## Pre-req:

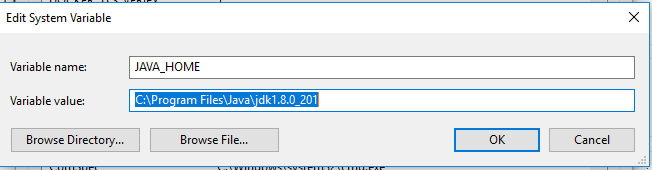
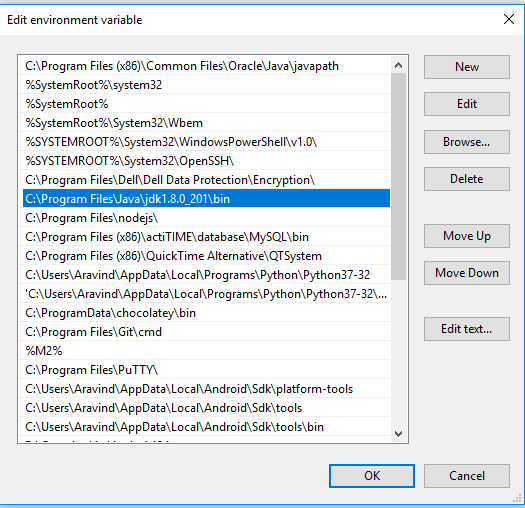
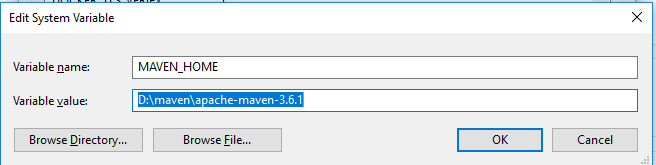
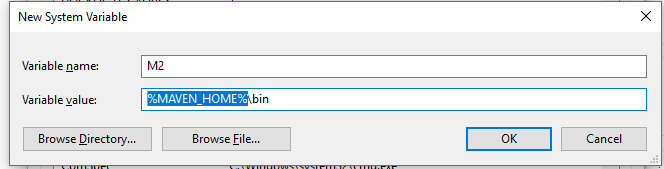
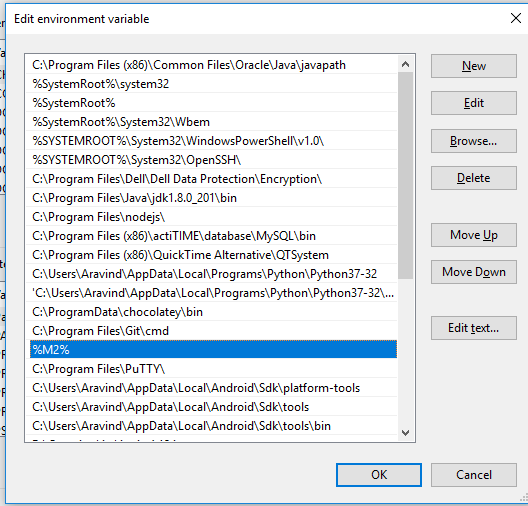
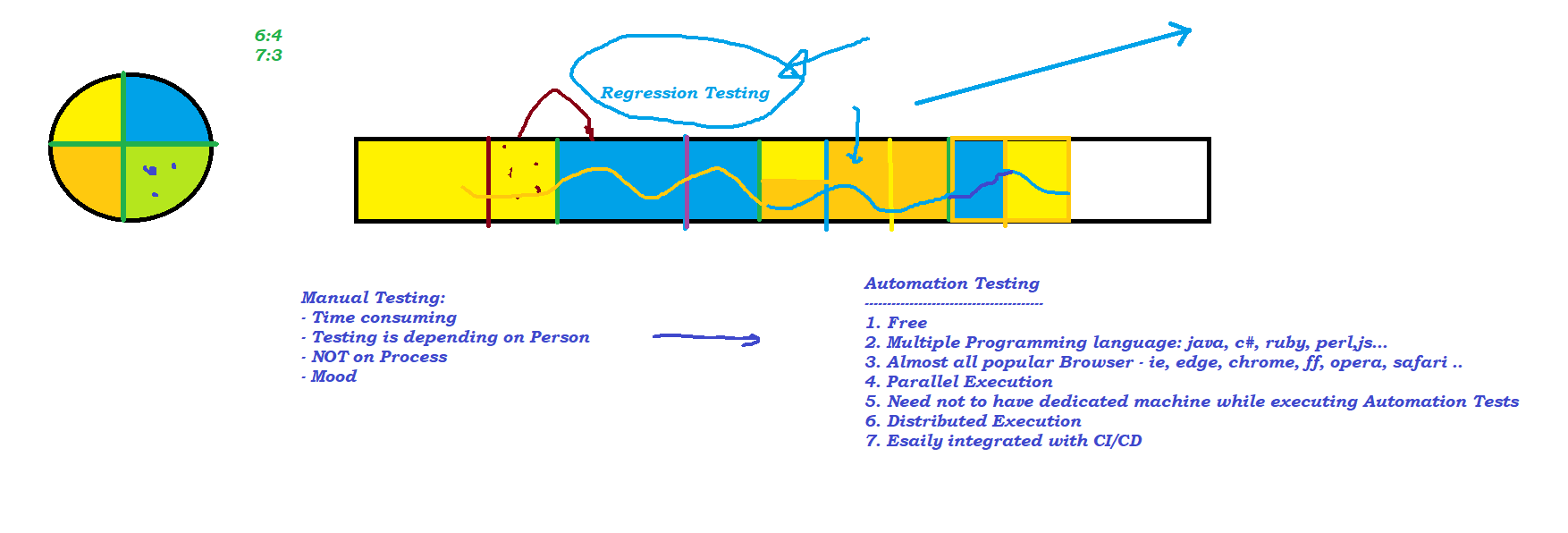
JAVA

* Basic Syntax of Java – Class, packages, interfaces
* Data types
  + Primitive data types
  + Derived data types
* Variables
  + Global variables
    - instance variables
    - static variables
    - constants
  + Local Variables
* Methods
  + with return type
  + without return type
  + with Arguments
  + without Arguments
  + Overloading
  + Overriding
* Constructors
  + Default
  + parameterised constructor
* Access specifiers – private, protected, , public
* Access Modifiers – static, final, abstract
* String Class
  + functions – length(), charAt(index), indexOf(char), split(), substring()...
* String Buffer / String Builder
* Arrays
* Enums
* Wrapper Classes
* Threads
  + Thread
  + Runnable
* Exception Handling
  + Compile Time Exception
  + Runtime Exception
* File Handling
  + Text file, properties file, csv, excel,doc, pdf..
  + Reading File
  + Write into the File
* Collections
  + List
    - ArrayList
    - LinkedList
    - Vector
  + Set
    - HashSet
    - TreeSet
    - LinkedHashSet
  + Map
    - HashMap
    - TreeMap
    - LinkedHashMap
* Generics
* Inner classes
  + anonymous inner classes

