SOFTWARE ENGINEERING AND TESTING REPORT

RCOEM

Shri Ramdeobaba College of Engineering and Management, Nagpur

Computer Science and Engineering (Data Science)

Shri Ramdeobaba College of Engineering & Management, Nagpur

(An Autonomous Institute affiliated to Rashtrasant Tukdoji Maharaj Nagpur University, Nagpur)

Topics

Create front end for Black box testing
Create back end for white box testing
Automation testing using Selenium Web Driver

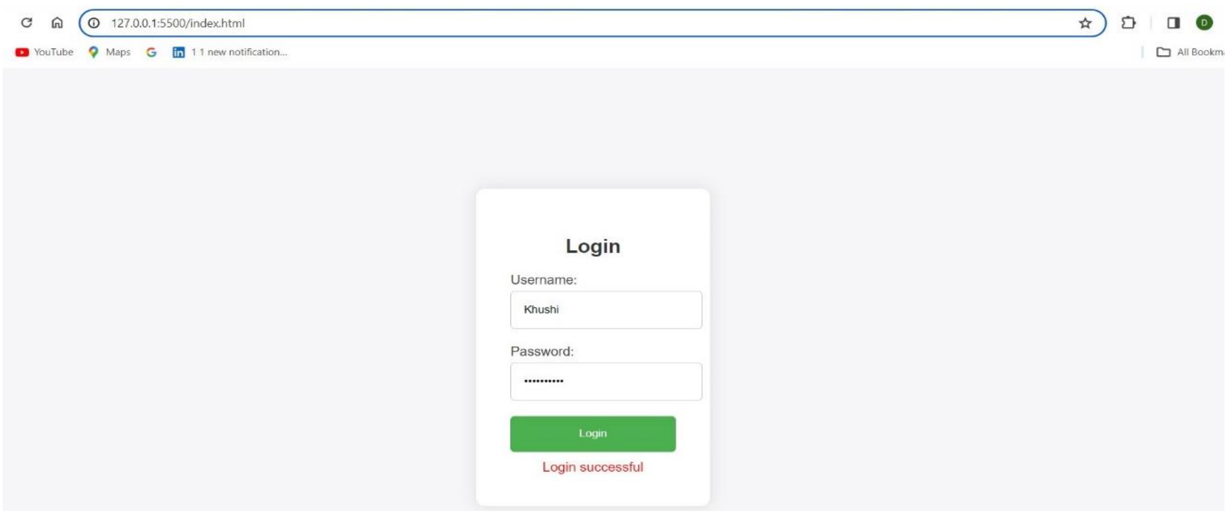
Submitted By

Name: Khushi Bajpai

RollNo.:06

BLACK BOX TESTING:

TEST CASE 1: Login in with valid Username and Password.


