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DevOps Project

Git Collaboration Theory – Overview

Git is a distributed version control system (DVCS) that allows multiple developers to collaborate efficiently on a project, whether working on the same files or different parts of the codebase. Here's a breakdown of the core theory behind Git collaboration:

C 1. Distributed System

- Every developer has a full copy of the repository including the history.
 - Work can continue offline, and changes are merged later.
-

2. Branches

- A branch is a pointer to a snapshot of changes.
 - The main (or master) branch is usually the stable production version.
 - Developers create feature branches to work on new functionality independently.
 - Enables parallel development without conflicts.
-

3. Commits and History

- A commit is a snapshot of changes along with a message.
 - Commits form a linear or branching history, enabling tracking and rollback.
-

T 4. Common Commands for Collaboration

Action	Git Command	Description
Clone repo	git clone <url>	Copy a remote repo locally
Create branch	git checkout -b feature-x	Start new feature work
Stage changes	git add . or git add <file>	Prepare files for commit
Commit changes	git commit -m "message"	Save snapshot
Push changes	git push origin branch-name	Send changes to remote
Pull updates	git pull	Fetch + merge remote changes
Merge branch	git merge feature-x	Combine branches

Action	Git Command	Description
Resolve conflicts	Manual + git add + git commit	When Git can't auto-merge

5. Collaboration Workflow

◆ Centralized Workflow (Small teams)

- Everyone works on the main branch.
- Pull before push to avoid overwriting.

◆ Feature Branch Workflow (Common)

- Create a new branch per feature or bug.
- Submit Pull Requests (PR) or Merge Requests (MR).
- Peer reviews, test, then merge into main.

◆ Fork & Pull Workflow (Open Source)

- Fork the original repo → clone → make changes.
- Push to your fork, then create a PR to the main project.

6. Conflict Resolution

- When multiple people edit the same lines, Git can't auto-merge.
- Developer must resolve conflicts manually, then commit the result.

7. Access Control

- Permissions on repositories (read/write/admin).
- Roles: Owner, Maintainer, Contributor, etc.

8. CI/CD Integration

- Git is often integrated with tools like GitHub Actions, GitLab CI, Jenkins, etc.
- Ensures code is tested and deployed automatically after merging.

TASK- 1

*) Download git and git desktop

The screenshot shows the official Git Downloads page at git-scm.com/downloads. The main content area is titled "Downloads" and includes sections for "macOS", "Windows", and "Linux/Unix". Below these, there's a note about older releases and the GitHub repository. To the right, there's a section for "GUI Clients" with a link to "View GUI Clients →" and another for "Logos" with a link to "View Logos →". At the bottom, there's a section for "Git via Git" with instructions on how to get the latest development version via Git itself. The page is styled with a clean, modern design.

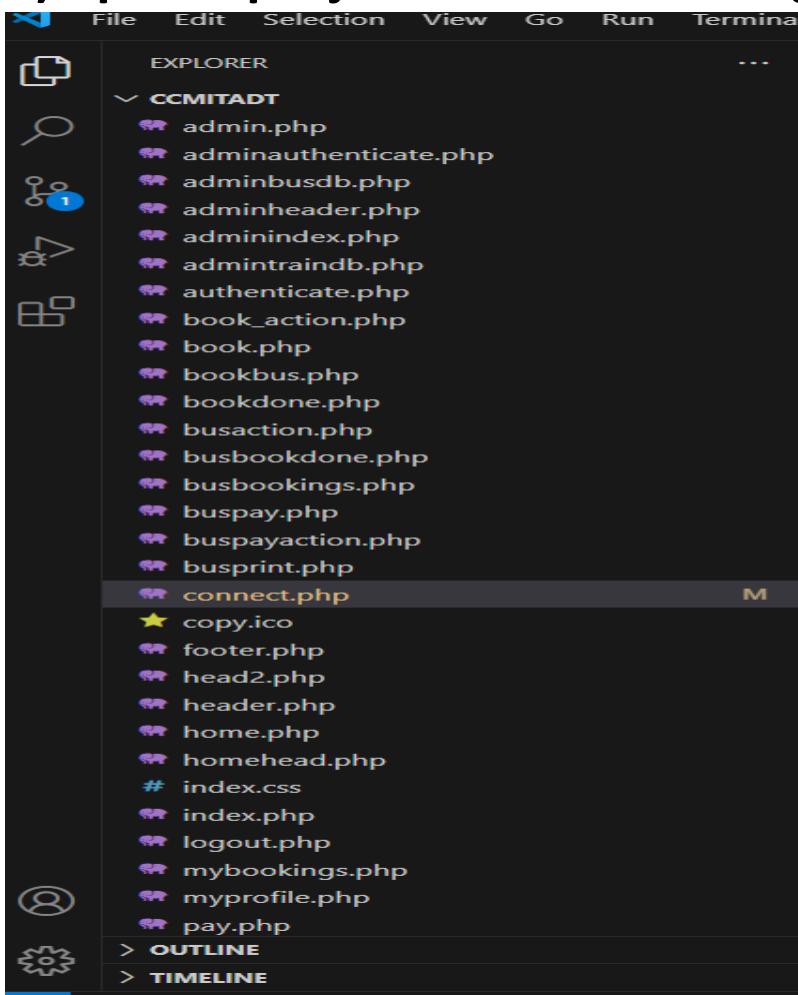
*)

The screenshot shows the GitHub Desktop download page at desktop.github.com/download/. The page has a dark background and features a large "Download GitHub Desktop" button. Below it, there are three main sections: "Try beta features and help improve future releases", "Prefer the MSI?", and "Mac?". Each section contains a brief description and a download link. The page is part of a Windows desktop environment, as indicated by the taskbar at the bottom.