Selenium :

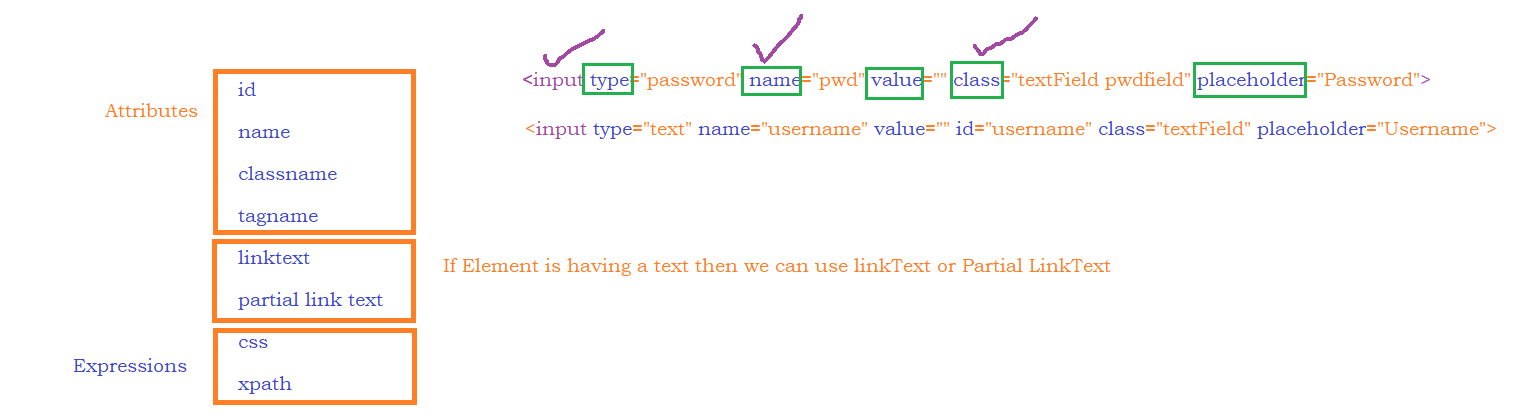
* What is regression Testing
* Why Automation Testing is required
* Why Selenium???????
* Selenium IDE
* ~~Selenium RC~~
* Selenium WebDriver
  + Major
* Selenium GRID
* TestNG
* POM
* Maven
* BDD Cucumber
* CI/CD –
* GIT

Software Required :

* Java
  + Setting Environment Variables
  + JAVA\_HOME
    - 
  + PATH
    - 
* Eclipse
* Maven
  + <https://maven.apache.org/download.cgi>
  + set the Environment Variables
  + MAVEN\_HOME
    - 
  + M2
    - 
  + Updated PATH
    - 
* Application
* Jenkins
* GIT
  + <https://git-scm.com/downloads>
* What is regression Testing
* Why Automation Testing is required
* Why Selenium???????
* 

Selenium IDE

* POC
* Record and playback
* Add-on with FF and Chrome
* Object Identification
  + id
  + name
  + classname
  + tagname
  + linktext
  + partial link text
  + css
  + xpath



SAMPLE HTML CODE:

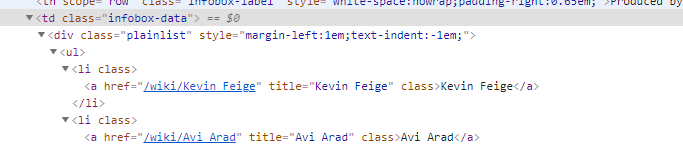


Expressions:

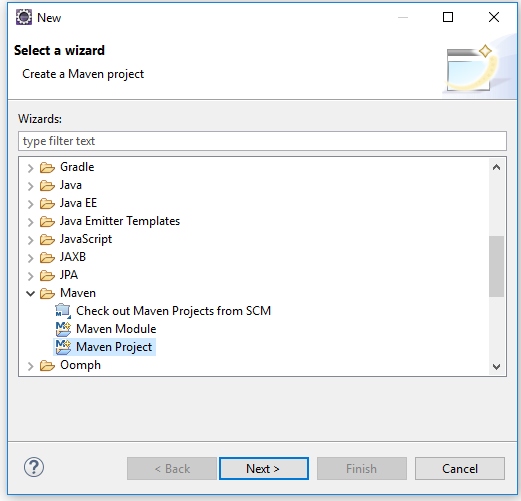
CSS:

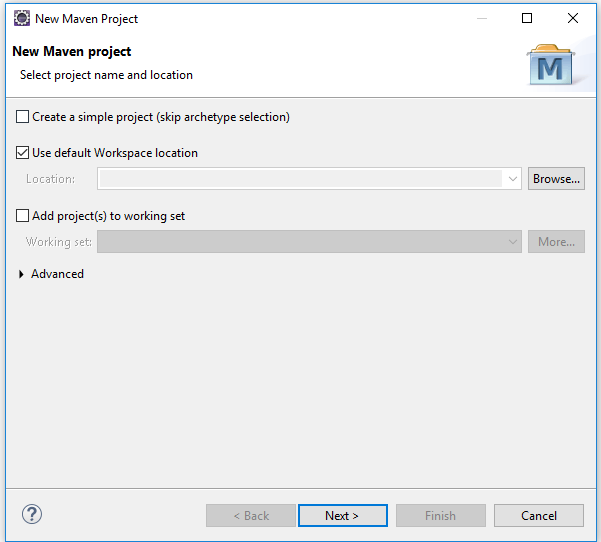
* htmltag[attribute=’value’]
* input[placeholder='Username']
* htmltag#IDvalue OR #IDValue
* htmltag.ClassValue OR .ClassValue
* Parent to child:
  + #loginButton > div

