Selenium

What is Selenium?

Selenium is an open-source tool used for automating web browsers. It provides a suite of tools and libraries that allow developers to automate interactions with web applications, such as clicking buttons, filling out forms, navigating between pages, and more. Selenium is widely used for **web testing** , but it can also be used for web scraping, automating repetitive tasks, and other browser-based automation tasks.

Selenium supports multiple programming languages, including **Python** , **Java** , **C#** , **Ruby** , and **JavaScript** , making it accessible to developers from different backgrounds.

Key Features of Selenium:

1. **Supports Multiple Browsers** – Works with Chrome, Firefox, Edge, Safari, etc.
2. **Cross-Platform** – Runs on Windows, macOS, and Linux.
3. **Supports Various Programming Languages** – Java, Python, C#, JavaScript, Ruby, etc.
4. **Automates Web UI Testing** – Useful for functional and regression testing.
5. **Integrates with Testing Frameworks** – Works with JUnit, TestNG, NUnit, etc.
6. **Headless Browser Execution** – Can run tests without opening a visible browser.

Selenium Components:

1. **Selenium WebDriver** – The main tool used for browser automation.
2. **Selenium IDE** – A browser extension for recording and replaying test scripts.
3. **Selenium Grid** – Runs tests on multiple machines and browsers in parallel.
4. **Selenium RC**-RC server interact with browser(It is not direct process).

First Install this dependency

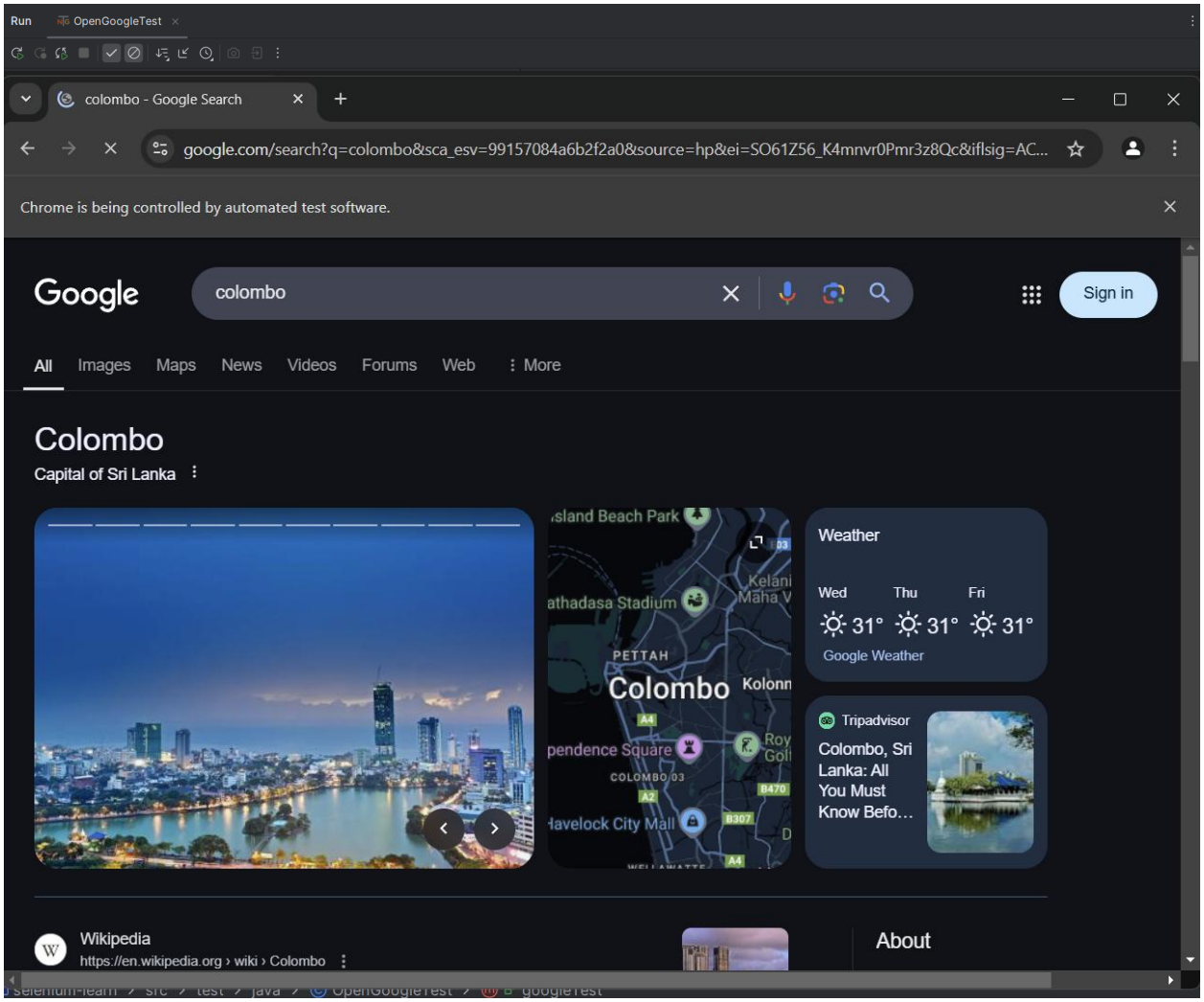
```
<dependencies>
    <!-- https://mvnrepository.com/artifact/org.seleniumhq.selenium/selenium-java -->
    <dependency>
        <groupId>org.seleniumhq.selenium</groupId>
        <artifactId>selenium-java</artifactId>
        <version>4.28.0</version>

    </dependency>
    <!-- https://mvnrepository.com/artifact/org.testng/testng -->
    <dependency>
        <groupId>org.testng</groupId>
        <artifactId>testng</artifactId>
        <version>7.10.2</version>
        <scope>test</scope>
    </dependency>


</dependencies>
```