Open gitbash and set globally variable

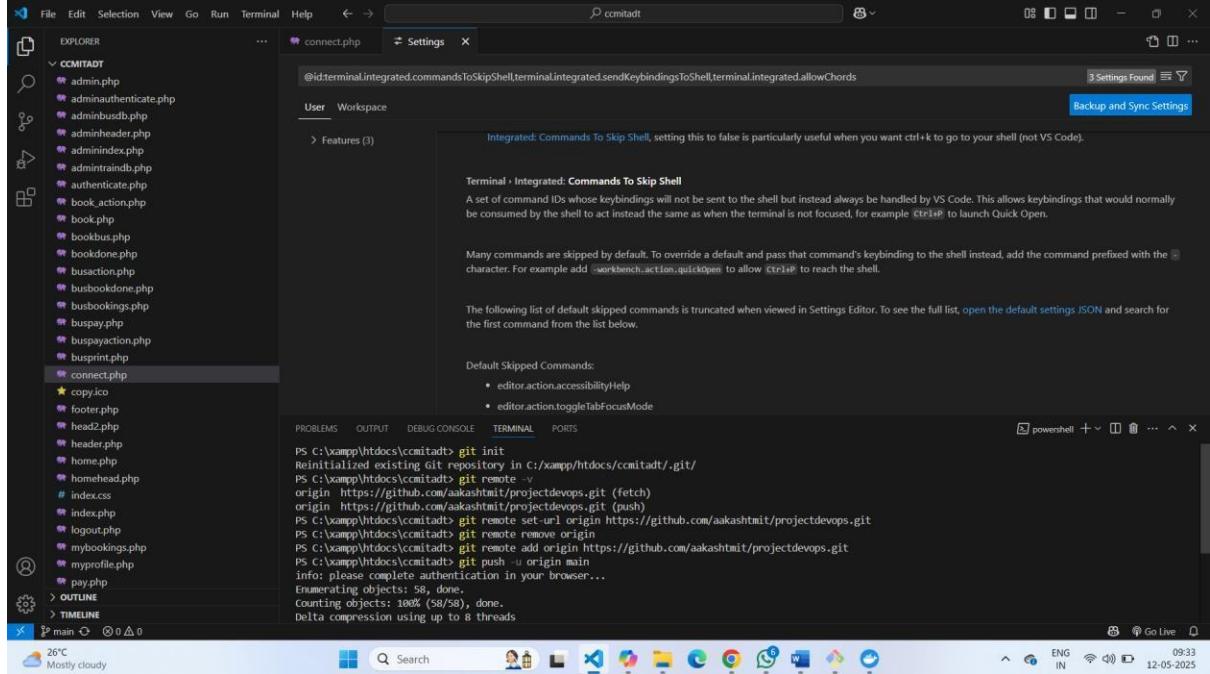
```
user.email=your-email@example.com
PS C:\xampp\htdocs\ccmitadt> ^C
PS C:\xampp\htdocs\ccmitadt> git config --global user.name "Aakash Sanjay Tambe"
PS C:\xampp\htdocs\ccmitadt> git config --global user.email "aakashtmit@gmail.com"
PS C:\xampp\htdocs\ccmitadt> git config --global --list
user.name=Aakash Sanjay Tambe
user.email=aakashtmit@gmail.com
PS C:\xampp\htdocs\ccmitadt>
```

*) upload project on GitHub using git commands



```
*)PS C:\xampp\htdocs\ccmitadt> git init
Reinitialized existing Git repository in C:/xampp/htdocs/ccmitadt/.git/
PS C:\xampp\htdocs\ccmitadt> git remote -v
origin https://github.com/aakashtmit/projectdevops.git (fetch)
origin https://github.com/aakashtmit/projectdevops.git (push)
PS C:\xampp\htdocs\ccmitadt> git remote set-url origin
https://github.com/aakashtmit/projectdevops.git
PS C:\xampp\htdocs\ccmitadt> git remote remove origin
PS C:\xampp\htdocs\ccmitadt> git remote add origin
https://github.com/aakashtmit/projectdevops.git
PS C:\xampp\htdocs\ccmitadt> git push -u origin main
info: please complete authentication in your browser...
Enumerating objects: 58, done.
Counting objects: 100% (58/58), done.
Delta compression using up to 8 threads
Compressing objects: 100% (47/47), done.
Writing objects: 100% (58/58), 49.53 KiB | 9.91 MiB/s, done.
Total 58 (delta 10), reused 54 (delta 9), pack-reused 0 (from 0)
```

```
remote: Resolving deltas: 100% (10/10), done.  
To https://github.com/aakashtmit/projectdevops.git  
 * [new branch]    main -> main  
branch 'main' set up to track 'origin/main'.  
PS C:\xampp\htdocs\ccmitadt>
```