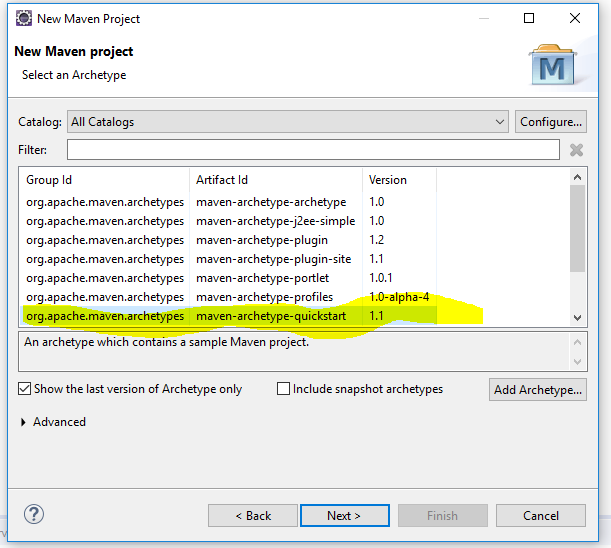
XPATH:

1. **Basic**
   1. Formula - //htmltag[@attribute=’value’]
      * 1. //input[@id='username']
        2. //input[@placeholder='Username']
2. **Function**
   1. text()
      1. Formula - //htmltag[text()=’exact text’]
         1. //div[text()='Login ']
         2. //label[text()='Keep me logged in']
         3. **//a[text()='Autocomplete']**
         4. **//a[text()='Autocomplete' and @class='btn btn-lg']**
   2. contains(arg1,arg2)
      1. arg1 – attribute or text function
         1. //img[contains(@src,'timer')]
         2. //td[contains(text(),'Please')]
      2. arg2 – partial value
   3. starts-with(arg1,arg2)
      1. arg1 – attribute or text function
         1. //\*[starts-with(@id,'ext-gen')]
         2. //h3[starts-with(text(),'About')]
      2. arg2 – partial value
3. **Logical Operator**
   1. and
      1. Formula - //htmltag[@attribute1=’v1’ and @attribute2=’v2’]
      2. //td[(@class='current day' **or** @class='we day' **or** @class='wd day') **and** text()='10']
      3. //input[@type='text' **and** @type='password']
   2. or
      1. Formula - //htmltag[@attribute1=’v1’ or @attribute2=’v2’]
      2. //td[(@class='current day' **or** @class='we day' **or** @class='wd day') **and** text()='10']
      3. //input[@type='text' or @type='password']
   3. not
      1. Formula - //htmltag[@attribute1=’v1’ **and** **not** (@attribute2=’v2’)]
      2. //td[text()='12' **and not** (@class='past day')]
4. **Traverse from parent to child**
   1. //a[@id='loginButton']**/**div
   2. //td[@class='keepLoggedIn']**//**div[text()='Login ']
5. **Traverse from child to parent**
   1. //parente2[parentTag[childXpath]]
   2. *//tr[th[text()='Produced by']]//li*
6. ***AXES Functions***
   1. ***Traverse to following-sibling***
      1. Syntax:
         1. //xpath for ele/following-sibling::siblingTAG
         2. //th[text()='Produced by']/following-sibling::td//li
   2. ***Traverse to preceding-sibling***
      * 1. //xpath for ele/preceding-sibling::siblingTAG
        2. //li[a[span[text()='Upcoming']]]/preceding-sibling::li
   3. ***Traverse till end of the page from any location***
      1. //li[a[span[text()='Upcoming']]]/following::a
   4. ***Traverse till beginning of the page from any location***
      1. //li[a[span[text()='Upcoming']]]/preceding::a
   5. ***Traverse to child***
      1. //a[@id='loginButton']/child::div
   6. ***Traverse to parent***
      1. //div[text()='Login ']/parent::a
   7. ***Traverse to Ancestor***
      1. //a[text()='Kevin Feige']/ancestor::td[@class='infobox-data']
      2. 

