**Cross Browser Testing with Selenium**  
  
1) What is Cross Browser Testing?  
  
Cross Browser Testing is a type of Test to check that our Web Application works as expected in different Browsers.  
  
2) Why Cross Browser Testing?  
A web application can be opened in any web browser by the end user, So we need to ensure that the web application will work as expected in all popular browsers.  
  
3) Popular Web Browsers  
a) Google Chrome: It was released in 2008, its market share approximately 68%  
  
b) Mozilla Firefox: It was released in 2004, its market share approximately 19%  
  
c) Internet Explorer: It was released in 1995, its market share approximately 6.5%  
  
4) Working with different Browsers  
  
> Selenium WebDriver supports Browser compatibility tests on almost every popular browser, including Chrome, Firefox, IE, Opera and Safari.  
  
> The WebDriver API drives the web browser as the real user would drive it.  
  
> By default, Firefox driver comes with selenium-serverstanalone.jar library added.  
  
> For Chrome, IE, Safari, Opera, there are libraries that need to be instantiated externally.  
  
5) How to conduct Cross Browser Testing using Selenium WebDriver?  
  
a) Element Locators - Same for all Browsers.  
  
b) WebDriver Methods/Commands -Same for all Browsers.  
  
c) Programming features (Java/C#/Python/Perl/Ruby/PHP) - Same for all Browsers.  
  
d) JUnit / TestNG Annotations - Same for all Browsers.  
  
e) Browser Driver - various from one browser to another.  
  
Note: For Mozilla Firefox, just create the driver, For other browsers, libraries that need to be instantiated externally.  
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f) Inspect Elements -  
  
For Mozilla Firefox -Built in feature Page Inspector,  
(Install Firebug and Firepath)  
  
For Chrome and IE - Built in Developer tools  
  
6) Create Browser Drivers  
   
(For Google Chrome, IE and Other Browsers, download Browser drivers and set   
  
path in Selenium Test Scripts)  
  
a) Mozilla Firefox Browser:  
  
WebDriver driverName = new FirefoxDriver();  
  
b) Google Chrome  
  
//Instantiate Chrome Browser driver  
  
System.setproperty("webdriver.chrome.driver", "driver .exe file path");  
WebDriver driverName = new ChromeDriver();  
  
c) IE Browser driver  
  
System.setproperty("webdriver.ie.driver", "driver .exe file path");  
WebDriver driverName = new InternetExplorerDriver();  
  
7) Create a Test Case and Execute using Mozilla Firefox, Chrome and IE Browsers.  
  
**Test Case:** Verify Launch Application (Google) functionality in Firefox, Chrome and IE Browsers.  
  
**Test Steps:**  
   
i) Launch the Browser  
ii) Navigate to https://www.google.com url  
  
**Verification point:**  
Capture the page Title (Actual) and Compare with Expected.  
  
**Expected Page Title:** Google  
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**a) Test Case for Mozilla Firefox Browser**  
  
WebDriver driver = new FirefoxDriver();  
driver.get("https://www.google.com");  
  
String PageTitle = driver.getTitle();  
  
if (PageTitle.equals("Google")){  
System.out.println("Google Application Launched - Passed");  
}  
else {  
System.out.println("Google Application Not Launched -Failed");      
}  
driver.close();  
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**b) Test Case for Google Chrome Browser**  
   
System.setProperty("webdriver.chrome.driver", "E:\\chromedriver.exe");  
WebDriver driver = new ChromeDriver();  
driver.get("https://www.google.com");  
  
String PageTitle = driver.getTitle();  
  
if (PageTitle.equals("Google")){  
System.out.println("Google Application Launched - Passed");  
}  
else {  
System.out.println("Google Application Not Launched -Failed");      
}  
driver.close();  
------------------------------  
**c) Test Case for internet Explorer Browser**  
  
System.setProperty("webdriver.ie.driver", "E:\\IEDriverServer.exe");  
WebDriver driver = new InternetExplorerDriver();  
driver.get("https://www.google.com");  
  
String PageTitle = driver.getTitle();  
  
if (PageTitle.equals("Google")){  
System.out.println("Google Application Launched - Passed");  
}  
else {  
System.out.println("Google Application Not Launched -Failed");      
}  
driver.close();  
------------------------------  
8) Create a Test Case and Execute using Mozilla Firefox, Chrome and IE Browsers Continuously.  
  
public class TestCase1 {  
public static WebDriver driver;  
public static int browser;  
public static String BrowserName;  
  
public static void main(String[] args) {  
  
for (browser = 1; browser <= 3; browser++){  
if (browser == 1) {  
driver = new FirefoxDriver();  
BrowserName = "Mozilla Firefox Browser: ";  
}  
else if (browser == 2) {  
System.setProperty("webdriver.chrome.driver", "E:\\chromedriver.exe");  
driver = new ChromeDriver();  
BrowserName = "Google Chrome Browser: ";  
}  
else if (browser == 3){  
System.setProperty("webdriver.ie.driver", "E:\\IEDriverServer.exe");  
driver = new InternetExplorerDriver();  
BrowserName = "Internet Explorer Browser: ";  
}  
driver.get("https://www.google.com");  
  
String PageTitle = driver.getTitle();  
  
if (PageTitle.equals("Google")){  
System.out.println(BrowserName + " - Google Application Launched - Passed");  
}  
else {  
System.out.println(BrowserName + " - Google Application Not Launched -  
  
Failed");      
}  
driver.close();  
}  
}  
}  
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