Login

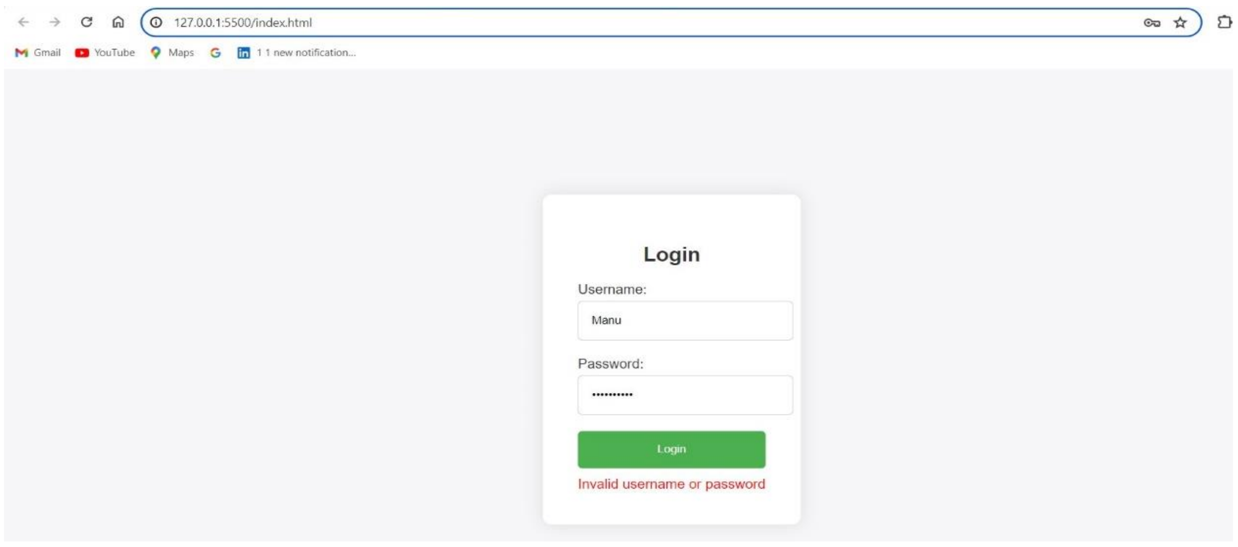
Username: Khushi

Password: ••••••••••

Login

Login successful

TEST CASE 2: Login in with invalid Username and Password.

