

## Cookies

### What is cookies?

- Cookies are small piece of information/data. Which are stored on a user computer by a web server. This information is later used by the web browser to retrieve information from that machine.
- Generally, the cookie contains personalized user data or information that is used to communicate between different web pages.
- They are designed to hold a modest amount of data specific to a particular client and website and can be accessed either by the web server or the client computer.

### Why Are Cookies used?

- Cookies are nothing but the user's identity and are used to track where the user navigated throughout the website pages.

### Example:

- If you are accessing domain "http://www.example.com/1.html" then the web browser will simply query to example.com web server for the page 1.html. Next time if you type page as "http://www.example.com/2.html" then new request is sent to example.com web server for sending 2.html page and the web server does not know anything about to whom the previous page 1.html served.
- What if you want the previous history of this user communication with the web server? You need to maintain the user state and interaction between a web browser and web server somewhere. This is where cookie comes into the picture. Cookies serve the purpose of maintaining the user interactions with a web server.

### How do cookies work?

- The HTTP protocol used to exchange information files on the web is used to maintain the cookies.
- There are two types of the HTTP protocol.
  1. Stateless HTTP.
  2. Stateful HTTP protocol.
- 1. **Stateless HTTP protocol** does not keep any record of previously accessed web page history.
- 2. **While Stateful HTTP protocol** does keep some history of previous web browser and web server interactions and this protocol is used by the cookies to maintain the user interactions.
- Whenever a user visits a site or page that is using a cookie, the small code inside that HTML page (Generally a call to some language script to write the cookie like cookies in JavaScript, PHP, and Perl) writes a text file on user's machine called a cookie.

**Generally, two types of cookies are written on the user machine**

**1) Session cookies:**

- This cookie is active till the browser that invoked the cookie is open. When we close the browser this session cookie gets deleted. Sometime session of say 20 minutes can be set to expire the cookie.

**2) Persistent cookies:**

- These are cookies that are written permanently on the user machine and lasts for months or years.

**Why we need to handle the cookies in selenium?**

- Almost all website use cookies in one form or another. Cookies are a way of remembering users and their interaction with the site by storing information in the cookies file as key value pairs.
- When testing a website with selenium webdriver. Sometimes it is necessary to handle cookies, such as creating new cookies, updating existing cookies with new information or deleting cookies.
- If cookies are not stored, you will need to perform login action every time before you execute above listed test scenarios. This will increase your coding effort and execution time.
- The solution is to store cookies in a File. Later, retrieve the values of cookie from this file and add to it your current browser session. As a result, you can skip the login steps in every Test Case because your driver session has this information in it.
- The application server now treats your browser session as authenticated and directly takes you to your requested URL.

In order to handle the cookies, Selenium provides the following functions.

- Add cookie
- Get cookies
- Get cookie named
- Delete cookie
- Delete cookie named
- Delete all cookies

**Add Cookie:**

- To add a specific cookie.

Syntax:

➔ AddCookie (Cookie cookie)

- Add cookie method takes the argument of type cookie. In order to add the cookie we need to create the cookie object.
- Cookie constructor takes two string arguments i.e. Name and value.

```
Cookie cookie = new Cookie("String name, String value");
```

- Then pass above object reference variable as an argument for the AddCookie method.

➔ Write a program to add the cookie

```
import org.openqa.selenium.Cookie;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class Add_cookie
{
    public static void main(String[] args) {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://demo.actitime.com/");

        Cookie cookie = new Cookie("My_cookie", "");
        driver.manage().addCookie(cookie);

        driver.close();
    }
}
```

➔ Get Cookie with the specific name

- Get cookie method is used to get the cookie with the specific name.
- It gets the all the details of the specified cookie, following are the details which each cookies contains.
- (Name, domain, path, value, expiry )
- If the specified cookie is not found then get cookie method returns null.

