

Website Testing With Selenium WebDriver

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What is Selenium WebDriver?

- ▶ Framework to automate website testing
- ▶ Can support most browsers such as Firefox, Chrome, IE, and Safari
- ▶ **End goal:** Build a bot to navigate a website for you

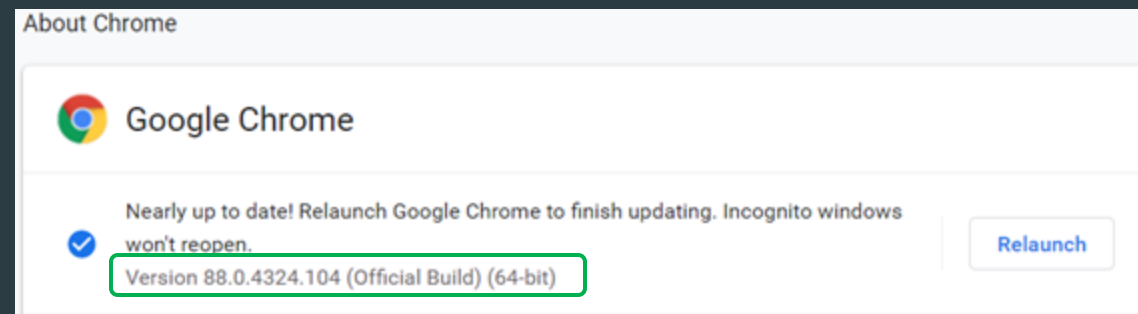
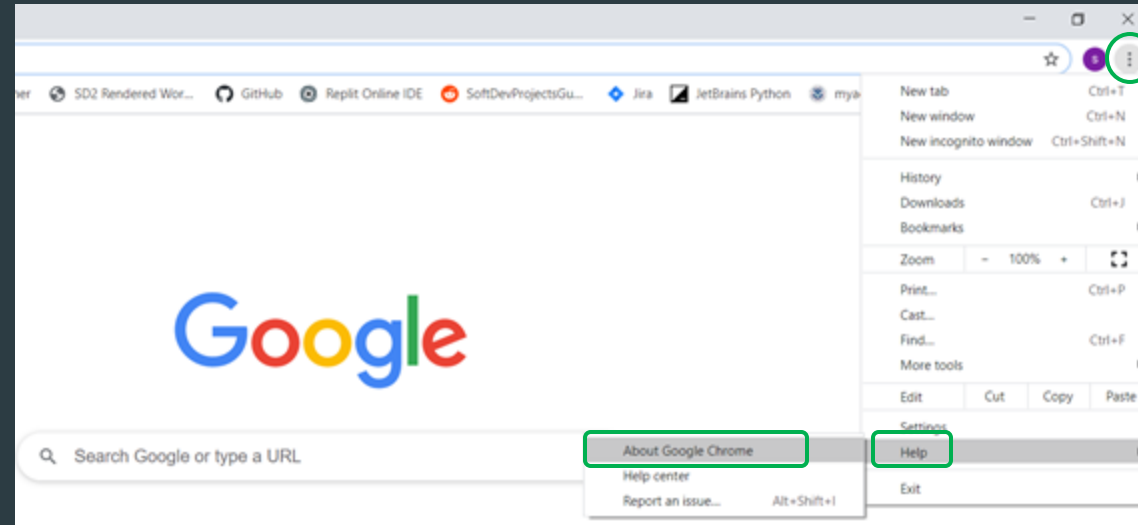
IDE Installation and Setup

- ▶ **Preferred IDE:** IntelliJ Ultimate (Can access Ultimate for free with student account)
 - <https://www.jetbrains.com/idea/download>
 - Make sure you have Java 11 Installed:
<https://www.oracle.com/java/technologies/javase-jdk11-downloads.html>
- ▶ Other IDE's may be used as well; Setup will be different