Launch Chrome Browsers using Selenium WebDriver

❖ **Code**

```java
import org.openqa.selenium.By;
import org.openqa.selenium.Keys;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.testng.annotations.Test;

public class OpenGoogleTest {

    @Test
    public void googleTest(){
        WebDriver driver = new ChromeDriver();
        driver.get("https://www.google.com/");
        driver.findElement(By.name("q")).sendKeys( ...keysToSend: "colombo"+ Keys.ENTER);
        //driver.quit();
    }
}
```

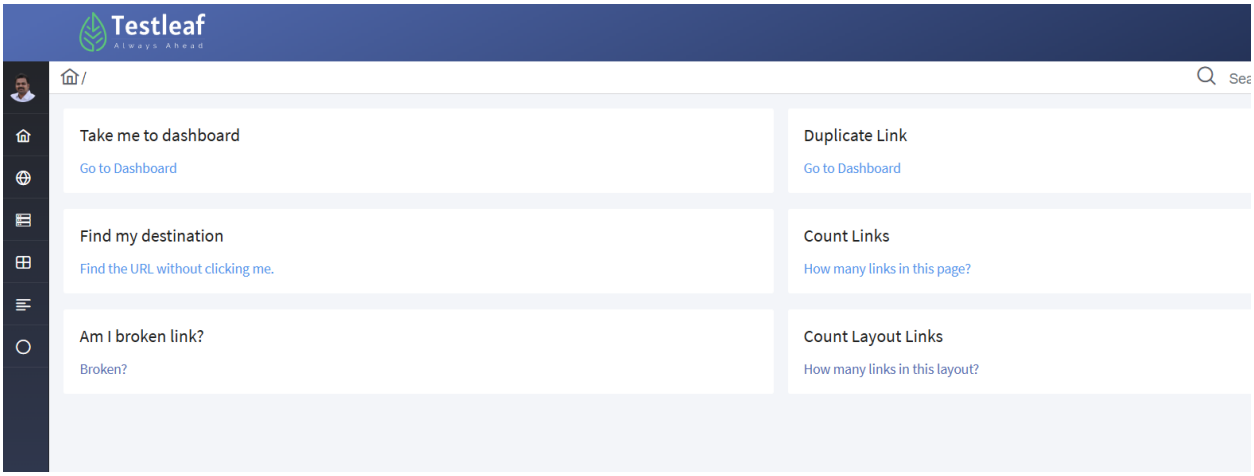
❖ Output



Selenium Locaters:

- By ID = By.id()
- By Name = By.name()
- By Class Name = By.className()
- By Tag Name = By.tagName()
- By Link Text = By.linkText()
- By CSS Selector= By.cssSelector()
- By XParth = By.xpath()
- By Partial Text = By.partialLinkText()