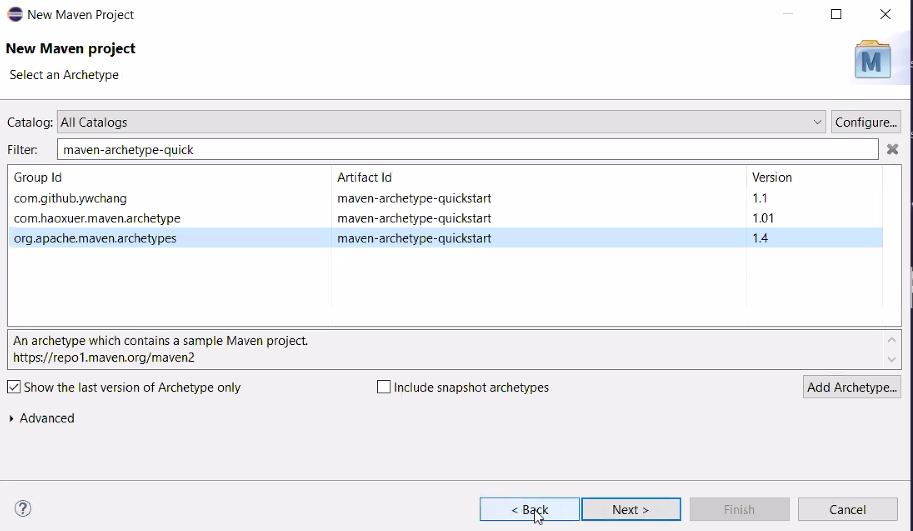
**WEB-DRIVER SETUP USING MAVEN:**

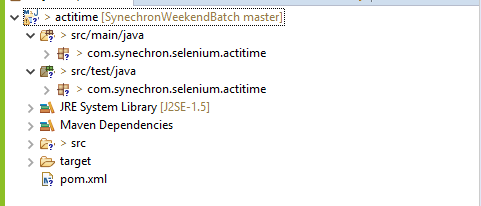
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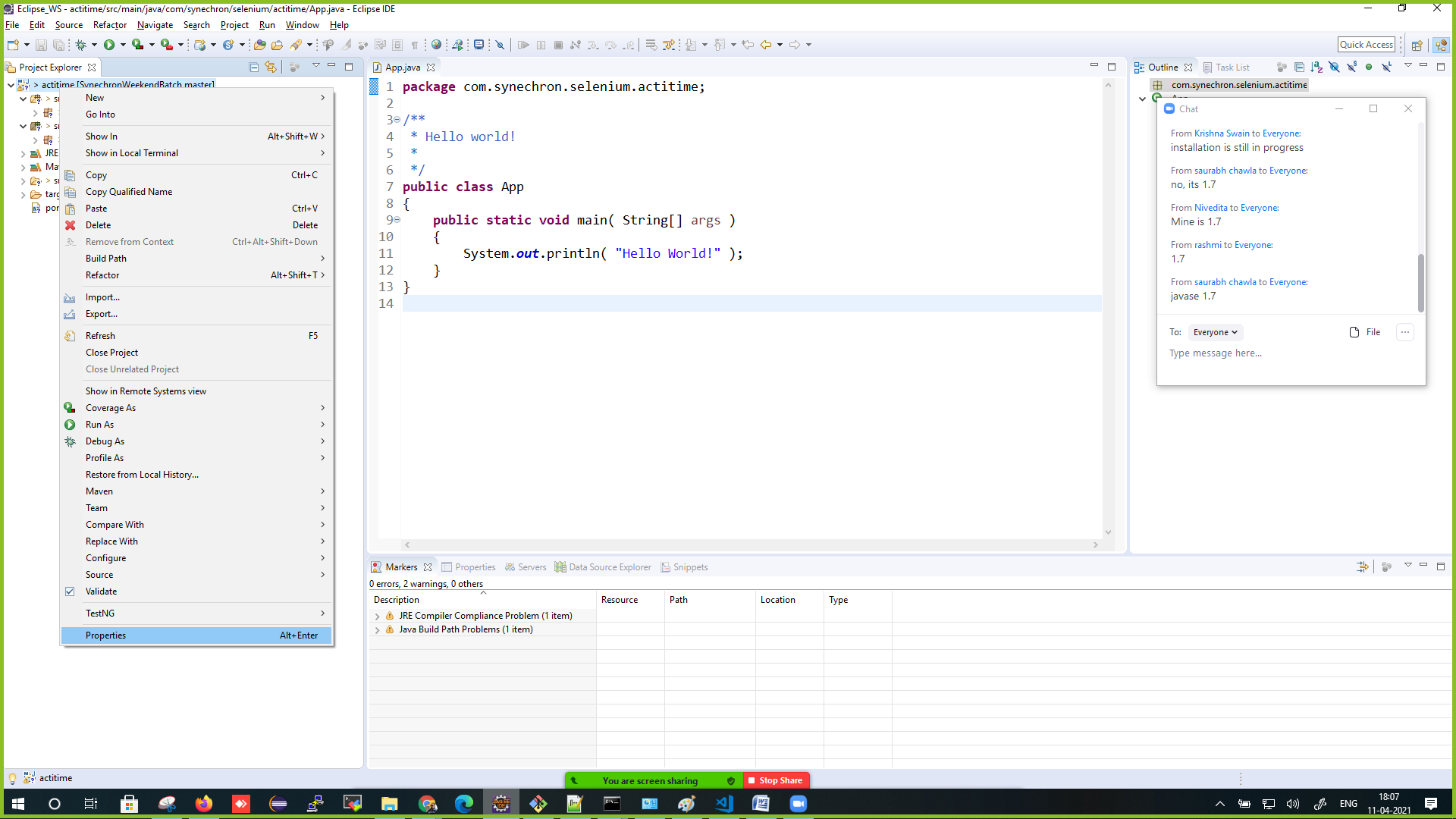
OR