Chrome & ChromeDriver Setup

- ▶ Google Chrome:
<https://www.google.com/chrome/>

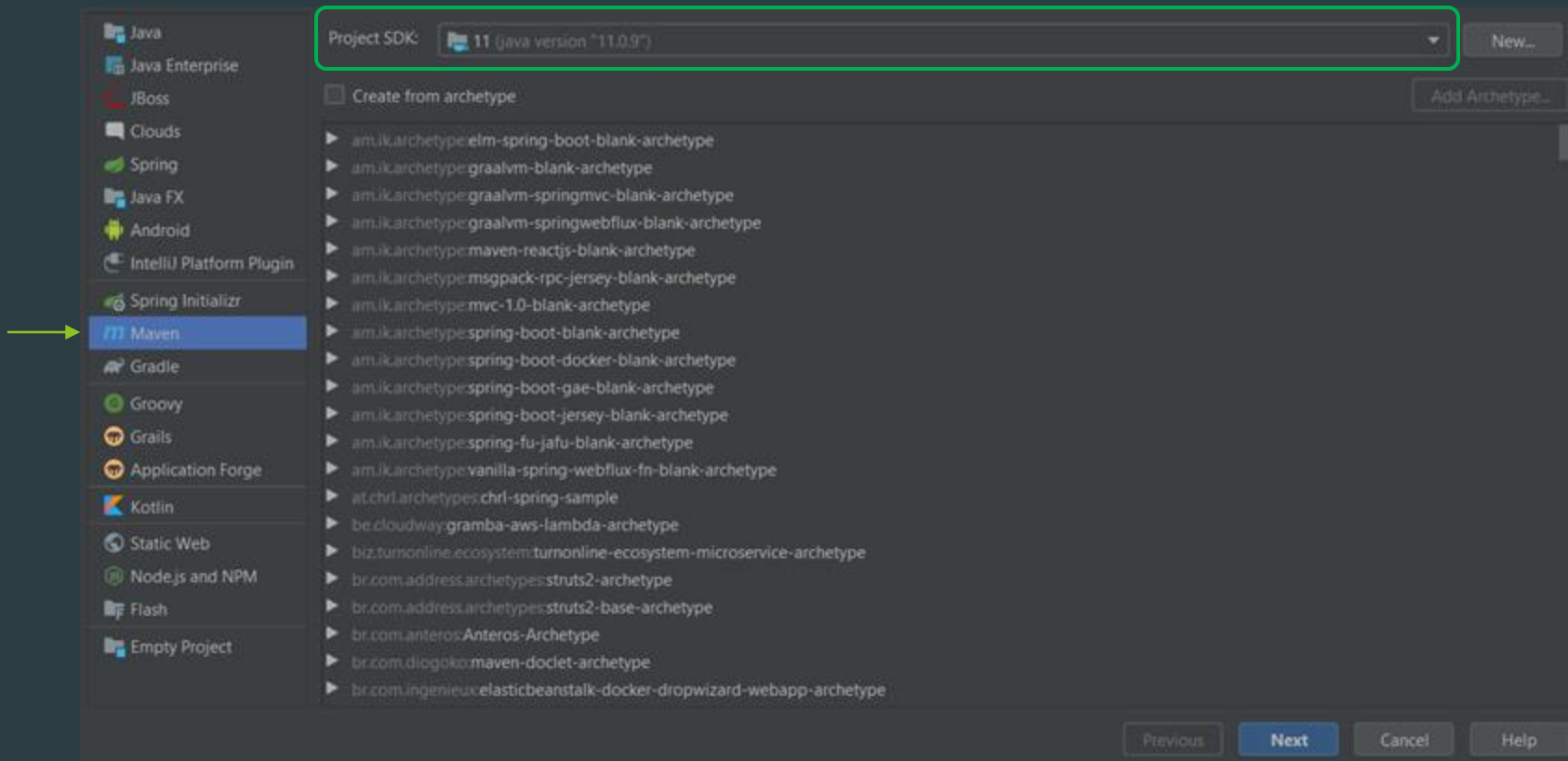
- ▶ ChromeDriver:
<https://chromedriver.chromium.org/downloads>



