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M.C.A Semester – III

Roll No :	1266
Name of Student :	Aman Verma
Subject :	MCAL35 Software Testing & Quality Assurance Lab
Module:	1
Date of Assignment:	26-08-2022
Deadline of Submission:	16-09-2022

Q. 1 A program determines the next date in the calendar. Its input is entered in the form of <mm/dd/yyyy> with the following range:

1<= mm<=12

1<=dd<=31

1900<=yyyy<=2025

Its output would be the next date or it will display 'invalid date'. Design test cases for this program using BVC, robust testing.

OUTPUT:

Number of variable=3

BVC:

	month	date	year
Min value	1	1	1900



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Min+1 value	2	2	1901
Max value	12	31	2025
Max-1 value	11	30	2024
Nominal value	6	16	2010

Test cases using BVC $4n+1 = 4(3)+1 = 13$

Test case id	Month	Date	Year	Expected Output
1	1	16	2010	01/17/2010
2	2	16	2010	02/17/2010
3	12	16	2010	12/17/2010
4	11	16	2010	11/17/2010
5	6	1	2010	06/02/2010
6	6	2	2010	06/03/2010
7	6	31	2010	01/07/2010
8	6	30	2010	01/07/2010
9	6	16	1900	06/17/1900
10	6	16	1901	06/17/1901
11	6	16	2025	06/17/2020
12	6	16	2024	06/17/2024
13	6	16	2010	06/17/2010



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Robust Testing

	Month	date	year
Min value	1	1	1900
Min+1 value	2	2	1901
Min-1 value	0	0	1899
Max value	12	31	2025
Max+1 value	13	32	2026
Max-1 value	11	30	2024
Nominal value	6	16	2010

Test cases using Robust Testing $6n+1 = 6(3)+1 = 19$

Test case id	Month	Date	Year	Expected Output
1	1	16	2010	01/17/2010
2	2	16	2010	02/17/2010
3	0	16	2010	Month is invalid
4	12	16	2010	12/17/2010
5	13	16	2010	Month is invalid
6	11	16	2010	11/17/2010
7	6	1	2010	06/02/2010
8	6	2	2010	06/03/2010
9	6	0	2010	Date is invalid
10	6	31	2010	07/01/2010



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11	6	32	2010	Date is invalid
12	6	30	2010	07/01/2010
13	6	16	1900	06/17/1900
14	6	16	1901	06/17/1901
15	6	16	1899	Year is invalid
16	6	16	2025	06/17/2025
17	6	16	2026	Year is Invalid
18	6	16	2024	06/17/2024
19	6	16	2010	06/17/2010

Q.2 A program determines roots of quadratic equations, its input is three integers a, b, and c. (Quadratic equation $ax^2 + bx + c$) The values of variables are in interval [1,100]. The program output may have one of the following:

- o Not a quadratic equation
- o Real roots
- o Equal roots
- o Imaginary roots

Design test cases for this program using BVC, robust testing.

BVC

	a	b	c
Min value	1	1	1
Min+1 value	2	2	2
Max-1 value	99	99	99
Max value	100	100	100



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Nominal value	48	51	49
---------------	----	----	----

Test case id	a	b	c	Expected Output
1	48	51	1	Distinct Roots
2	48	51	2	Distinct Roots
3	48	51	99	Imaginary Roots
4	48	51	100	Imaginary Roots
5	1	51	49	Distinct Roots
6	2	51	49	Distinct Roots
7	99	51	49	Imaginary Roots
8	100	51	49	Imaginary Roots
9	48	1	49	Imaginary Roots
10	48	2	49	Imaginary Roots
11	48	99	49	Distinct Roots
12	48	100	49	Distinct Roots
13	48	51	49	Imaginary Roots

Robust Testing



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	a	b	c
Min-1 value	0	0	0
Min value	1	1	1
Min+1 value	2	2	2
Max-1 value	99	99	99
Max value	100	100	100
Max+1 value	101	101	101
Nominal value	48	49	51

Output :

Test case id	a	b	c	Expected Output
1	48	51	0	Invalid Input
2	48	51	1	Distinct Roots
3	48	51	2	Distinct Roots
4	48	51	99	Imaginary Roots
5	48	51	100	Imaginary Roots
6	48	51	101	Invalid Input
7	0	51	49	Invalid Input
8	1	51	49	Distinct Roots
9	2	51	49	Distinct Roots
10	99	51	49	Imaginary Roots
11	100	51	49	Imaginary Roots



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12	101	51	49	Invalid Input
13	48	0	49	Invalid Input
14	48	1	49	Imaginary Roots
15	48	2	49	Imaginary Roots
16	48	99	49	Distinct Roots
17	48	100	49	Distinct Roots
18	48	101	49	Invalid Input
19	48	51	49	Imaginary Roots

Q.3 A mobile phone service provider uses a program that computes the monthly bill of customers as follows:

Minimum Rs 300 for up to 120 calls

Plus Rs.1 per call for next 70 calls

Plus Rs 0.80 per call for the next 50 calls

Plus Rs.0.40 per call for calls beyond 240.

Design test cases for this program using equivalence class testing technique.

The partition for the domain input as valid and invalid values are :

C1= No. of calls ≤ 120 then Rs. 300

C2= No. of calls > 120 then for next 70 calls $\rightarrow 300 + (n-120) * 1$

C3= No. of calls > 190 then for next 50 calls $\rightarrow 300 + 70 * 1 + (n-190) * 0.80$

C4 = No. of calls > 240 then $300 + 70 * 1 + 50 * 0.80 + (n-200) * 0.40$



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C5= No. of calls < 0 , invalid input

Test Case ID	No. of calls	Expected Results	Classes covered by the Test Case
1	70	Rs. 300	C1
2	150	Rs. 330	C2
3	210	Rs. 386	C3
4	250	Rs. 430	C4
5	-1	Invalid input	C5



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- Q.4 A program accepts three integer numbers a, b, and c as sides of a triangle. Check whether given value for an Equilateral, Isosceles, and Scalene triangle or can't form a triangle. Design test cases for this program using equivalence class testing technique.

The partition for the domain input as valid and invalid values are :

$$I1=\{ \langle a,b,c \rangle \mid a+b>c \ \& \ b+c>a \ \& \ a+c>b \}$$

$$I2=\{ \langle a,b,c \rangle \mid a=b=c \}$$

$$I3=\{ \langle a,b,c \rangle \mid a=b, a \neq c \}$$

$$I4=\{ \langle a,b,c \rangle \mid b=c, b \neq a \}$$

$$I5=\{ \langle a,b,c \rangle \mid a=c, a \neq b \}$$

$$I6=\{ \langle a,b,c \rangle \mid a \neq b \neq c \}$$

$$I7=\{ \langle a,b,c \rangle \mid a+b < c \}$$

$$I8=\{ \langle a,b,c \rangle \mid b+c < a \}$$

$$I9=\{ \langle a,b,c \rangle \mid a+c < b \}$$

Test case id	a	b	c	Expected output	Classes Tested (I)
1	5	4	3	Triangle, Scalene	I1, I6
2	4	4	3	Triangle, Isosceles	I1, I3
3	5	5	5	Triangle, Equilateral	I1, I2
4	3	4	4	Triangle, Isosceles	I1, I4



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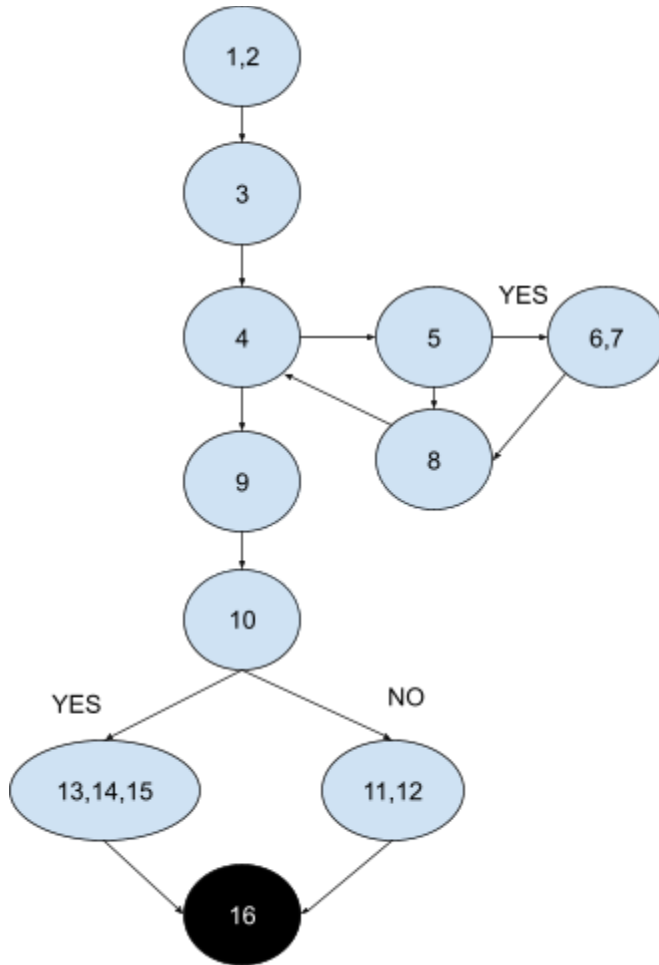
				es	
5	4	3	4	Triangle, Isosceles	11, 15
6	1	2	4	Not a triangle	17
7	4	1	2	Not a triangle	18
8	1	4	2	Not a triangle	19

Subject :	MCAL35 Software Testing and Quality Assurance Lab
Assignment no:	2
Assignment Date:	08-09-2022
Submission deadline:	16-09-2022

Q.1 Draw CFG, find Cyclomatic complexity

```
#include <iostream>
1 void prime(int n)
2 {
3     int i, flag = 0;
4     for (i = 2; i <= n/2; ++i) {
5         if (n%i == 0) {
6             flag = 1;
7             break;
8         }
9     }
10    if (flag == 1) {
11        cout << n << " is not a prime number.";
12    }
13    else {
14        cout << n << " is a prime number.";
15    }
16 }
```

OUTPUT:



Cyclomatic Complexity = $E - N + 2$
 where, E = Number of Edges
 N = Number of Nodes

$$\text{Cyclomatic Complexity} = 13 - 11 + 2 = 4$$

Q.2 Draw CFG, find Cyclomatic complexity

```

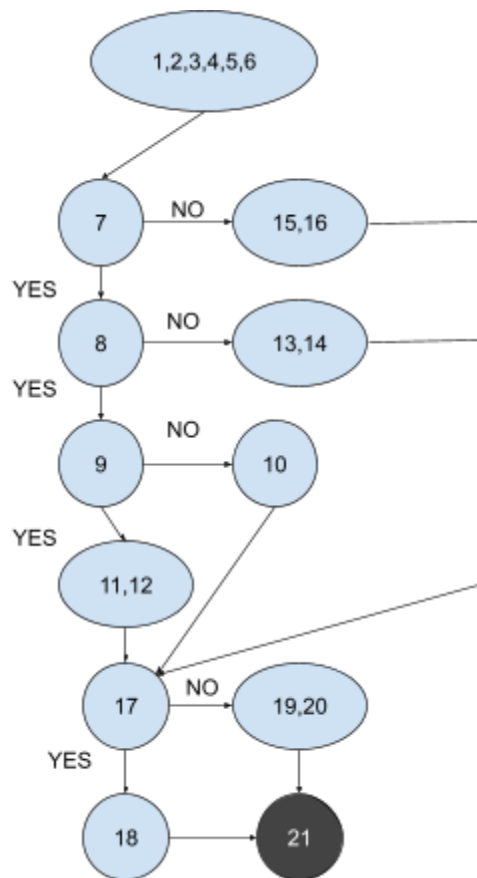
public class Demo {
    public static void main(String[] args) {
        1    int year;
        2    Scanner scan = new Scanner(System.in);
        3    System.out.println("Enter any Year:");
        4    year = scan.nextInt();
        5    scan.close();
        6    boolean isLeap = false;
        7    if(year % 4 == 0) {
  
```

```

8      if( year % 100 == 0)
9          if ( year % 400 == 0)
10             isLeap = true;
11         else
12             isLeap = false; }
13     Else
14         isLeap = true; }
15     else {
16         isLeap = false; }
17     if(isLeap==true)
18         System.out.println(year + " is a Leap Year.");
19     Else
20         System.out.println(year + " is not a Leap Year.");
21     }
    }

```

OUTPUT:



Cyclomatic Complexity = $E - N + 2$
 where, E = Number of Edges

N = Number of Nodes

$$\text{Cyclomatic Complexity} = 15 - 12 + 2 \\ = 5$$

Q.3 For the following code, find statement coverage, decision coverage, branch coverage.

```
main()
{
1   int work;
2   int payment=0;
3   cin>> work;
4   if(work > 0){
5   payment=40;
6   if(work > 20)
7   {
8   if (work <=30)
9   payment = payment + (work -25) * 0.5;
10  else
11  {
12      payment = payment + 50 + (work -30) * 0.1;
13      if (payment >= 3000)
14          payment = payment * 0.9;
15  }
16  }
17  }
18  cout<< "Final payment"<<payment;
19  }
```

1. Statement Coverage

Test Case id	Input	Statement Executed	Statement Coverage
1	25	1-9,16-19	$(13/19)*100=68.42\%$
2	50	1-8,10-13,15-19	$(17/19)*100=89.47\%$
3	30000	1-8,10-19	$(18/19)*100=94.73\%$

2. Branch Coverage/Decision Coverage

Test case Id	Condition Evaluated	Input :Work	Payment	Branch Coverage
1	if(work>0) [invalid]	0	0	4,17
2	if(work>0) [valid] if(work>20) [invalid]	18	40	4-6,17
3	if(work>0) [valid] if(work>20) [valid] if(work<=30) [valid]	22	38.5	4-9,16,17
4	if(work>0) [valid] if(work>20) [valid] if(work<=30) [invalid] ->else if (payment >= 3000) [invalid]	60	93	4-8,10-13,15-17
5	if(work>0) [valid] if(work>20) [valid] if(work<=30) [invalid]->else if (payment >= 3000) [valid]	30000	3087	4-8,10-17



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M.C.A Semester – III

Roll No :	1266
Name of Student :	Aman Verma
Subject :	MCAL35 Software Testing & Quality Assurance Lab
Module:	2
Date of Assignment:	16-09-2022
Deadline of Submission:	16-09-2022