*) project successfully uploaded

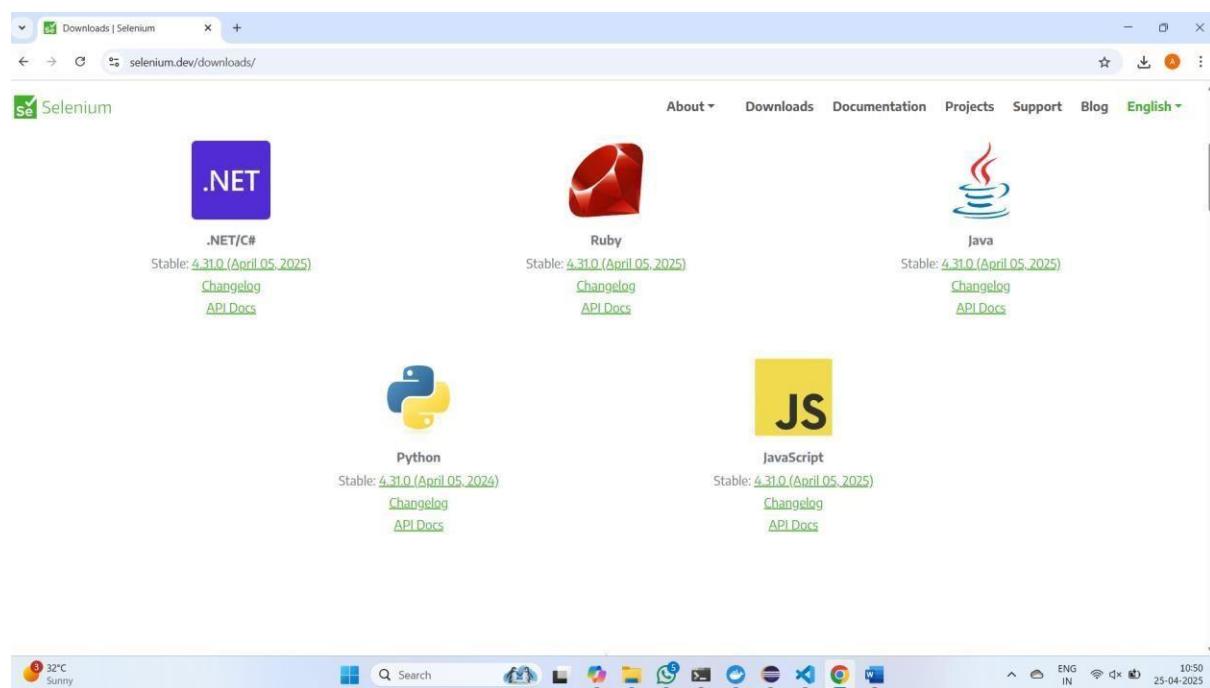
TASK 2 - TEST IN JAVA WITH NG

TA2

QUESTION 3 –

STEP 1 –

INSTALLATION OF SELENIUM JAR FILE FROM OFFICIAL WEBSITE



STEP 2- DOWNLOAD MAVEN REPO

MVN REPOSITORY

Indexed Artifacts (56.0M)

Popular Categories

Testing Frameworks & Tools

Apache 2.0

Categories Testing Frameworks & Tools

Tags testing, testng, quality

HomePage https://testing.org

Ranking #52 in MvnRepository (See Top Artifacts)
#6 in Testing Frameworks & Tools

Used By 12,132 artifacts

Version	Vulnerabilities	Repository	Usages	Date
7.11.x	7.11.0	Central	158	Feb 13, 2023
	7.10.2	Central	578	Apr 28, 2024
7.10.x	7.10.1	Central	226	Apr 09, 2024
	7.10.0	Central	1	Apr 07, 2024
7.9.x	7.9.0	Central	263	Dec 26, 2023
7.8.x	7.8.0	Central	410	May 19, 2023
	7.7.1	Central	521	Dec 29, 2022