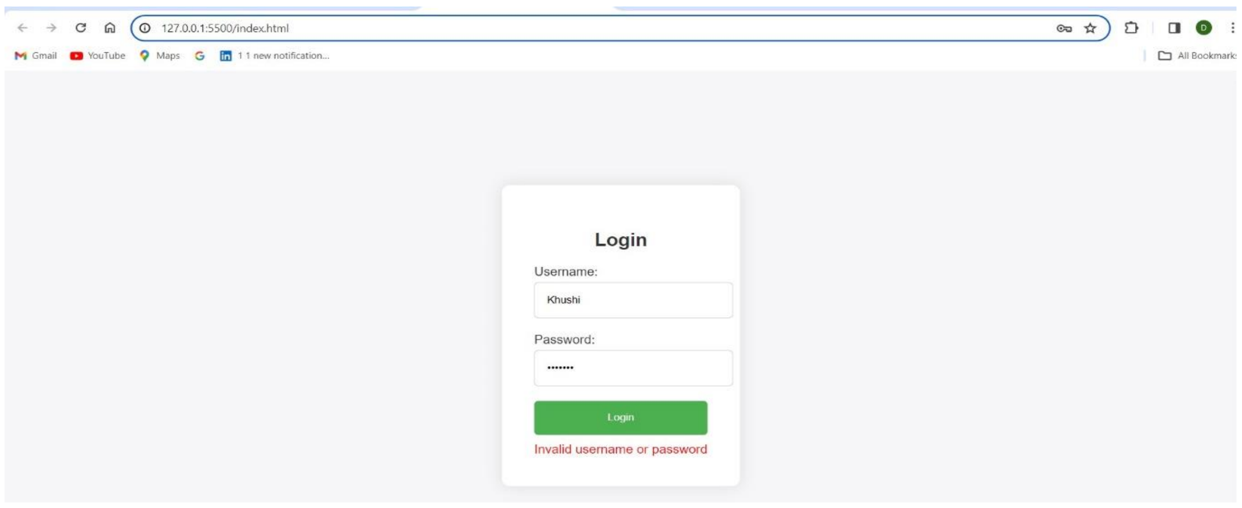

Login

Username: Manu

Password: ••••••••••

Login

Invalid username or password


Login

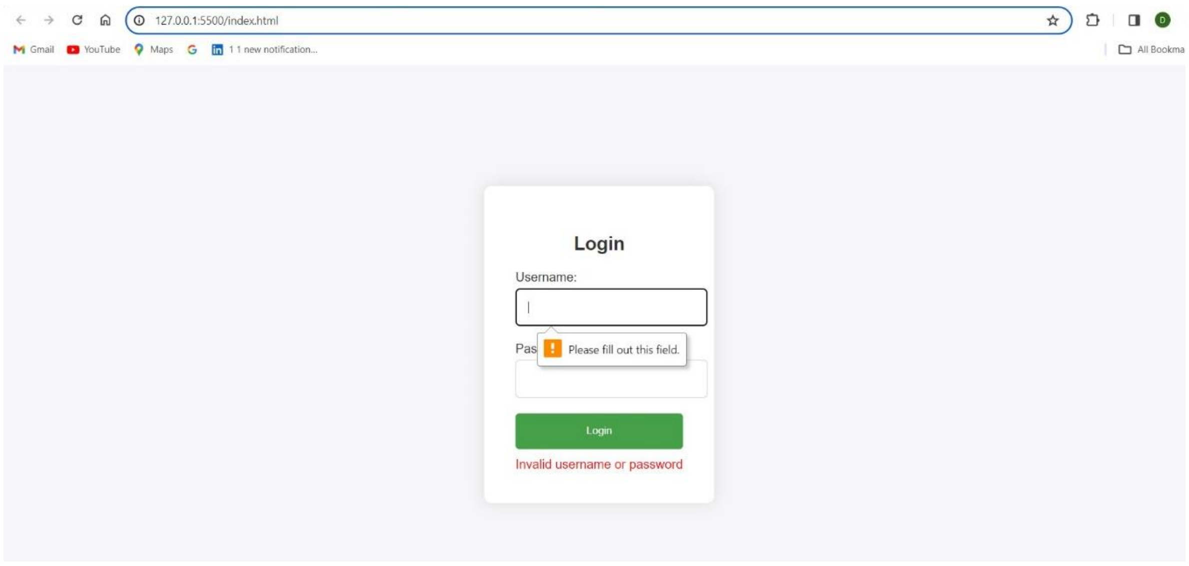
Username: Khushi

Password: •••••••

Login

Invalid username or password

TEST CASE 3: Login with Empty Fields.


127.0.0.1:5500/index.html

Login

Username:

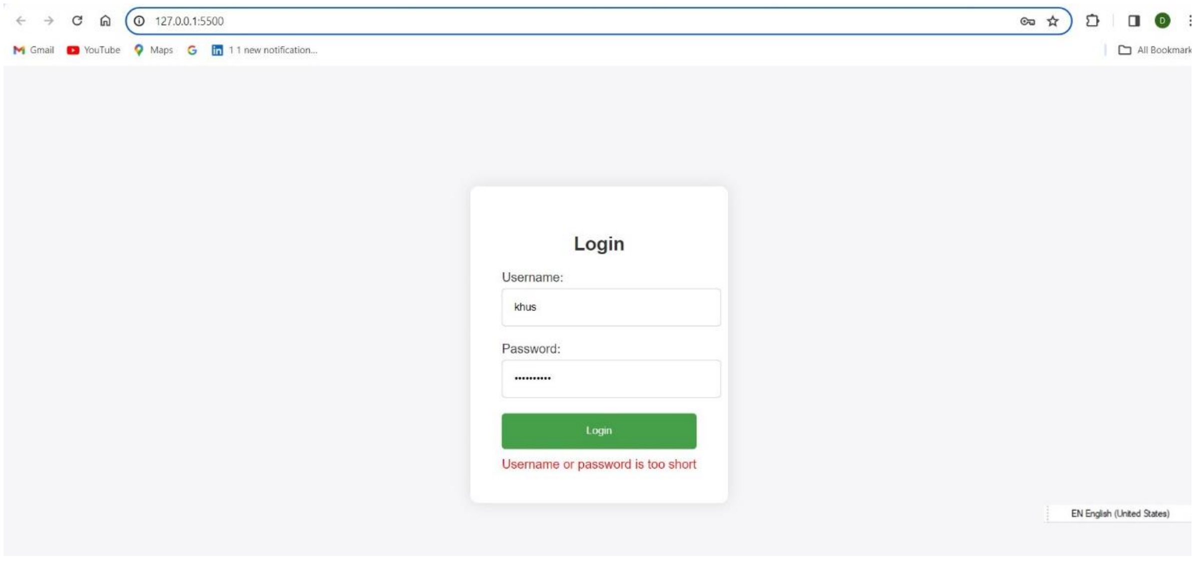
Pas

Please fill out this field.

Login

Invalid username or password

TEST CASE 4: Login with Username and Password at Minimum Length.