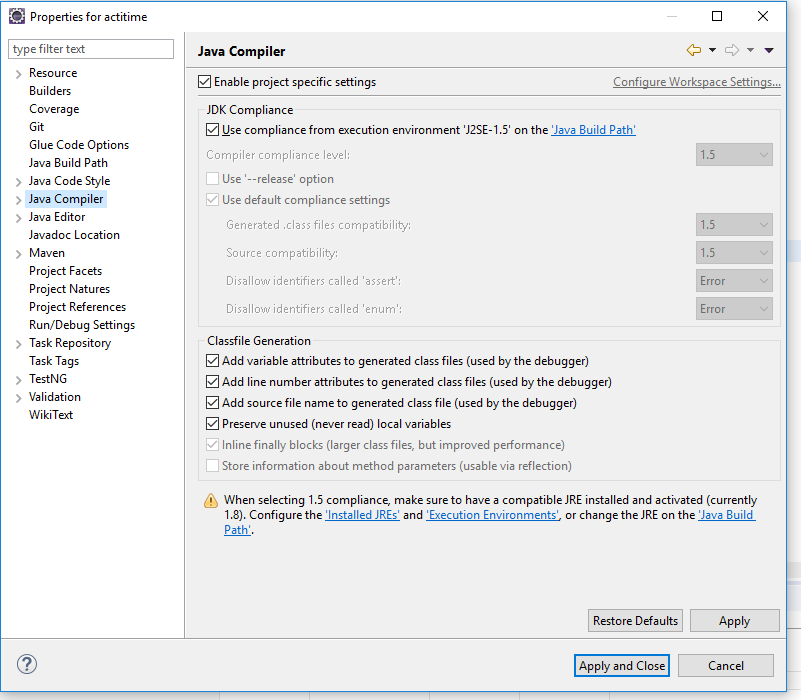


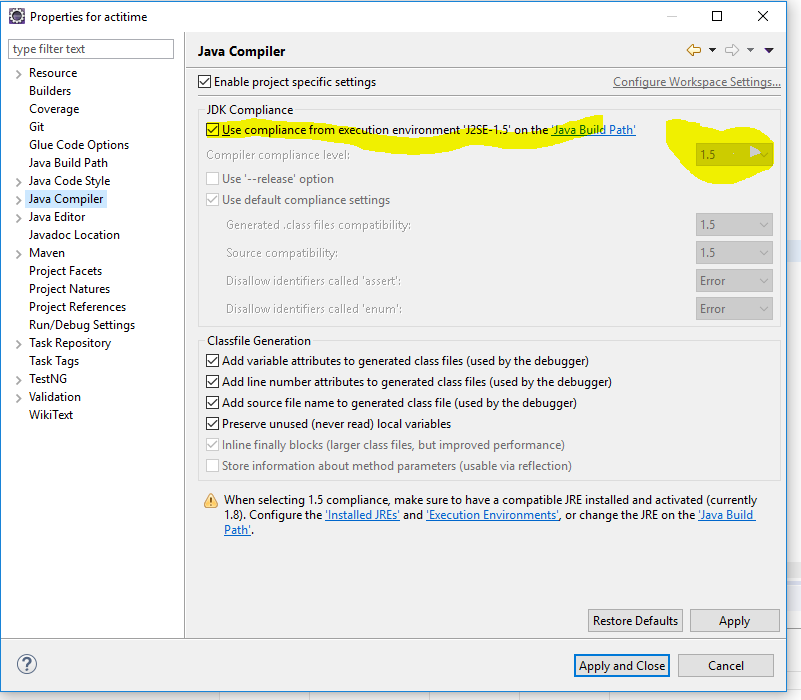


UPDATE COMPILER AND JRE VERSION IN THE PROJECT

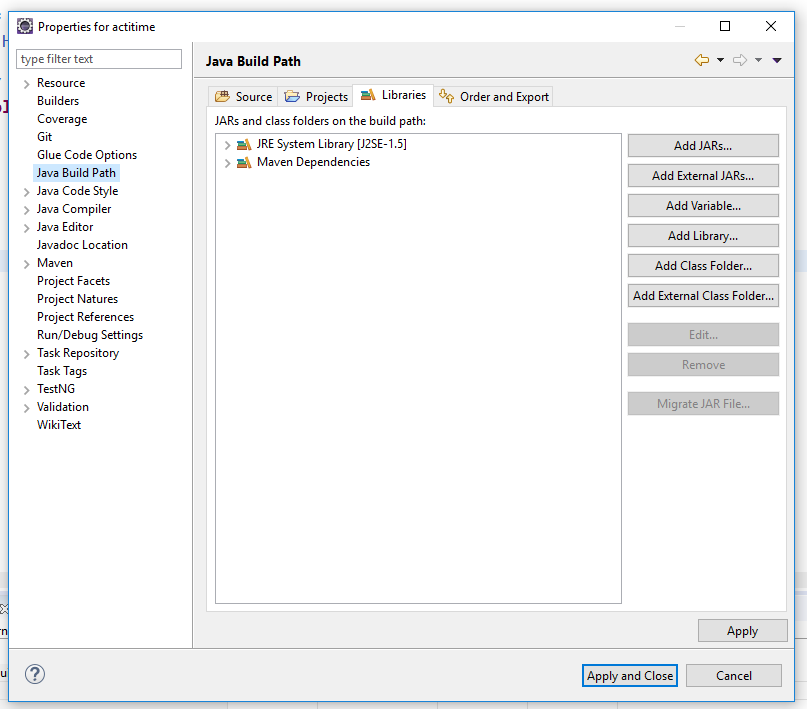
- COMPILER

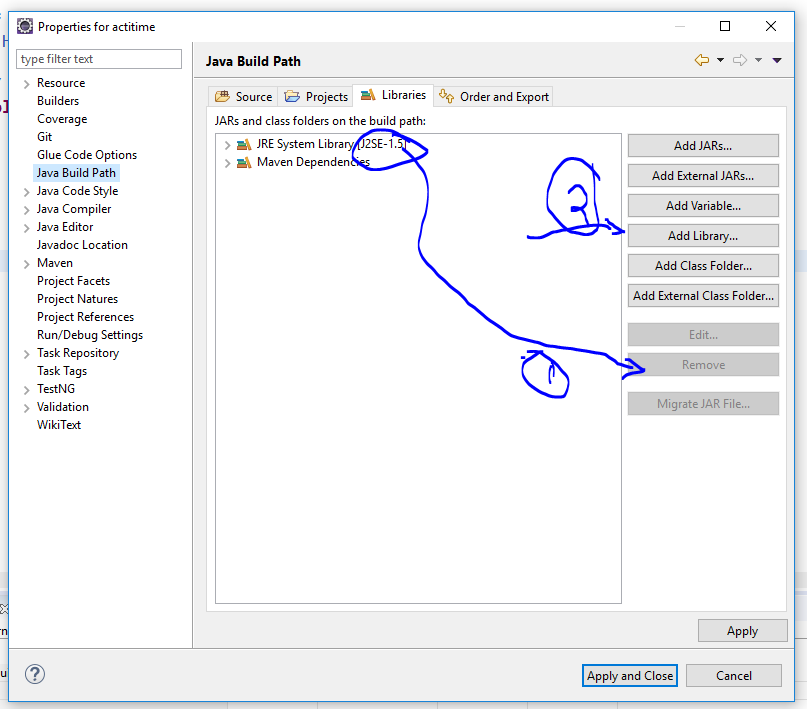


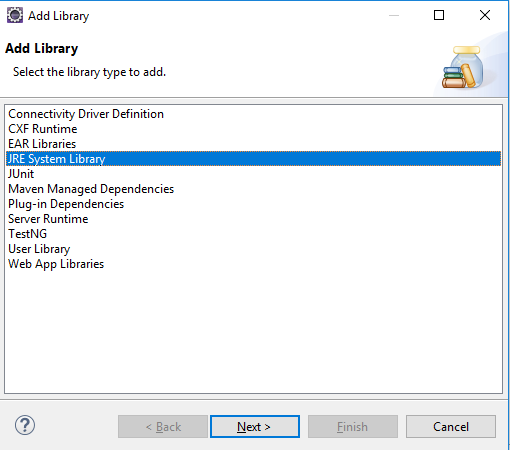