STEP 3 -OPEN ECLIPSE AND INSTALL TEST NG FROM SOFTWARE

testng-eclipse-update-site

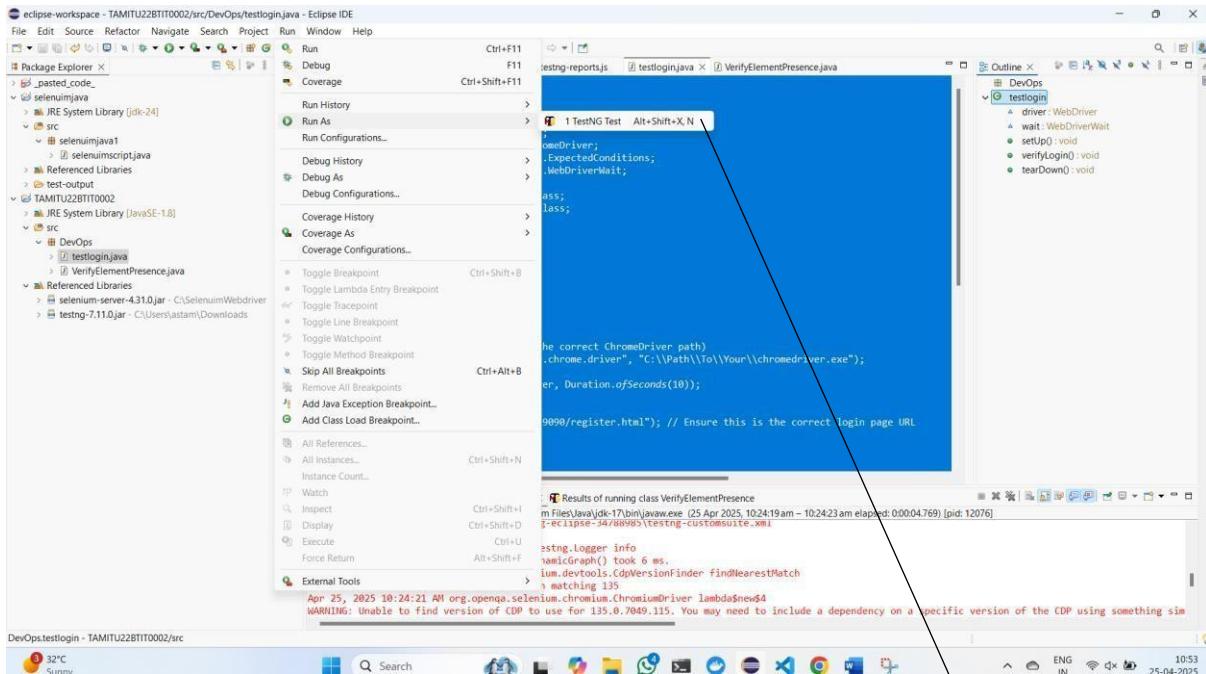
TestNG Eclipse Plugin Update Site

Main update site URL: <https://testng.org/testng-eclipse-update-site>

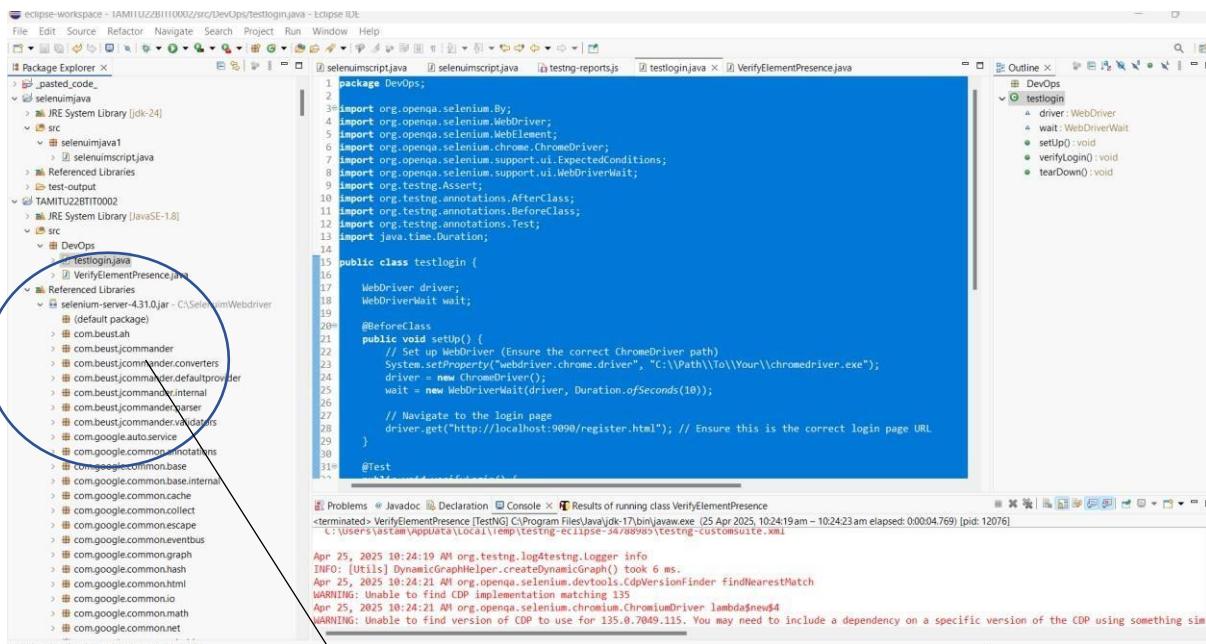
Versioned update site URL:

- <https://testng.org/testng-eclipse-update-site/7.11.0>
- <https://testng.org/testng-eclipse-update-site/7.10.2>
- <https://testng.org/testng-eclipse-update-site/7.10.0>
- <https://testng.org/testng-eclipse-update-site/7.9.0>
- <https://testng.org/testng-eclipse-update-site/7.8.0>
- <https://testng.org/testng-eclipse-update-site/7.4.0>
- <https://testng.org/testng-eclipse-update-site/7.3.0>
- <https://testng.org/testng-eclipse-update-site/7.2.0>
- <https://testng.org/testng-eclipse-update-site/7.1.0>
- <https://testng.org/testng-eclipse-update-site/7.0.0>
- <https://testng.org/testng-eclipse-update-site/6.14.3>
- <https://testng.org/testng-eclipse-update-site/6.13.0>
- <https://testng.org/testng-eclipse-update-site/6.12.0>
- <https://testng.org/testng-eclipse-update-site/6.11.0>
- <https://testng.org/testng-eclipse-update-site/6.10.0>
- <https://testng.org/testng-eclipse-update-site/6.9.13>
- <https://testng.org/testng-eclipse-update-site/6.9.12>

