SELENIUM

The ART of Browser (HTML+DOM) Testing
…the automated way!

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WHY WEB TEST AUTOMATION?

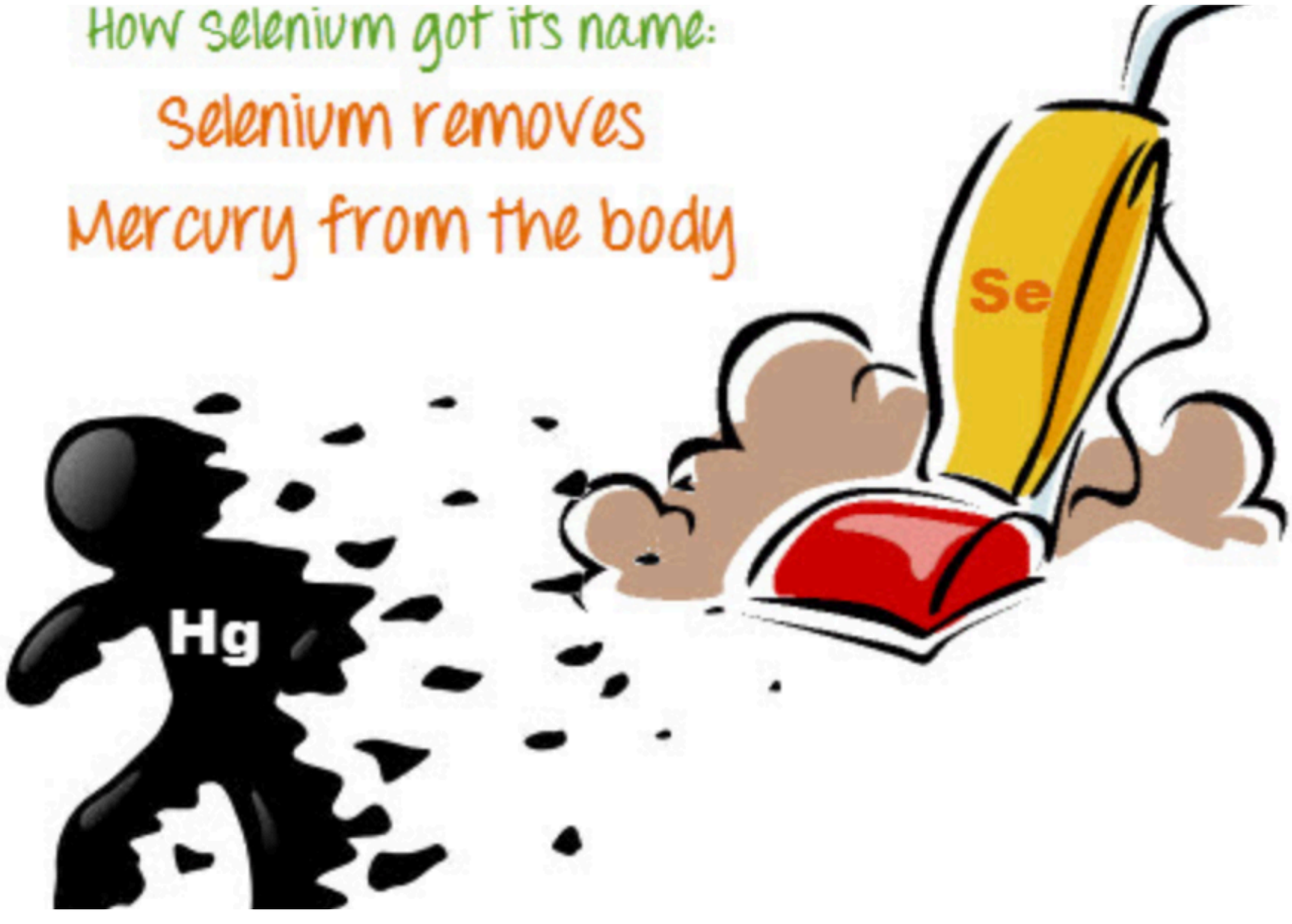
- Would you love a world where the computer does the testing of your web application for you? Particularly tedious form validations? Or, mundane site navigation links testing?

