Automate an E-Commerce Web Application.
CODE

```java
package com.example;
import org.testng.annotations.Test;

import io.github.bonigarcia.wdm.WebDriverManager;

import java.util.concurrent.TimeUnit;
import java.util.function.Function;

import org.openqa.selenium.By;
import org.openqa.selenium.Dimension;
import org.openqa.selenium.JavascriptExecutor;
import org.openqa.selenium.NoSuchElementException;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.edge.EdgeDriver;
import org.openqa.selenium.support.ui.FluentWait;
import org.openqa.selenium.support.ui.Wait;
import org.testng.annotations.AfterClass;
import org.testng.annotations.AfterMethod;
import org.testng.annotations.BeforeClass;
import org.openqa.selenium.edge.EdgeOptions;

public class TestingDemo {
    WebDriver driver;

    @BeforeClass
    public void beforeClass() {
        WebDriverManager.chromedriver().setup();
        //WebDriverManager.edgedriver().setup();
        //EdgeOptions options = new EdgeOptions();
        //driver = new EdgeDriver(options);
        driver = new ChromeDriver();
        driver.get("https://www.flipkart.com/");
        driver.manage().window().maximize();
    }

    @AfterClass
    public void afterClass() {
        driver = null;
    }

    @Test(priority = 1)
    public void closeLogin() throws InterruptedException {

        try {
            System.out.println("\nChrome Browser Result:\n");
            System.out.println(driver.getTitle());
            driver.findElement(By.cssSelector("body > div._2Sn47c >
div > div > button")).click();
            Thread.sleep(2000);
        } catch (NoSuchElementException e) {
            e.printStackTrace();
        }
    }

    @Test(priority = 2)
    public void scroll() throws InterruptedException {
```

```java
            Thread.sleep(2000);
            JavascriptExecutor js = (JavascriptExecutor) driver;

        js.executeScript("window.scrollBy(0,document.body.scrollHeight)");
            System.out.println("\nNavigated to bottom of the page");
            Thread.sleep(2000);
            js.executeScript("window.scrollBy(0,-
document.body.scrollHeight)", "");
            System.out.println("\nScroll Feature available");
            Thread.sleep(2000);
        }

        @Test(priority = 3)
        public void searchProduct() throws InterruptedException {
            Thread.sleep(1000);
            driver.findElement(By.name("q")).sendKeys("iPhone 13");
            Thread.sleep(1000);
            By search = By.cssSelector("#container > div > div.1kfTjk >
div._1rH5Jn > div._2Xfa2 > div._1cmsER > form > div > button > svg");

            driver.findElement(search).click();

            Thread.sleep(3000);
            By load = By.cssSelector("#container > div >
div._36fx1h._6t1WkM._3HqJxg > div._1YokD2._2GoDe3 > div:nth-child(2) >
div:nth-child(9) > div > div");
            long start = System.currentTimeMillis();
            driver.findElement(load).click();
            long finish = System.currentTimeMillis();
            long totalTime = finish - start;
            System.out.println("\nTime to load page in millisecs - " +
totalTime);
        }

        @Test(priority = 4)
        public void loadImage() throws InterruptedException {

            String url = "https://www.flipkart.com/apple-iphone-13-pink-
256-
gb/p/itmc5ee8ec6cd737?pid=MOBG6VF5XAMZ2FKX&lid=LSTMOBG6VF5XAMZ2FKX59OYTD&ma
rketplace=FLIPKART&q=iPhone+13&store=tyy%2F4io&srno=s_1_8&otracker=search&o