Step 4 –

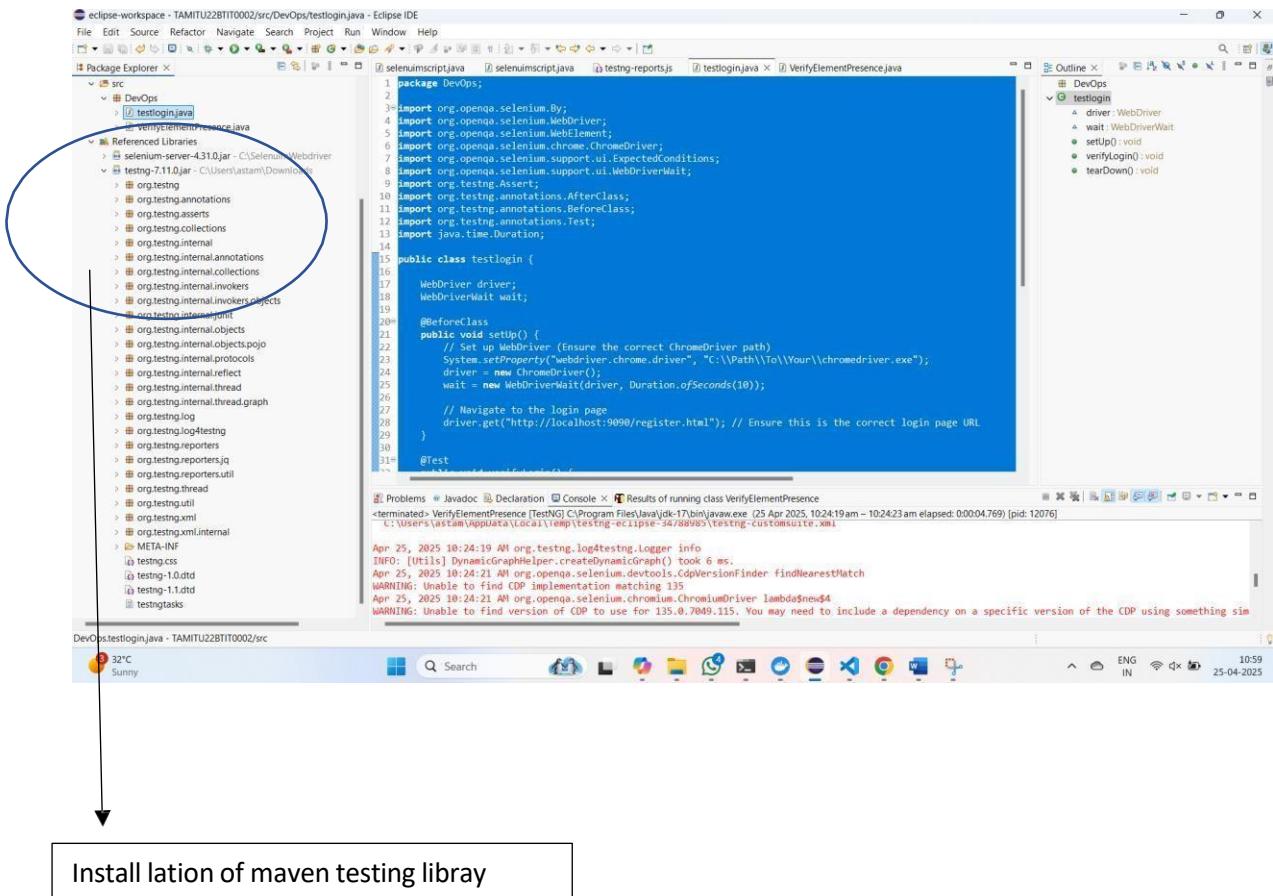


We successfully install test ng



Installation of library jar file

Step 6



Code for login test case

```
package DevOps;

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.ExpectedConditions;
import org.openqa.selenium.support.ui.WebDriverWait;
import org.testng.Assert;
import org.testng.annotations.AfterClass;
import org.testng.annotations.BeforeClass;
import org.testng.annotations.Test;
import java.time.Duration;

public class testlogin {

    WebDriver driver;
    WebDriverWait wait;
```

```

@BeforeClass
public void setUp() {
    // Set up WebDriver (Ensure the correct ChromeDriver path)
    System.setProperty("webdriver.chrome.driver",
"C:\\\\Path\\\\To\\\\Your\\\\chromedriver.exe");
    driver = new ChromeDriver();
    wait = new WebDriverWait(driver, Duration.ofSeconds(10));

    // Navigate to the login page
    driver.get("http://localhost:9090/register.html"); // Ensure this is the
correct login page URL
}

@Test
public void verifyLogin() {
    // Locate login elements
    WebElement emailField =
wait.until(ExpectedConditions.visibilityOfElementLocated(By.id("emailAddress")));
    WebElement passwordField =
wait.until(ExpectedConditions.visibilityOfElementLocated(By.id("loginPassword")));

    // Try an alternative method to locate the Login button
    WebElement loginButton =
wait.until(ExpectedConditions.elementToBeClickable(By.xpath("//button[contains(text(), 'Login')]")));
    // Enter login credentials
    emailField.sendKeys("testuser@example.com");
    passwordField.sendKeys("SecurePass123");
    loginButton.click();

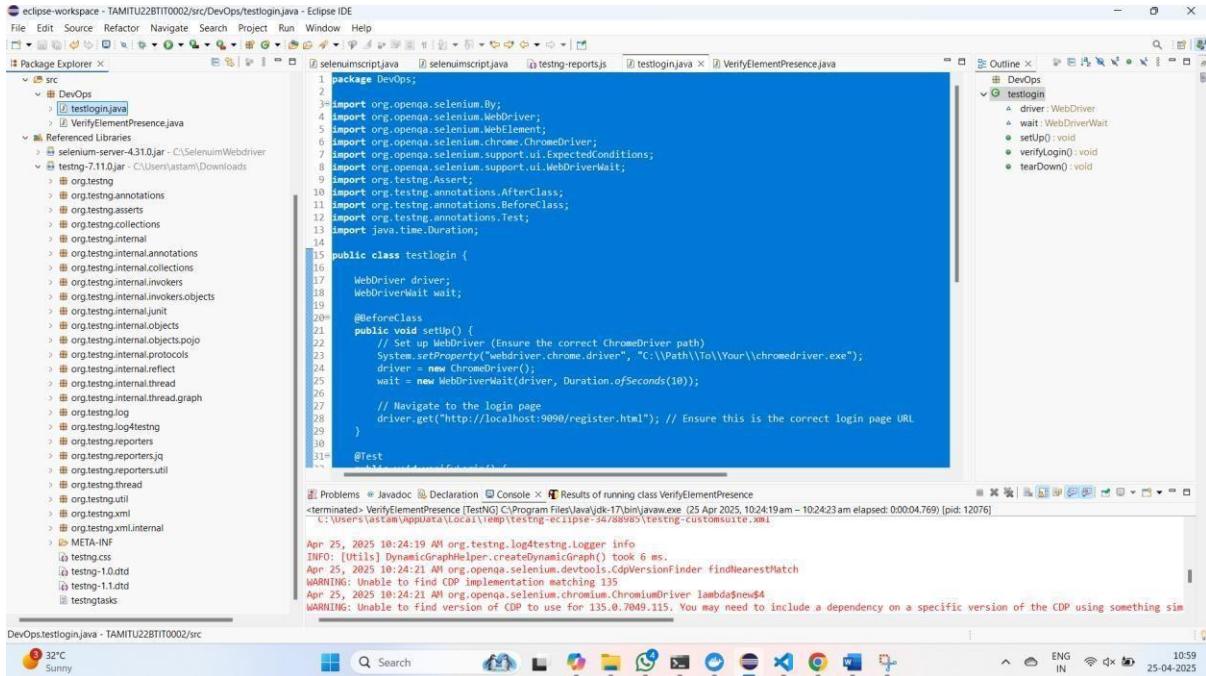
    // Verify login success with an updated selector
    WebElement confirmationMessage =
wait.until(ExpectedConditions.visibilityOfElementLocated(By.cssSelector(".confirmation-class"))); // Update
based on actual site

    // Assertion to validate login success
    Assert.assertTrue(confirmationMessage.isDisplayed(), "Login verification
failed!");

    System.out.println("Login successful!");
}

@AfterClass
public void tearDown() {
    // Close the browser
    driver.quit();
}
}