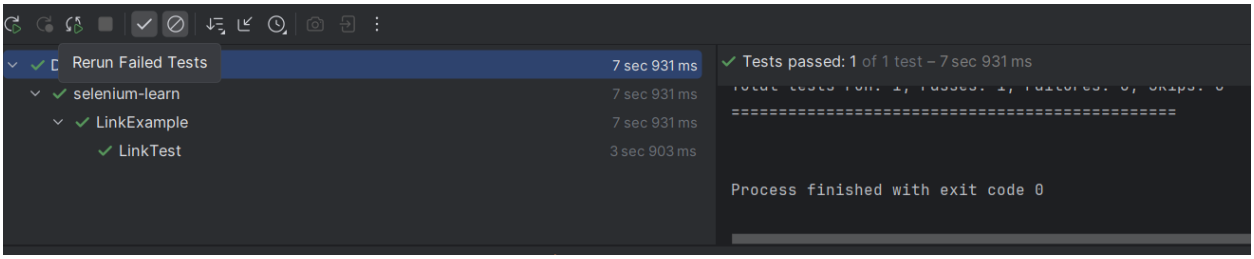
❖ Working With Links

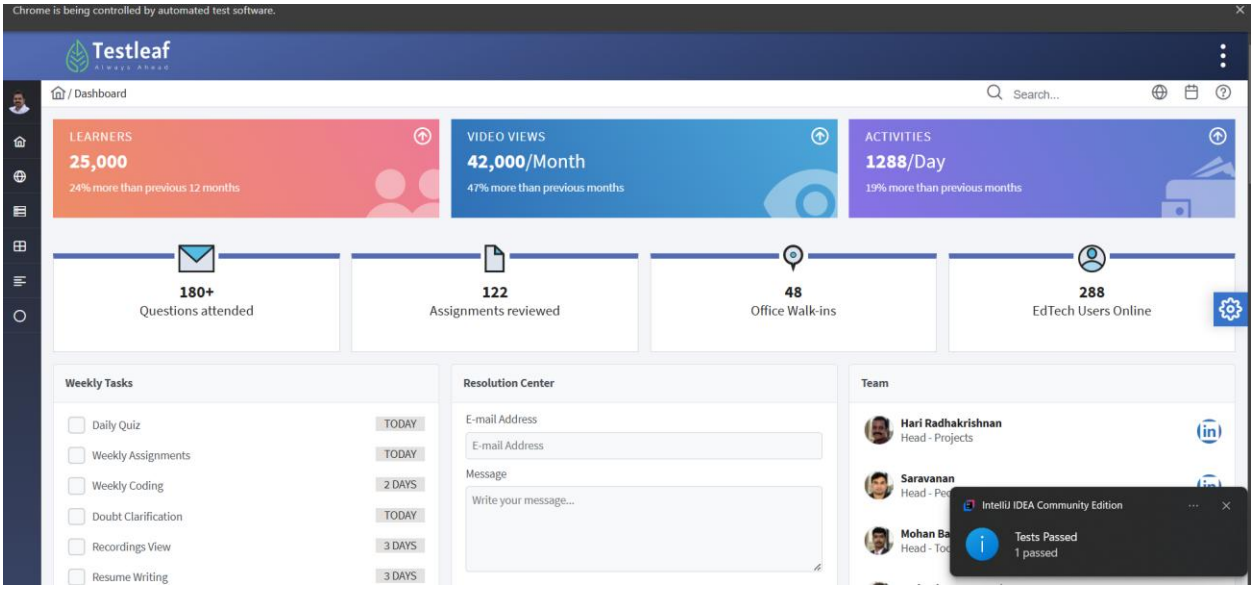


- Code

```java
public class LinkExample {

    WebDriver driver;  4 usages

    @BeforeMethod
    public void OpenLinkTestPage(){
        driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://www.leafground.com/link.xhtml");

    }

    @Test
    public void LinkTest(){
        //Take me to dashbord
        WebElement HomeLink= driver.findElement(By.linkText("Go to Dashboard"));
        HomeLink.click();
    }
}
```

