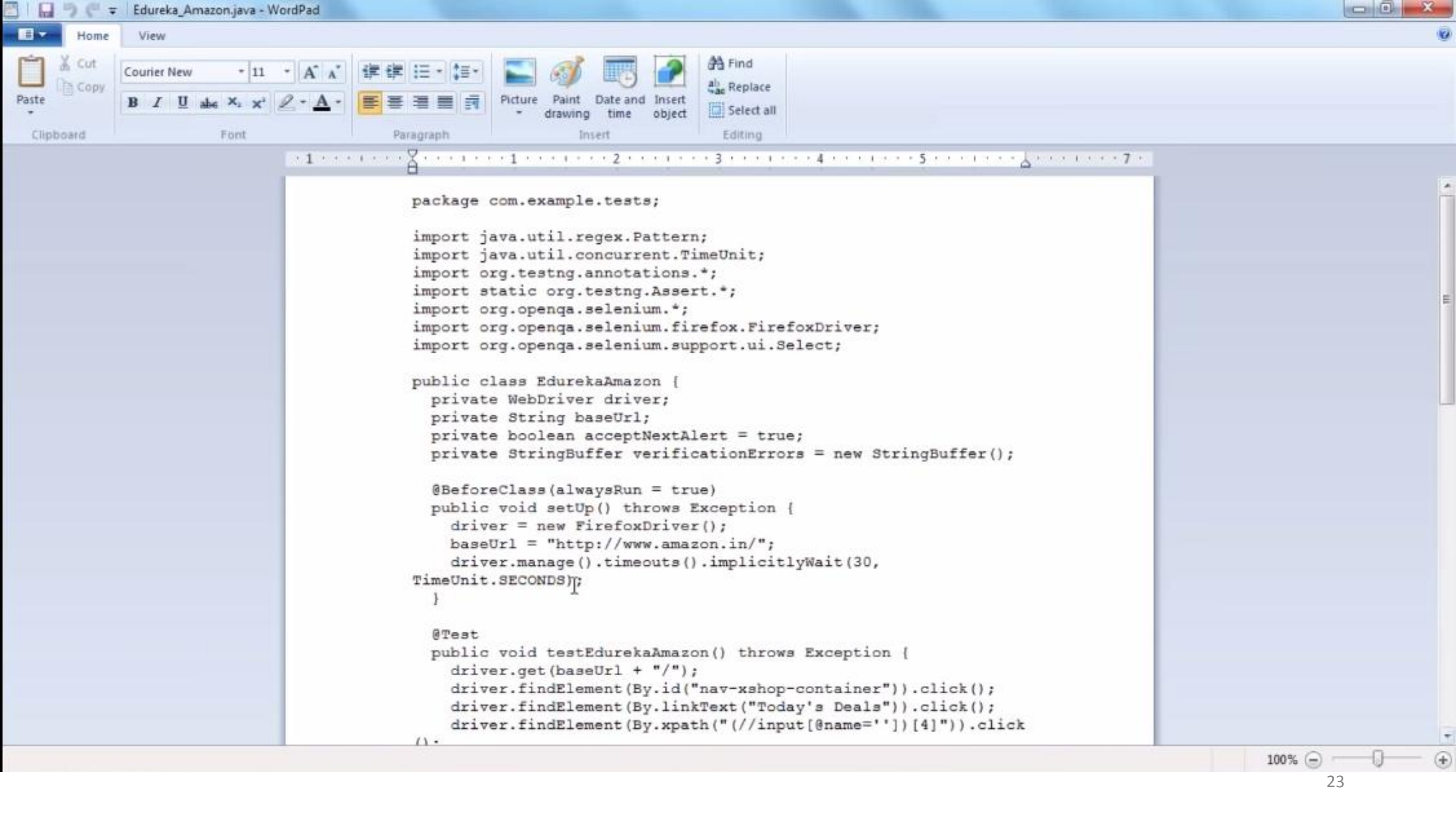


20











IDE

RC

WebDriver

Grid

## Selenium IDE drawbacks



Supports only Mozilla Firefox browser



Not suitable for dynamic web applications



No support for programming logic



Data driven testing not possible



No centralized maintenance of objects/ elements



- **Selenium Remote Control (RC)** is used to write web application tests in different PL
- It interacts with browsers with the help of Selenium RC Server
- RC Server communicates using simple HTTP GET/POST requests
- Drawback is that every communication with RC server is timing consuming and hence RC is slow



IDE

RC

WebDriver

Grid



Selenium WebDriver is a programming interface to create and execute test cases



Test cases are created and executed using Elements/ Object locators/ WebDriver methods



Selenium WebDriver has programming interface; not IDE



Selenium IDE supports only IDE; doesn't have programming interface



Fast as it interacts with browser directly; RC needs RC server to interact with browser



Each browser has its own driver on which the application runs. Selenium WebDriver makes direct calls to the browser



For testing on a local machine, you need to use WebDriver. But for testing on a remote machine, you need Selenium RC Server to be running before testing