```



Test case 2 elememtn present or not

```
package DevOps;
```

```

import org.openqa.selenium.By;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;
import org.testng.Assert;

import org.testng.annotations.AfterClass;
import org.testng.annotations.BeforeClass;
import org.testng.annotations.Test;

```

```
import java.time.Duration;
```

```
public class VerifyElementPresence { WebDriver driver;
```

```

@BeforeClass
public void setUp() {

    // Set up ChromeDriver (Ensure correct path)
//    System.setProperty("webdriver.chrome.driver",
"C:\\Path\\To\\Your\\chromedriver.exe");
    driver = new ChromeDriver();
    driver.manage().timeouts().implicitlyWait(Duration.ofSeconds(10));
    driver.get("http://localhost:9090/register.html"); // Update to the
correct URL
}

```

```
@Test
```

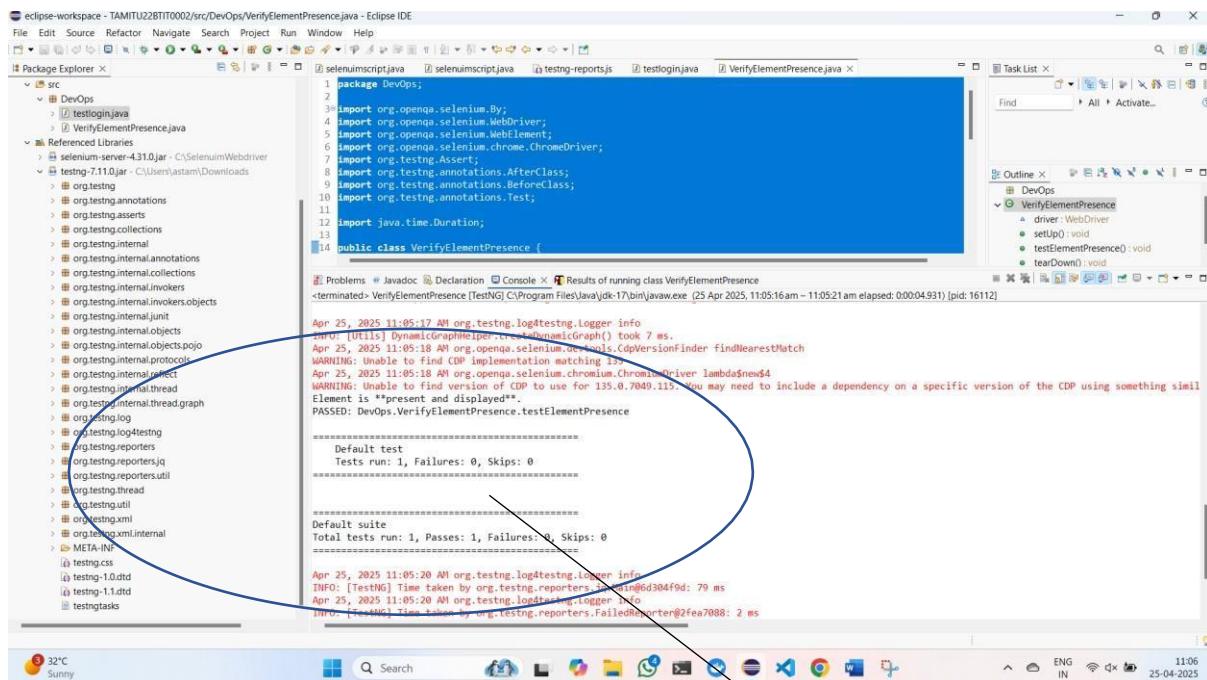
```

public void testElementPresence() {
    try {
        WebElement element = driver.findElement(By.xpath("//*[@id='main-wrapper']/div/div/div[2]/div/div[1]"));
        Assert.assertTrue(element.isDisplayed(), "Element is **not** visible!");
        System.out.println("Element is **present and displayed**.");
    } catch (Exception e) {
        Assert.fail("Element **not found** on the page.");
        System.out.println("Element is **not present**.");
    }
}

@AfterClass
public void tearDown() { driver.quit(); }

}

