Selenium

Free and open source tool used for automated testing

Advantages

Used with multiple programming languages (java,python,..) and multiple browsers(chrome,edge,safari..)

Can be integrated with CICD tools.

Diasdvantages

Used to test web applications only

Feature	**Manual Testing**	**Automation Testing**
Definition	Testing done **manually by a human** without using scripts	Testing done using **automated tools and scripts**
Execution	Testers run test cases step by step	Tools/software execute tests automatically
Speed	Slower – depends on human effort	Much faster – especially for repetitive tests
Accuracy	Prone to **human errors**	More **reliable** and consistent
Cost (Long-Term)	Cheaper upfront but **costly over time**	High initial setup cost but **cheaper long-term**
Reusability	Test cases need to be re-executed manually every time	Test scripts can be **reused** many times
Best For	- Exploratory testing - Usability testing - Ad-hoc	- Regression testing - Load testing - Repeated test runs

Test suite

Components are:

- Selenium IDE
  Integrated development environment-firefox/chrome plugin-genertaes test scripts by its own and it supports only firefox or chrome only
  Recording cannot be edited,for that recording has to be stopped and start recording again.
  Elements intertaction is not in selneium IDE
- Selenium RC-remote control
- Selenium web driver(Upgraded version of RC)
- Selenium Grid(parallel execution)

2 types are there

Selenium 3 and selenium 4

Selenium3-json protocol used for data sharing

Selenium4-W3C Protocol

Driver class

Chromedriver class,edge driver class,firefox driver class

Browser Commands

Create new github repo and push project to git before tomorrows session

Git url: https://github.com/rek818/AutomationCourse.git

//tagname[@attribute='attributevalue']

Locators

Using ID which is unique

Go to the webpage,right click and take inspect element,click on selector key on top and click on any button or any other fields in the webpage,then it will highlight in the dom.

Id,classname,tagname,name,linktext,partiallinktext,cssselector,CSS Selectors

Xpath

Absolute xpath,relative xpath

Relative xpath

//tagname[@attribute='attributevalue']

xPath access methods

indirectly reach the webelements through methods

we use this when we cant locate elements through one or more locators even after combining two locators

1.Parent

//div[contains (text(), 'Single Input Field')]//parent::div[@class='card']

Here ***div[@class='card']*** is the target element,but we cannot directly use this as it may show multiple results so we use parent to locate the exact element.Here in this case we use div[contains (text(), 'Single Input Field')],so the locator will find the element whose text is single input field and will locate the class that contains card as its parent.

2.child

//div[@class='card']//child::button[@id='button-one']

3.following

//button[@id='button-one']//following::div[@class='card'] -how many cards are there below the

4.preceding

//button[@id='button-one']//preceding:: div[@class='card']

5.ancestor

//button[@id='button-one']//ancestor::div

6.descendent

//div[@class='card']//descendant::div (child-grand child..)

Web elements:elements present inside a webpage,it is an interface

Web element commands

It is an interface

1.sendkeys-if we need to input a text inside a textbox.

2.click-

3.gettext

4.clear

5.getCssValue

6.getTagName

2nd half of dom under css attributes

Table handling,alert handling ,frames,dropdown

2nd week topic

1.dropdown

A dropdown is present in dom under select class

For dropdowns use select class and these methods to select a dropdown

Selectbyindex()

selectbyvalue()

selectbyvisibletext()

These are the Predefined methods in select class

2.checkbox

checkBox.click();

assignment:do multiple checkbox

do radiobutton in the same class

3.radiobutton

Predefined methods

1.IsSelected() -used to find if a button is clicked or not so need to give this method after click()

2.IsDisplayed()-to check if a button is present

3.IsEnabled()-to check if a button can be clicked or not

Table Handling

- Select entire table
- Select a row from the table-

- To get data of a particular row in the table - XpathOf<table>/tbody/tr[Row No:]

Frame

The square box that we see in this link

https://demoqa.com/frames

1.find total frames

//size() // to get the count of all the frames in the DOM

Here we sue findElements method as we there is more than one element so we use collection to store the element

List<WebElement>totalFrame=driver.findElements(By.*tagName*("iframe"))

System.***out***.println(totalFrame.size());

Use size method

2.To get control inside frame-//switchTo().frame(requiredframe)

Mouse actions

Actions class-predefined class to perform mouse actions

Mouse actions

Create object for action class

Call the method then . build().perform()

1.rightclick

contextClick(home).build().perform();

2.mouseHover

moveToElement

3.DragAndDrop

Keyboard actions

Robot class-predefined class

Keypress()-method to press key

Keyevent-class

VK-virtual key

robot.keyPress(KeyEvent.***VK_CONTROL***);

keyRelease-to release keys

Alerts

Eg:popup

Alert is an interface

3 types

1.Simple alert

2.Confirm alert

3.Prompt alert

Accept()-method to give ok in alerts

Dismiss()-method to cancel

Simple alert-accept() method is used

Confirm alert-both accept() and dismiss() can be used

Prompt alert-sendKeys(),accept()

Multiple window handling

To handle multiple windows.

File upload

Sendkeys(),

using robot class