Q. 1) Implement Web Drivers on Chrome / Firefox Browser.

Source code:

```
package DemoPrograms;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;

public class BrowserDemo {

    public static void main(String[] args) {
        // TODO Auto-generated method stub

        //Browser Demonstartion
        //System.setProperty("webdriver.firefox.driver","D:\\Selenium\\geckodriver.exe");
        //WebDriver wd = new FirefoxDriver();
        //wd.get("https://www.w3schools.com/");
        System.setProperty("webdriver.chrome.driver","D:\\Selenium\\chromedriver.exe");
        WebDriver wd = new ChromeDriver();
        wd.get("https://www.w3schools.com/");

    }

}
```

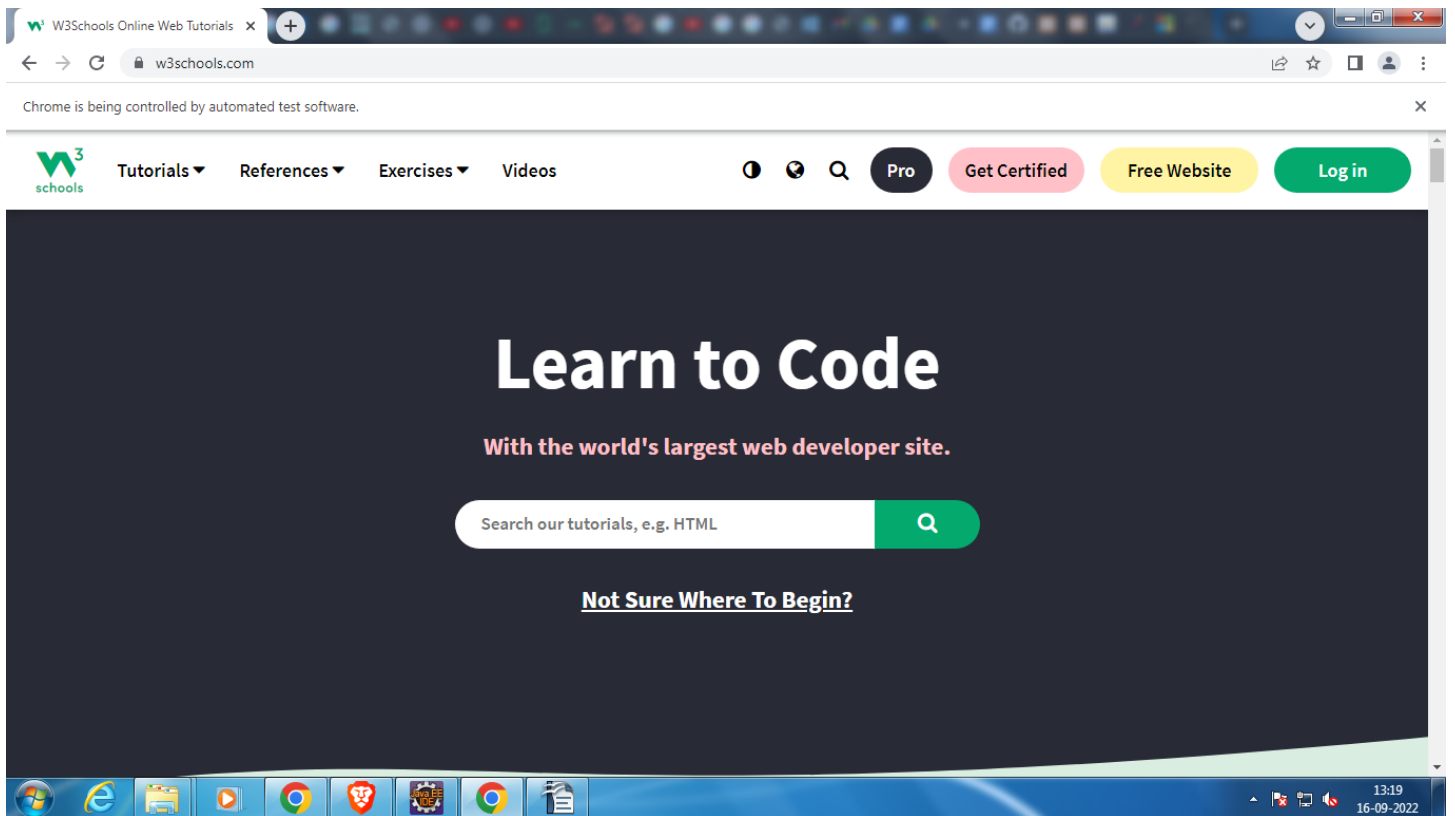



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Output:





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M.C.A Semester – III

Roll No :	1266
Name of Student :	Aman Verma
Subject :	MCAL35 Software Testing & Quality Assurance Lab
Module:	3
Date:	23-09-2022

Q. 1) A university is admitting students for a professional course to the following conditions :

- i) Marks in AIML ≥ 70
- ii) Marks in IoT ≥ 60
- iii) Marks in IS ≥ 60
- iv) Total in all three subjects ≥ 220 OR Total in AIML and IoT ≥ 150

If the TOTAL mark of an eligible candidate is more than 240 he/she will be eligible for scholarship course, otherwise he/she will be eligible for normal course. The program reads the marks in the three subjects and generates the following outputs:

- (i) Not eligible
- (ii) Eligible for scholarship course
- (iii) Eligible for normal course

Design test cases for this system using decision table testing.

Solution:

	R1	R2	R3	R4	R5	R6	R7	R8	R9
C1 : AIML ≥ 70	T	T	T	T	F	I	I	I	T
C2 : IOT ≥ 60	T	T	T	T	I	F	I	I	T
C3 : IS ≥ 60	T	T	T	T	I	I	F	I	T
C4 : Total in three subjects ≥ 220	T	T	T	T	I	I	I	F	F
C5 : Total in AIML and IOT ≥ 150	T	F	F	T	I	I	I	F	T
C6 : Total > 240	F	F	T	T	I	I	I	I	F
Actions									
A1 : Not eligible					X	X	X	X	
A2 : Eligible for scholarship course			X	X					
A3 : Eligible for normal course	X	X							X



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Test Cases

Test Case ID	AIML	IOT	IS	Total Marks	Output
1	75	75	75	225	Eligible for normal course
2	70	70	80	220	Eligible for normal course
3	70	70	91	241	Eligible for scholarship course
4	90	90	90	270	Eligible for scholarship course
5	50	90	90	230	Not Eligible
6	90	50	80	220	Not Eligible
7	80	80	40	200	Not Eligible
8	70	70	60	200	Not Eligible
9	75	75	60	210	Eligible for normal course

Q. 2) Implement cross browser demonstration using Selenium webdriver.

SourceCode:-

```
package DemoPrograms;

import java.util.Scanner;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;

public class DemoCrossBrowser {
    static WebDriver wd;
    public static void main(String[] args) {
        // Cross browser demonstration
        Scanner sc=new Scanner(System.in);
        System.out.println("\n 1: Chrome \n 2: FireFox \n");
        System.out.println("Enter Choice:");
        int ch=sc.nextInt();
        switch(ch) {
            case 1:
                System.setProperty("webdriver.chrome.driver","D:\\Selenium\\chromedriver.exe");
                wd=new ChromeDriver();
                break;
            case 2:
                System.setProperty("webdriver.chrome.driver","D:\\Selenium\\chromedriver.exe");
```



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```
wd=new FirefoxDriver();
break;
default:
    System.out.println("Invalid Choice");
}
if(wd != null)
    wd.get("https://www.geeksforgeeks.org/");

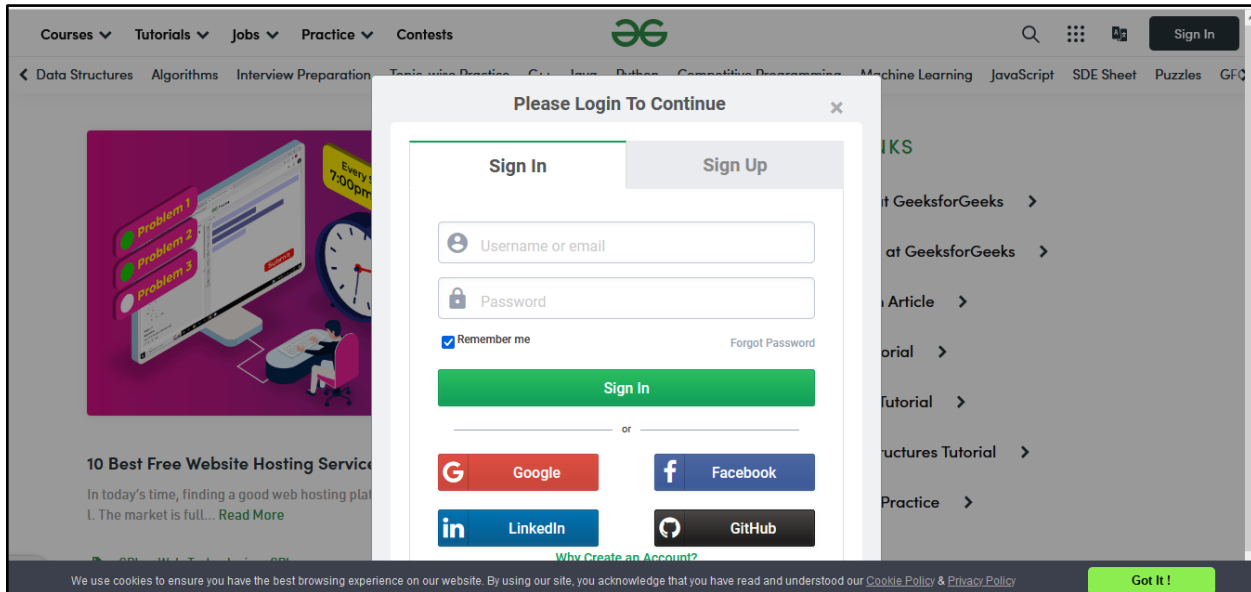
}

}
```

OUTPUT:

```
1: Chrome
2: FireFox

Enter Choice:
2
1663914281874 geckodriver INFO Listening on 127.0.0.1:43718
1663914282638 mozrunner::runner INFO Running command: "C:\\Program Files\\Mozilla Firefox\\firefox.exe" "--marionette" "-no-remote"
```



```
<terminated> DemoCrossBrowser [Java Application] C:\Users\helpdesk\p2\pool\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_17.0.2.v2020201-1208\jre\bin\javaw.exe (23-
1: Chrome
2: FireFox

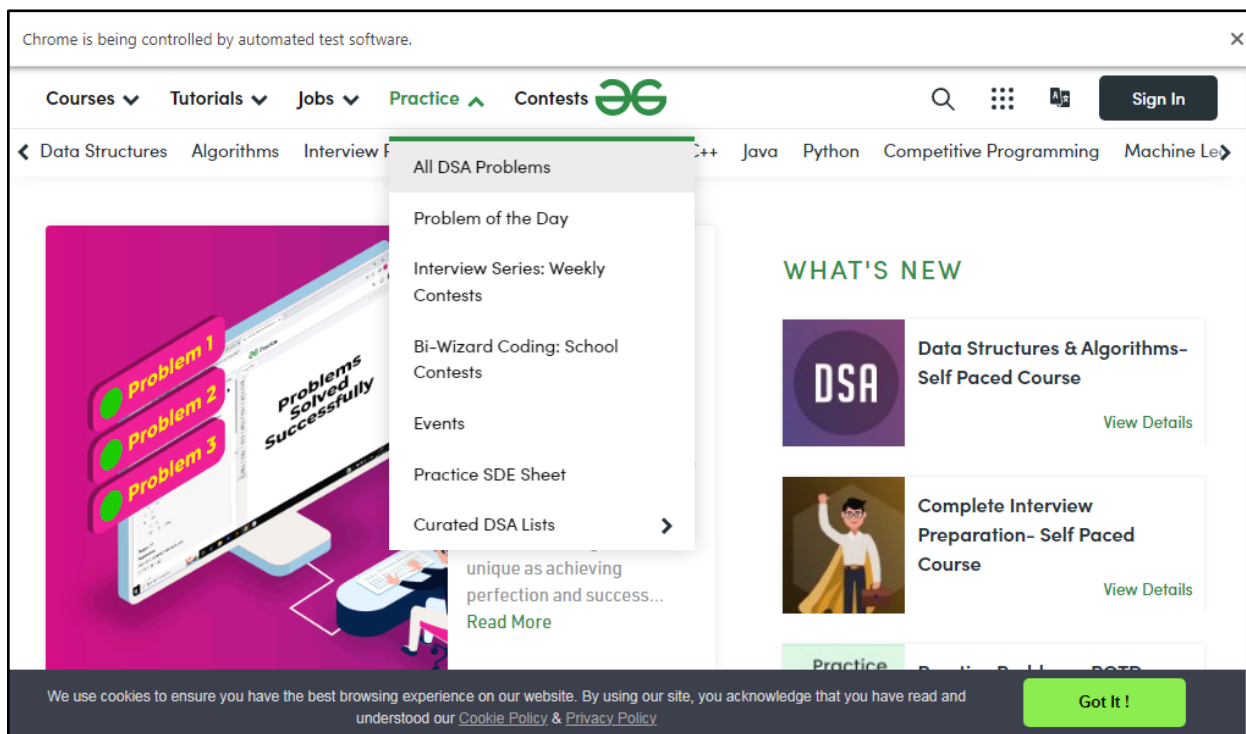
Enter Choice:
1
Starting ChromeDriver 105.0.5195.52 (412c95e518836d8a7d97250d62b29c2ae6a26a85-refs/branch-heads/5195@{#853}) on port 4684
Only local connections are allowed.
```



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Q. 3) Implement Locator (id, name, class, partial link text, link text etc.) demonstration on login page of <https://opensource-demo.orangehrmlive.com/> Selenium webdriver.

Source code:

```
package DemoPrograms;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;

public class LocalDemo {

    public static void main(String[] args) throws Exception {
        // TODO Auto-generated method stub
        System.setProperty("webdriver.chrome.driver", "D:\\Selenium\\chromedriver.exe");
        WebDriver Wd = new ChromeDriver();
        Wd.get("https://opensource-demo.orangehrmlive.com/web/index.php/auth/login");
        Thread.sleep(1000);
        Wd.findElement(By.name("username")).sendKeys("Admin");
        Thread.sleep(1000);
    }
}
```



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```
Wd.findElement(By.name("password")).sendKeys("admin123");
Thread.sleep(1000);
Wd.findElement(By.cssSelector("button[type=submit]")).click();
Thread.sleep(3000);
Wd.findElement(By.xpath("//*[@id=\"app\"]/div[1]/div[1]/header/div[1]/div[2]/ul/li/span/p")).click();
Thread.sleep(2000);
Wd.findElement(By.linkText("Logout")).click();
Thread.sleep(2000);
Wd.quit();
}
```

OutPut:

Starting ChromeDriver 105.0.5195.52 (412c95e518836d8a7d97250d62b29c2ae6a26a85-refs/branch-heads/5195@{#853}) on port 46802
Only local connections are allowed.
Please see <https://chromedriver.chromium.org/security-considerations> for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
Sep 23, 2022 12:38:02 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C

The screenshot shows the OrangeHRM PIM interface. The sidebar on the left contains a search bar and a list of navigation items: Admin, PIM (highlighted), Leave, Time, Recruitment, My Info, Performance, Dashboard, Directory, Maintenance, and Buzz. The main content area is titled 'Employee Information' and contains a form with the following fields: Employee Name (with a hint 'Type for hints...'), Employee Id, Employment Status (a dropdown menu showing '-- Select --'), Include (a dropdown menu showing 'Current Employees Only'), Supervisor Name (with a hint 'Type for hints...'), Job Title (a dropdown menu showing '-- Select --'), and Sub Unit (a dropdown menu showing '-- Select --'). At the bottom right of the form are 'Reset' and 'Search' buttons. At the bottom left of the form is a '+ Add' button.