127.0.0.1:5500

Login

Username:

khus

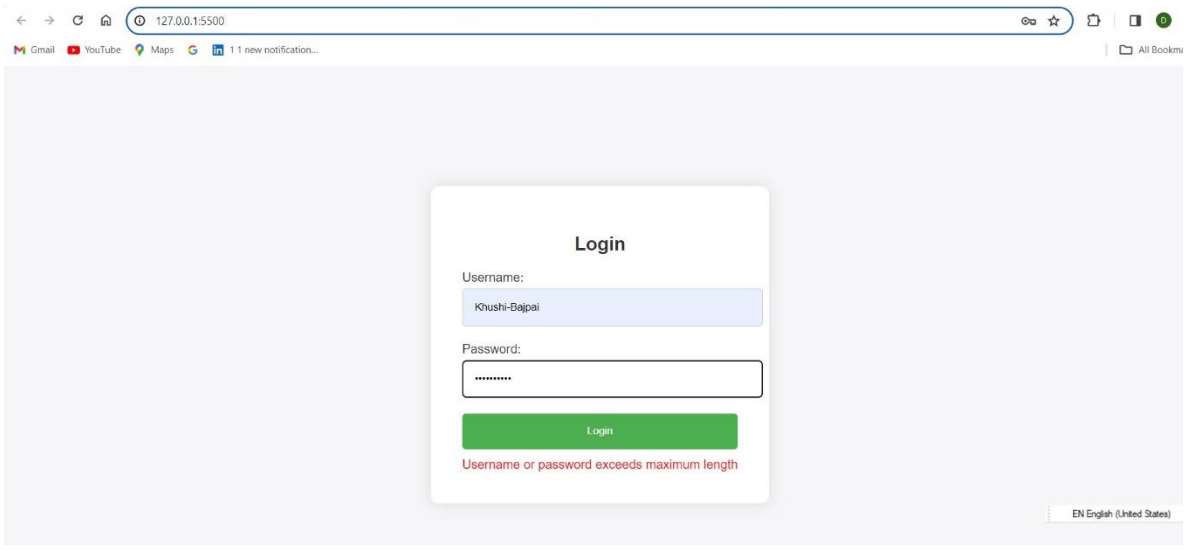
Password:

••••••••••

Login

Username or password is too short

TEST CASE 5: Login with Username and Password at Maximum Length.



