# CSharp Selenium - Python - Session Notes

Stage 1 - Programming language - C#

Stage 2 - Selenium (Web automation) & FLAUI or AutoIT (Windows Automation)

Stage 3 - Hybrid Framework (NUnit Framework, Data Driven Framework, Page Object Model, Keyword Driven Framework)

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Stage 4 - Python

Stage 5 - Playwright (Web automation)

Stage 6 - Hybrid Framework (Pytest Framework)

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Stage 7 - Git & Jenkins

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Timing - 9 to 1

Break → 10:45 to 11

Selenium - <https://www.selenium.dev/>

* Automates only the web application
* Open Source
* Language Independency - Java, C#, Python, Javascript, Ruby

Selenium

1. Selenium IDE
   1. No need for programming knowledge
   2. Record and playback
   3. Plugin - chrome, firefox, edge
   4. Use only for simple scripting and exploratory testing
2. Selenium RC - Depreciated
   1. Architecture

Source code (C#+Selenium RC libs) → RC server (Turn ON/OFF) → Browser

1. Selenium WebDriver (>3.0)
   1. Architecture

Source code (C#+Selenium WebDriver libs) → Browser

1. Selenium Grid
   1. If you want to scale by distributing and running tests on several machines and managing multiple environments from a central point

### C# - Programming

1. Installation
   1. Download Visual studio IDE (Latest community)
   2. Open Visual Studio Installer
      1. Select .Net Desktop development
2. Architecture
   1. Console app

Source code (.csproj) → .dll/.exe → O/P

* 1. Class library/Unit Test project

Source code (.csproj) → .dll → O/P

.dll → Platform independent

C# Compiler → helps to convert Source code to the Microsoft intermediate layer (.dll)

CLI - Common Language Runtime → helps the operating system to understand the .dll/.exe

Compile time error → Source code (.csproj) → .dll/.exe

Run time error → .dll/.exe → O/P

1. Create a Console app project
2. Naming convention

UpperCamelCase - MyFirstProject

lowerCamelCase - myFirstProject

1. Structure of C#

Solution - UpperCamelCase

Project 1 - UpperCamelCase

Namespace - UpperCamelCase

Class - UpperCamelCase

Methods - UpperCamelCase

Variable - lowerCamelCase

Properties - UpperCamelCase

1. Datatypes
   1. Pre-defined datatypes
   2. Non-defined datatypes - a collection of pre-defined
      1. String - a collection of char
      2. Array
         1. Size is fixed
      3. User-defined datatypes
2. When we give a whole number, it will be considered as an int

When we give decimal value, it will be considered as a double

1. Debugging
   1. Continue
   2. Terminate
   3. Step over
   4. Step into
2. Methods - Building block of the program
   1. Reusability
   2. Maintainence
3. Static Methods
   1. How to create a static method and call it?

//accessmodifier static returntype MethodName(arguments)

To call static method

Classname.MethodName()

1. Non-Static Methods
   1. How to create a non-static method and call it?
   2. To call the non-static method
      1. Create an object for that class
      2. objref.MethodName()
2. Variables
   1. Static Variable
      1. How to create and call it?
   2. Non-Static Variable
      1. How to create and call it?
3. Object
   1. Declaration
   2. Instanitiation - new
   3. Initialization
4. Class & Object
   1. Class - A class is a template, blueprint, or type from which objects are created
   2. Object
      1. An object is an instance of a class
      2. Every object has its own state (non-static variable) and behaviour (non-static method)
5. Access modifier
   1. Private - accessible within the class
   2. Internal - accessible within the assembly
   3. Protected - accessible through inheritance
   4. Protected internal - accessible within the assembly and also outside the assembly through inheritance
   5. Public - accessible anywhere
6. Properties in C#
7. Constructor - Pre-requisite to the object
   1. Constructor name and class name should be the same. It is a kind of method with no return type, not even void.
   2. It gets called whenever you create an object.
   3. There will always be a default constructor that helps to load all non-static variables with default values.
   4. We can override the default constructor by creating our own constructor
      1. Without arguments
      2. With arguments
   5. If a constructor is explicitly created, then it must be called during object creation.
8. this
   1. this keyword - helps to distinguish between the instance and local variable
   2. this keyword - points to the current object
9. Constructor overloading/ static polymorphism/compile-time polymorphism