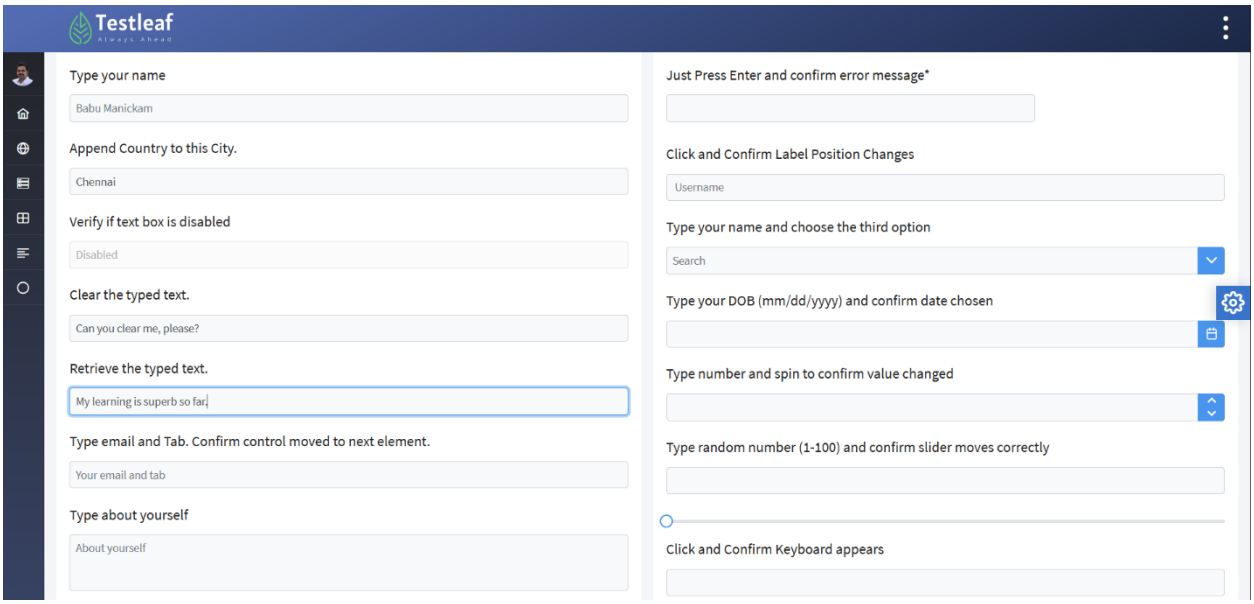
- Output





❖ Working with TextBox

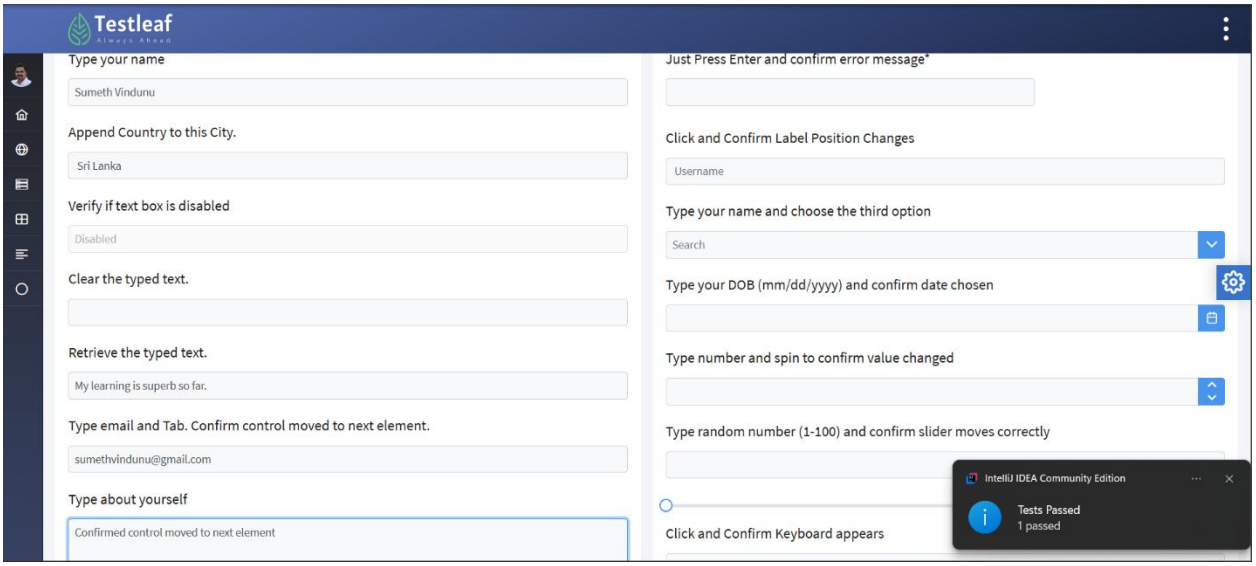
Xpath = //tagname[@attribute=’value’]