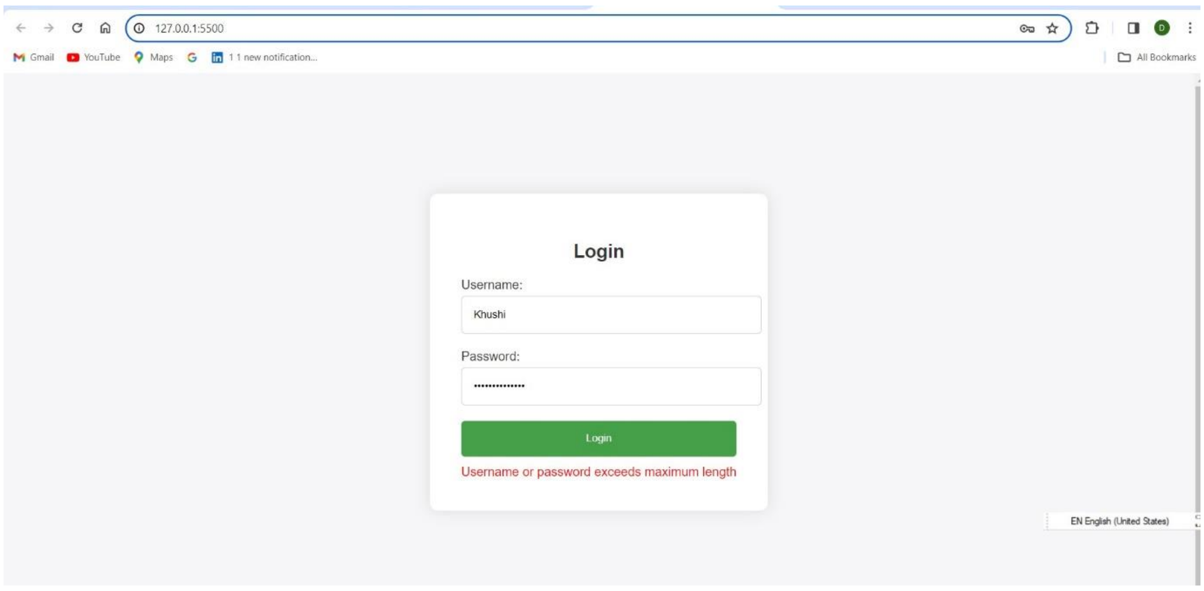
Login

Username: Khushi-Bajpai

Password: ••••••••••

Login

Username or password exceeds maximum length



Login

Username: Khushi

Password: ••••••••••••••

Login

Username or password exceeds maximum length

WHITE BOX TESTING:

Html Code:

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Login Page</title>
  <link rel="stylesheet" href="styles.css">
</head>
<body>
  <div class="login-container">
    <h2>Login</h2>
    <form id="login-form">
      <div class="form-group">
        <label for="username">Username:</label>
        <input type="text" id="username" name="username" required data-
test="username-input"> <!-- Add data-test attribute -->
      </div>
      <div class="form-group">
        <label for="password">Password:</label>
        <input type="password" id="password" name="password" required data-
test="password-input"> <!-- Add data-test attribute -->
      </div>
      <button type="submit" data-test="login-button">Login</button> <!-- Add
data-test attribute -->
    </form>
    <div id="error-message" class="error-message" data-test="error-
message"></div> <!-- Add data-test attribute -->
  </div>

  <script src="script.js"></script>
</body>
</html>
```

In above code I have designed a login page website in which I have applied various credentials test cases.

JavaScript Code:

```javascript
document.getElementById('login-form').addEventListener('submit',
function(event) {
    event.preventDefault();
    var username = document.getElementById('username').value;
    var password = document.getElementById('password').value;

    // Example of validation
    if (username === 'Khushi' && password === 'khushi1311') {
      // Successful login
      showMessage('Login successful', 'success');
    } else if (username === '' || password === '') {
      // Empty fields
      showMessage('Please enter username and password', 'error');
    } else if (username.length < 5 || password.length < 5) {
      // Minimum length: Username or password is too short
      showMessage('Username or password is too short', 'error');
    } else if (username.length > 10 || password.length > 10) {
      // Maximum length: Username or password exceeds maximum length
      showMessage('Username or password exceeds maximum length', 'error');
    } else {
      // Invalid credentials
      showMessage('Invalid username or password', 'error');
    }
  });