Syntax: get\_cookie (CookieName)

➔ Script to get the cookie with a given name

```
import org.openqa.selenium.Cookie;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class Get_cookie_named {
    public static void main(String[] args) {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://demo.actitime.com/");

        Cookie cookie = new Cookie("My_cookie", "My_Cookie_value_12362634");
        driver.manage().addCookie(cookie);

        Cookie cookieDetail = driver.manage().getCookieNamed("My_cookie");
        System.out.println("Cookie details: "+cookieDetail);

        driver.close();
    }
}
```

### ➔ Get Cookies

- Get cookies method is used to get all the cookies for the current domain.
- Get cookies method returns a set of cookies for the current domain.

Syntax: `get_cookies ()`

➔ Program to get all the cookies and print all the cookies.

```
import java.util.Set;
import org.openqa.selenium.Cookie;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class Get_all_cookies {
    public static void main(String[] args) {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://demo.actitime.com/");

        Set<Cookie> all_cookies = driver.manage().getCookies();
        System.out.println("Cookies count: "+all_cookies.size());

        for(Cookie cookie : all_cookies)
        {
            System.out.println(cookie);
        }

        driver.close();
    }
}
```

### ➔ Delete cookie with the specific name

- Delete the named cookie from the current domain using the name of the cookie.

Syntax: `delete_cookie (CookieName)`

➔ Script to delete the cookie and verify after the delete

```
import org.openqa.selenium.Cookie;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class Delete_cookie_named
{
    public static void main(String[] args) {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://demo.actitime.com/");

        Cookie cookie = new Cookie("My_cookie", "My_Cookie_value_12362634");
        driver.manage().addCookie(cookie);

        driver.manage().deleteCookieNamed("My_cookie");
        // Verifying the cookie after deleting it.
        Cookie addedCookie = driver.manage().getCookieNamed("My_cookie");
        System.out.println("Deleted cookie: "+addedCookie);

        driver.close();
    }
}
```

### ➔ DeleteCookie (Cookie)

- Selenium provides another method DeleteCookie to delete the cookie from the current domain using the cookie object.
- Script to delete the cookie using the cookie object.

```
import org.openqa.selenium.Cookie;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class Delete_cookie_cookie
{
    public static void main(String[] args) {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://demo.actitime.com/");
        // Adding the cookie
        Cookie cookie = new Cookie("My_cookie", "My_Cookie_value_12362634");
        driver.manage().addCookie(cookie);
        //Deleting the cookie using the object of cookie
        driver.manage().deleteCookie(cookie);
        //Verifying the cookie after deleting
        Cookie addedCookie = driver.manage().getCookieNamed("My_cookie");
        System.out.println("Deleted cookie: "+addedCookie);

        driver.close();
    }
}
```

### ➔ Delete All Cookies

- It will delete all the cookies for the current domain.

Syntax: deleteAllCookies ()

➔ Script to delete all the cookies and verify is all cookie is deleted

```
import java.util.Set;
import org.openqa.selenium.Cookie;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class Delete_all_cookie {
    public static void main(String[] args) {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://demo.actitime.com/");
        //Deleting all the cookies
        driver.manage().deleteAllCookies();
        //Trying to get all the cookies after deleting
        Set<Cookie> all_cookies = driver.manage().getCookies();
        System.out.println("Cookies count: "+all_cookies.size());
        for(Cookie cookie : all_cookies)
        {
            System.out.println(cookie);
        }
        driver.close();
    }
}
```

➔ Script to save the cookie and skip the login and navigate to home page directly.

```
import org.openqa.selenium.By;
import org.openqa.selenium.Cookie;

public class SaveCookieAndSkipLogin {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:\\Training\\QSSW3\\Driver\\chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.navigate().to("https://demo.actitime.com");

        driver.findElement(By.id("username")).sendKeys("admin");
        driver.findElement(By.name("pwd")).sendKeys("manager");
        driver.findElement(By.id("loginButton")).click();
        Thread.sleep(10000);
        Set<Cookie> all_cookies = driver.manage().getCookies();
        driver.close();

        driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://demo.actitime.com");

        for (Cookie c : all_cookies) {
            driver.manage().addCookie(c);
        }
        Thread.sleep(3000);
        driver.navigate().refresh();
        Thread.sleep(3000);
        driver.close();
    }
}
```