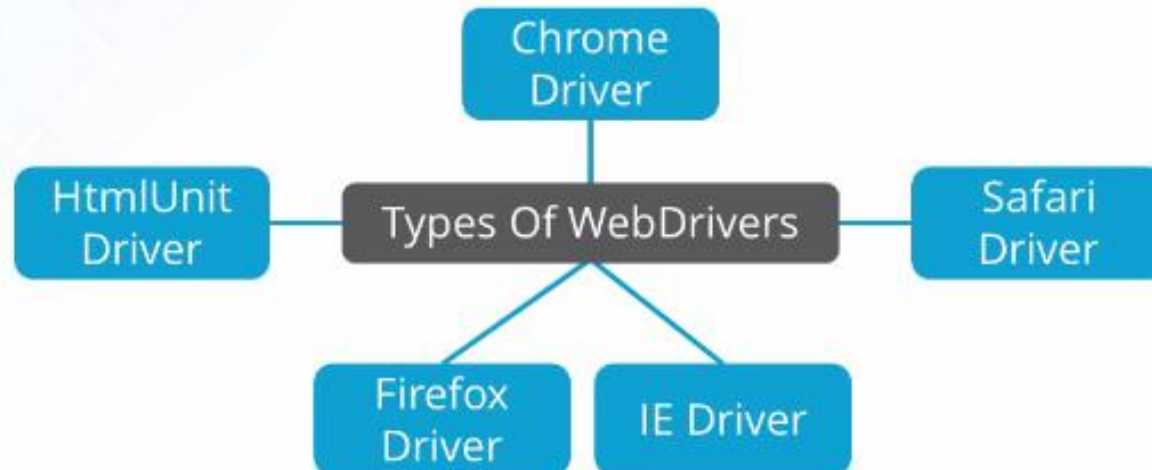
While testing on a remote machine, commands from WebDriver go to Selenium RC Server which is then interpreted on remote machine to automate the browser

IDE

RC

WebDriver

Grid





IDE

RC

WebDriver

Grid

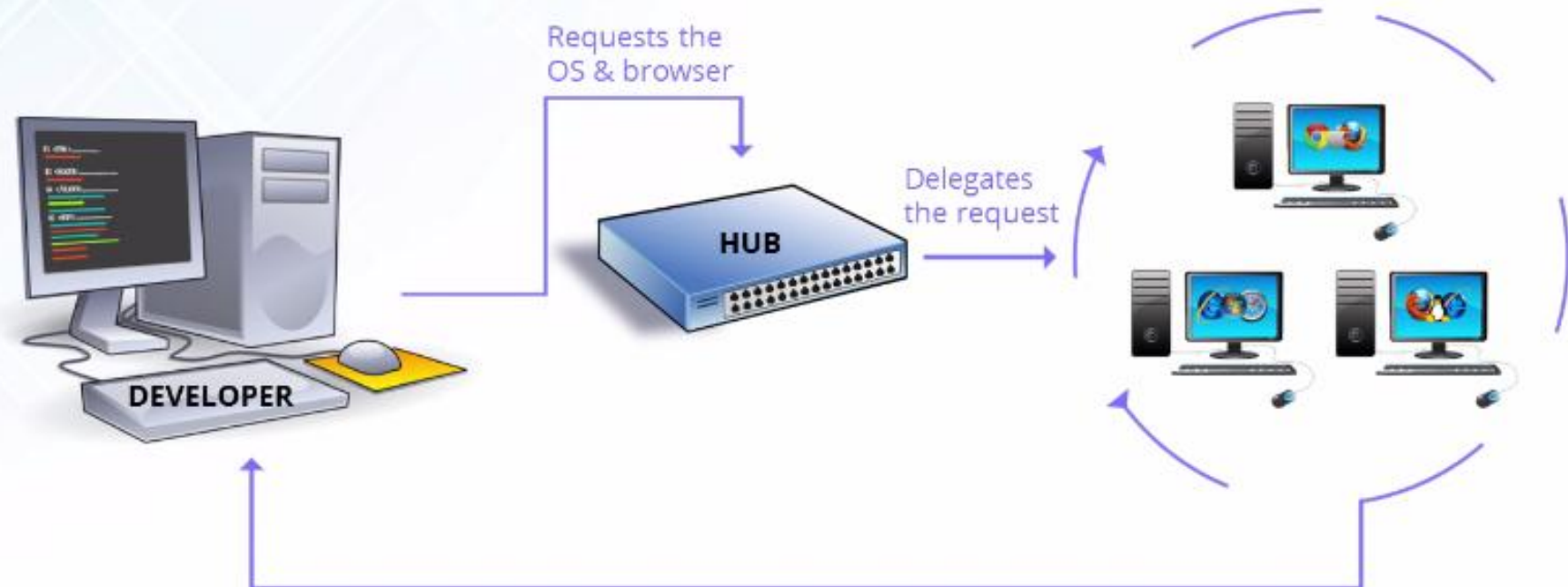
## Selenium WebDriver features

- Support for:  
PL → [JAVA](#), [C#](#), [PHP](#), [Ruby](#), [Perl](#), [Python](#)  
Browsers → [Firefox](#), [Chrome](#), [IE](#), [Safari](#)  
OS → [Windows](#), [Mac](#), [Linux](#), [Android](#), [iOS](#)
- Overcomes limitations of Selenium 1 like file upload, download, pop-ups & dialogs barrier

## Selenium WebDriver drawbacks

- Detailed test reports cannot be generated
- No centralized maintenance of objects/ elements

- Selenium Grid is used to run multiple test scripts at the same time on multiple machines
- Parallel execution is achieved with the help of Hub-Node architecture
- Hub can control different test scripts on various browsers, OS and PL in various nodes
- Hub and nodes are started using `jar` files
- Supports RC test as well as WebDriver test



- IDE
- RC
- WebDriver
- Grid

# Reference

- Selenium Tutorial For Beginners,  
<https://www.youtube.com/watch?v=5FUdrBq-WFo>