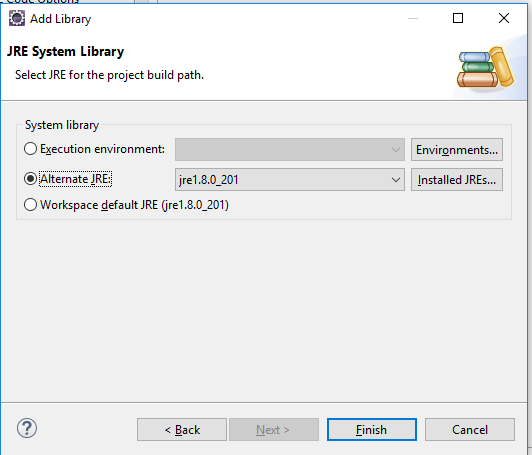


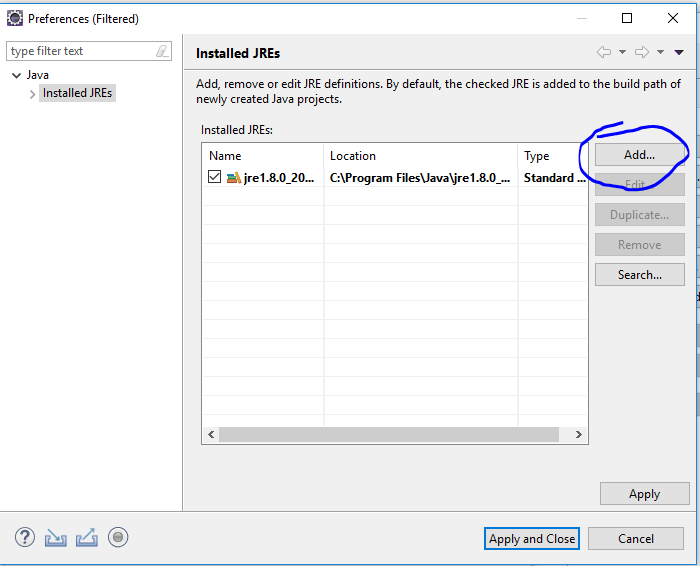
-JRE

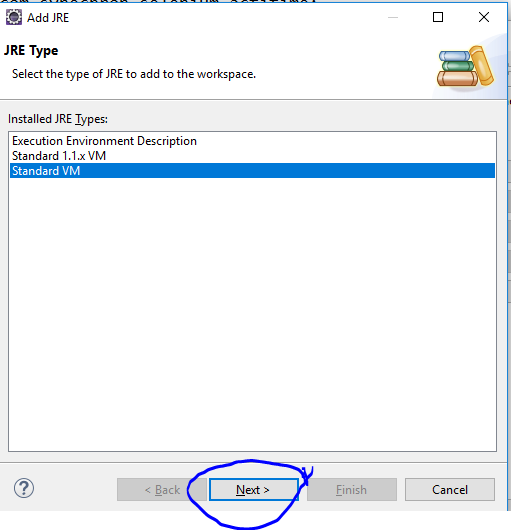


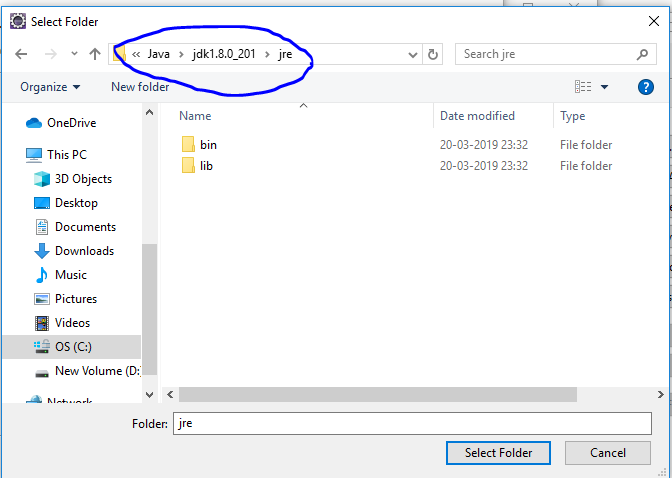




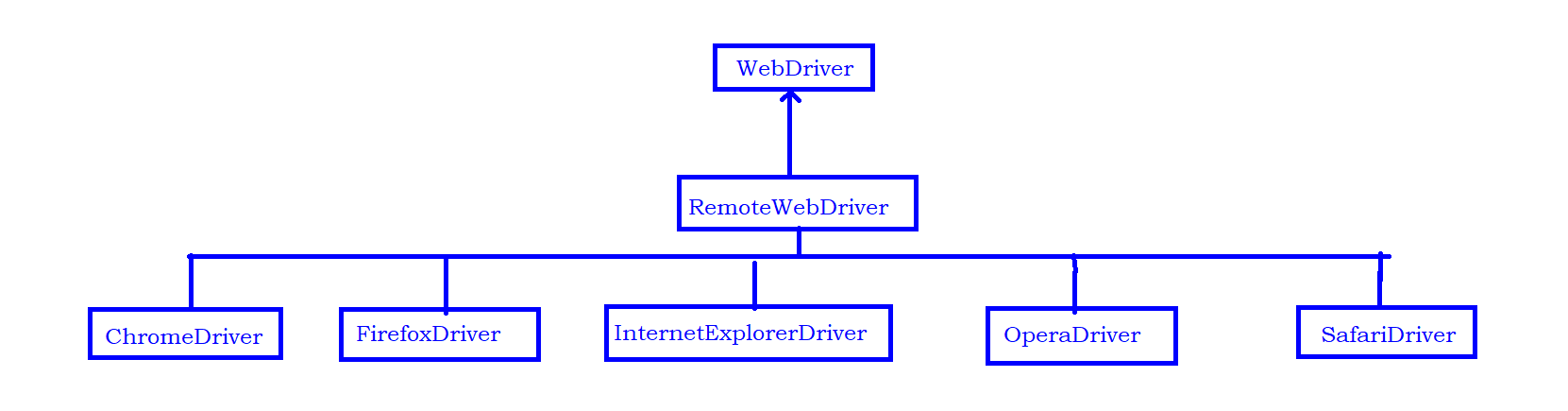