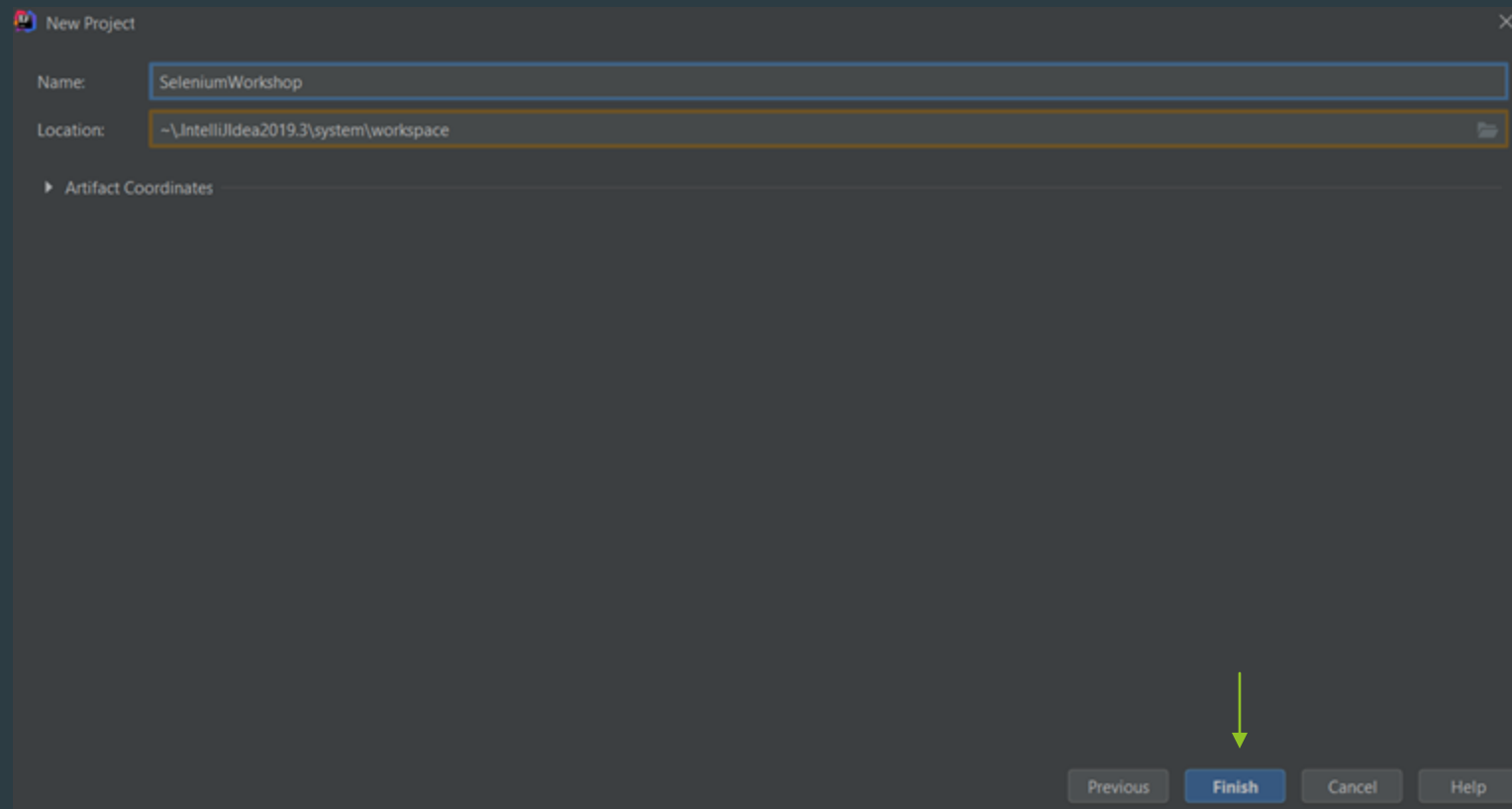
Project Setup - IntelliJ



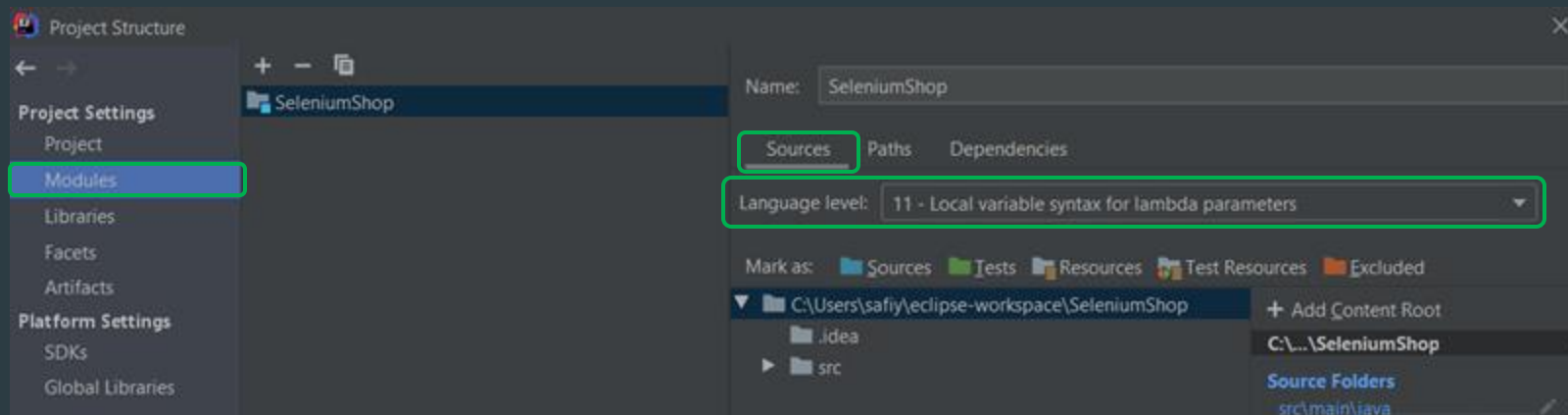
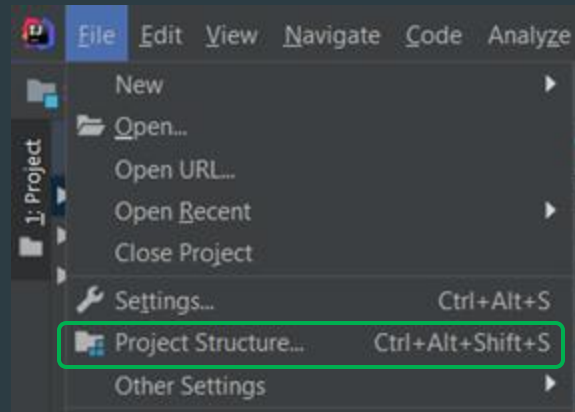
Project Setup - IntelliJ