  function showMessage(message, type) {
    var errorMessage = document.getElementById('error-message');
    errorMessage.textContent = message;
    errorMessage.className = 'error-message ' + type;
  }
```

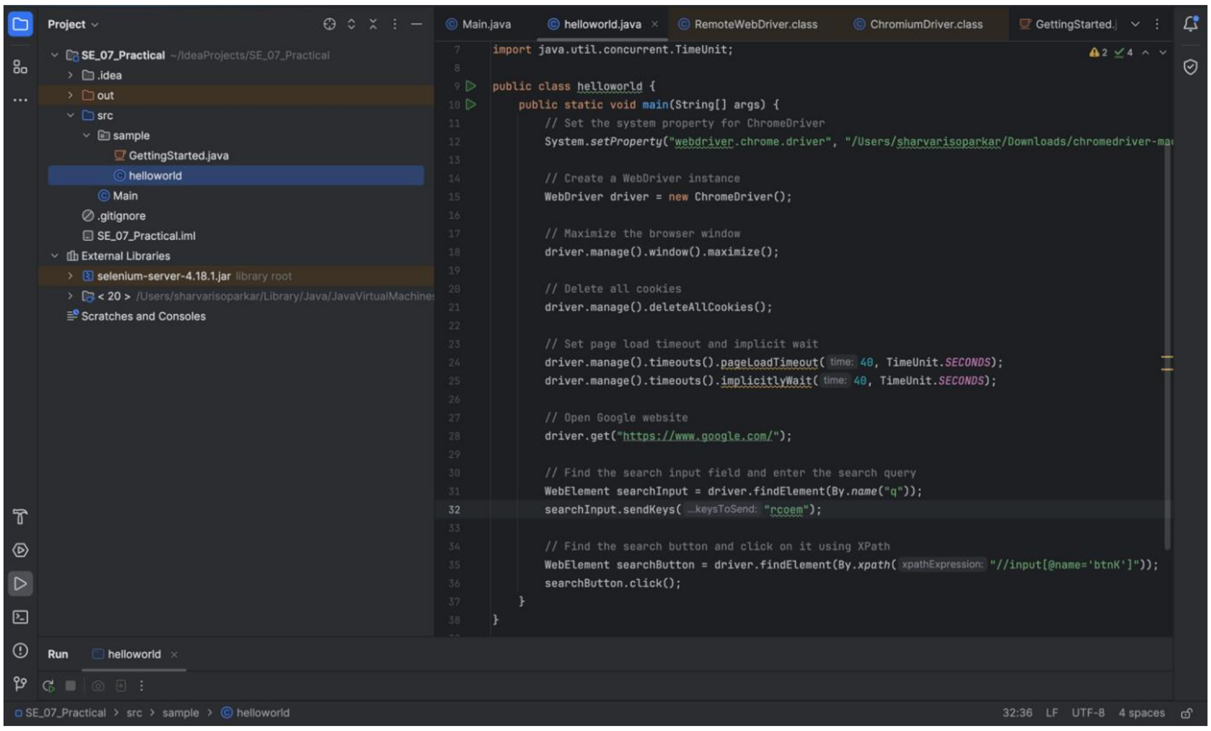
In the above code I have designed some test cases such as invalid or valid credentials, empty fields test, minimum or maximum length etc. on the credentials.

AUTOMATION TESTING USING SELENIUM WEB DRIVER:

Java Code:

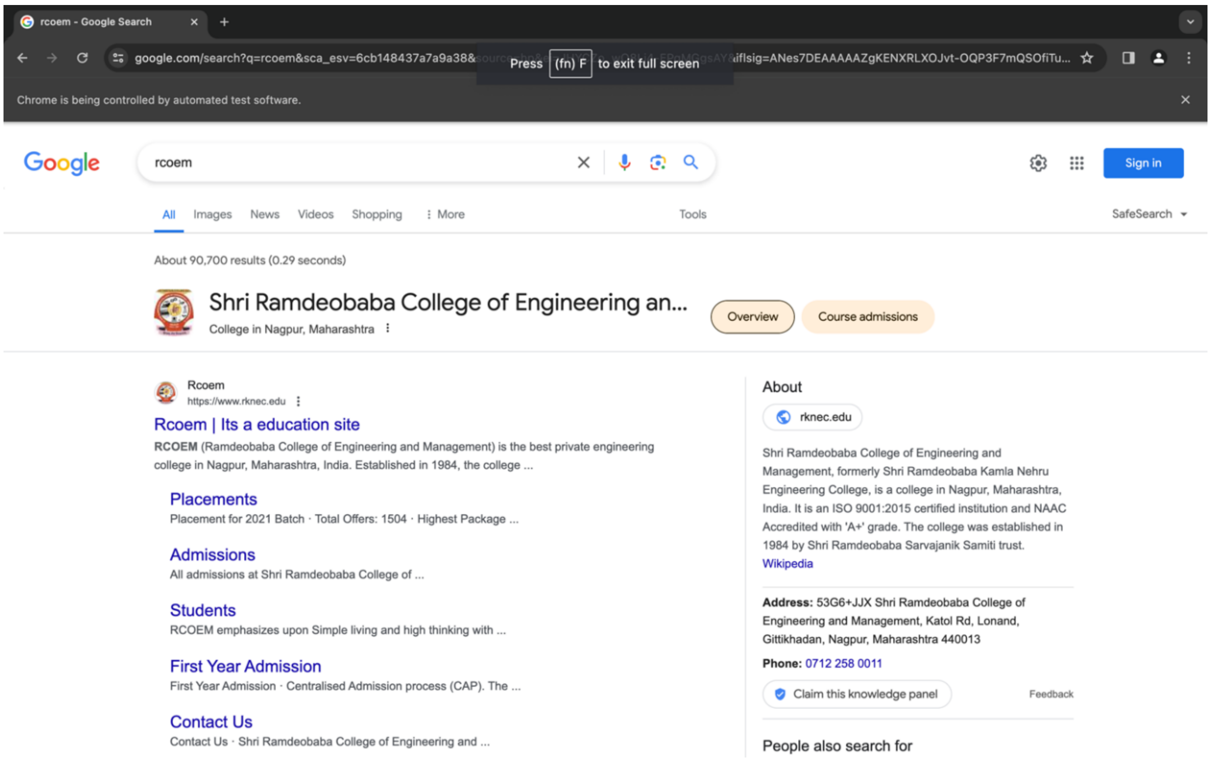
```
package sample;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;
import java.util.concurrent.TimeUnit;
public class helloworld {
public static void main(String[] args) {
// Set the system property for ChromeDriver
System.setProperty(&quot;webdriver.chrome.driver&quot;,
&quot;/Users/sharvarisoparkar/Downloads/chromedriver-mac-
arm64/chromedriver&quot;);
// Create a WebDriver instance
WebDriver driver = new ChromeDriver();
// Maximize the browser window
driver.manage().window().maximize();
// Delete all cookies
driver.manage().deleteAllCookies();
// Set page load timeout and implicit wait
//driver.manage().timeouts().pageLoadTimeout(40, TimeUnit.SECONDS);
// driver.manage().timeouts().implicitlyWait(40, TimeUnit.SECONDS);
// Open Google website
driver.get(&quot;https://www.google.com/&quot;);
// Find the search input field and enter the search query
WebElement searchInput = driver.findElement(By.name(&quot;q&quot;));
searchInput.sendKeys(&quot;rcoem&quot;);
// Find the search button and click on it using XPath
WebElement searchButton =
driver.findElement(By.xpath(&quot;//input[@name=&#39;btnK&#39;]&quot;));
searchButton.click();
}
}
```

<u>Output:</u>