```



output

TASK 3

```
C:\Windows\System32\cmd.e > + <
=> sha256:727effbdd22607dd74f4964b3cb6551fb3506cdcaa11c3c753b5c7bf078555148 12.28MB / 12.28MB 8.6s
=> sha256:9684ac5f3e3b08548fa3ae2227c9a0c25b6828f0b19ebad16d52e3627cb3c994 488B / 488B 7.7s
=> extracting sha256:254ef724d77862dc53abbd3bf0e27f9d2f6429399ccdd3d0aaadgabfe5a6680659 3.2s
=> sha256:9e624203aed6a54ecf23f22503964c233d682594cc56e5a93af38a1155fe0025 11.42MB / 11.42MB 10.5s
=> sha256:a6f9d43f5dbf7cf8e629e60dca369c994c89db745261796298b61335e60be5 2.45kB / 2.45kB 8.9s
=> sha256:cbe5f891bc0f0d100edbe9f2cd88a77fb2c001c36c0e804e4b5e34c52abe3dc 243B / 243B 9.3s
=> sha256:d3ce6e7971450271619017d6a3240f83b7a2057327cd5f1820717bece34e4ef 889B / 889B 9.7s
=> sha256:4f4fb700ef54461fcfa02571ae0db9a0dc1e0cdb5577484a6d75e68d38e8acc1 32B / 32B 10.0s
=> extracting sha256:45d789cd9c8451a765135948c716269205dc1b62d38818203f41a2143b6d17f 0.0s
=> extracting sha256:a2d5d8c515699c97669985d92ad7e071c159132b0b2bd3c8432192e880521554 5.8s
=> extracting sha256:b98ca3230ca2b3d3fc782c8668ba9ec5180696b7847ae5cd7b99ec47a5df50 0.0s
=> extracting sha256:ff5d5a2ec559651b0c6c3c3ac7f6a0b5936f21b0f65932c8ad56d8cf3235a63 0.5s
=> extracting sha256:41763122fa0bc5ab13d5b12b1b6f580j26e6cb624c06a1898244c9ed101ec 0.0s
=> extracting sha256:723d22607dd74f4964b3cb6551fb3506cdcaa11c3c753b5c7bf078555148 0.1s
=> extracting sha256:9684ac5f3e3b0548fa3ae2227c9a0c25b6828f0b19ebad16d52e3627cb3c994 0.0s
=> extracting sha256:cbe5f891bc0f0d100edbe9f2cd88ac7fbc2c001c36c0e804e4b5e34c52abe3dc 1.1s
=> extracting sha256:a6f9d43f5dbf7cf8e6229e60dca369c994c89db745261796298b61335e60be5 0.0s
=> extracting sha256:d3ce6e7971450271619017d6a3240f83b7a2057327cd5f1820717bece34e4ef 0.0s
=> extracting sha256:4f4fb700ef54461fcfa02571ae0db9a0dc1e0cdb5577484a6d75e68d38e8acc1 0.0s
=> [2/3] RUN a2enmod rewrite 0.0s
=> [3/3] COPY . /var/www/html/ 0.1s
=> exporting to image 0.1s
=> exporting layers 0.1s
=> writing image sha256:3b185aca2501c5a0de318b9d8e9f478317bdd9d6dcba70dedadd06340aa80198 0.0s
=> naming to docker.io/library/php-website 0.0s

C:\Users\astam\OneDrive\Desktop\DEVOPS\DevEcommerce>docker run -d -p 8080:80 php-website
e0fc1bb0b19b186594ca4736c26585e27621263e30fc049127c3e45530b6e91

C:\Users\astam\OneDrive\Desktop\DEVOPS\DevEcommerce|>

28°C
Mostly sunny
Search
ENG IN
10:05
12-05-2025

C:\Windows\System32\cmd.e > + <
Microsoft Windows [Version 10.0.22631.5189]
(c) Microsoft Corporation. All rights reserved.

C:\Users\astam\OneDrive\Desktop\DEVOPS\DevEcommerce>cd "C:\Users\astam\OneDrive\Desktop\DEVOPS\DevEcommerce"

C:\Users\astam\OneDrive\Desktop\DEVOPS\DevEcommerce>docker build -t php-website .
[+] Building 0.1s (1/1) FINISHED
=> [internal] load build definition from Dockerfile
=> transferring dockerfile: 2B
ERROR: failed to solve: failed to read dockerfile: open Dockerfile: no such file or directory

C:\Users\astam\OneDrive\Desktop\DEVOPS\DevEcommerce>docker build -t php-website .
[+] Building 30.7s (9/9) FINISHED
=> [internal] load build definition from Dockerfile
=> transferring dockerfile: 262B
=> [internal] load metadata for docker.io/library/php:8.2-apache
=> [auth] library/php:pull token for registry-1.docker.io
=> [internal] load .dockerrcignore
=> transferring context: 28
=> [internal] load build context
=> transferring context: 26.69MB
[1/3] FROM docker.io/library/php:8.2-apache@sha256:e2408924aac97ed8dce0ba54adff30443fe7a940a87d7b0d083b36941 26.6s
=> resolve docker.io/library/php:8.2-apache@sha256:e2408924aac97ed8dce0ba54adff30443fe7a940a87d7b0d083b36941d 0.0s
=> sha256:4b48b98f906d144b5a1154d9a83de07a200d576c483f12b 11.38kB / 11.38kB 0.0s
=> sha256:254ef724d77862dc53abbd3bf0e27f9d2f64293999ccdd3d0a0ad6a8fe5a6680659 28.23MB / 28.23MB 7.4s
=> sha256:e2408924aac97ed8dce0ba54adff30443fe7a940a87d7b0d083b36941d8aa431 10.40kB / 10.40kB 0.0s
=> sha256:7247efbd22607dd74f4964b3cb6551fb3506cdcaa11c3c753b5c7bf078555148 226B / 226B 1.4s
=> sha256:1d3659077708e54d1b5f700d31e8095c72e3ee81bdda16c103811d24b991b803 104.33MB / 104.33MB 17.9s
=> sha256:cfeada9c6c10b627e1daeaec4b4c4f71708c88775c7ea365a5d01c2353166a19f 3.64kB / 3.64kB 0.0s
=> sha256:b98ca3230ca2b3d3fc7c02c8668ba6ec5180696b7847ae5cd87b999ec47a5d50 226B / 226B 1.8s
=> sha256:a2de5d8c515699c9766985d92ad7e071c459132b0b2bd3c0432192e80521554 20.12MB / 20.12MB 5.5s
=> sha256:fff5d5a2ceec5500651b0c6c3e3ac7f6ad0b536f21b0f65932c8ad56d8cf3235a63 428B / 428B 5.8s
=> sha256:41763122fa0fbc5ab13d5b12b1b6f050426e6cb686240c06a1898244c9ed101ec 483B / 483B 6.1s
=> sha256:727efbd22607dd74f4964b3cb6551fb3506cdcaa11c3c753b5c7bf078555148 12.28MB / 12.28MB 8.6s
=> sha256:9684ac5f3e3b0548fa3ae2227c9a0c25b6828f0b19ebad16d52e3627cb3c994 488B / 488B 7.7s
=> extracting sha256:724d77862dc53abbd3bf0e27f9d2f64293999ccdd3d0aaadgabfe5a6680659 3.2s
=> sha256:9e624203aed6a54ecf23f22503964c233d682594cc56e5a93af38a1155fe0025 11.42MB / 11.42MB 10.5s
=> sha256:a6f9d43f5dbf7cf8e6229e60dca369c994c89db745261796298b61335e60be5 2.45kB / 2.45kB 8.9s
=> sha256:cbe5f891bc0f0d100edbe9f2cd88ac7fb2c001c36c0e804e4b5e34c52abe3dc 243B / 243B 9.3s
=> sha256:d3ce6e7971450271619017d6a3240f83b7a2057327cd5f1820717bece34e4ef 889B / 889B 9.7s
=> sha256:4f4fb700ef54461fcfa02571ae0db9a0dc1e0cdb5577484a6d75e68d38e8acc1 32B / 32B 10.0s

28°C
Mostly sunny
Search
ENG IN
10:05
12-05-2025
```