Project Setup - IntelliJ

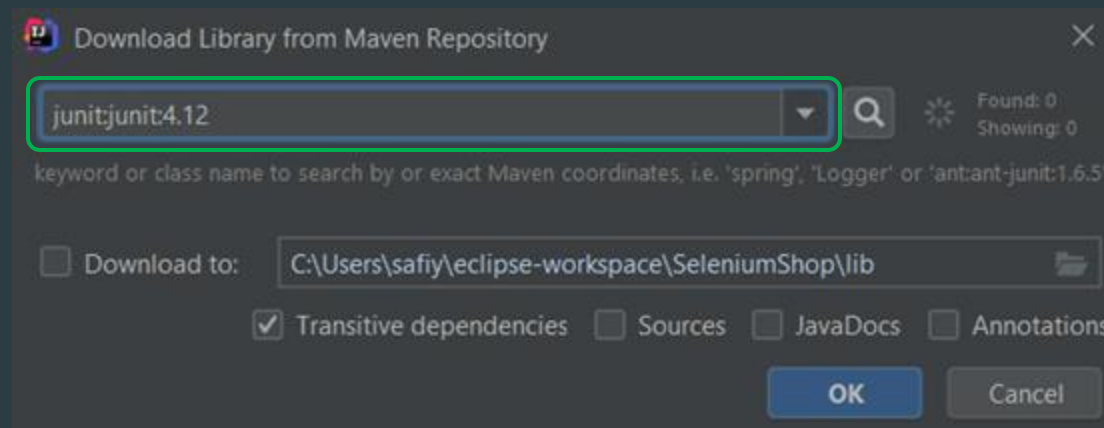
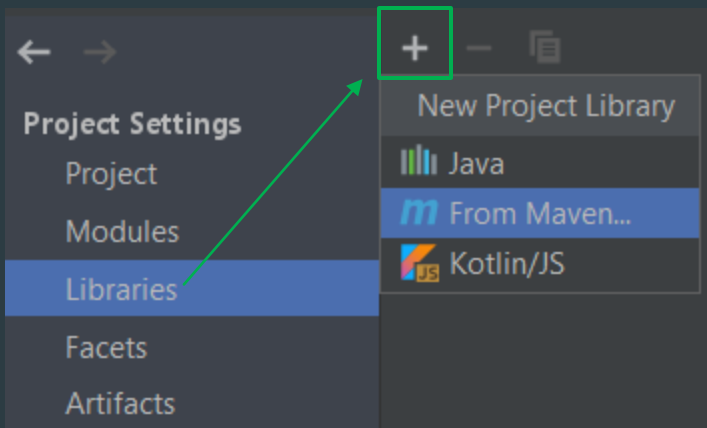