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Q.4) Implement Locator [id, name, class, partial link text, link text, cssSelector, Xpath (absolute path and relative path)] demonstration on login page of <https://infyspringboard.onwingspan.com/web/en/login> Selenium webdriver.

Source code:

```
package DemoPrograms;
```

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

```
import org.openqa.selenium.WebDriver;
```

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

```
public class InfyLocatordemo {
```

```
    public static void main(String[] args) throws InterruptedException {
```

```
        // TODO Auto-generated method stub
```

```
        System.setProperty("webdriver.chrome.driver", "D:\\Selenium\\chromedriver.exe");
```

```
        WebDriver wd= new ChromeDriver();
```

```
        wd.get("https://infyspringboard.onwingspan.com/web/en/login");
```

```
        wd.manage().window().maximize();
```

```
        Thread.sleep(5000);
```

```
        wd.findElement(By.xpath("//*[ @id=\"onetrust-accept-btn-handler\"]")).click();
```

```
        Thread.sleep(3000);
```

```
        wd.findElement(By.xpath("//*[ @id=\"ws-root-main-content\"]/ws-login-root/ws-infosysheadstart-  
login/div[1]/div/div[5]/button/span[1]")).click();
```

```
        Thread.sleep(3000);
```

```
        wd.findElement(By.id("username")).sendKeys("mca21_1253ics@met.edu");
```

```
        Thread.sleep(3000);
```

```
        wd.findElement(By.id("password")).sendKeys("Pass@123");
```

```
        Thread.sleep(3000);
```

```
        wd.findElement(By.id("kc-login")).click();
```

```
        Thread.sleep(5000);
```

```
        wd.findElement(By.cssSelector("circle.ng-star-inserted")).click();
```

```
        Thread.sleep(3000);
```

```
        wd.findElement(By.xpath("//*[ @id=\"ws-root-main-content\"]/ws-app-profile/ws-app-  
dashboard/div[2]/div[2]/button/span[1]/span")).click();
```

```
        Thread.sleep(3000);
```

```
        wd.findElement(By.xpath("//*[ @id=\"mat-dialog-0\"]/ws-utils-  
logout/div[2]/button[1]/span[1]")).click();
```

```
    }
```

```
}
```

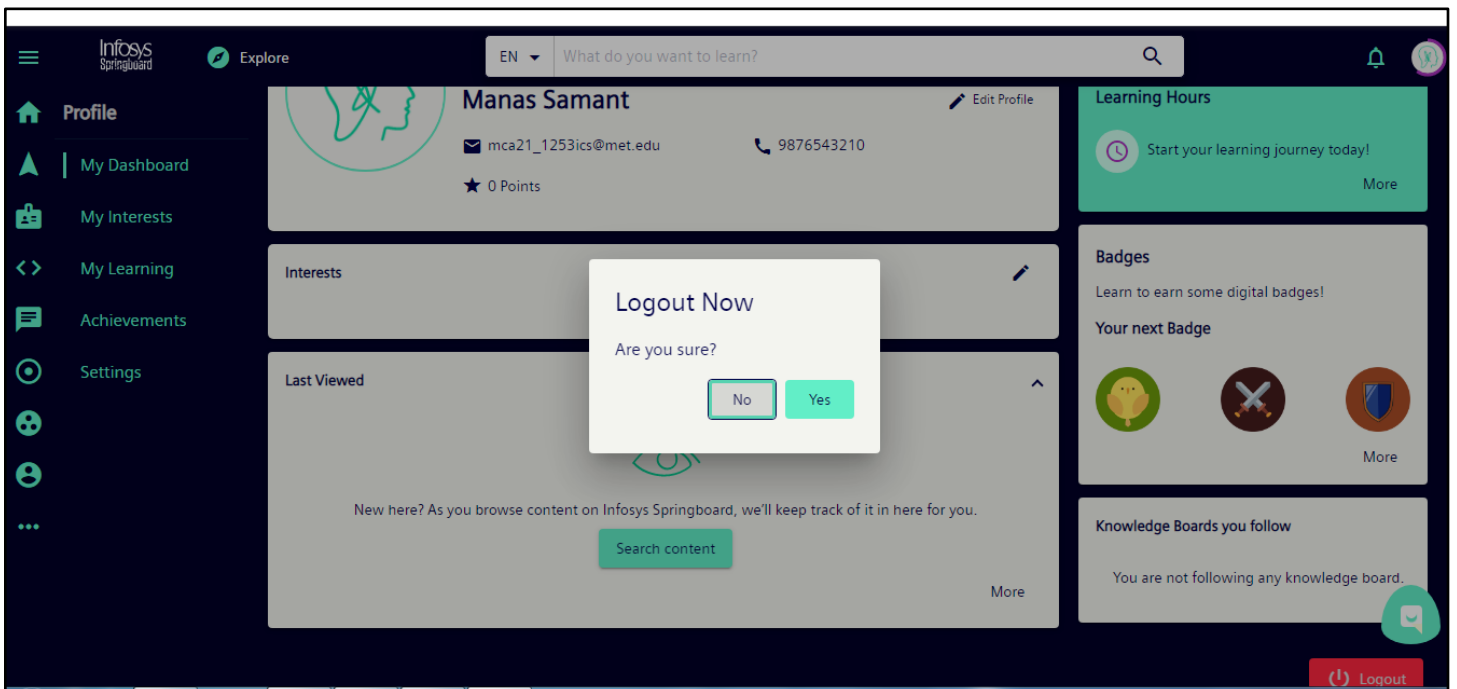
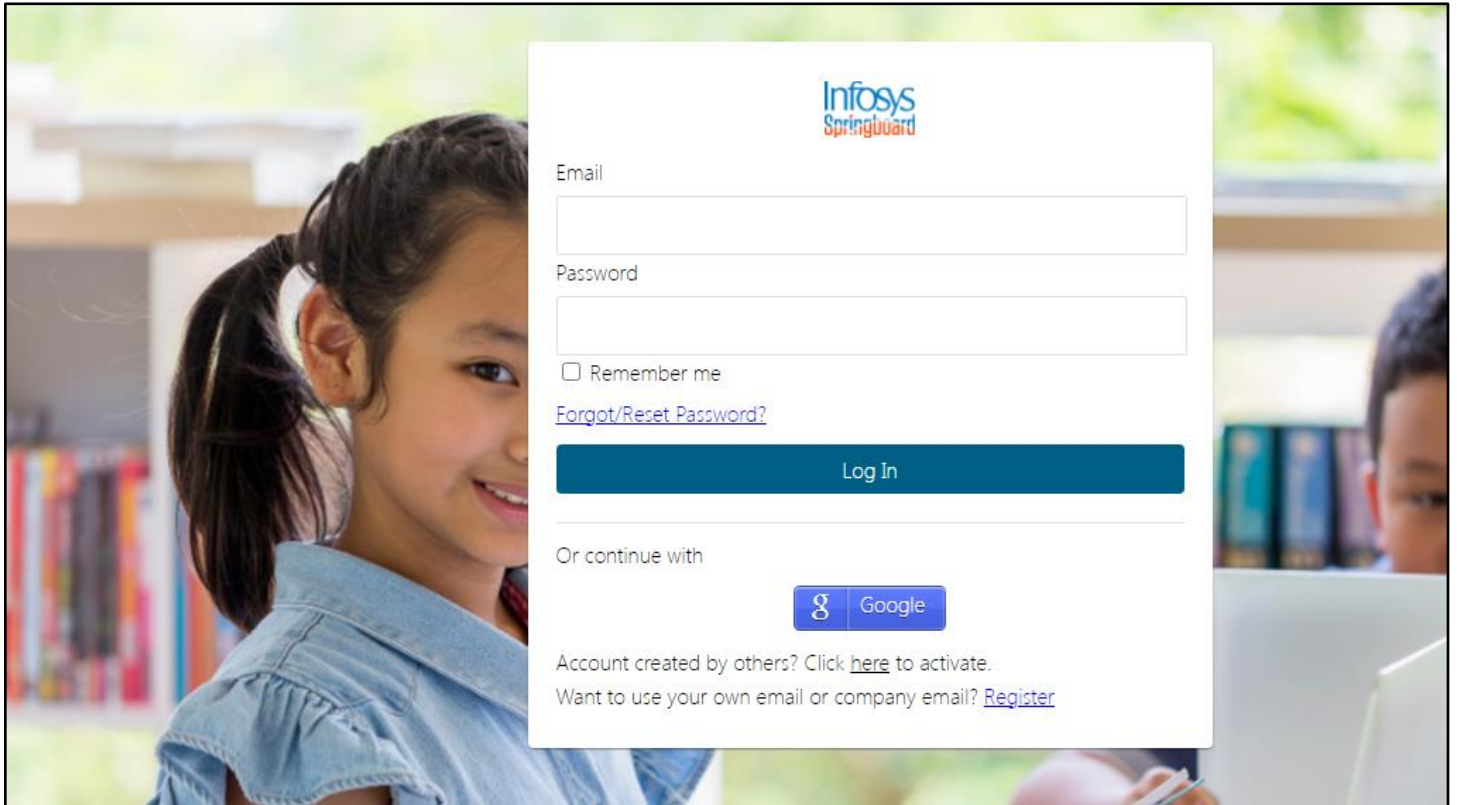
Output:



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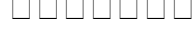




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M.C.A Semester – III

Roll No :	1266
Name of Student :	Aman Verma
Subject :	MCAL35 Software Testing & Quality Assurance Lab
Module:	3
Date:	30-09-2022

Q. 1) Implement Locator (cssselector) demonstration on login page of <https://opensource-demo.orangehrmlive.com/> Selenium webdriver.

Source code:

```
package DemoPrograms;
```

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

```
public class CssSelectorDemo {
```

```
    public static void main(String[] args) throws Exception
    {
```

```
        System.setProperty("webdriver.chrome.driver", "D:\\Selenium\\chromedriver.exe");
```

```
        WebDriver wd = new ChromeDriver();
        wd.get("https://opensource-demo.orangehrmlive.com/web/index.php/auth/login");
        wd.manage().window().maximize();
        Thread.sleep(4000);
```

```
        wd.findElement(By.cssSelector("input[name=username]")).sendKeys("Admin");
        Thread.sleep(1000);
```

```
        wd.findElement(By.cssSelector("input[name=password]")).sendKeys("admin123");
        Thread.sleep(1000);
```

```
        wd.findElement(By.cssSelector("button.oxd-button.oxd-button--medium.oxd-button--main.orangehrm-login-button")).click();
        Thread.sleep(3000);
        wd.quit();
```



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Output:

OrangeHRM

opensource-demo.orangehrmlive.com/web/index.php/auth/login

Chrome is being controlled by automated test software.

orangeHRM
OPEN SOURCE HR MANAGEMENT

Login

Username : Admin
Password : admin123

Username
Admin

Password
.....

Login

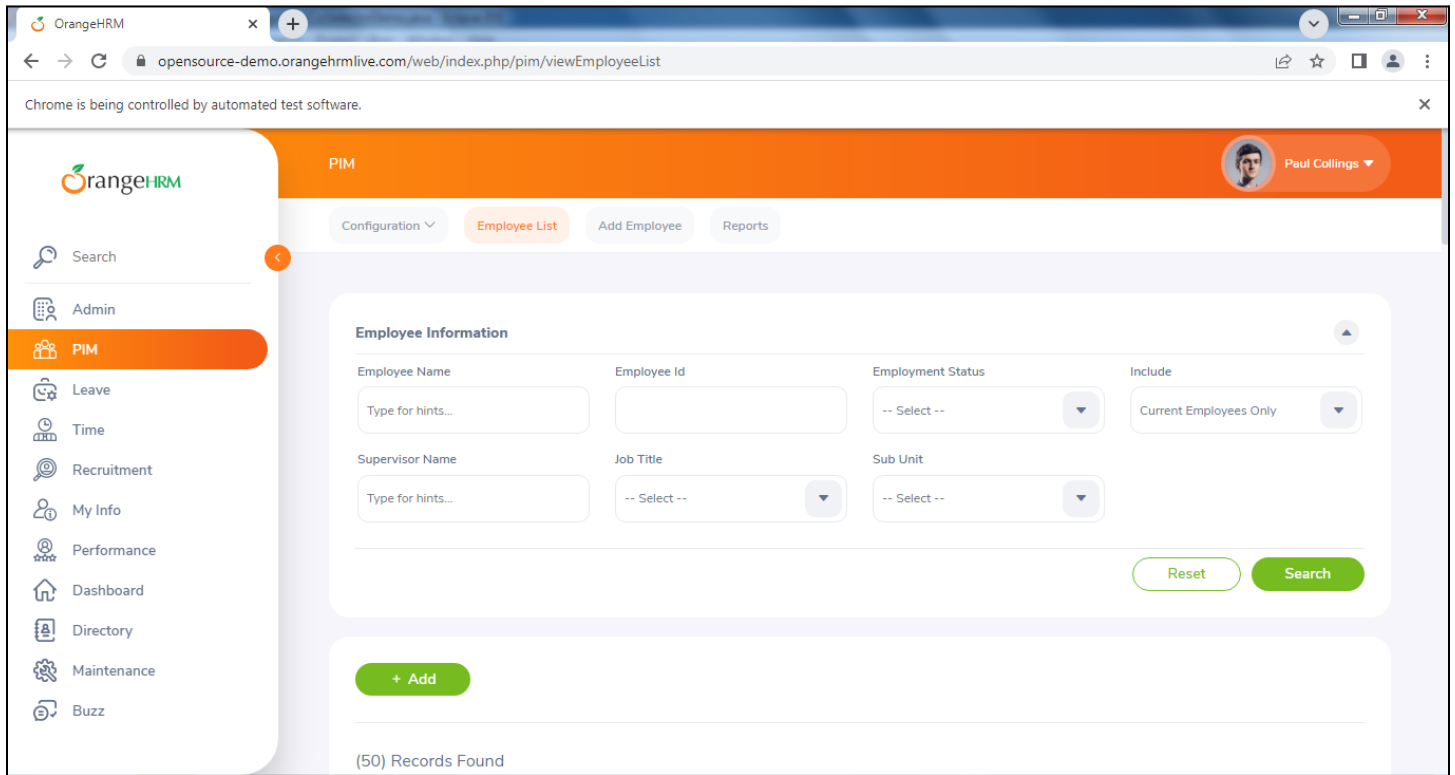
[Forgot your password?](#)



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Q.2) Implement implicit wait on <https://opensource-demo.orangehrmlive.com/> Selenium webdriver.