The constructor to be called is resolved during compile time

Can create multiple constructors by changing in

* 1. Number of arguments
  2. Datatypes of arguments
  3. Sequence of arguments

1. Method overloading/static polymorphism/compile-time polymorphism

The method to be called is resolved during compile time

Can create multiple methods with the same name by changing in

* 1. Number of arguments
  2. Datatypes of arguments
  3. Sequence of arguments

### Selenium WebDriver

1. Create a Console app
2. Add Selenium WebDriver and Selenium support libraries from the NuGet package
3. Navigate to url
4. Get → title, url, page source
5. Click, type, Select
6. To inspect → tagname, attribute, text or not
7. Basic locator
   1. Id
   2. Name
   3. ClassName
   4. TagName
   5. LinkText
   6. PartialLinkText

FindElement → picks the first web element when there are duplicate locators

1. Advance locators
   1. XPath
   2. CSS
2. For page load - wait for page load to complete

FindElement --> check for presence of locator in 0.5s/500ms

1. Synchronization
   1. Unconditional wait (from C#)

Thread.Sleep(8000); //wait for 8s → Not recommended

* 1. Conditional wait (From selenium lib)
     1. Implicit wait
        1. Default implicit wait - 0s
        2. Applicable for all FindElement and FindElements methods
        3. Example: Implicit wait - 30s
           1. If the element is not present, it will check for 30 seconds, and then an exception will be thrown
           2. If the element is present, it will move ahead with the operation immediately
           3. Polling time → 0.5 (how freq it checks for element within the 30s)
     2. Explicit wait
        1. Exact conditions
     3. Fluent wait
        1. Ignore exceptions
        2. Modify polling time

1. Dropdown
   1. With select (Class - SelectElement)
      1. SelectByText()
      2. SelectByValue()
      3. SelectByIndex() → starts at 0
   2. Without select
      1. Click()
2. Multiple tabs/windows, frame, alert - SwitchTo()
3. Multiple tabs/windows
   1. driver.WindowHandles → gets all session id
4. Close() vs Quit()

driver.Close(); //close the current tab and current session

driver.Quit(); //close the current browser and also kill the process associated to it

1. Frame

### GIT:

Git - Git is a free and open source distributed version control system

Architecture

Project/Solution (in local machine) --> local repository (in local machine) → remote repository (github, gitlab, aws code commit, bit bucket)

Git

Modified–staging–commit

Work with git concept (to push the code to github)

1. git init → initialize the local repo (every solution will have its own local repo in C#)
2. git add . → stage the file to be committed
3. git commit -m “first commit” → update the local repo
4. git remote add origin1 <https://github.com/balaji-githubstore/csharp-selenium-siemens-oct-2025.git> → register the remote url with name origin
5. git push -u origin1 master