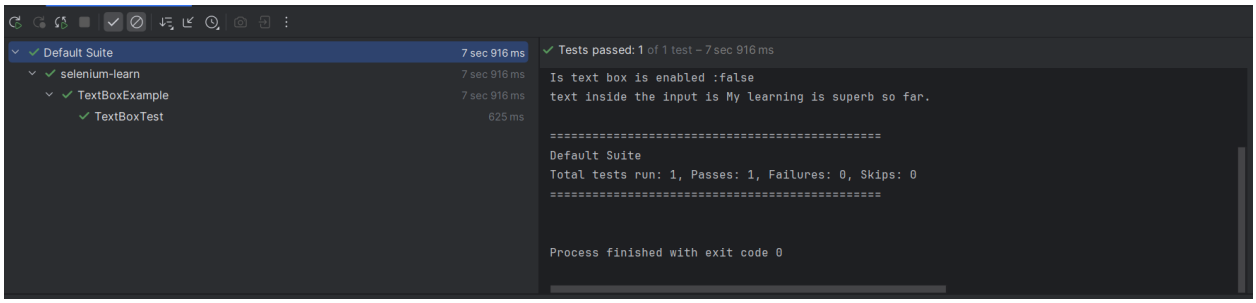


- Code

```
public class TextBoxExample {
 @Test
 public void TextBoxTest(){
     //Type your name
     WebElement name = driver.findElement(By.id("j_idt88:name"));
     name.sendKeys( ...keysToSend: "Sumeth Vindunu");

     //Appennd country to this city
     WebElement countryname =driver.findElement(By.id("j_idt88:j_idt91"));
     countryname.clear();
     countryname.sendKeys( ...keysToSend: " Sri Lanka");

     //verify is texbox is disable
     boolean isDisable=driver.findElement(By.id("j_idt88:j_idt93")).isEnabled();
     System.out.println("Is text box is enabled :"+isDisable);

     //Cleare the type text
     //*[@id="j_idt88:j_idt95"]
     WebElement cleareteXt =driver.findElement(By.xpath( xpathExpression: "//*[@id='j_idt88:j_idt95']"));
     cleareteXt.clear();

     //retview the type text
     WebElement text=driver.findElement(By.id("j_idt88:j_idt97"));
     String value=text.getAttribute( name: "value");
     System.out.println("text inside the input is "+value);

     //06) Type email and Tab. Confirm control moved to next element.
     driver.findElement(By.id("j_idt88:j_idt99")).sendKeys( ...keysToSend: "sumethvindunu@gmail.com" + Keys.TAB + "Confirmed control moved to next el

 }
```

- Output


Testleaf
Always Ahead
Type your name
Sumeth Vindunu
Append Country to this City.
Sri Lanka
Verify if text box is disabled
Disabled
Clear the typed text.
Retrieve the typed text.
My learning is superb so far.
Type email and Tab. Confirm control moved to next element.
sumethvindunu@gmail.com
Type about yourself
Confirmed control moved to next element
Just Press Enter and confirm error message
Click and Confirm Label Position Changes
Username
Type your name and choose the third option
Search
Type your DOB (mm/dd/yyyy) and confirm date chosen
Type number and spin to confirm value changed
Type random number (1-100) and confirm slider moves correctly
Click and Confirm Keyboard appears
IntelliJ IDEA Community Edition
Tests Passed
1 passed


Default Suite 7 sec 916 ms
selenium-learn 7 sec 916 ms
TextBoxExample 7 sec 916 ms
TextBoxTest 625 ms
Tests passed: 1 of 1 test – 7 sec 916 ms
Is text box is enabled :false
text inside the input is My learning is superb so far.
Default Suite
Total tests run: 1, Passes: 1, Failures: 0, Skips: 0
Process finished with exit code 0