Source code:

```
package DemoPrograms;
```

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

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

```
import org.openqa.selenium.WebDriver;
```

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

```
public class ImplicitWaitDemo {
```

```
    public static void main(String[] args) throws Exception  
    {
```

```
        System.setProperty("webdriver.chrome.driver", "D:\\Selenium\\chromedriver.exe");
```

```
        WebDriver wd = new ChromeDriver();
```

```
        wd.get("https://opensource-demo.orangehrmlive.com/");
```

```
        wd.manage().window().maximize();
```

```
        wd.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);
```

```
        wd.findElement(By.cssSelector("input[name=username]")).sendKeys("Admin");
```

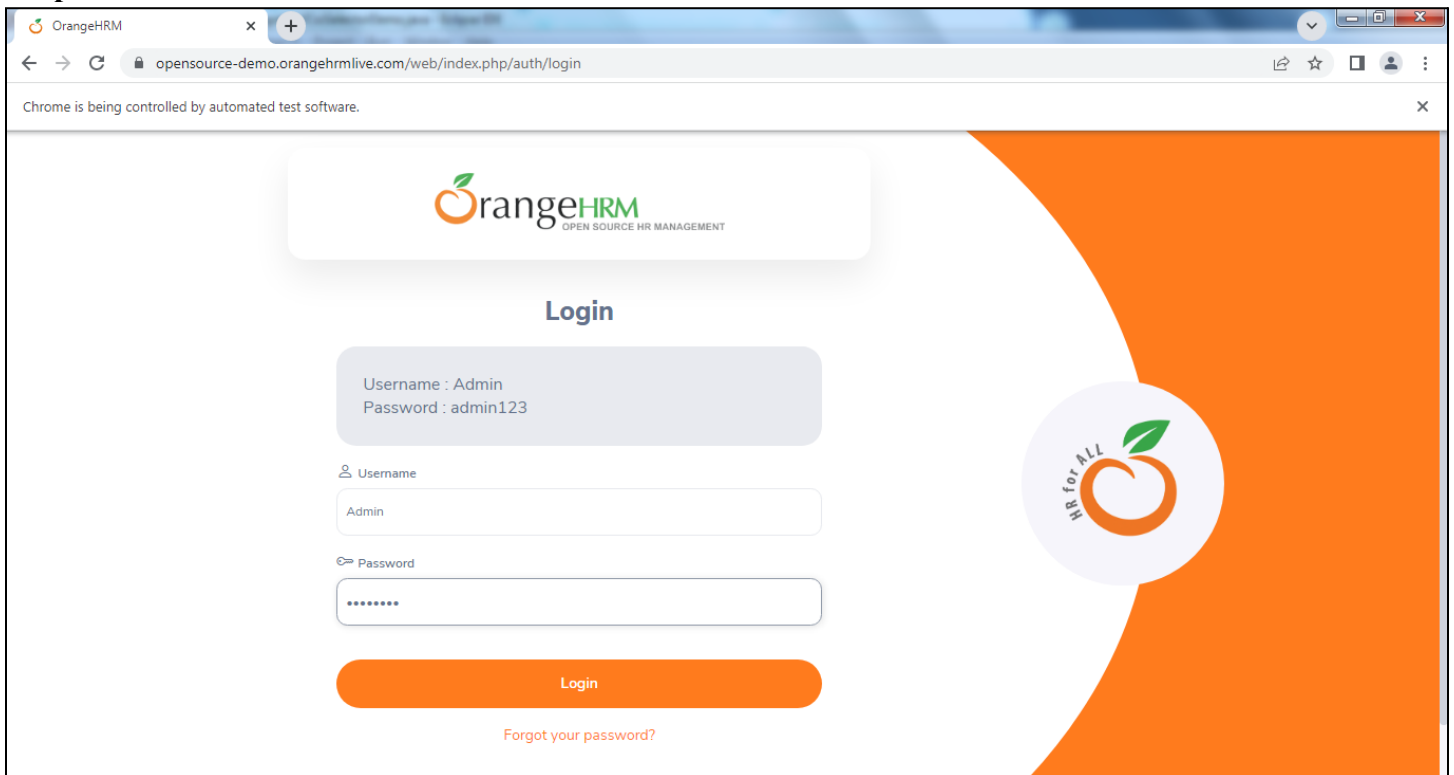
```
        wd.findElement(By.cssSelector("input[name=password]")).sendKeys("admin123");
```

```
wd.findElement(By.cssSelector("button.oxd-button.oxd-button--medium.oxd-button--main.orangehrm-login-button")).click();
```

```
System.out.println("Done");
wd.quit();
```

 $\left. \begin{array}{l} \\ \end{array} \right\}$

Output:





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```
Markers Properties Servers Data Source Explorer Snippets Console X
<terminated> ImplicitWaitDemo [Java Application] C:\Users\helpdesk\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.2.v20220201-1208\jre\bin
Starting ChromeDriver 105.0.5195.52 (412c95e518836d8a7d97250d62b29c2ae6a26a85-refs/branch-heads/5195@{#853}) on port 12948
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
Sep 30, 2022 12:41:36 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Done
```

Q.3) Implement explicit wait on <https://infyspringboard.onwingspan.com/web/en/login> Selenium webdriver.

Source code:

package DemoPrograms;

```
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.support.ui.WebDriverWait;
```

```
public class ExplicitDemo {
```

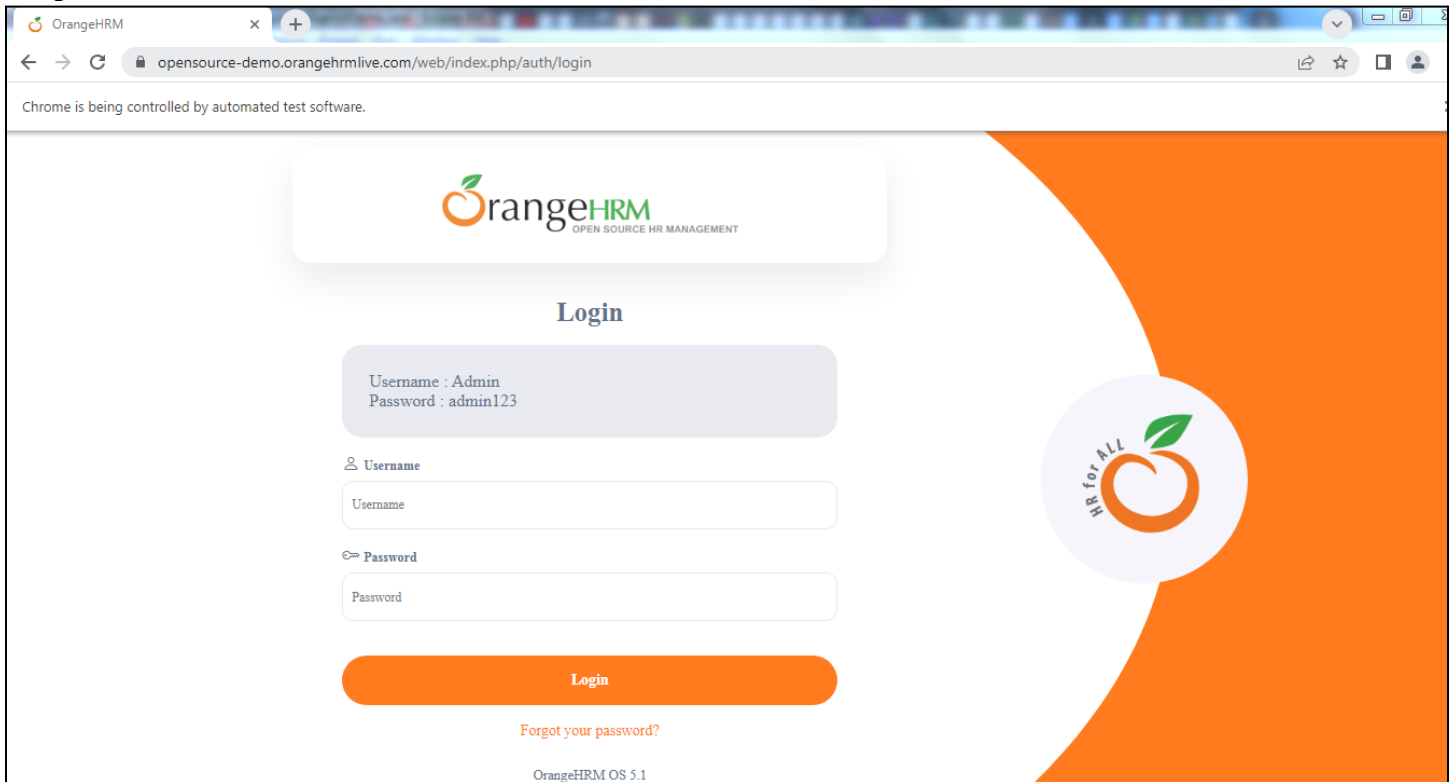
```
    public static void main(String[] args) throws InterruptedException {
```

```
// TODO Auto-generated method stub
System.setProperty("webdriver.chrome.driver", "D:\\Selenium\\chromedriver.exe");
WebDriver wd= new ChromeDriver();
WebDriverWait wt=new WebDriverWait(wd,20);

wd.get("https://opensource-demo.orangehrmlive.com/web/index.php/auth/login");
Thread.sleep(5000);
//wd.manage().timeouts().implicitlyWait(100, TimeUnit.SECONDS);

wd.findElement(By.xpath("//*[@id=\"app\"]/div[1]/div/div[1]/div/div[2]/div[2]/form/div[1]/div/div[2]/input")).
sendKeys("Admin");
System.out.println("Admin user-Explicitly wait");
wd.quit();
}
}
```

Output:



Q.4) Implement Multiselect on given web page Selenium webdriver.
Source code:



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```
package DemoPrograms;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.support.ui.Select;

public class MultiSelectDemo {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        System.setProperty("webdriver.chrome.driver", "D:\\Selinum\\chromedriver.exe");
        WebDriver wd= new ChromeDriver();
        wd.get("file:/B:/Sem-3/STQA/STQA%20LAB%20B2%20BATCH/mltiselectdemo.html");
        //To Implement radio button selection for web programming language

        WebElement radio1 = wd.findElement(By.id("html"));
        radio1.click();
        System.out.println("HTML IS SELECTED");

        WebElement radio2 = wd.findElement(By.id("age2"));
        radio2.click();
        System.out.println("Age is Selected");

        WebElement check1 = wd.findElement(By.id("3"));
        check1.click();
        WebElement check2 = wd.findElement(By.id("2"));
        check2.click();
        System.out.println("CheckboxS IS SELECTED");

        Select s = new Select(wd.findElement(By.id("select_languages")));
        if(s.isMultiple())
        {
            s.selectByIndex(1);
            s.selectByValue("C");
        }
        System.out.println("Slect IS SELECTED");
    }
}
```




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Output:

Programming Languages x +

← → ↻ ⓘ File | B:/Sem-3/STQA/STQA%20LAB%20B2%20BATCH/multiselectdemo.html

Chrome is being controlled by automated test software.