SELENIUM... OR FIRSTLY, 'JAVASCRIPTTESTRUNNER'

- Open-source browser automation tool developed by Jason Huggins (of THOUGHTWORKS) in 2004
- THOUGHTWORKS Product
- Originally named 'JavaScriptTestRunner' - HTML + DOM testing

SO, WHY THE NAME 'SELENIUM' ?

- Selenium is a well-known antidote for Mercury poisoning.



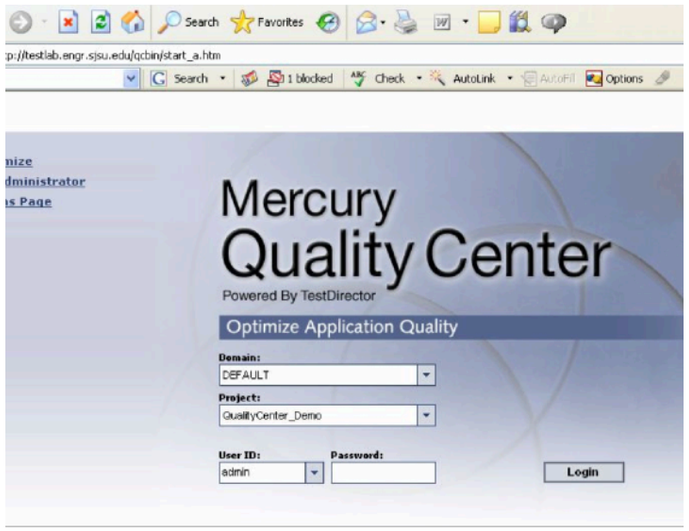
Selenium is often being compared to Mercury's QuickTest Pro (QTP)

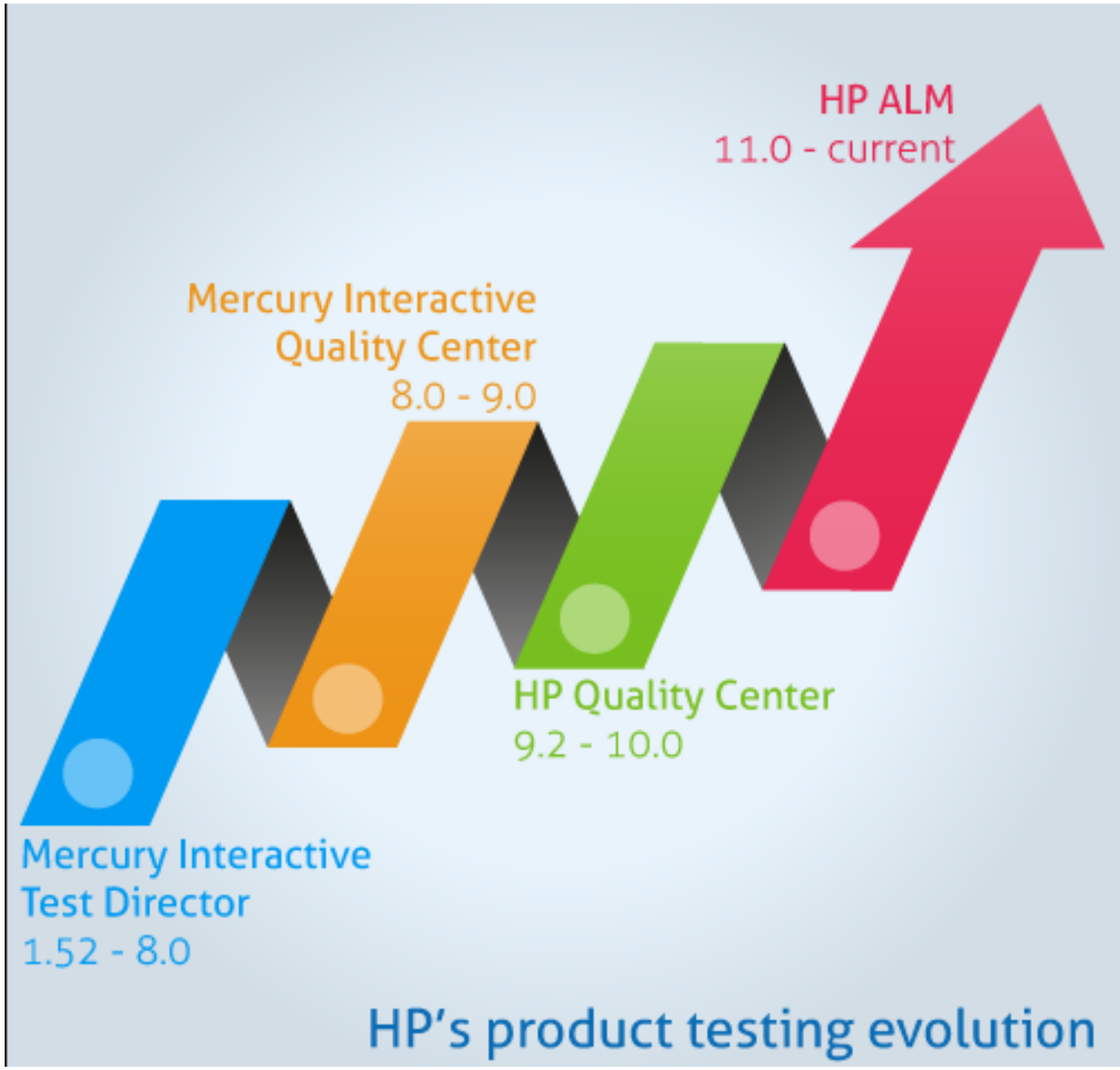
image credit: https://www.guru99.com/introduction-to-selenium.html