tracker1=search&fm=organic&iid=726b6e9f-b204-4827-9ba9-
f7a56703e8b8.MOBG6VF5XAMZ2FKX.SEARCH&ppt=hp&ppn=homepage&ssid=6achtrk6eo000
0001666114588679&qH=c3d519be0191fbf8";
            driver.get(url);
            Thread.sleep(3000);
            //driver.navigate().refresh();

            Wait<WebDriver> wait = new
FluentWait<WebDriver>(driver).withTimeout(10, TimeUnit.SECONDS)
                            .pollingEvery(2,
TimeUnit.SECONDS).ignoring(NoSuchElementException.class);
            wait.until(new Function<WebDriver, WebElement>() {

                @Test
                public WebElement apply(WebDriver driver) {
                    WebElement img = driver.findElement(By.xpath(

    "//*[@id=\"container\"]/div/div[3]/div[1]/div[1]/div[1]/div/div[1]/di
v[2]/div[1]/div[2]/img"));
```

```java
                    if (img.isDisplayed()) {
                        System.out.println("\nImage Loaded");
                        return img;
                    } else {
                        System.out.println("\nFluent Wait Fail!,
Element Not Loaded Yet");
                        return null;
                    }
                }
            });
        }

    @Test(priority = 5)
    public void scrollFrequency() throws InterruptedException {
        Thread.sleep(2000);
        long start = System.currentTimeMillis();
        WebElement element = driver.findElement(By.cssSelector(
                    "#container > div >
div._2c7YLP.UtUXW0._6t1WkM._3HqJxg > div._1YokD2._2GoDe3 >
div._1YokD2._3Mn1Gg.col-8-12 > div._1YokD2._3Mn1Gg > div:nth-child(7) > div
> div:nth-child(3) > div > div > div:nth-child(1)"));
        ((JavascriptExecutor)
driver).executeScript("arguments[0].scrollIntoView(true);", element);
        long stop = System.currentTimeMillis();
        long totalTime = stop - start;
        System.out.println("\nScroll Frequency in millisecs - " +
totalTime);

    }

    @Test(priority = 6)
    public void downloadImages() throws InterruptedException {
        WebElement img = driver.findElement(By

    .xpath("//*[@id=\"container\"]/div/div[3]/div[1]/div[1]/div[1]/div/di
v[1]/div[2]/div[1]/div[2]/img"));
        Boolean p = (Boolean) ((JavascriptExecutor)
driver).executeScript("return arguments[0].complete "
                    + "&& typeof arguments[0].naturalWidth !=
\"undefined\" " + "&& arguments[0].naturalWidth > 0", img);

        if (p) {
            System.out.println("\nImage present");
        } else {
            System.out.println("\nImage not present");
        }
    }

    @Test(priority = 7)
    public void screenResolution() throws InterruptedException {
        Thread.sleep(1000);
        Dimension dimension = new Dimension(720, 1080);
        driver.manage().window().setSize(dimension);
        Thread.sleep(3000);

        Dimension dimension1 = new Dimension(1280, 800);
        driver.manage().window().setSize(dimension1);
        Thread.sleep(3000);

        Dimension dimension2 = new Dimension(2256, 1504);
```

```java
            driver.manage().window().setSize(dimension2);

            JavascriptExecutor js = (JavascriptExecutor) driver;
            int contentHeight = ((Number) js.executeScript("return
window.innerHeight")).intValue();
            int contentWidth = ((Number) js.executeScript("return
window.innerWidth")).intValue();
            System.out.println("\nHeight: " + contentHeight + " Width: " +
contentWidth + "\n");

    }

}
```