Project Setup - Project Structure

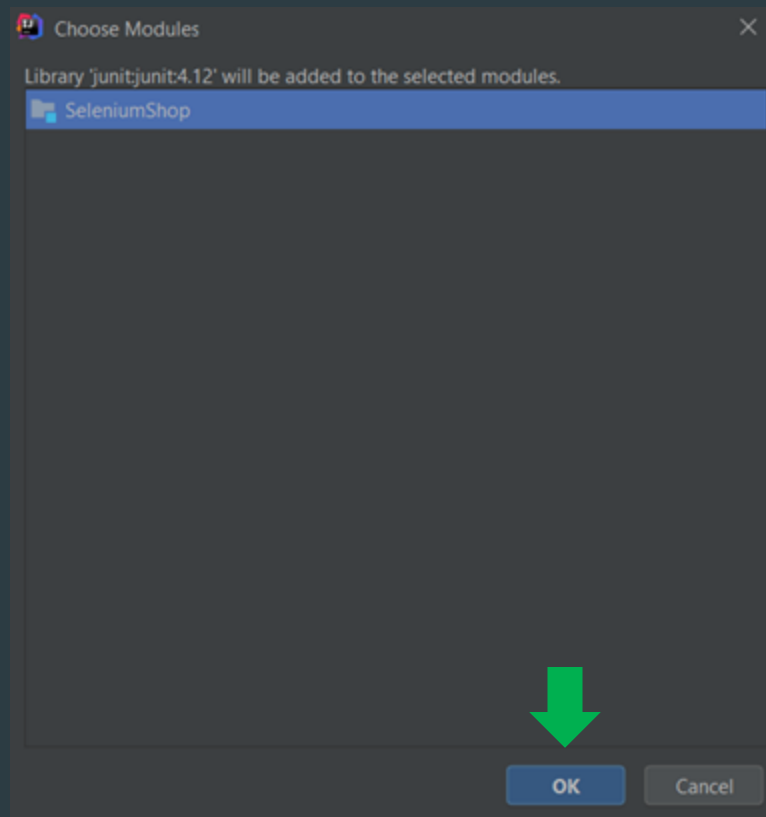


Project Setup - Project Structure

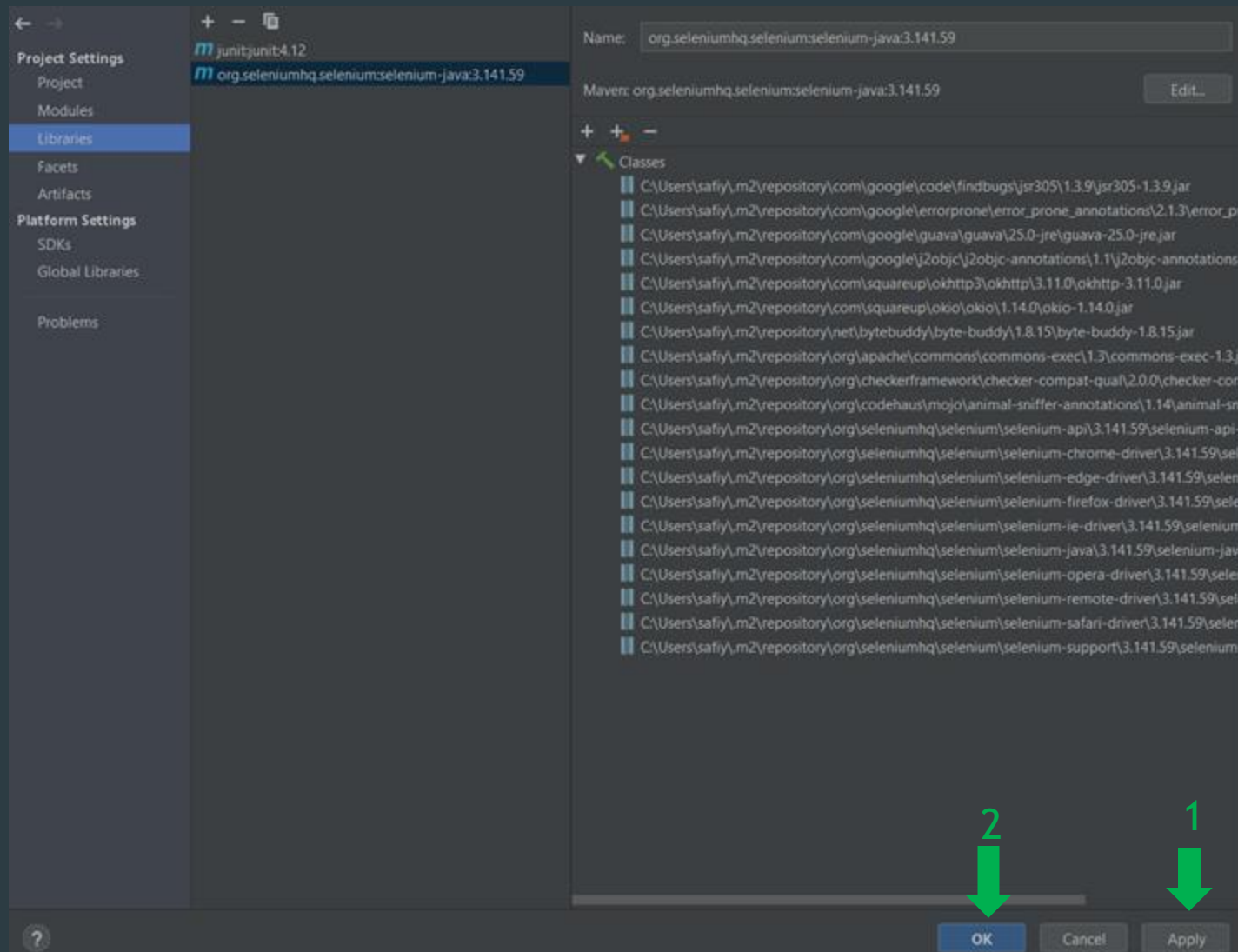
- ▶ Add the following Libraries in project structure:
 - junit:junit:4.12
 - org.seleniumhq.selenium:selenium-java:3.141.59