Demo Page

Please select your favorite Web language:

☒ HTML
☐ CSS
☐ JavaScript

Please select your age:

☐ 0 - 30
☒ 31 - 60
☐ 61 - 100

Show Checkboxes:

☐ Database Lab
☒ Programming Lab
☒ Language Lab

Select programming languages :

C++
Python
C
Java

Submit



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```
Starting ChromeDriver 105.0.5195.52 (412c95e518836d8a7d97250c
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations
ChromeDriver was started successfully.
Oct 03, 2022 2:15:21 PM org.openqa.selenium.remote.ProtocolHandshake
INFO: Detected dialect: W3C
HTML IS SELECTED
Age is Selected
CheckboxS IS SELECTED
Slect IS SELECTED
```



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M.C.A Semester – III

Roll No :	1266
Name of Student :	Aman Verma
Subject :	MCAL35 Software Testing & Quality Assurance Lab
Module:	3
Date:	14-10-2022

Q. 1) Implement Action Demo on <https://opensource-demo.orangehrmlive.com/> (Add admin user using automation tool) using Selenium webdriver.

Source code:

```
package DemoPrograms;
```

```
import java.util.List;
```

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

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

```
import org.openqa.selenium.WebDriver;
```

```
import org.openqa.selenium.WebElement;
```

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

```
import org.openqa.selenium.interactions.Actions;
```

```
import org.openqa.selenium.support.ui.ExpectedCondition;
```

```
import org.openqa.selenium.support.ui.ExpectedConditions;
```

```
import org.openqa.selenium.support.ui.WebDriverWait;
```

```
public class ActionDemo {
```

```
    public static void main(String[] args) {
```

```
        // Action demo- hovering mouse cursore on menu items
```

```
        System.setProperty("webdriver.chrome.driver", "D:\\Selinum\\chromedriver.exe");
```

```
        WebDriver wd= new ChromeDriver();
```

```
        wd.get("https://opensource-demo.orangehrmlive.com/web/index.php/auth/login");
```



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```
wd.manage().window().maximize();
```

```
wd.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);  
wd.findElement(By.name("username")).sendKeys("Admin");  
wd.findElement(By.name("password")).sendKeys("admin123");  
wd.findElement(By.cssSelector("button[type=submit]")).click();
```

```
//Explicit wait
```

```
//      WebDriverWait wt = new WebDriverWait(wd,10);  
//  
wt.until(ExpectedConditions.visibilityOfElementLocated(By.xpath("//*[@id=\"app\"]/div[1]/div[1]/header/div[1]/div[2]/ul/li/span/p")));  
//  
wd.findElement(By.xpath("//*[@id=\"app\"]/div[1]/div[1]/header/div[1]/div[2]/ul/li/ul/li[4]/a"));  
//      wd.findElement(By.linkText("Logout")).click();  
      Actions act = new Actions(wd);  
      List<WebElement> menu =  
wd.findElements(By.className("oxd-main-menu-item-wrapper"));  
      for(int i=0;i<=menu.size()-1;i++)  
      {  
          System.out.println(menu.get(i).getText());  
          act.moveToElement(menu.get(i)).perform();  
      }  
      /*  
      System.out.println("=====");  
  
wd.findElement(By.xpath("//*[@id=\"app\"]/div[1]/div[1]/aside/nav/div[2]/ul/li[1]/a/span")).click();  
      List<WebElement> submenu =  
wd.findElements(By.className("oxd-topbar-body-nav-tab-item"));  
      for(int i=0;i<=submenu.size()-1;i++)  
      {  
          System.out.println(submenu.get(i).getText());  
          act.moveToElement(submenu.get(i)).perform();
```



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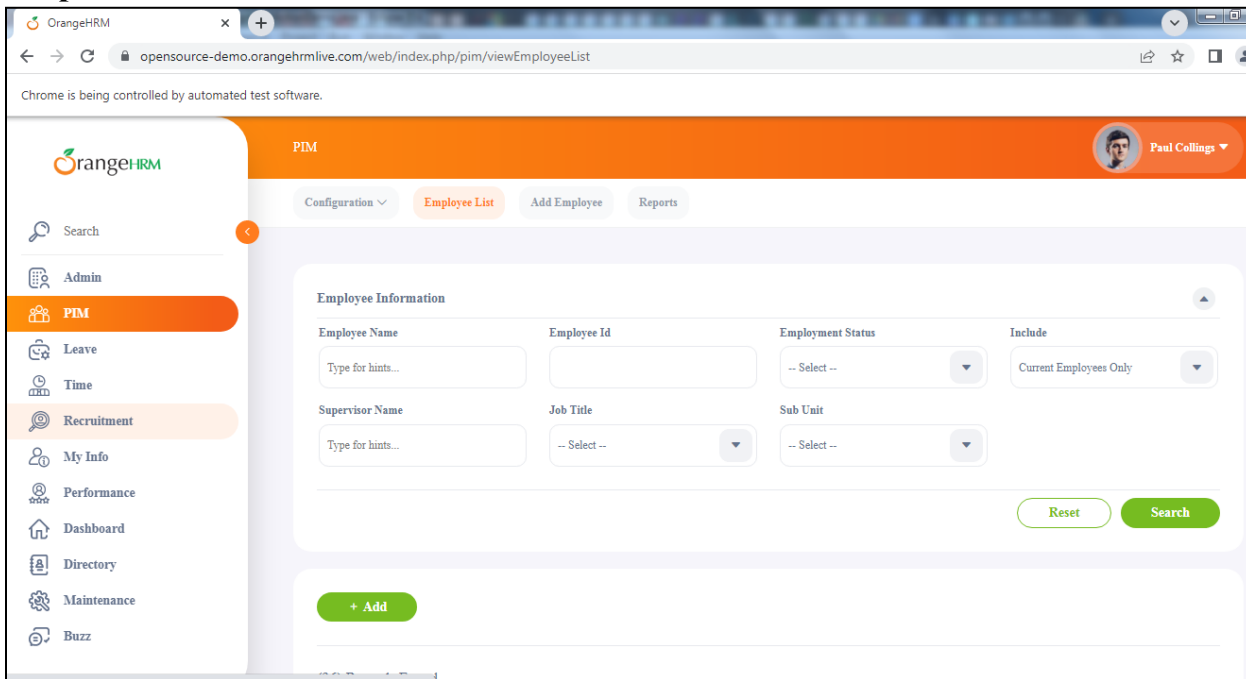
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}

```
wd.findElement(By.xpath("//*[@id='app']/div[1]/div[1]/header/div[1]/div[2]/ul/li/span/p")).click();
wd.findElement(By.linkText("Logout")).click();
wd.quit();
}
}
```

Output:





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```
Console X
<terminated> ActionDemo [Java Application] C:\Users\helpdesk\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.
Starting ChromeDriver 105.0.5195.52 (412c95e518836d8a7d97250d62b29c2ae6a26a85-refs/branch
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on
ChromeDriver was started successfully.
[1665126048.786][WARNING]: This version of ChromeDriver has not been tested with Chrome
Oct 07, 2022 12:30:49 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Admin
PIM
Leave
Time
Recruitment
My Info
Performance
Dashboard
Directory
Maintenance
Buzz
=====
User Management
Job
Organization
Qualifications
Nationalities
Corporate Branding
Configuration
```

Q. 2) Implement alert demo on website <http://frontaccounting.squadinfotech.in/index.php> using Selenium webdriver. (Username: frontuser1, Password: frontuser1, and Company: Squad_MT_OL-191)

Source code:

```
package DemoPrograms;
```

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

```
import org.openqa.selenium.Alert;
```

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

```
import org.openqa.selenium.WebDriver;
```



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

public class AlertDemo {

    public static void main(String[] args) throws InterruptedException {
        // TODO Auto-generated method stub
        System.setProperty("webdriver.chrome.driver", "D:\\Selenium\\chromedriver.exe");
        WebDriver wd= new ChromeDriver();
        wd.get("http://frontaccounting.squadinfotech.in/");
        wd.manage().window().maximize();

        wd.findElement(By.name("user_name_entry_field")).sendKeys("frontuser1");
        wd.findElement(By.name("password")).sendKeys("frontuser1");

        wd.findElement(By.xpath("//*[@id=\"_page_body\"]/form/center[1]/table/tbody/tr[5]/td[2]/select/option[15]")).click();
        wd.findElement(By.xpath("//*[@id=\"_page_body\"]/form/center[2]/input")).click();

        wd.findElement(By.linkText("Direct Delivery")).click();

        wd.findElement(By.name("CancelOrder")).click();

        Alert alt = wd.switchTo().alert();
        System.out.println("Alert text ==>" +alt.getText());
        Thread.sleep(5000);
        alt.accept();
        ///alt.dismiss();
        wd.findElement(By.linkText("Logout")).click();
        wd.close();
    }
}
```




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```
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.support.ui.Select;

public class WindowHandlingDemo {

    public static void main(String[] args) throws InterruptedException {
        // TODO Auto-generated method stub

        System.setProperty("webdriver.chrome.driver", "D:\\Selenium\\chromedriver.exe");
        WebDriver wd= new ChromeDriver();
        wd.get("http://frontaccounting.squadinfotech.in/");
        wd.manage().window().maximize();
        wd.findElement(By.name("user_name_entry_field")).sendKeys("frontuser1");
        wd.findElement(By.name("password")).sendKeys("frontuser1");

        wd.findElement(By.xpath("//*[@id=\"_page_body\"]/form/center[1]/table/tbody/tr[5]/td[2]/select/option[15]")).click();
        wd.findElement(By.name("SubmitUser")).click();
        Thread.sleep(2000);

        //Sales Quotation Entry
        wd.findElement(By.partialLinkText("uotation Entry")).click();
        String Pid = wd.getWindowHandle(); //Getting id of the current window
        System.out.println("Parent Window--> "+Pid);

        wd.findElement(By.xpath("//*[@id=\"_page_body\"]/form/center[1]/table/tbody/tr/td[2]/table/tbody/tr[1]/td[2]/a")).click();

        Set<String> allwin = wd.getWindowHandles();
        for(String W:allwin)
        {
            wd.switchTo().window(W);
            System.out.println(wd.getTitle());
            Thread.sleep(1000);
        }
    }
}
```

```

if(!W.equals(Pid))
{
    Select ss =new Select(wd.findElement(By.id("customer_id")));
    ss.selectByIndex(0);
    Thread.sleep(1000);
    wd.manage().window().maximize();
    wd.close();
}
}
wd.switchTo().window(Pid);
wd.findElement(By.linkText("Logout")).click();
wd.close();
}
}

```

Output:

Customer Transactions - Google Chrome

Not secure | frontaccounting.squadinfotech.in/sales/inquiry/customer_inquiry.php?customer_id=1

Chrome is being controlled by automated test software.

Select a customer: All Customers All Types From: 09/14/2022 To: 10/14/2022 Zero values ☐ Search

Type	#	Order	Reference	Date	Due Date	Customer	Branch	Currency	Amount			
Sales Invoice	9	108	004/2022	09/28/2022	09/28/2022	Donald Easter LLC	Canada - Donald Easter LLC	USD	278.25			
Sales Invoice	10	112	005/2022	09/28/2022	09/28/2021	Donald Easter LLC	Canada - Donald Easter LLC	USD	10.50			
Sales Invoice	11	105	006/2022	09/28/2022	09/28/2022	Donald Easter LLC	Canada - Donald Easter LLC	USD	257.25			
Sales Invoice	12	103	007/2022	09/29/2022	10/17/2022	MoneyMaker Ltd.	New Jersey - MoneyMaker Ltd.	EUR	50.00			
Sales Invoice	13	103	008/2022	09/29/2022	10/17/2022	MoneyMaker Ltd.	New Jersey - MoneyMaker Ltd.	EUR	673.34			
Sales Invoice	14	113	009/2022	09/29/2022	09/30/2020	Donald Easter LLC	Canada - Donald Easter LLC	USD	270.00			
Sales Invoice	15	114	010/2022	09/29/2022	09/30/2020	Donald Easter LLC	Canada - Donald Easter LLC	USD	388.50			
Sales Invoice	16	107	011/2022	09/29/2022	09/01/2020	Donald Easter LLC	Canada - Donald Easter LLC	USD	65.00			
Sales						Donald Easter	Canada - Donald					



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```
Console X
<terminated> WindowHandlingDemo [Java Application] C:\Users\helpdesk\.p2\pool\plugins\org.eclipse.just
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerat
ChromeDriver was started successfully.
[1665729894.933][WARNING]: This version of ChromeDriver has not
Oct 14, 2022 12:14:55 PM org.openqa.selenium.remote.ProtocolHand
INFO: Detected dialect: W3C
Parent Window--> CDwindow-18487D00DDA0CD4A7E6F1B762AC657DD
New Sales Quotation Entry
Customer Transactions
```



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M.C.A Semester – III

Roll No :	1266
Name of Student :	Aman Verma
Subject :	MCAL35 Software Testing & Quality Assurance Lab
Module:	5
Date:	04-11-2022

Q. 1) Demonstrate data driven framework (use excel file for test data) for login form of <https://opensource.demo.orangehrmlive.com/> using Selenium webdriver.

Source code:

DemoCheck.java

```
package programs;
```

```
import java.io.FileInputStream;  
import java.io.FileNotFoundException;  
import java.io.IOException;  
import java.util.concurrent.TimeUnit;
```

```
import org.apache.commons.collections4.Unmodifiable;
```

```

import org.apache.poi.xssf.usermodel.XSSFCell;
import org.apache.poi.xssf.usermodel.XSSFRow;
import org.apache.poi.xssf.usermodel.XSSFSheet;
import org.apache.poi.xssf.usermodel.XSSFWorkbook;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class DemoWrite {

    public static void main(String[] args) throws IOException, InterruptedException {
        // TODO Auto-generated method stub

        System.setProperty("webdriver.chrome.driver", "C:\\Selenium\\chromedriver.exe");

        WebDriver wd = new ChromeDriver();
        wd.get("https://opensource-demo.orangehrmlive.com/web/index.php/auth/login");
        wd.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);
        FileInputStream fis = new FileInputStream("C:\\Selenium\\DemoExcel.xlsx");
        XSSFWorkbook wb = new XSSFWorkbook(fis);
        XSSFSheet st= wb.getSheet("Sheet1");
        for(int i=1;i<=st.getLastRowNum();i++)
        {
            XSSFRow rw = st.getRow(i);
            XSSFCell un = rw.getCell(0);
            XSSFCell pd = rw.getCell(1);
            System.out.println("username-->" + un);
            System.out.println("password-->" + pd);

            wd.findElement(By.name("username")).sendKeys(un.toString());
            wd.findElement(By.name("password")).sendKeys(pd.toString());
            wd.findElement(By.cssSelector("button[type=submit]")).click();

            Thread.sleep(2000);

            wd.findElement(By.xpath("//*[@id=\"app\"]/div[1]/div[1]/header/div[1]/div[2]/ul/li/span")).click();
            Thread.sleep(2000);
            wd.findElement(By.linkText("Logout")).click();
            wd.quit();
        }
    }
}

```

```

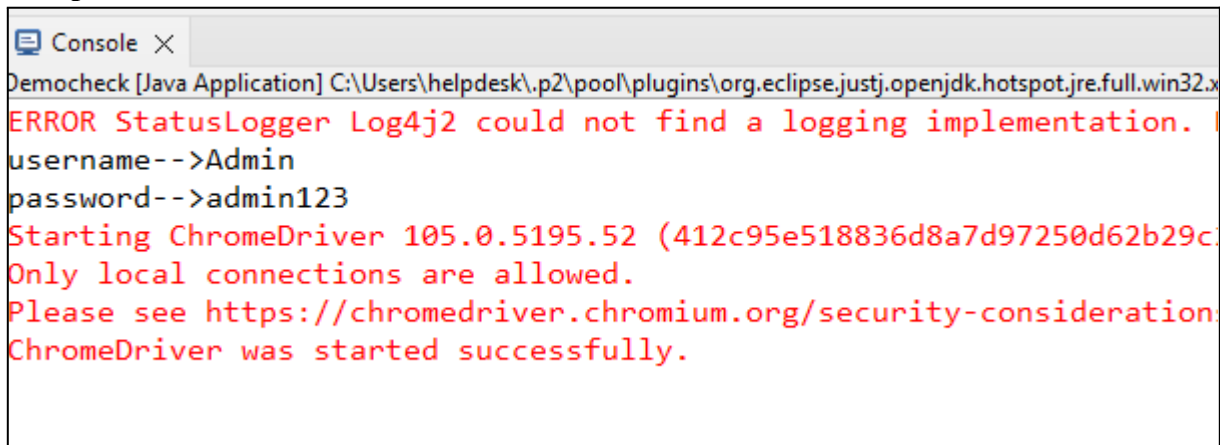
    }
    wb.close();

}

}

```

Output:



```

Demoscheck [Java Application] C:\Users\helpdesk\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x...
ERROR StatusLogger Log4j2 could not find a logging implementation. I
username-->Admin
password-->admin123
Starting ChromeDriver 105.0.5195.52 (412c95e518836d8a7d97250d62b29c...
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-consideration...
ChromeDriver was started successfully.