```java
import java.util.concurrent.TimeUnit;

public class helloworld {
    public static void main(String[] args) {
        // Set the system property for ChromeDriver
        System.setProperty("webdriver.chrome.driver", "/Users/sharvarisoparkar/Downloads/chromedriver-ma
        
        // Create a WebDriver instance
        WebDriver driver = new ChromeDriver();
        
        // Maximize the browser window
        driver.manage().window().maximize();
        
        // Delete all cookies
        driver.manage().deleteAllCookies();
        
        // Set page load timeout and implicit wait
        driver.manage().timeouts().pageLoadTimeout( time: 40, TimeUnit.SECONDS);
        driver.manage().timeouts().implicitlyWait( time: 40, TimeUnit.SECONDS);
        
        // Open Google website
        driver.get("https://www.google.com/");
        
        // Find the search input field and enter the search query
        WebElement searchInput = driver.findElement(By.name("q"));
        searchInput.sendKeys( ...keysToSend: "rcoem");
        
        // Find the search button and click on it using XPath
        WebElement searchButton = driver.findElement(By.xpath( xpathExpression: "//input[@name='btnK']"));
        searchButton.click();
    }
}
```


rcoem - Google Search
google.com/search?q=rcoem&sca_esv=6cb148437a7a9a38&
Press (fn) F to exit full screen
iflsig=ANes7DEAAAAAZgKENXRLXOJvt-OQP3F7mQSOfiTu...
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<u>CONCLUSION</u>: In conclusion, the implementation of front-end and back-end components for black box and white box testing lays the foundation for a comprehensive testing strategy. By incorporating both manual and automated testing methodologies, utilizing open-source tools for automation, we ensure robust evaluation and validation of the system's functionality and integrity, enhancing overall quality assurance efforts.