Docker Desktop Personal

Images / php-website:latest

php-website:latest IN USE
3b185aca2501

CREATED 7 minutes ago **SIZE** 522.55 MB **Recommended fixes** **Run** **Remove**

Analyzed by **Docker Scout**

Vulnerabilities **Packages** **Give feedback**

Layers (32)

0	# debian.sh --arch 'amd64' out/`bookworm` @1745798400'	74.83 MB
1	RUN /bin/sh -c set -eux; { echo 'Package: php*'; echo 'Pin: ...'	46 B
2	ENV PHPIZE_DEPS=autoconf dpkg-dev file g++ gcc libc-d...	0 B
3	RUN /bin/sh -c set -eux; apt-get update; apt-get install -y ...	315.65 MB
4	ENV PHP_INI_DIR=/usr/local/etc/php	0 B
5	RUN /bin/sh -c set -eux; mkdir -p \${PHP_INI_DIR}/conf.d; [...]	0 B
6	ENV APACHE_CONFDIR=/etc/apache2	0 B
7	ENV APACHE_ENVVARS=/etc/apache2/envvars	0 B
8	RUN /bin/sh -c set -eux; apt-get update; apt-get install -y ...	49.76 MB
9	RUN /bin/sh -c a2dismod mpm_event && a2enmod mpm_...	68 B

This image has not been analyzed

You can use Docker Scout to analyze local images and list its vulnerabilities.

Start analysis

Enable background indexing in Settings so your results are always ready.

Engine running | RAM 0.96 GB CPU 1.00% Disk: 1.67 GB used (limit 1006.85 GB) | Terminal ✓ v4.40.0

Trending videos Lavertezzo, Ticin...

Docker Desktop Personal

Images **Give feedback**

View and manage your local and Docker Hub images. [Learn more](#)

Local Docker Hub repositories

522.55 MB / 0 Bytes in use 1 images Last refresh: 18 minutes ago

Delete Space to be reclaimed 522.55 MB

Name	Tag	Image ID	Created	Size	Actions
php-website	latest	3b185aca2501	7 minutes ago	522.55 MB	D ⋮ Delete

Selected 1 of 1

Walkthroughs

How do I run a container? Run Docker Hub images

View more in the Learning center

Engine running | RAM 0.96 GB CPU 0.25% Disk: 1.67 GB used (limit 1006.85 GB) | Terminal ✓ v4.40.0

Trending videos Lavertezzo, Ticin...

VISHAL KUMAR - Portfolio VISHAL KUMAR - Portfolio

127.0.0.1:5500/index.html

VISHAL KUMAR

About Skills Projects Courses Contact



Hello, I'm **Vishal Kumar**

I'm a passionate B.Tech IT student specializing in Data Analytics. Skilled in Machine Learning, Python, and UI/UX Design. I love solving real-world problems through technology.

[View Projects](#)