```

Q. 2) Demonstrate data driven framework (use excel file for test data) for login form of <https://opensource.demo.orangehrmlive.com/> and write the result of test case in the data file. IF the login is successful then display test result as “Valid” otherwise “Invalid”

Source code:

ValidInvalidDemo.java

```

package programs;

import java.io.FileInputStream;
import java.io.FileNotFoundException;
import java.io.FileOutputStream;
import java.io.IOException;
import java.util.concurrent.TimeUnit;

import org.apache.poi.xssf.usermodel.XSSFCell;
import org.apache.poi.xssf.usermodel.XSSFRow;
import org.apache.poi.xssf.usermodel.XSSFSheet;
import org.apache.poi.xssf.usermodel.XSSFWorkbook;

```

```

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class ValidInvalidDemo {

    public static void main(String[] args) throws IOException, InterruptedException {
        // TODO Auto-generated method stub
        System.setProperty("webdriver.chrome.driver", "C:\\Selenium\\chromedriver.exe");

        WebDriver wd = new ChromeDriver();
        wd.get("https://opensource-demo.orangehrmlive.com/web/index.php/auth/login");
        wd.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);
        FileInputStream fis = new FileInputStream("C:\\Selenium\\Dem.xlsx");
        XSSFWorkbook wb = new XSSFWorkbook(fis);
        XSSFSheet st= wb.getSheet("Sheet1");
        for(int i=1;i<=st.getLastRowNum();i++)
        {
            XSSFRow rw = st.getRow(i);
            XSSFCell un = rw.getCell(0);
            XSSFCell pd = rw.getCell(1);
            XSSFCell res = rw.createCell(2);
            System.out.println("username-->" + un);
            System.out.println("password-->" + pd);

            wd.findElement(By.name("username")).sendKeys(un.toString());
            wd.findElement(By.name("password")).sendKeys(pd.toString());
            wd.findElement(By.cssSelector("button[type=submit]")).click();

            try
            {
                Thread.sleep(2000);

                wd.findElement(By.xpath("//*[@id=\"app\"]/div[1]/div[1]/header/div[1]/div[2]/ul/li/span")).click();
                Thread.sleep(2000);
                wd.findElement(By.linkText("Logout")).click();
                System.out.println("Pass");
                res.setCellValue("valid");

            }
        }
    }
}

```

```

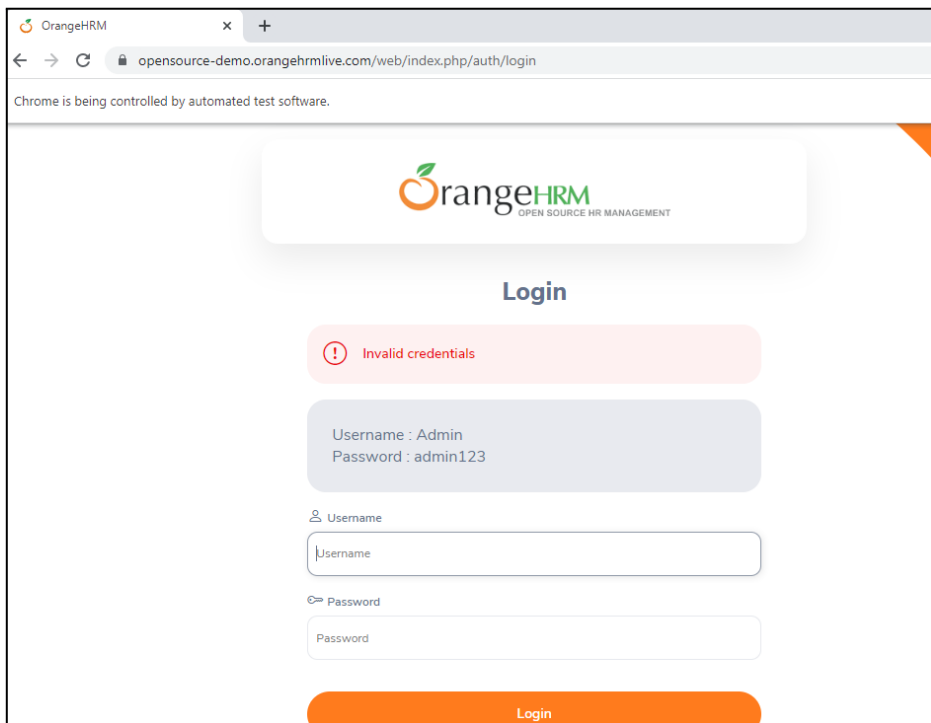
        catch(Exception ex)
        {
            System.out.println("Fail");
            res.setCellValue("Invalid");
        }
    }

    FileOutputStream fod = new FileOutputStream("C:\\Selenium\\Dem.xlsx");
    wb.write(fod);
    fod.close();
    wd.close();

}
}

```

Output:



Before Testing

Dem.xlsx (read-only) - OpenOffice Calc

File Edit View Insert Format Tools Data Window Help

E10

	A	B	C	D	E	F
1	username	password	result			
2	Admin	admin123				
3	adm	admin123				
4	Admin	adm				
5	adm	adm				
6						
7						
8						
9						
10						
11						
12						

After Testing

Dem.xlsx - OpenOffice Calc

File Edit View Insert Format Tools Data Window Help

Calibri 11 B I U

E10

	A	B	C	D	E	F
1	username	password	result			
2	Admin	admin123	valid			
3	adm	admin123	Invalid			
4	Admin	adm	Invalid			
5	adm	adm	Invalid			
6						
7						
8						
9						
10						
11						
12						

Problems @ Javadoc Declaration Console X

```
<terminated> ValidInvalidDemo [Java Application] C:\Users\mcamock\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64.jre\bin\java.exe
ChromeDriver was started successfully.
Nov 04, 2022 1:02:10 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
ERROR StatusLogger Log4j2 could not find a logging implementation. Please add the Log4j2 core to the classpath.
username-->Admin
password-->admin123
Pass
username-->adm
password-->admin123
Fail
username-->Admin
password-->adm
Fail
username-->adm
password-->adm
Fail
[1667547190.768][WARNING]: Timed out connecting to Chrome, retrying...
[1667547198.870][WARNING]: Timed out connecting to Chrome, retrying...
```




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M.C.A Semester – III

Roll No :	1266
Name of Student :	Aman Verma
Subject :	MCAL35 Software Testing & Quality Assurance Lab
Module:	4
Date:	04-11-2022

Q. 1) Demonstrate using TestNG framework different annotations (before method, after method, before class, after class, before test, after test, before suite and after suite) using Selenium webdriver.

Source code:

package TestNG;

```
import org.testng.annotations.Test;
import org.testng.annotations.BeforeMethod;
import org.testng.annotations.AfterMethod;
import org.testng.annotations.BeforeClass;
import org.testng.annotations.AfterClass;
import org.testng.annotations.BeforeTest;
import org.testng.annotations.AfterTest;
import org.testng.annotations.BeforeSuite;
import org.testng.annotations.AfterSuite;
```

```
public class MyTest {
    @Test
    public void f() {
        System.out.println("Test");
    }
    @Test
    public void f1() {
        System.out.println("Test1");
    }
    @Test
    public void a() {
```



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```
        System.out.println("Test3");
    }
    @BeforeMethod
    public void beforeMethod() {
        System.out.println("Before Method");
    }

    @AfterMethod
    public void afterMethod() {
        System.out.println("After Method");
    }

    @BeforeClass
    public void beforeClass() {
        System.out.println("Before Class");
    }

    @AfterClass
    public void afterClass() {
        System.out.println("After Class");
    }

    @BeforeTest
    public void beforeTest() {
        System.out.println("Before Test");
    }

    @AfterTest
    public void afterTest() {
        System.out.println("After Test");
    }

    @BeforeSuite
    public void beforeSuite() {
        System.out.println("Before Suite");
    }

    @AfterSuite
    public void afterSuite() {
        System.out.println("After Suit");
    }
}
```



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}

Output:

```
Console X
<terminated> MyTest [TestNG] C:\Users\helpdesk\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64
Test
After Method
Before Method
Test1
After Method
After Class
After Test
PASSED: f1
PASSED: f
PASSED: a

=====
    Default test
    Tests run: 3, Failures: 0, Skips: 0
=====

After Suit

=====
Default suite
Total tests run: 3, Passes: 3, Failures: 0, Skips: 0
=====
```

Q. 2) Demonstrate using TestNG framework data provider annotation using Selenium webdriver.

Source code:

DataDemo.java

```
package TestNG;

import org.testng.annotations.Test;
import org.testng.annotations.DataProvider;

public class DataDemo {
    @Test(dataProvider = "dp")
    public void f(Integer n, String s) {
        System.out.println(n+ " " +s);
    }

    @DataProvider
```



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```
public Object[][] dp() {  
    return new Object[][] {  
        new Object[] { 1, "Aman" },  
        new Object[] { 2, "Verma" },  
        new Object[] { 22, "Tamo" },  
    };  
}
```

Output:

```
Console X  
<terminated> DataDemo [TestNG] C:\Users\helpdesk\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.2.v2022  
[RemoteTestNG] detected TestNG version 7.4.0  
1 Aman  
2 Verma  
22 Tamo  
PASSED: f(1, "Aman")  
PASSED: f(22, "Tamo")  
PASSED: f(2, "Verma")  
  
=====  
Default test  
Tests run: 1, Failures: 0, Skips: 0  
=====  
  
=====  
Default suite  
Total tests run: 3, Passes: 3, Failures: 0, Skips: 0  
=====
```

Q. 3) Demonstrate using TestNG framework data provider annotation for login process of <https://opensource-demo.orangehrmlive.com/> using Selenium webdriver. Try login with valid and invalid credentials and check the test results.

Source code:

DataIHOM.java

```
package TestNG;  
  
import org.testng.annotations.Test;  
  
import java.util.concurrent.TimeUnit;
```



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```
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.support.ui.ExpectedConditions;
import org.openqa.selenium.support.ui.WebDriverWait;
import org.testng.annotations.AfterSuite;
import org.testng.annotations.BeforeSuite;
import org.testng.annotations.DataProvider;

public class DataIOHM {

    WebDriver wd;

    @Test(dataProvider = "dp")
    public void f(String un, String pw) throws InterruptedException {

        System.out.println(un + " " + pw);

        wd.findElement(By.name("username")).sendKeys(un);
        wd.findElement(By.name("password")).sendKeys(pw.toString());
        wd.findElement(By.cssSelector("button[type=submit]")).click();

        WebDriverWait wt = new WebDriverWait(wd,10);
        wt.until(ExpectedConditions.visibilityOfAllElementsLocatedBy(By.xpath("//*[@id=\"app\"]div[1]div[1]/header/div[1]div[2]ul/li/span/p")));
        wd.findElement(By.xpath("//*[@id=\"app\"]div[1]div[1]/header/div[1]div[2]ul/li/span/p")).click();
        wd.findElement(By.linkText("Logout")).click();

    }

    @BeforeSuite
    public void beforeSuite() {
        System.out.println("Before Suite");

        System.setProperty("webdriver.chrome.driver","D:\\Selenium\\chromedriver.exe");
        wd = new ChromeDriver();
    }
}
```



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```
wd.manage().window().maximize();  
wd.get("https://opensource-demo.orangehrmlive.com/web/index.php/auth/login");
```

```
wd.manage().timeouts().implicitlyWait(5, TimeUnit.SECONDS);  
}
```

```
@AfterSuite  
public void afterSuite() {  
    System.out.println("After Suite");  
}
```

```
wd.quit();  
}
```

```
@DataProvider  
public Object[][] dp() {  
    return new Object[][] {  
        new Object[] { "Admin", "admin123" },  
        new Object[] { "Admin", "abc" },  
    };  
}
```

Output:



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```
Console X
<terminated> DataIOHM [TestNG] C:\Users\helpdesk\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.2.v20220201-1208\jre\bin\javaw.exe (04-Nov-2022, 3:38:43)
[RemoteTestNG] detected TestNG version 7.4.0
Before Suite
Starting ChromeDriver 107.0.5304.62 (1eec40d3a5764881c92085aeee66d25075c159aa-refs/branch-heads/5304@{#942})
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver up to date.
ChromeDriver was started successfully.
Nov 04, 2022 3:38:49 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Admin admin123
Admin abc
PASSED: f("Admin", "admin123")
FAILED: f("Admin", "abc")
org.openqa.selenium.TimeoutException: Expected condition failed: waiting for visibility of all elements located by: {visibility=hidden} (org.openqa.selenium.support.ui.FluentWait.until:272)
Build info: version: '3.141.59', revision: 'e82be7d358', time: '2018-11-14T08:25:48'
System info: host: 'ASTRA61', ip: '192.168.31.101', os.name: 'Windows 7', os.arch: 'amd64', os.version: '6.1'
Driver info: org.openqa.selenium.chrome.ChromeDriver
Capabilities {acceptInsecureCerts: false, browserName: chrome, browserVersion: 107.0.5304.88, chrome: {chromeVersion: 107.0.5304.88}, platformName: windows}
Session ID: 047ca3b2dcd03571a75c1803f6d875fb
    at org.openqa.selenium.support.ui.WebDriverWait.timeoutException(WebDriverWait.java:95)
    at org.openqa.selenium.support.ui.FluentWait.until(FluentWait.java:272)
    at TestNG.DataIOHM.f(DataIOHM.java:32)
    at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke(Native Method)
    at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:77)
    at java.base/jdk.internal.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:43)
    at java.base/java.lang.reflect.Method.invoke(Method.java:568)
```