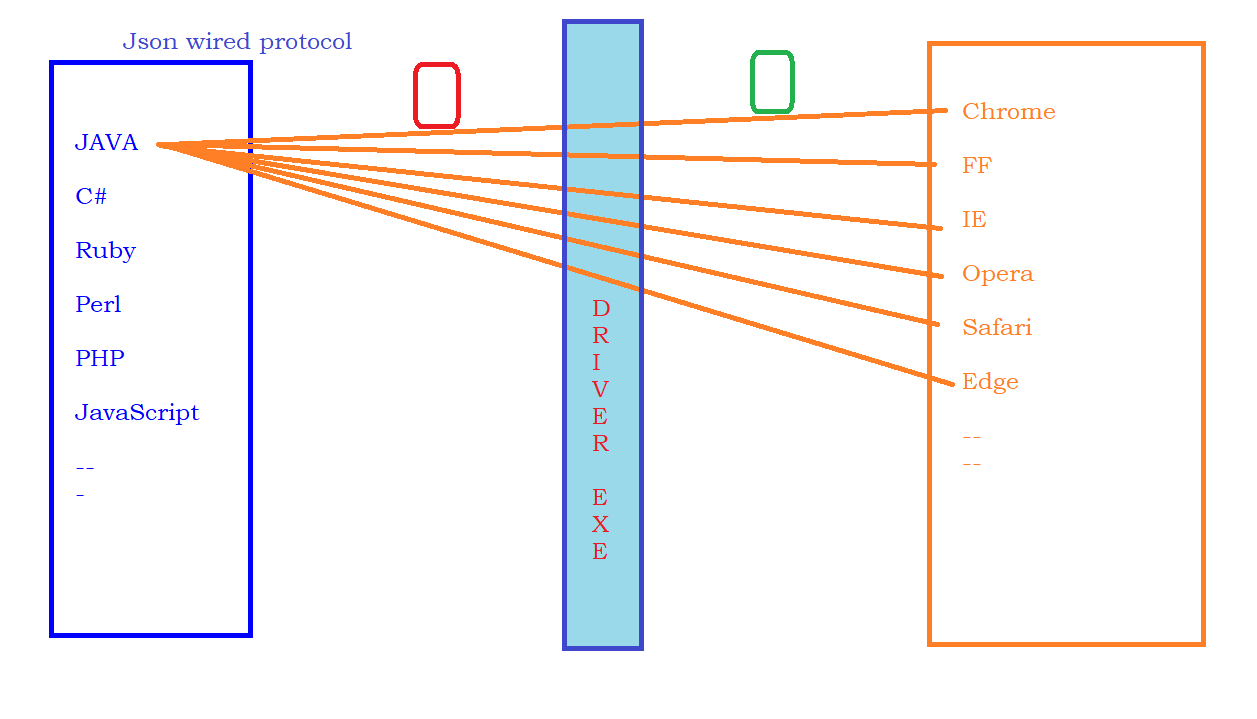




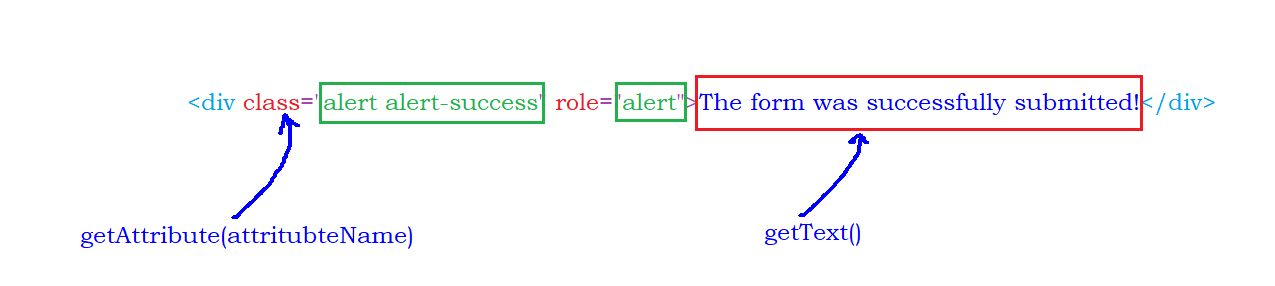
Architecture



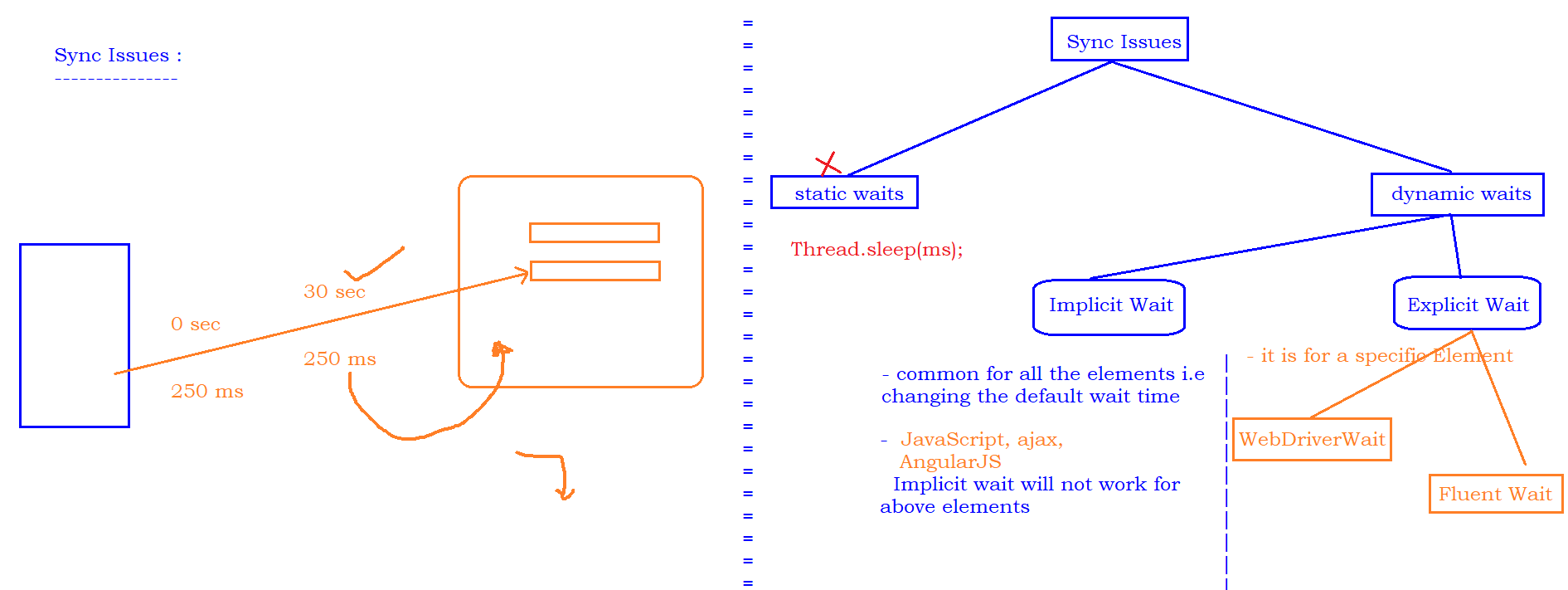
Json Wired Protocol



Reading Text or Attribute at Runtime:



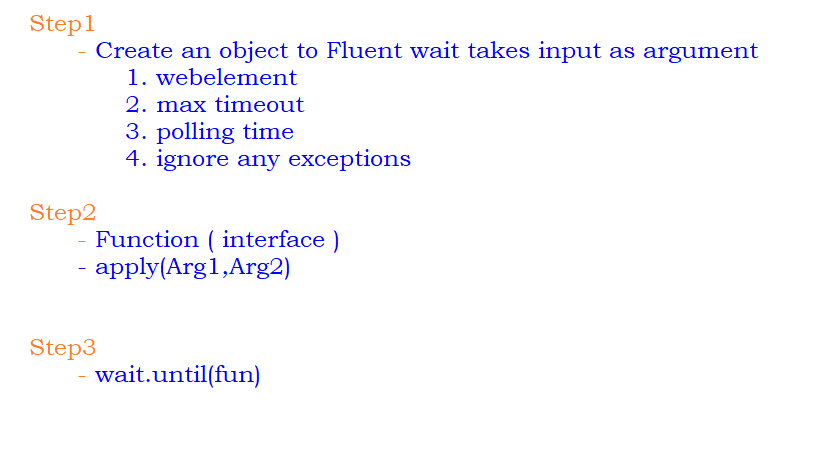
Sync Issues :