MERCURY INTERACTIVE*

- Evolution

MERCURY INTERACTIVE





Presenter's test automation work experience

ADVANTAGES OF SELENIUM OVER QUICKTEST PRO

Advantages of Selenium over QTP

Selenium	QTP
Open source, **free to use**, and **free of charge.**	**Commercial**.
Highly extensible	Limited add-ons
Can run tests across **different browsers**	Can only run tests in **Firefox**, **Internet Explorer** and **Chrome**
Supports **various operating systems**	Can only be used in **Windows**
Supports **mobile devices**	QTP Supports Mobile app test automation (iOS & Android) using HP solution called - HP Mobile Center
Can execute tests **while** the **browser is minimized**	Needs to have the application under test to be visible on the desktop
Can execute tests **in parallel**.	Can only execute in parallel but using Quality Center which is again a paid product.

WINNING POINTS: COST - FLEXIBILITY - PARALLEL TESTING

WHY OTHERS CHOOSE QUICKTEST PRO

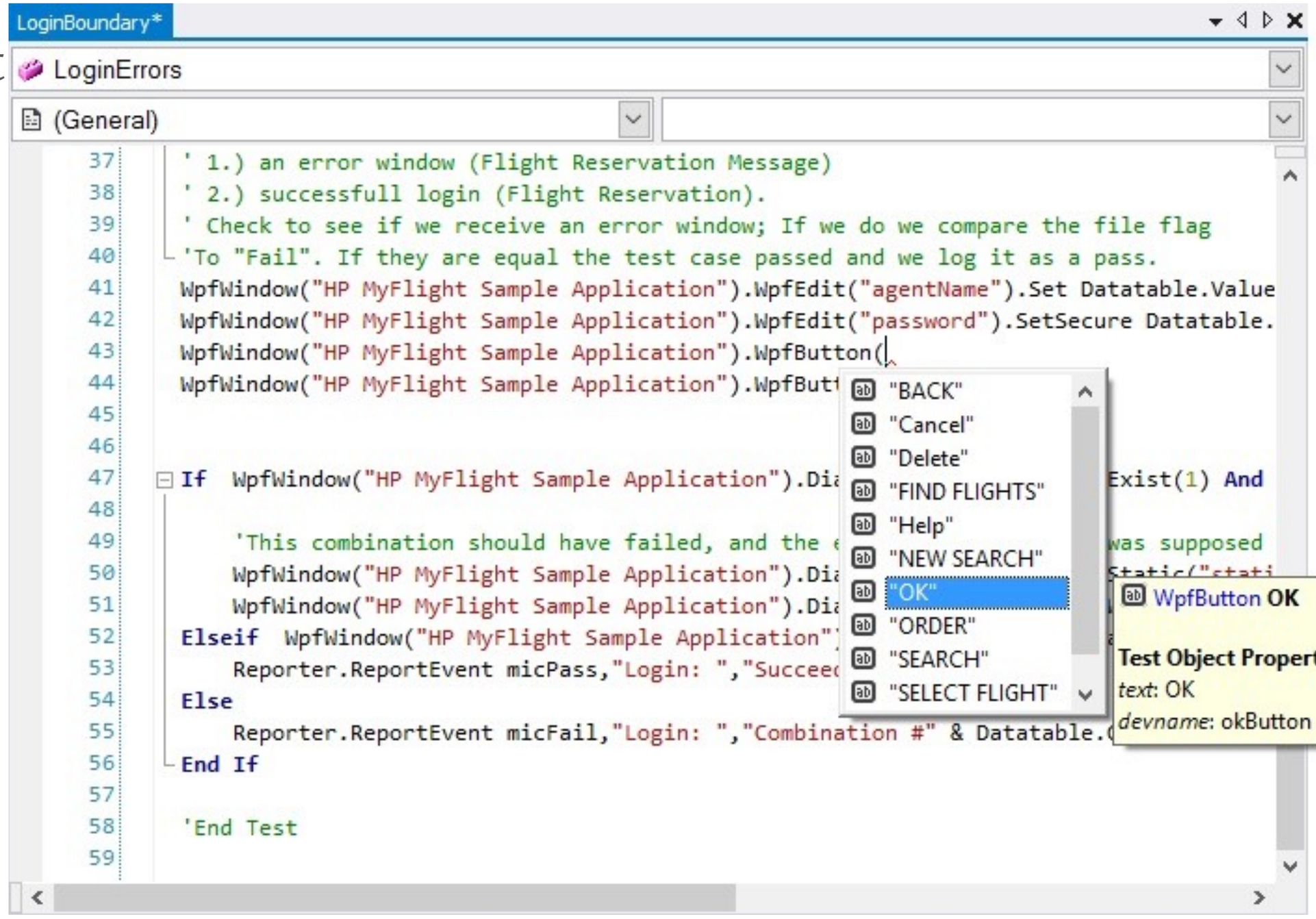
Advantages of QTP over Selenium

QTP	Selenium
Can test **both web and desktop applications**	Can only test web applications
Comes with a **built-in object repository**	Has no built-in object repository
Automates faster than Selenium because it is a fully featured IDE.	Automates at a slower rate because it does not have a native IDE and only third party IDE can be used for development
Data-driven testing is easier to perform because **it has built-in global and local data tables**.	Data-driven testing is more cumbersome since you have to rely on the programming language's capabilities for setting values for your test data
Can access controls within the browser(such as the Favorites bar, Address bar, Back and Forward buttons, etc.)	Cannot access elements outside of the web application under test
Provides professional **customer support**	No official user support is being offered.
Has native capability to **export test data** into external formats	Has no native capability to export runtime data onto external formats
Parameterization Support is built	Parameterization can be done via programming but is difficult to implement.
Test Reports are generated automatically	No native support to generate test /bug reports.

Catch: IDE or Integrated Development Environment

VBSCRIPT – VISUAL BASIC SCRIPTING (QTP)

- JavaScript
- Rules
- Over
- VBScript,
- Peace!