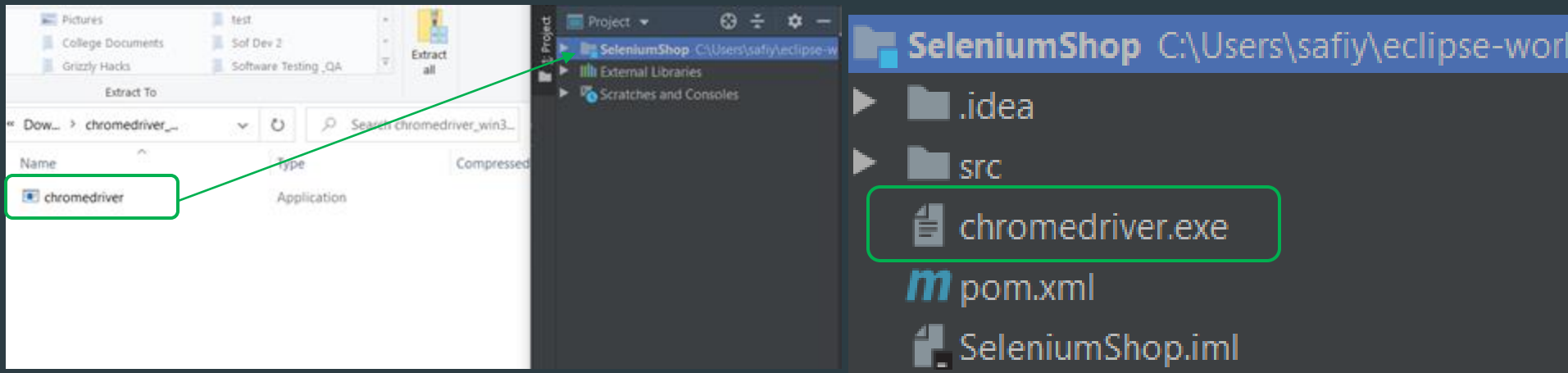
Project Structure - Confirm Library



Project Setup - Apply Libraries



Project Setup - Adding ChromeDriver



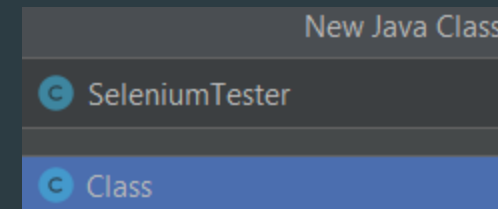
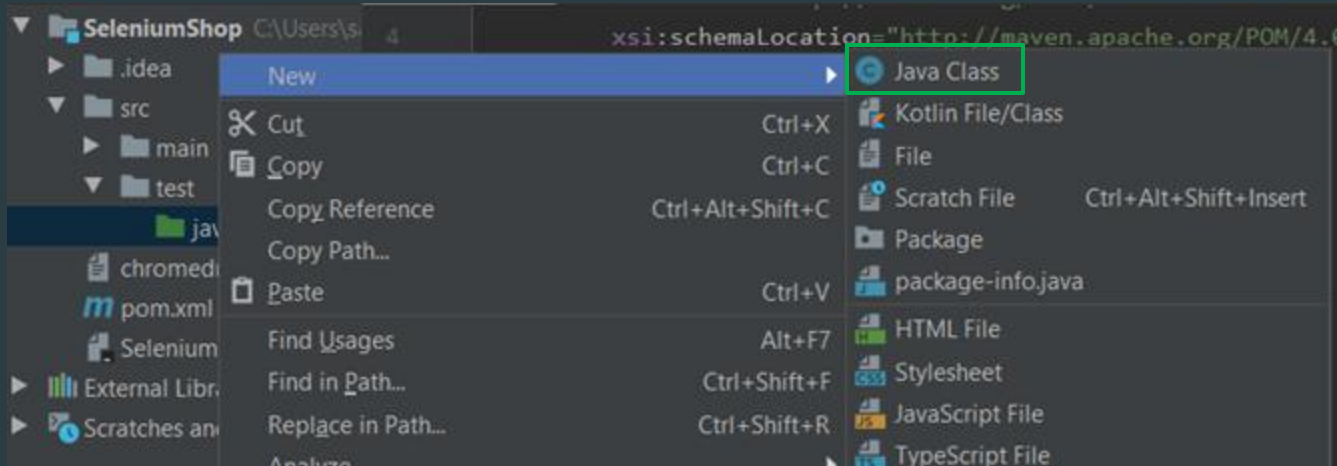
Project Setup - POM File

- Copy properties from the following repo and paste into project POM file:

<https://github.com/SafiyK98/webDriverPOMReq.git>

```
m pom.xml
4      xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
5      <modelVersion>4.0.0</modelVersion>
6
7      <groupId>org.example</groupId>
8      <artifactId>SeleniumShop</artifactId>
9      <version>1.0-SNAPSHOT</version>
10
11     <dependency>
12       <groupId>org.apache.maven.plugins</groupId>
13       <artifactId>maven-compiler-plugin</artifactId>
14       <version>3.8.1</version>
15     </dependency>
16     <properties>
17       <java.version>1.8</java.version>
18       <maven.compiler.version>3.8.1</maven.compiler.version>
19       <maven.compiler.source>1.8</maven.compiler.source>
20       <maven.compiler.target>1.8</maven.compiler.target>
21     </properties>
22     <build>
23       <plugins>
24         <plugin>
25           <groupId>org.apache.maven.plugins</groupId>
26           <artifactId>maven-compiler-plugin</artifactId>
27           <version>${maven.compiler.version}</version>
28           <configuration>
29             <source>${java.version}</source>
30             <target>${java.version}</target>
31           </configuration>
32         </plugin>
33       </plugins>
34     </build>
35
36 </project>
```

Creating The Test Class



Syntax - Creating the Test Method

```
@Test
```

```
public void testWebsite(){
```

