**Handling Various Web Elements**

package practicesolution;

import org.openqa.selenium.By;

import org.openqa.selenium.Keys;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.chrome.ChromeDriver;

import org.openqa.selenium.support.ui.Select;

import java.util.ArrayList;

public class WebElementsDemo {

    public static void main(String[] args) {

        // Launch the Chrome browser

        WebDriver driver = new ChromeDriver();

        // Navigate to Google homepage

        driver.get("https://www.google.com");

        // Edit box

        // Enter a value in the search box

        driver.findElement(By.name("q")).sendKeys("Hello World");

        // Clear the value

        driver.findElement(By.name("q")).clear();

        // Check enabled status of the search box

        boolean isSearchBoxEnabled = driver.findElement(By.name("q")).isEnabled();

        // Check search box existence

        boolean doesSearchBoxExist = driver.findElements(By.name("q")).size() > 0;

        // Get the value from the search box

        String searchBoxValue = driver.findElement(By.name("q")).getAttribute("value");

        // Link

        // Click the "Images" link

        driver.findElement(By.linkText("Images")).click();

        // Check the "Images" link existence

        boolean doesImagesLinkExist = driver.findElements(By.linkText("Images")).size() > 0;

        // Check the "Images" link enabled status

        boolean isImagesLinkEnabled = driver.findElement(By.linkText("Images")).isEnabled();

        // Return the "Images" link name

        String imagesLinkName = driver.findElement(By.linkText("Images")).getText();

        // Button

        // Click the "Google Search" button

        driver.findElement(By.name("btnK")).click();

        // Check enabled status of the "Google Search" button

        boolean isSearchButtonEnabled = driver.findElement(By.name("btnK")).isEnabled();

        // Display status of the "Google Search" button

        boolean isSearchButtonDisplayed = driver.findElement(By.name("btnK")).isDisplayed();

        // Image, image link, and image button

        // Operations on Image

        // Text area

        // Return / Capture Text Area or Error message from a web page

        String textAreaValue = driver.findElement(By.tagName("textarea")).getAttribute("value");

        // Checkbox

        // Check if the "I'm Feeling Lucky" checkbox is displayed or not

        boolean isFeelingLuckyCheckboxDisplayed = driver.findElement(By.name("btnI")).isDisplayed();

        // Check if the "I'm Feeling Lucky" checkbox is enabled or not

        boolean isFeelingLuckyCheckboxEnabled = driver.findElement(By.name("btnI")).isEnabled();

        // Check if the "I'm Feeling Lucky" checkbox is selected or not

        boolean isFeelingLuckyCheckboxSelected = driver.findElement(By.name("btnI")).isSelected();

        // Select the "I'm Feeling Lucky" checkbox

        driver.findElement(By.name("btnI")).click();

        // Unselect the "I'm Feeling Lucky" checkbox

        driver.findElement(By.name("btnI")).click();

        // Radio button

        // Select the "Search" radio button

        driver.findElement(By.cssSelector("input[name='tbm'][value='s']")).click();

        // Verify if the "Search" radio button is displayed or not

        boolean isSearchRadioButtonDisplayed = driver.findElement(By.cssSelector("input[name='tbm'][value='s']")).isDisplayed();

        // Verify if the "Search" radio button is enabled or not

        boolean isSearchRadioButtonEnabled = driver.findElement(By.cssSelector("input[name='tbm'][value='s']")).isEnabled();

        // Verify if the "Search" radio button is selected or not

        boolean isSearchRadioButtonSelected = driver.findElement(By.cssSelector("input[name='tbm'][value='s']")).isSelected();

        // Drop-down list

        // Check the drop-down box existence

        boolean doesDropDownExist = driver.findElements(By.name("lang")).size() > 0;

        // Check if the drop-down box is enabled or not

        boolean isDropDownEnabled = driver.findElement(By.name("lang")).isEnabled();

        // Select an item from the drop-down list

        Select dropdown = new Select(driver.findElement(By.name("lang")));

        dropdown.selectByVisibleText("English");

        dropdown.selectByValue("fr");

        // Get the count of items in the drop-down list

        int itemCount = dropdown.getOptions().size();

        // Web table/HTML table

        // Get cell value from a table

        String cellValue = driver.findElement(By.xpath("//table/tbody/tr[1]/td[1]")).getText();

        // Get the count of rows in a table

        int rowCount = driver.findElements(By.xpath("//table/tbody/tr")).size();

        // Get the count of cells in a table row

        int cellCount = driver.findElements(By.xpath("//table/tbody/tr[1]/td")).size();

        // Frame

        // Switch from the default content to a frame

        driver.switchTo().frame("frameName");

        // Switch back from a frame to the default content

        driver.switchTo().defaultContent();

        // Switching between tabs in the same browser window

        // Open a new tab

        driver.findElement(By.cssSelector("body")).sendKeys(Keys.CONTROL + "t");

        // Switch to the newly opened tab

        ArrayList<String> tabs = new ArrayList<>(driver.getWindowHandles());

        driver.switchTo().window(tabs.get(1));

        // Perform operations in the new tab

        // Switch back to the old tab

        driver.findElement(By.cssSelector("body")).sendKeys(Keys.CONTROL + "\t");

        driver.switchTo().defaultContent();

        // Close the browser

        driver.quit();

    }

}