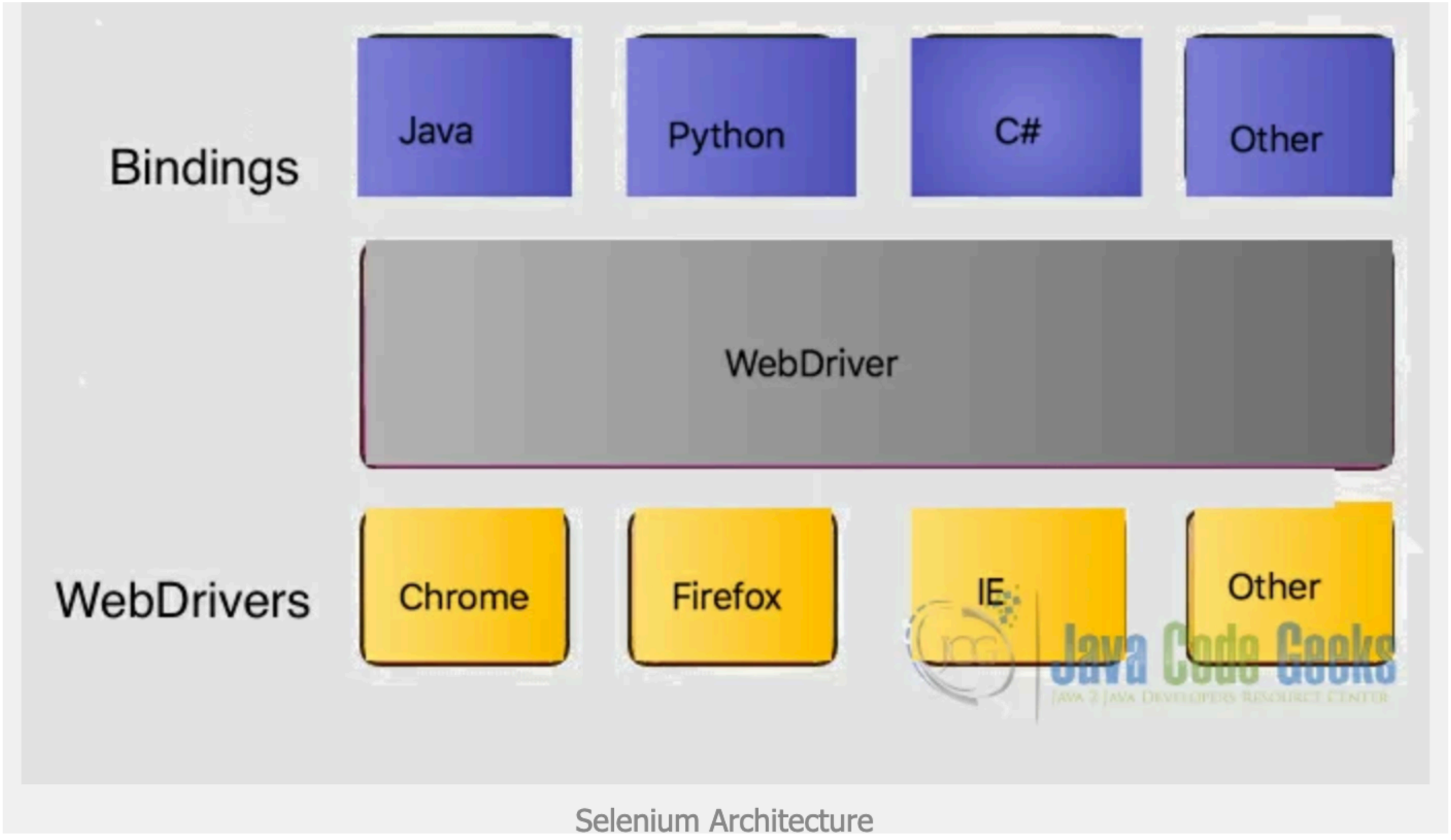


Just like any other language… LEARN its Data Types, Syntax, Libraries, Operators, etc

SELENIUM TOOL SUITE

- **Selenium IDE**, a Browser add-on that you can only use in creating relatively simple test cases and test suites.
- **Selenium Remote Control**, also known as **Selenium 1**, which is the first Selenium tool that allowed users to use programming languages in creating complex tests.
- **WebDriver**, the newer breakthrough that allows your test scripts to communicate directly to the browser, thereby controlling it from the OS level.
- **Selenium Grid** is also a tool that is used with Selenium RC to execute parallel tests across different browsers and operating systems.