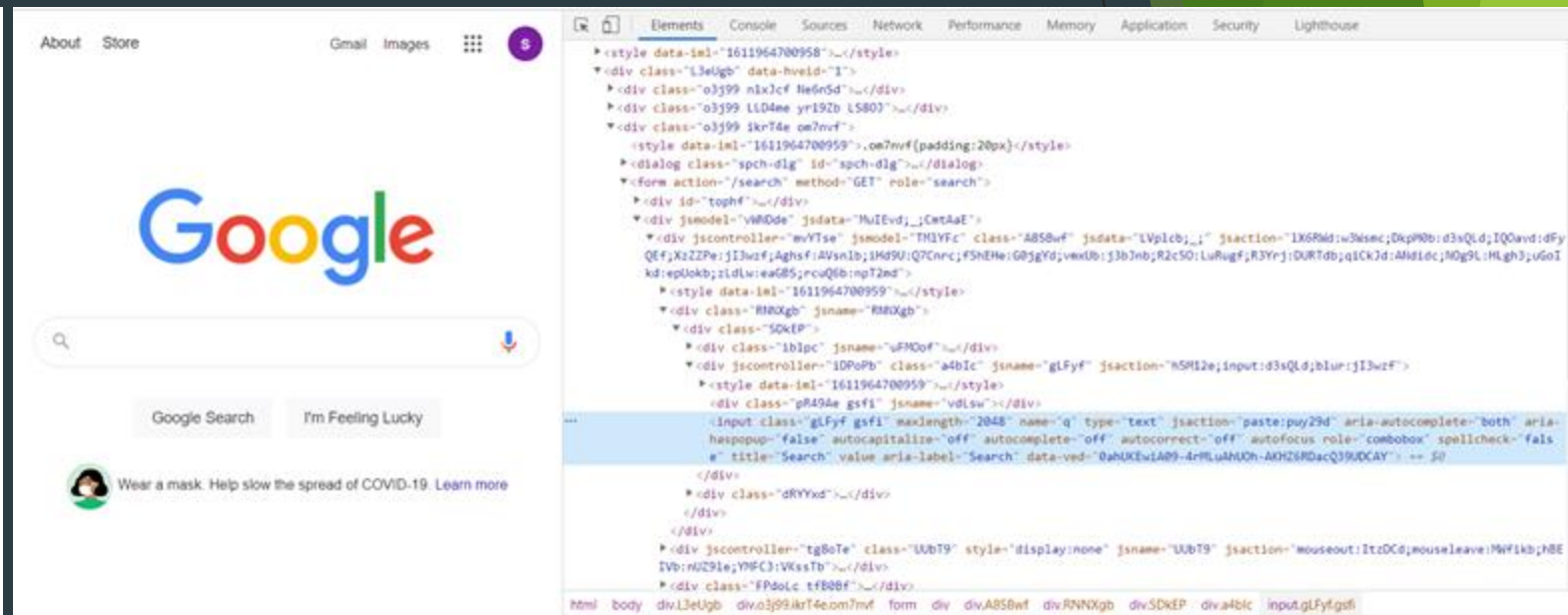
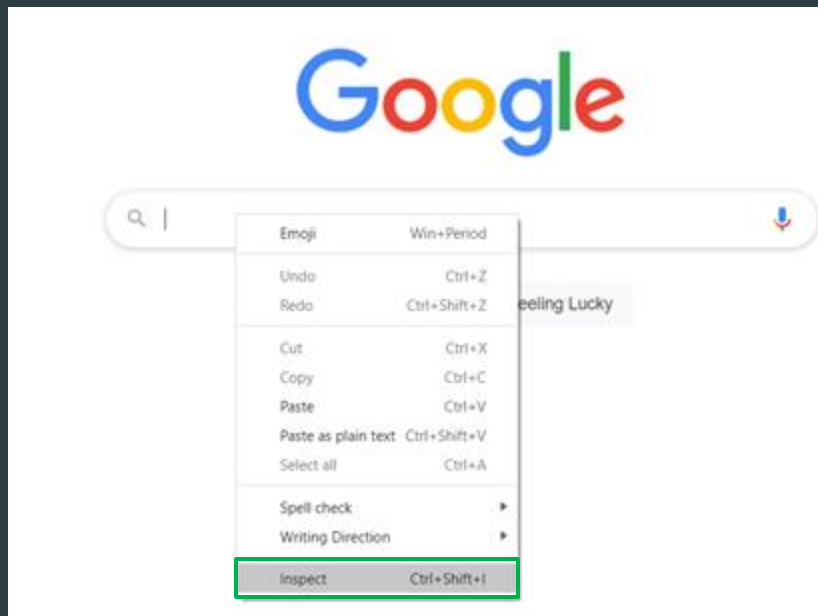
Syntax - Setting up Driver

```
WebDriver driver;  
System.setProperty("webdriver.chrome.driver", "chromedriver.exe");  
driver = new ChromeDriver();
```


Syntax - Fetch Webpage

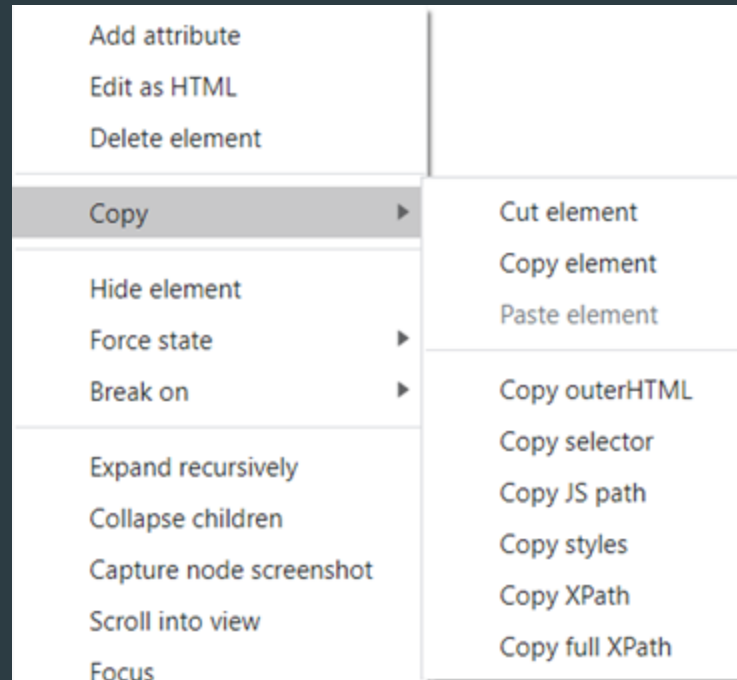
```
String GOOGLE_HOME = "https://www.google.com/";  
driver.get(GOOGLE_HOME);
```

Inspect Element



Syntax - Selectors & FindElement

```
jsname="vdLsw"></div>  
' maxLength="2048" name="q" type=  
italize="off" autocomplete="off"
```



```
//web element query
```

```
WebElement query = driver.findElement(By.name("q"));
```

Syntax - Typing into textbox

```
//query| sendKeys  
query.sendKeys( ...charSequences: "wikipedia");
```

The Google logo is displayed in its standard multi-colored font (blue, red, yellow, blue, green, red) on a white background.A screenshot of the Google search bar. The word "wikipedia" is entered into the search field. A green rectangular box highlights the text "wikipedia". To the left of the text is a magnifying glass icon. To the right are a close button (X) and a microphone icon.