WebDriverManager :

<https://mvnrepository.com/artifact/io.github.bonigarcia/webdrivermanager/4.4.0>

Fluent wait :



* 

## CONTENTS :

### Day -1

1. **Selenium WebDriver Components**

* Introduction to Selenium WebDriver
* Difference in RC and WebDriver
* Features of Selenium WebDriver
* Difference between WebDriver2.0 and 3.0

1. **Environment for Selenium WebDriver**

* Introduction to Eclipse
* Introduction to FireBug
* Practicals: FireBug Exercises
* Introduction to XPath, CSSpath
* Practicals: XPath Exercises
* Practicals: CSSpath Exercises
* Practicals: Security and Performance Testing using FireBug

1. **Process to Create Project and Create Selenium WebDriver Scripts**

* **Practical**: Create scripts to Automate Gmail Test Cases
* **Practical**: Create scripts to use Retrieve value from Web Site
* **Practical**: Create scripts to handle pop-up dialogs
* **Practical**: Create scripts to work with iFrames

### Day **-2**

1. **Selenium WebDriver Project – Build Selenium Java Scripts**

**Practicals**: Build script to automate Live Web site

Create scripts to emulate user interaction with Web site

* Typing text
* Taking action on an existing web element
* Observing if web element is accessible on Web site
* Working with web elements that have same name or id
* Working with web elements that have no name or id
* Navigating across web links
* Navigating across web pages
* Browsing Other sites and Returning to previous sites
* Browsing Other sites and Returning to specific site
* Create scripts to access within a Web Table

1. **Selenium WebDriver Project – Build Selenium Java Scripts**

Synchronization

* Conditional Synchronization
* Unconditional Synchronization
* Implicit and Explicit Wait

1. **Implementation of Action, Select, Random, Alert Class**

**Practicals**: Build scripts to access web elements in a Context-Driven menu (Runtime generated menu)

**Practicals**: Build scripts drag-drop (Runtime generated list of items in drop-drop list)

1. **Cookie Management in Selenium**

**Practicals**: Build scripts to add, delete cookies

**Practicals**: Build scripts to get data of Cookie

### Day- **3**

1. **Capture Snapshot of Web site during script Execution**

**Practicals**: Build script using Java and Selenium to capture screen

1. **DataDriven Tests using Selenium, Java, Excel**

* Overview of variety of Test-Data sources
* Introduction to POM Framework
* Practicals: Reading data from Test-Data source
  + Build script to parse and extract data from Excel Test-Data source
  + Build script to parse and extract data from Text file Test-Data source
  + Build POM Framework

1. **Concept of Distributed Testing using Selenium Grid**

* How Selenium-Grid Works–With a Hub and Nodes
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  + Common Errors
  + Troubleshooting

1. **Developing reusable script**

**Practicals: End-to-End Project using POM**

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**13. 0 Handling of multi-browser automation**

* How to execute the test on different browser
* Automatically downloading driver executable from WebDriverManager
* Handling child browser and parent browser in selenium

**14.0 Working with popup**

* Handling alert
* Handling poupup from javascript
* Handling authentication popup
* Handling file download popup
* Handling file upload popup
* Overview of AutoIT, Robot class for non-web object handling

**15.0 Integrating Tests with Maven and Jenkins integration**

* Downloading and installing Maven
* Creating project in maven
* Executing test and validating maven reports
* Executing tests from command prompt
* Configuring Jenkins and Executing tests in Jenkins

**16.0 Appium introduction and overview**

* Introduction to Appium
* API walk through
* Advantages of Appium

**17.0 Open source platforms for Executing on cloud**

* overview- Browser stack and Sauce labs
* configuring Sauce lab to execute the tests
* selecting the required Browser with version and executing test

### Day-4

**18.0 Introduction to BDD**

* Overview of Behavior-Driven Development
* BDD and Test-Driven Development
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* Preparing the Development Environment
* Preparing the Selenium and Cucumber Environment
* Step-by-Step Notes on the Environment
* Getting Started with a Project

19.0 Feature Files with Gherkin

* Overview of Feature Files
* Gherkin Syntax
* Writing a Feature
* Writing a Scenario
* Given-When-Then Structure
* Feature Files

20. Cucumber & Java Step Definitions

* Getting Started with Glue Code
* Writing a Step Definition
* Implementing Scenario Steps
* Running a Feature File
* Manage Execution with JUnit TestRunner
* Adding JUnit Assertions

21. Cucumber & Selenium WebDriver

* Getting Started with Selenium WebDriver
* Cucumber Options
* Integrating Selenium and Step Definitions
* JUnit Assertions to Selenium Test
* Cucumber Hooks

Day-5

22. Enhancing Cucumber Framework

* Defining Multiple Scenarios
* Additional Gherkin Keywords
* Cucumber Tags
* Background Keyword
* Creating a Hooks Class

23 Data Parameterization with Gherkin

* Gherkin Variable Placeholders
* Implementing Variable Placeholders with Java
* Gherkin Scenario Outline and Examples
* Java Implementation
* Gerhkin DataTables
* Implementing Cucumber DataTable with Java

24. [Code reusability with regular Expressions](javascript:void(0))

* importance of regular expressions in feature files
* How to reuse functions with different data
* [Cucumber Framework Reports and Test Runner configurations](javascript:void(0))
* Generating reports of cucumber scnearios
* Importance of Attributes in cucumber options
* How we have addressed common problems with cucumber features
* Project code download

25. Framework - TestNG and POM

Day-6

**[26. M](javascript:void(0))**[aven and J](javascript:void(0))**[enkins](javascript:void(0))**

* Importance of Maven in Framework development
* Installing and configuring Maven
* Understanding Terminologies of Maven
* Creating Maven Project and importing into eclipse
* Understanding POM.xml file and its dependencies
* Importance of surefirePlugin in executing Tests
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* GIT Benching and Merging
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* Lab: GIT Branching and Merging
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* CI/CD with Jenkins
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* Lab: Configuring Jenkins in CentOS server procured in Lab 1
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* Lab: Running Continuous Deployment Using Jenkins