SELENIUM 2 ARCHITECTURE



Selenium Architecture

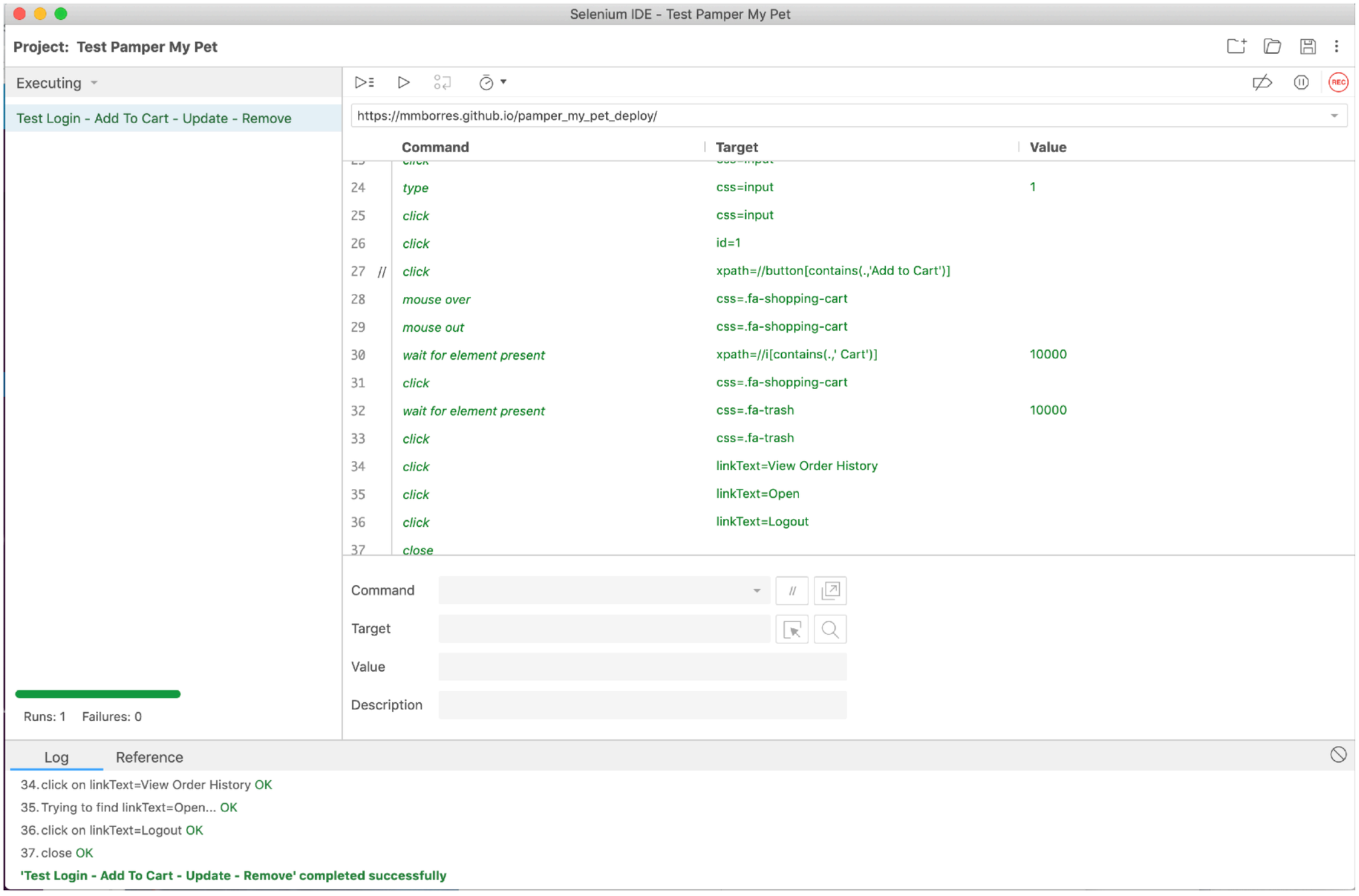
Used Java for this Demo

SELENIUM IDE

- Demo
- Easiest to install and use
- Test Prototyping
- Knowledge of HTML and DOM
- Test: https://mmborres.github.io/index.html

