35. Handle SVG Elements

SVG Elements

- An SVG (Scalable Vector Graphics) element is used to define vector-based graphics in XML format.
- SVG elements are part of the DOM (Document Object Model), and they are scalable, and do not lose any quality if they are zoomed or resized.
- SVGs are often used for icons, logos, and other graphical elements on web pages.

Key Differences between SVG Elements and Other Web Elements:

1. **Vector vs Raster**
   a. SVGs are vector-based, meaning they define graphics in terms of shapes, paths, and coordinates. This allows them to scale without losing quality, unlike raster images (e.g., JPG, PNG).
2. **XML-based Markup**
   a. SVG elements are written in XML, whereas regular HTML elements are based on HTML markup.
3. **Part of the DOM**
   a. Like HTML, SVG elements exist within the DOM, but they require special handling when interacting with them, especially when using XPath or CSS selectors.

Locating SVG Elements using XPath

1. Locating SVG elements in Selenium can be tricky because the SVG tags are in a different namespace.Standard XPath expressions do not work with SVGs.
2. SVG elements are often defined using the <svg> tag. To locate this element, you can use an XPath like this

//*[name()='svg'] Or //*[local-name()='svg']

SVGElementDemo.py

```
from selenium import webdriver
from selenium.webdriver.common.by import By
opt = webdriver.ChromeOptions()
opt.add_experimental_option("detach", True)
driver = webdriver.Chrome(options=opt)
driver.implicitly_wait(10)
driver.get("https://opensource-demo.orangehrmlive.com/web/index.php")
driver.maximize_window()
```

Login steps

```
driver.find_element(By.NAME, "username").send_keys("Admin")
driver.find_element(By.NAME, "password").send_keys("admin123")
driver.find_element(By.XPATH, "//button[@type='submit']").click()
```

Dashboard → My Timesheet

we cannot use standard xpath

```
driver.find_element(By.XPATH, "//button[@title='My Timesheet']//svg").click()
```

Interacting with an SVG element using name() and local-name() in XPath

```
driver.find_element(By.XPATH, "//button[@title='My Timesheet']//*[name()='svg']").click()
```

```
driver.find_element(By.XPATH, "//button[@title='My Timesheet']//*[local-name()='svg']").click()
driver.quit()
```

Locating a Child Element within an SVG

- SVG elements contain other elements like <rect>, <circle>, <path>, etc. To locate them, use a similar approach

```
//*[name()='svg']/*[name()='rect']
```

CaptureChildOfSVGElementDemo.py

```
from selenium import webdriver
from selenium.webdriver.common.by import By
opt = webdriver.ChromeOptions()
opt.add_experimental_option("detach", True)
driver = webdriver.Chrome(options=opt)
driver.implicitly_wait(10)
driver.get("https://testautomationpractice.blogspot.com/")
driver.maximize_window()
```

Capture color attribute of the SVG elements

Circle

```
circle =
driver.find_element(By.XPATH,"//*[@id='HTML14']/div[1]/div//*[local-name()='svg']//*[local-name()='circle']")
print("Color of circle:", circle.get_attribute("fill"))
```

Rectangle

```
rectangle =
driver.find_element(By.XPATH,"//*[@id='HTML14']/div[1]/div//*[local-name()='svg']//*[local-name()='rect']")
print("Color of rectangle:", rectangle.get_attribute("fill"))
```

Triangle

```
triangle =
driver.find_element(By.XPATH,"//*[@id='HTML14']/div[1]/div//*[local-name()='svg']//*[local-name()='polygon']")
print("Color of triangle:", triangle.get_attribute("fill"))
driver.quit()
```