OUTPUT

```
[RemoteTestNG] detected TestNG version 7.8.0
SLF4J: No SLF4J providers were found.
SLF4J: Defaulting to no-operation (NOP) logger implementation
SLF4J: See https://www.slf4j.org/codes.html#noProviders for further details.
Starting ChromeDriver 115.0.5790.102 (90efd4b0ad6aa15eeafcdabd5817ae939f7ba059-refs/branch-heads/5790_90@{#9}) on port 22006
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
Aug 01, 2023 5:33:29 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C

Chrome Browser Result:

Online Shopping Site for Mobiles, Electronics, Furniture, Grocery, Lifestyle, Books & More. Best Offers!

Navigated to bottom of the page

Scroll Feature available

Image Loaded

Scroll Frequency in millisecs - 75

Image present
PASSED: com.example.TestingDemo.closeLogin
PASSED: com.example.TestingDemo.scrollFrequency
PASSED: com.example.TestingDemo.scroll
PASSED: com.example.TestingDemo.downloadImages
```

Test results — 1 suite — Switch Retro Theme

All suites

Default suite

Info
- C:\Users\Hp\AppData\Local\Temp\testng-eclipse-24049987\testng-customsuite.xml
- 1 test
- 0 groups
- Times
- Reporter output
- Ignored methods
- Chronological view

Results
- 9 methods, 9 passed
- Passed methods (show)

Times for Default suite

Total running time: 43 seconds

Number	Method	Class	Time (ms)
0	verifyConsistentRenderingOnDifferentResolutions	com.example.TestngDemo.FlipkartTest	11,720
1	loadImage	com.example.TestngDemo.FlipkartTest	8,618
2	screenResolution	com.example.TestngDemo.FlipkartTest	7,661
3	scroll	com.example.TestngDemo.FlipkartTest	6,070
4	searchProduct	com.example.TestngDemo.FlipkartTest	5,978
5	scrollFrequency	com.example.TestngDemo.FlipkartTest	2,045
6	closeLogin	com.example.TestngDemo.FlipkartTest	1,241
7	checkImageRefreshFrequency	com.example.TestngDemo.FlipkartTest	71
8	downloadImages	com.example.TestngDemo.FlipkartTest	46

Test results — 1 suite — Switch Retro Theme

All suites

Default suite

Info
- C:\Users\Hp\AppData\Local\Temp\testng-eclipse-24049987\testng-customsuite.xml
- 1 test
- 0 groups
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Results
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Methods in chronological order

com.example.TestngDemo.FlipkartTest

beforeTest	0 ms
closeLogin	7459 ms
scroll	8714 ms
searchProduct	14788 ms
loadImage	20774 ms
scrollFrequency	29397 ms
downloadImages	31444 ms
screenResolution	31493 ms
checkImageRefreshFrequency	39156 ms
verifyConsistentRenderingOnDifferentResolutions	39230 ms
tearDown	50952 ms

Test	# Passed	# Skipped	# Retried	# Failed	Time (ms)	Included Groups	Excluded Groups
					Default suite		
Default test	9	0	0	0	51,349		

Class		Method		Start	Time (ms)
		Default suite			
		Default test — passed			
com.example.TestngDemo.FlipkartTest		checkImageRefreshFrequency		1690880619215	71
		closeLogin		1690880627594	1241
		downloadImages		1690880614323	44
		loadImage		1690880619813	5013
		screenResolution		1690880651170	1681
		scroll		1690880628791	4070
		scrollFrequency		1690880640474	2045
		searchProduct		1690880634895	2670
		verifyConsistentRenderingOnDifferentResolutions		1690880639997	11730

Default test

com.example.TestngDemo.FlipkartTest#checkImageRefreshFrequency

back to summary

com.example.TestngDemo.FlipkartTest#closeLogin

back to summary

com.example.TestngDemo.FlipkartTest#downloadImages

back to summary

com.example.TestngDemo.FlipkartTest#loadImage

back to summary

com.example.TestngDemo.FlipkartTest#screenResolution

back to summary

com.example.TestngDemo.FlipkartTest#scroll

back to summary

com.example.TestngDemo.FlipkartTest#scrollFrequency

back to summary

com.example.TestngDemo.FlipkartTest#searchProduct

back to summary

com.example.TestngDemo.FlipkartTest#verifyConsistentRenderingOnDifferentResolutions

back to summary

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Careers	Cancellation & Returns	Security	YouTube	Clove Embassy Tech Village,	Clove Embassy Tech Village,
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Flipkart Wholesale		Grievance Redressal		Karnataka, India	Karnataka, India
Corporate Information		EPR Compliance			CIN : U51109KA2012PTC066107
					Telephone: 044-45614700

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iphone 13 mini

iphone 13 cover

iphone 13

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