```
at org.testng.remote.RemoteTestNG.main(RemoteTestNG.java:77)
```

```
=====
Default test
```

```
Tests run: 1, Failures: 1, Skips: 0
=====
```

```
After Suite
```

```
=====
Default suite
```

```
Total tests run: 2, Passes: 1, Failures: 1, Skips: 0
=====
```



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M.C.A Semester – III

Roll No :	1266
Name of Student :	Aman Verma
Subject :	MCAL35 Software Testing & Quality Assurance Lab
Module:	4
Date:	11-11-2022

Note: Attach screen shot of **Default test.html** in each test case output.

Q. 1) Demonstrate using TestNG framework test case skip feature using Selenium webdriver.

Source code:

DemoSkip.java

```
package TestNG;

import org.testng.SkipException;
import org.testng.annotations.Test;

public class DemoSkip {
    @Test
    public void Login1() {
        System.out.println("Login1 check");
    }
    @Test
    public void Login2() {
        System.out.println("Login2 check");
        throw new SkipException("Login2 functionality is not available");
    }
    @Test
    public void Login3() {
        System.out.println("Login3 check");
    }
}
```



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```
}  
}
```

Output:

```
Problems @ Javadoc Declaration Console X Results of running class DemoSk...  
<terminated> DemoSkip [TestNG] C:\Users\mcamock\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.j...  
[RemoteTestNG] detected TestNG version 7.4.0  
Login1 check  
Login2 check  
Login3 check  
PASSED: Login1  
PASSED: Login3  
SKIPPED: Login2  
org.testng.SkipException: Login2 functionality is not available  
    at TestNG.DemoSkip.Login2(DemoSkip.java:14)  
    at java.base/jdk.internal.reflect.DirectMethodHandleAc...  
    at java.base/java.lang.reflect.Method.invoke(Method.java...  
    at org.testng.internal.MethodInvocationHelper.invokeMe...  
    at org.testng.internal.TestInvoker.invokeMethod(TestIn...  
    at org.testng.internal.TestInvoker.invokeTestMethod(Te...  
    at org.testng.remote.AbstractRemoteTestNG.run(Abstra...  
    at org.testng.remote.RemoteTestNG.initAndRun(RemoteT...  
    at org.testng.remote.RemoteTestNG.main(RemoteTestNG...  
  
=====  
Default test  
Tests run: 3, Failures: 0, Skips: 1  
=====
```

```
=====  
Default suite  
Total tests run: 3, Passes: 2, Failures: 0, Skips: 1  
=====
```

Q. 2) Demonstrate using TestNG framework assert methods using Selenium webdriver.



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Source code:

DemoAssert.java

```
package TestNG;

import org.testng.Assert;
import org.testng.SkipException;
import org.testng.annotations.Test;

public class DemoAssert {
    @Test
    public void Login1() {
        System.out.println("Login1 check");
        Assert.assertEquals("abc", "abcd");
    }
    @Test
    public void Login2() {
        System.out.println("Login2 check");
    }
}
```

OUTPUT:



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```
Problems @ Javadoc Declaration Console × Results of running cl...
<terminated> DemoAssert [TestNG] C:\Users\mcamock\.p2\pool\plugins\org.eclipse.justj.openj
[[RemoteTestNG] detected TestNG version 7.4.0
Login1 check
Login2 check
PASSED: Login2
FAILED: Login1
java.lang.AssertionError: expected [abcd] but found [ab
    at org.testng.Assert.fail(Assert.java:99)
    at org.testng.Assert.failNotEquals(Assert.java:
    at org.testng.Assert.assertEqualsImpl(Assert.ja
    at org.testng.Assert.assertEquals(Assert.java:1
    at org.testng.Assert.assertEquals(Assert.java:6
    at org.testng.Assert.assertEquals(Assert.java:6
    at TestNG.DemoAssert.Login1(DemoAssert.java:11)
    at java.base/jdk.internal.reflect.DirectMethodH
    at java.base/java.lang.reflect.Method.invoke(Me
    at org.testng.internal.MethodInvocationHelper.i
    at org.testng.internal.TestInvoker.invokeMethod
    at org.testng.internal.TestInvoker.invokeTestMe
```

```
at org.testng.remote.AbstractRemoteTestNG.run(A
at org.testng.remote.RemoteTestNG.initAndRun(Re
at org.testng.remote.RemoteTestNG.main(RemoteTe

=====
Default test
Tests run: 2, Failures: 1, Skips: 0
=====

=====
Default suite
Total tests run: 2, Passes: 1, Failures: 1, Skips: 0
=====
```



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Q. 3) Demonstrate using TestNG framework assert method on <https://opensource-demo.orangehrmlive.com> welcome window after successful login using Selenium webdriver. Check the window title is “OrangeHRM” or not.

SourceCode:-

AssertDemo.java

```
package TestNG;

import org.testng.annotations.Test;

import java.util.concurrent.TimeUnit;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.support.ui.WebDriverWait;
import org.testng.Assert;
import org.testng.annotations.AfterClass;
import org.testng.annotations.AfterSuite;
import org.testng.annotations.BeforeClass;
import org.testng.annotations.BeforeSuite;

public class AssertDemoHrm {
    WebDriver wd;
    @Test
    public void f() {
    }
    @BeforeSuite
    public void OpenBrowser() {
        System.setProperty("webdriver.chrome.driver", "D:\\\\Selenium\\\\chromedriver.exe");
        wd=new ChromeDriver();
        wd.get("https://opensource-demo.orangehrmlive.com/web/index.php/auth/login");
        wd.manage().window().maximize();

        wd.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);
    }
    @BeforeClass
    public void LoginOHM() {
```



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```
wd.findElement(By.name("username")).sendKeys("Admin");
wd.findElement(By.name("password")).sendKeys("admin123");
wd.findElement(By.cssSelector("button[type=submit]")).click();

}
@Test
public void OrangeHRM() {

String title = wd.getTitle();

System.out.println("Title" + title);
String etitle="OrangeHRM";
Assert.assertEquals(title,etitle);
}

@AfterClass
public void Logout() {

wd.findElement(By.xpath("//*[@id=\"app\"]/div[1]/div[1]/header/div[1]/div[2]/ul/li/span/p")).
click();
wd.findElement(By.linkText("Logout")).click();
}

@AfterSuite
public void CloseWD() {
wd.quit();

}

}
```

Output:-



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```
Console X
<terminated> AssertDemoHrm [TestNG] C:\Users\helpdesk\.p2\pool\plugins\org.eclipse.justj.openj
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for details.
ChromeDriver was started successfully.
Nov 07, 2022 12:27:04 PM org.openqa.selenium.remote.ProtocolHandshake:
INFO: Detected dialect: W3C
TitleOrangeHRM
PASSED: f
PASSED: OrangeHRM

=====
Default test
Tests run: 2, Failures: 0, Skips: 0
=====

=====
Default suite
Total tests run: 2, Passes: 2, Failures: 0, Skips: 0
=====
```

Q. 4) Demonstrate using TestNG framework test case priority using Selenium webdriver.

Source code:

```
package TestNg;
```

```
import org.testng.annotations.Test;
```

```
public class TestPriority {
```

```
    @Test(priority = 1)
```

```
        public void login() {
            System.out.println("Login executed");
        }
```

```
    @Test(priority = 1)
        public void navigation() {
            System.out.println("Navigation executed");
        }
```

```
    @Test(priority = 3)
        public void logout() {
            System.out.println("Logout executed");
        }
}
```



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}

Output:

```
Markers Properties Servers Data Source Explorer Snippets Console X Resu
<terminated> TestPriority [TestNG] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe (12-Nov-2022, 10:24:19 pm
[RemoteTestNG] detected TestNG version 7.4.0
Login executed
Navigation executed
Logout executed
PASSED: login
PASSED: navigation
PASSED: logout

=====
Default test
Tests run: 3, Failures: 0, Skips: 0
=====

=====
Default suite
Total tests run: 3, Passes: 3, Failures: 0, Skips: 0
=====
```

TestNG: Default test x +

File | D:\MCA-SEM3\STQA_LAB\STQASelenium\STQASelenium\test-output\Default%20suite\Default%20test.html

Default test

Tests passed/Failed/Skipped:	3/0/0
Started on:	Sat Nov 12 22:24:26 IST 2022
Total time:	0 seconds (86 ms)
Included groups:	
Excluded groups:	

(Hover the method name to see the test class name)

PASSED TESTS			
Test method	Exception	Time (seconds)	Instance
login		0	TestNg TestPriority @65466a6a
Test class: TestNg TestPriority			
navigation		0	TestNg TestPriority @65466a6a
Test class: TestNg TestPriority			
logout		0	TestNg TestPriority @65466a6a
Test class: TestNg TestPriority			

Q. 5) Demonstrate using TestNG framework the mentioned navigation on <https://opensource-demo.orangehrmlive.com> welcome window after successful login using Selenium webdriver.



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Once user successfully login the dashboard is displayed. Perform automation on login, display PIM menu details, after a delay display Myinfo menu details, and successful logout from web app.

Source code:

LoginOHMTest.java

```
package TestNg;

import java.util.concurrent.TimeUnit;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.testng.annotations.AfterClass;
import org.testng.annotations.AfterSuite;
import org.testng.annotations.BeforeClass;
import org.testng.annotations.BeforeSuite;
import org.testng.annotations.Test;

public class LoginOHMTest {
    WebDriver wd;
    @Test
    public void f() {
    }
    @BeforeSuite
    public void OpenBrowser() {
        System.setProperty("webdriver.chrome.driver","D:\\MCA-
SEM3\\STQA_Programs\\drivers\\chromedriver.exe");
        wd=new ChromeDriver();
        wd.get("https://opensource-demo.orangehrmlive.com/web/index.php/auth/login");
        wd.manage().window().maximize();

        wd.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);
    }
    @BeforeClass
    public void LoginOHM() {

        wd.findElement(By.name("username")).sendKeys("Admin");
        wd.findElement(By.name("password")).sendKeys("admin123");
        wd.findElement(By.cssSelector("button[type=submit]")).click();
    }
}
```



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```
}

@Test(priority = 2)
public void Admin()
{

wd.findElement(By.xpath("//*[ @id=\"app\"]/div[1]/div[1]/aside/nav/div[2]/ul/li[1]/a/span"));
}
@Test(priority = 1)
public void PIM()
{
    wd.findElement(By.xpath("//*[ @id=\"app\"]/div[1]/div[1]/aside/nav/div[2]/ul/li[2]/a"));
}
@Test(priority = 3)
public void Leave()
{
    wd.findElement(By.xpath("//*[ @id=\"app\"]/div[1]/div[1]/aside/nav/div[2]/ul/li[3]/a"));
}

@AfterClass
public void LogOut() {

wd.findElement(By.xpath("//*[ @id=\"app\"]/div[1]/div[1]/header/div[1]/div[2]/ul/li/span/p")).click();
wd.findElement(By.linkText("Logout")).click();
}

@AfterSuite
public void CloseWD() {
wd.quit();

}

}
```

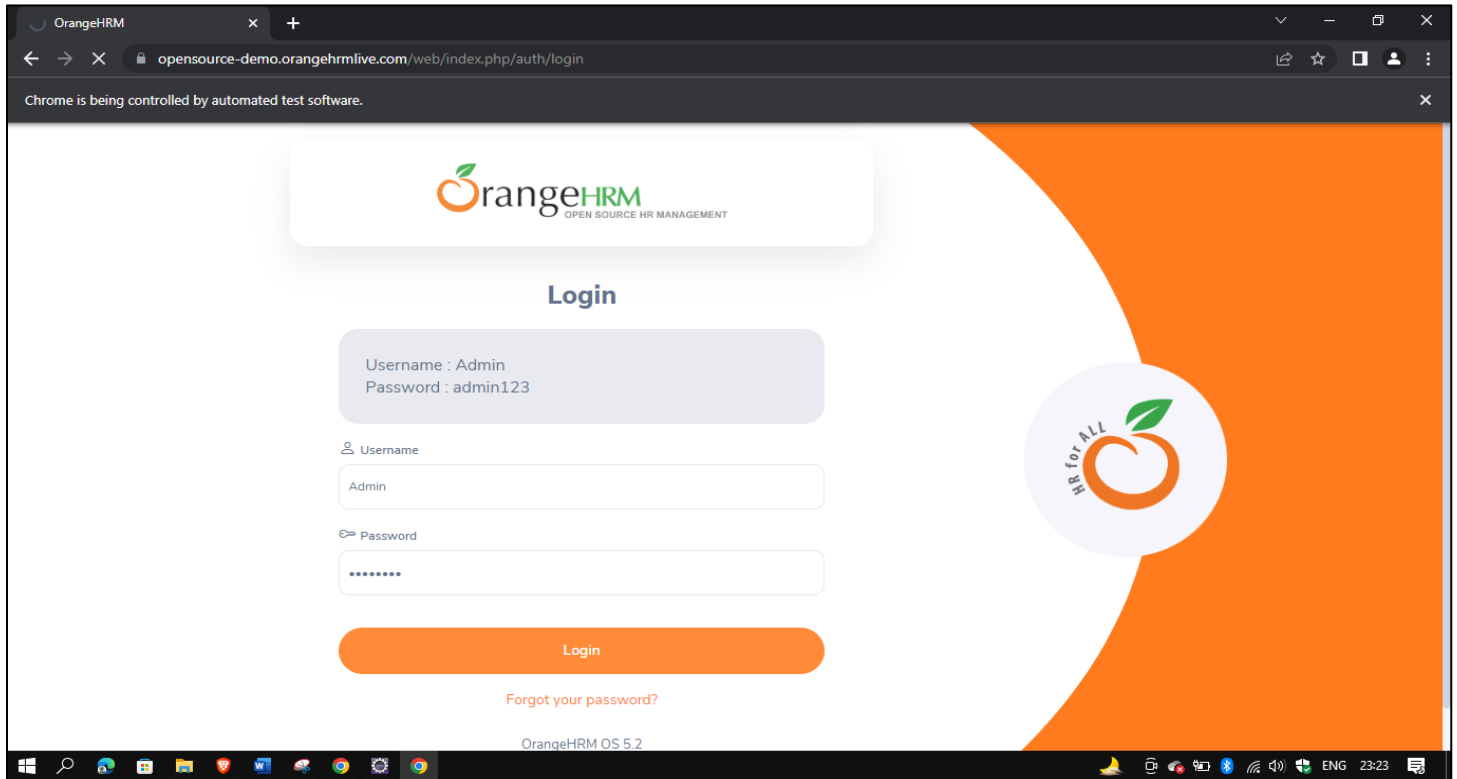
Output:



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```
Markers Properties Servers Data Source Explorer Snippets Console X Results of running class LoginC
<terminated> LoginOHMTest [TestNG] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe (12-Nov-2022, 11:23:39 pm - 11:23:52 pm)
[RemoteTestNG] detected TestNG version 7.4.0
Starting ChromeDriver 107.0.5304.62 (1eec40d3a5764881c92085aaee66d25075c159aa-r
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for sugges
ChromeDriver was started successfully.
Nov 12, 2022 11:23:42 PM org.openqa.selenium.remote.ProtocolHandshake createSes
INFO: Detected dialect: W3C
PASSED: f
PASSED: PIM
PASSED: Admin
PASSED: Leave

=====
Default test
Tests run: 4, Failures: 0, Skips: 0
=====

=====
Default suite
Total tests run: 4, Passes: 4, Failures: 0, Skips: 0
=====
```



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TestNG: Default test

File | D:/MCA-SEM3/STQA_LAB/STQASelenium/STQASelenium/test-output/Default%20suite/Default%20test.html

Default test

Tests passed/Failed/Skipped:	4/0/0
Started on:	Sat Nov 12 23:23:47 IST 2022
Total time:	4 seconds (4394 ms)
Included groups:	
Excluded groups:	

(Hover the method name to see the test class name)

PASSED TESTS			
Test method	Exception	Time (seconds)	Instance
f Test class: TestNg.LoginOHMTest		0	TestNg.LoginOHMTest@5a63f509
PIM Test class: TestNg.LoginOHMTest		1	TestNg.LoginOHMTest@5a63f509
Admin Test class: TestNg.LoginOHMTest		0	TestNg.LoginOHMTest@5a63f509
Leave Test class: TestNg.LoginOHMTest		0	TestNg.LoginOHMTest@5a63f509

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M.C.A Semester – III

Roll No :	1266
Name of Student :	Aman Verma
Subject :	MCAL35 Software Testing & Quality Assurance Lab
Module:	6
Date:	11-11-2022

Q. 1) Demonstrate bus search from MUMBAI to PUNE on date 05-12-2021. For this use the web link <https://www.vrlbus.in/> Automate the task using selenium web driver.

Source code:

ViralTest.java

```
package TestNg;
```

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

```
import org.openqa.selenium.WebDriver;
```

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

```
public class ViralTest
```

```
{
```

```
    public static void main(String[] args) throws InterruptedException {
```

```
        // TODO Auto-generated method stub
```

```
        System.setProperty("webdriver.chrome.driver", "D:\\MCA-
```

```
SEM3\\STQA_Programs\\drivers\\chromedriver.exe");
```

```
        WebDriver wd=new ChromeDriver();
```

```
        wd.get("https://www.vrlbus.in/vrl2013/booking_home_page.aspx");
```

```
        wd.findElement(By.xpath("//*[@id=\"source_city\"]")).sendKeys("MUMBAI");
```

```
        wd.findElement(By.xpath("//*[@id=\"destination_city\"]")).sendKeys("PUNE");
```

```
        wd.findElement(By.xpath("//*[@id=\"TRIPSTARTDATE\"]")).click();
```

```
        Thread.sleep(1000);
```



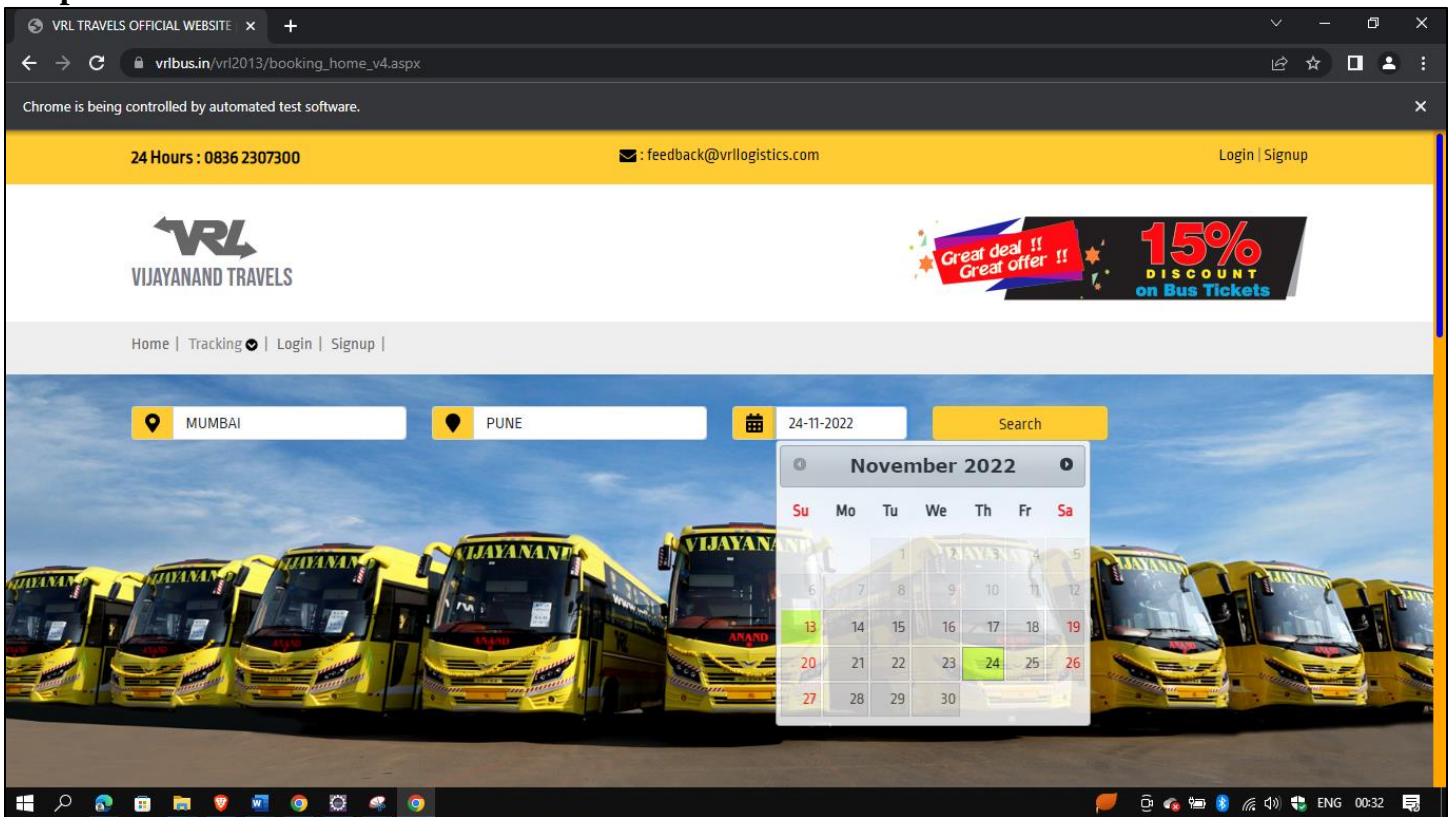
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```
wd.findElement(By.xpath("//*[ @id=\"ui-datepicker-  
div\"]/table/tbody/tr[4]/td[5]")).click();  
wd.findElement(By.xpath("//*[ @id=\"Button2\"]")).click();  
Thread.sleep(5000);  
wd.close();  
  
}  
  
}
```

Output:

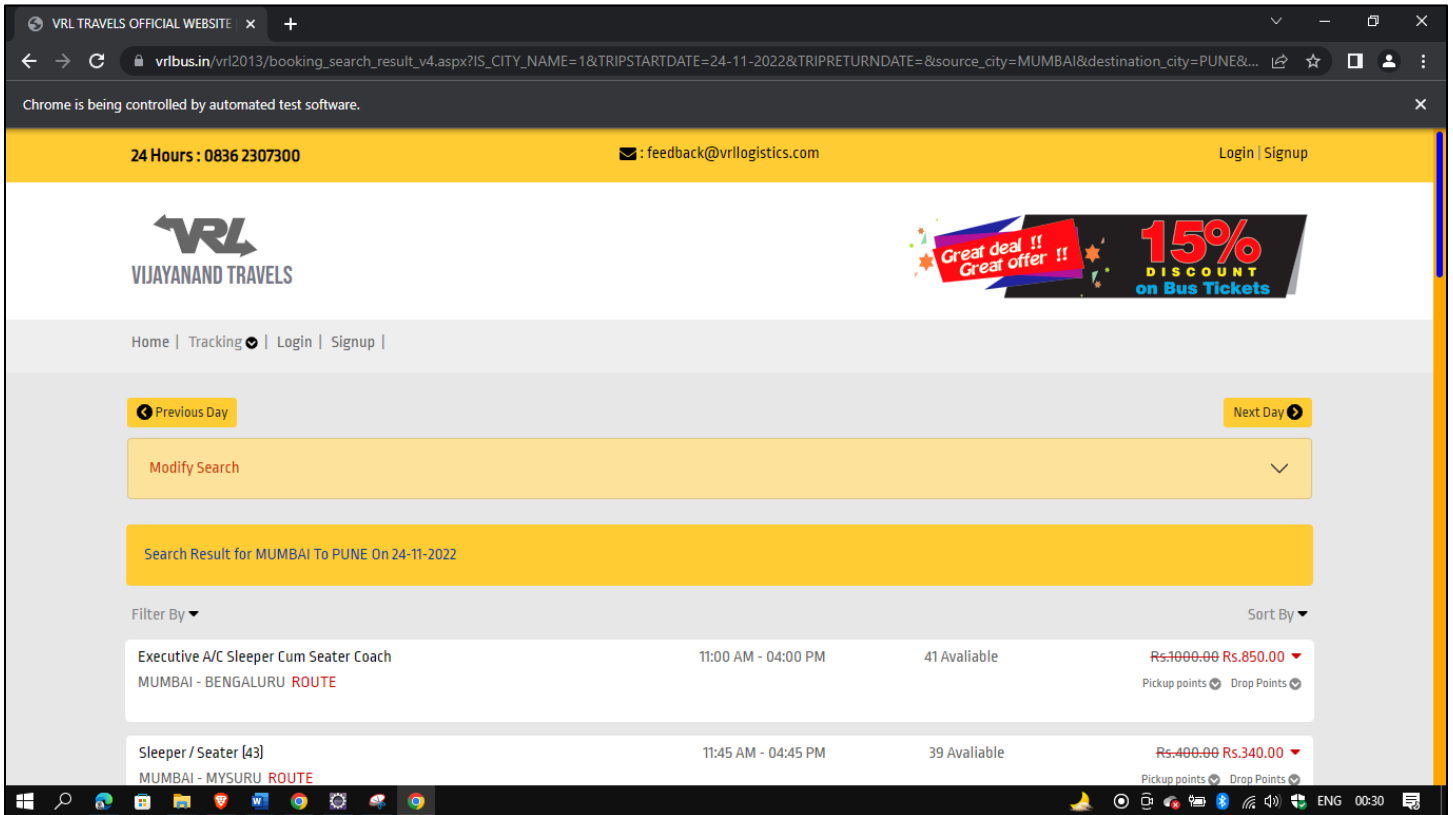




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Q. 2) Demonstrate regression testing using TestNG framework. Use at least two classes e.g. ClassADemo and ClassBDemo to demonstrate regression testing by adding few test cases in existing test suite.

Source code: ClassADemo.java

```
package testng;
```

```
import org.testng.annotations.Test;
```

```
public class ClassADemo {  
    @Test  
    public void Test1() {  
        System.out.println("Test 1 executed");  
    }  
    @Test  
    public void Test2() {  
        System.out.println("Test 2 executed");  
    }  
}
```



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```
@Test
public void Test3() {
    System.out.println("Test 3 executed");
}
}
```

ClassBDemo.java

```
package testng;

import org.testng.annotations.Test;

public class ClassBDemo {
    @Test
    public void f1() {
        System.out.println("f1 executed");
    }
    @Test
    public void f2() {
        System.out.println("f2 executed");
    }
    @Test
    public void f3() {
        System.out.println("f3 executed");
    }
}
```

regression.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE suite SYSTEM "https://testng.org/testng-1.0.dtd">
<suite name="Suite">
    <test thread-count="5" name="Test">
        <classes>
            <class name="testng.ClassBDemo"/>
            <class name="testng.ClassADemo"/>
        </classes>
    </test> <!-- Test -->
</suite> <!-- Suite -->
```



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Output:

```
Problems @ Javadoc Declaration Console × Results of running suite
<terminated> Batch2_regression.xml [TestNG] C:\Users\mcamock\p2\pool\plugins\org.eclipse.justj.op
[RemoteTestNG] detected TestNG version 7.4.0
f1 executed
f2 executed
f3 executed
Test 1 executed
Test 2 executed
Test 3 executed

=====
Suite
Total tests run: 6, Passes: 6, Failures: 0, Skips: 0
=====
```

TestNG Report

File | C:/STQA_I/Batch2/test-output/emailable-report.html

To be most productive with Microsoft Edge, finish setting up your browser. [Complete setup](#) Maybe later

Test	# Passed	# Skipped	# Retried	# Failed	Time (ms)	Included Groups	Excluded Groups
Suite							
Test	6	0	0	0	35		

Class	Method	Start	Time (ms)
Suite			
Test — passed			
testng.ClassADemo	Test1	1668147852673	1
	Test2	1668147852675	0
	Test3	1668147852676	1
testng.ClassBDemo	f1	1668147852659	7
	f2	1668147852668	1
	f3	1668147852670	0

Test

testng.ClassADemo#Test1

[back to summary](#)

testng.ClassADemo#Test2

[back to summary](#)

Q. 3) Differentiate between Quality Assurance and Quality Control.



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Answer:

	Quality Assurance	Quality Control
1.	It focuses on providing assurance that the quality requested will be achieved.	It focuses on fulfilling the quality requested.
2.	It is the technique of managing quality.	It is the technique to verify quality.
3.	It is process oriented.	It is product oriented.
4.	It does not include the execution of the program.	It always includes the execution of the program.
5.	It is a preventive technique.	It is a corrective technique.

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