Reference

1 GB - 1024 MB

1 MB - 1024 KB

1 KB - 1024 B

1 B - 8 bits

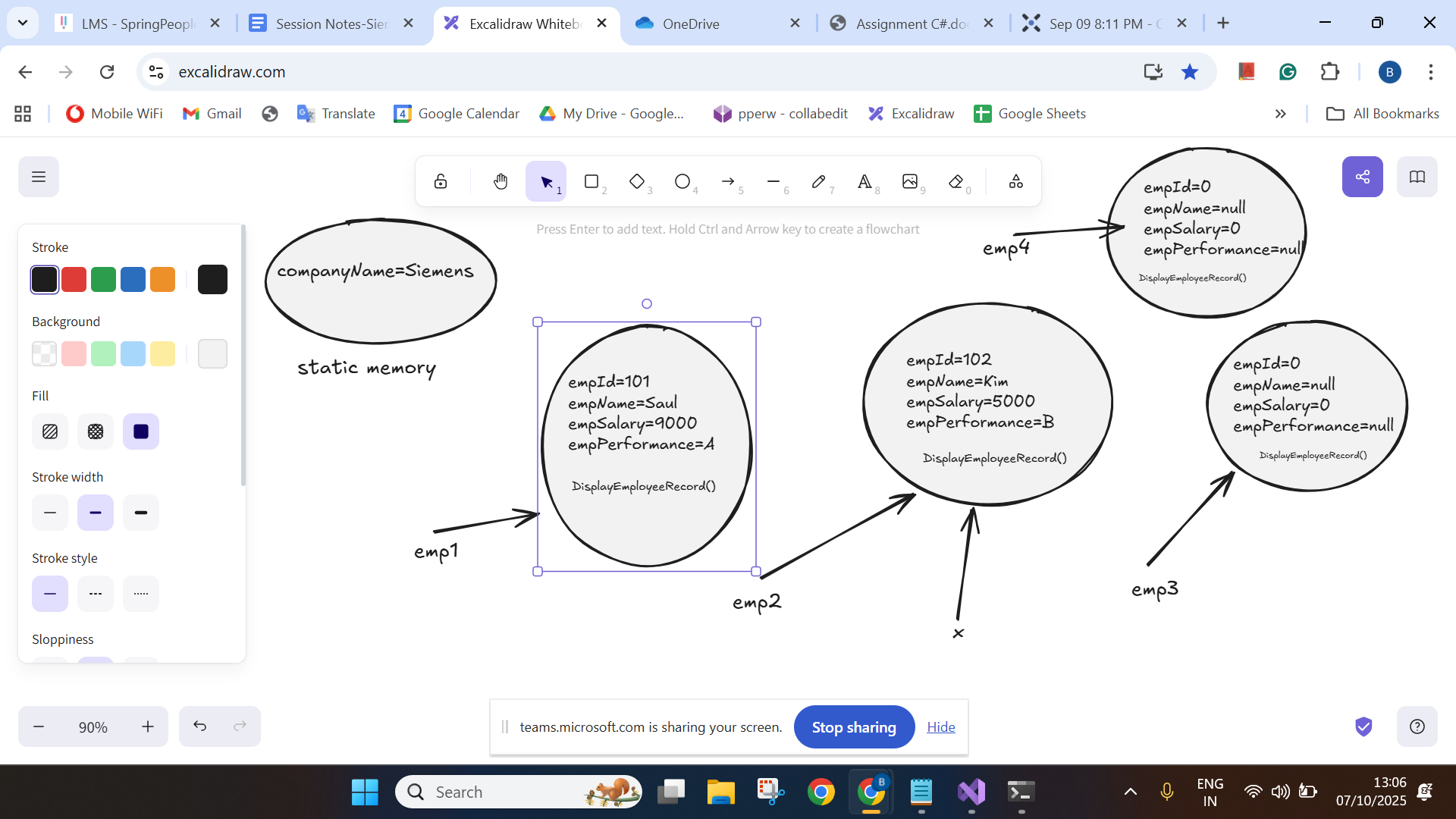
1 bit - 0 or 1

Exception in C#

1. System.IndexOutOfRangeException:

Exception in Selenium C#

1. NoSuchElementException
2. InvalidSelectorException - wrong syntax of the locator
3. ElementClickInterceptedException: - Some other element is hiding the target element.
4. ElementNotIteractableException -
5. NoSuchWindowException: 'no such window: target window already closed



# Assignments:

# **Task 1(Important)**

1. Navigate onto <https://www.salesforce.com/in/form/signup/freetrial-sales/>
2. Enter first name as “John”
3. Enter last name as “wick”
4. Enter work email as “john@gmail.com”
5. Select Job title as “IT Manager”
6. Select Employees as “101-500 employees”
7. Select country as “United Kingdom”
8. Do not fill the phone number
9. Click on check box
10. Click on start my free trial
11. Get the error message displayed “Enter a valid phone number”

# **Task 3 (Important)**

1. Navigate onto https://www.medibuddy.in/

2. Close if any popup and Click on Login

3. Click on I have Corporate Account

4. Click on Learn More

5. Click on Skip

6. Click on Login using Username & Password

7. Enter username as john

8. Enter password as john123

9. Click on show password

10. Click log in

11. Get the error message shown and print it in terminal

# **Task 4**

1. Navigate onto https://nasscom.in/

2. Click on Login and then click on register

3. Enter First name as admin

4. Enter Last name as pass

5. Enter email address as admin@gmail.com

6. Enter company name as Google

7. Select IT Consulting from dropdown

8. No need to automate CAPTCHA

9. Click on Register

### Multiple tabs

# **Task 1 (Important) - Multiple tabs**

1. Navigate onto https://www.citigroup.com/global/about-us/global-presence/india

2. Close if any pop up comes

3. Click on My Account

4. Click on Banking with citi

5. In new tab

6. Enter userid as john123

7. Click on signup

8. Get the error displayed for password

# **Task 2**

1. Navigate to<https://secure1.inmotionhosting.com/index/login>

2. Click on visit our support center

3. Click on “No Thanks” if any popup

4. Search for “diskspace”

5. Get the text “Search Results for: diskspace” and print it

Task 3

1. <https://eq-sol-ops-us-fd-main.azurefd.net/informational/contact-us/>
2. Fill the form with some random data and clear it off