SELENIUM IDE TEST

- Script



Record once and reuse whenever

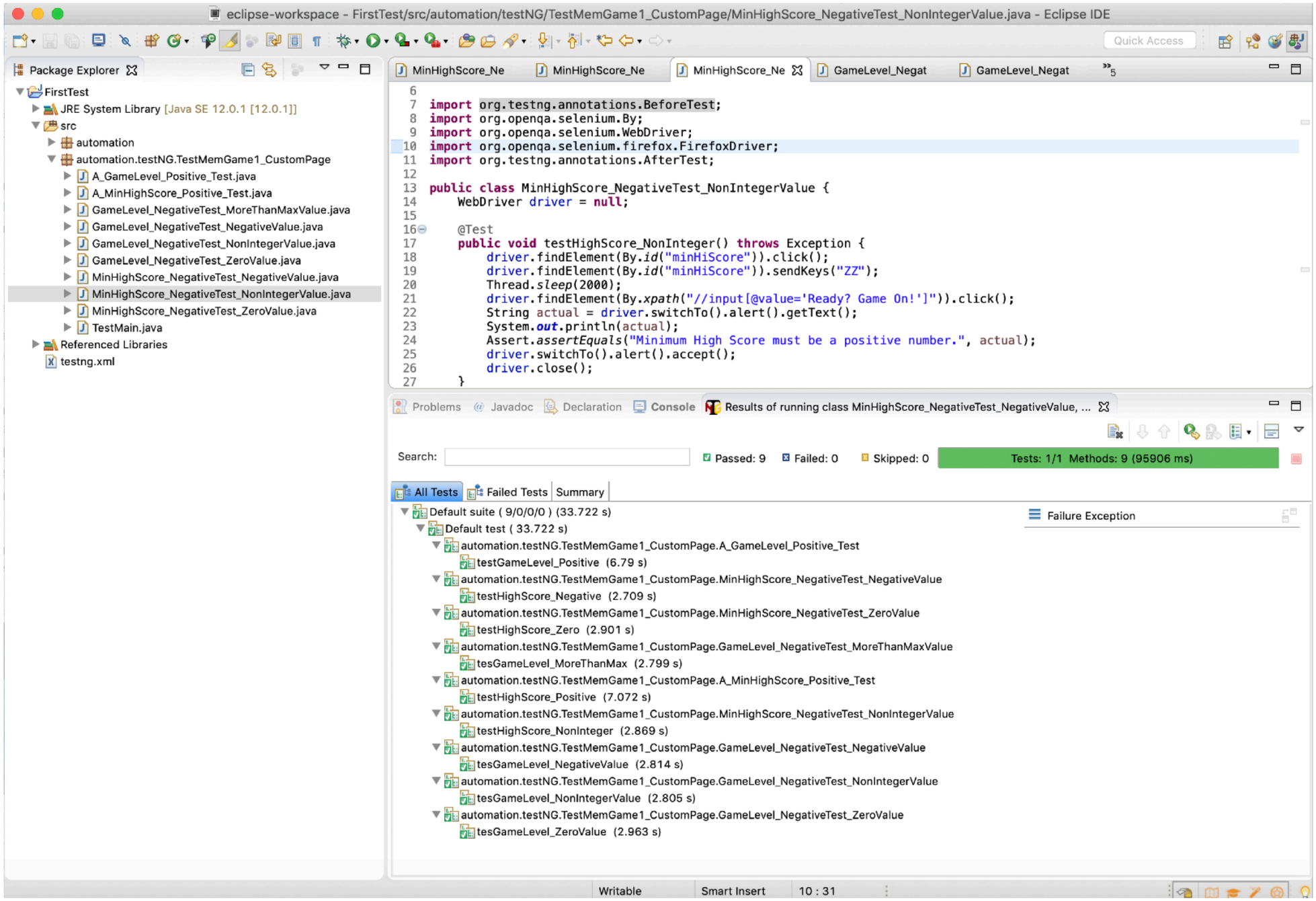
SELENIUM WEBDRIVER

- Demo
- Download Required Drivers
- Language Knowledge: ex. Java
- Identify Elements of the Page:
  - XPath
  - ID
  - CSS Selector
  - Classname

TestNG is a testing framework for the Java programming language created by Cédric Beust and inspired by JUnit and NUnit. The design goal of TestNG is to cover a wider range of test categories: unit, functional, end-to-end, integration, etc., with more powerful and easy-to-use functionalities.

WEBDRIVER IN JAVA + TESTNG

- Java



Create Java Class, Run as TestNG