Syntax - “Submit”

```
//query.submit  
query.submit();
```

Google Search

I'm Feeling Lucky

Google

wikipedia

✕ 🔊 🔍

[All](#) [Books](#) [News](#) [Images](#) [Videos](#) [More](#)

[Settings](#) [Tools](#)

About 950,000,000 results (0.52 seconds)

en.wikipedia.org · wiki · Main_Page

Wikipedia, the free encyclopedia

The bee-eaters are near passerine birds of the family Meropidae, containing three genera and twenty-seven species. Most species are found in Africa and Asia, ...

Wiki
Wikipedia is a free, multilingual open-collaborative online ...

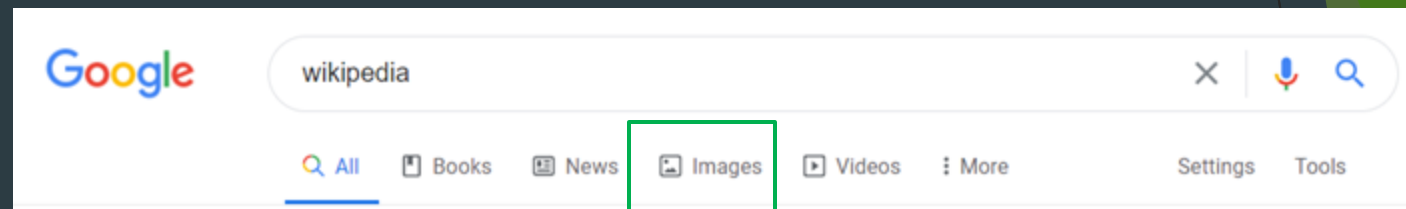
Deaths in 2021
The following deaths of notable individuals occurred in 2021 ...

Wikipedia:About
Wikipedia:Wikipedia - Help:About
help pages - Wikipedia:FAQ · ...
More results from wikipedia.org »

Portal:Current events
Portal:Current events. From
Wikipedia, the free ...

Syntax - Click

```
//copy element xpath  
WebElement images = driver.findElement(By.xpath("//*[@id=\"hdtb-msb-vis\"]/div[4]/a"));  
//click element  
images.click();
```



Syntax - Checkboxes

```
//get checkbox element by xpath  
WebElement checkbox = driver.findElement(By.xpath("/html/body/form/input[19]"));  
//click the checkbox  
checkbox.click();
```

☒ Show correct answers after submission

Syntax - Radio Buttons

```
//get specific radio button by xpath  
WebElement question = driver.findElement(By.xpath("/html/body/form/input[3]"));  
//click radio button  
question.click();
```

- ☒ A. write
- ☐ B. print
- ☐ C. echo
- ☐ D. display

Syntax - Selecting Dropdown Value

```
//Select the dropdown menu  
Select major = new Select(driver.findElement(By.xpath("/html/body/form/select")));  
//Select the specific value you want  
major.selectByVisibleText("Software");
```

Choose your major area of study: ▼

Syntax - Timeout

```
//Wait before making the next move  
driver.manage().timeouts().implicitlyWait(4, TimeUnit.SECONDS);
```

Syntax - Assert (The Final Test)

```
//Confirm you have reached the correct page by checking for specific text  
Assert.assertTrue(driver.getPageSource().contains("People also search for"));
```

Conclusion & Summary

- ▶ Selenium is a great way to test a website
- ▶ You can use WebDriver to fetch a webpage
- ▶ FindElement() using name, id, CSSselector, or Xpath
- ▶ Work with elements using sendkeys(), submit(), and click()
- ▶ Select values from a dropdown list using Select methods
- ▶ Wait before making the next move using timeout()
- ▶ Use Assert method(s) to confirm that you have navigated to the correct page
and thus verify that the test was successful

Challenge!

- ▶ Use Selenium WebDriver to go to the following webpage, fill out and submit the 4-question test, and confirm you have completed the test by asserting that you have received a grade for it:
 - [Safi's Testable Website](#)

Cheat Sheet:

- `driver.get()` to fetch the page
- `Inspect` and then `FindElement(By.)` to work with elements
- `sendKeys()` to type into text box
- `click()` to click a button, checkbox, or radio button
- `Select` to use dropdown menus
- `timeout()` to wait
- `Assert` to check if everything worked

Questions or Comments?

Sources

- ▶ <https://economictimes.indiatimes.com/definition/selenium-web-driver#:~:text=Definition%3A%20Selenium%20WebDriver%20is%20a,Chrome%2C%20IE%2C%20and%20Safari.>