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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:

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.
-

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

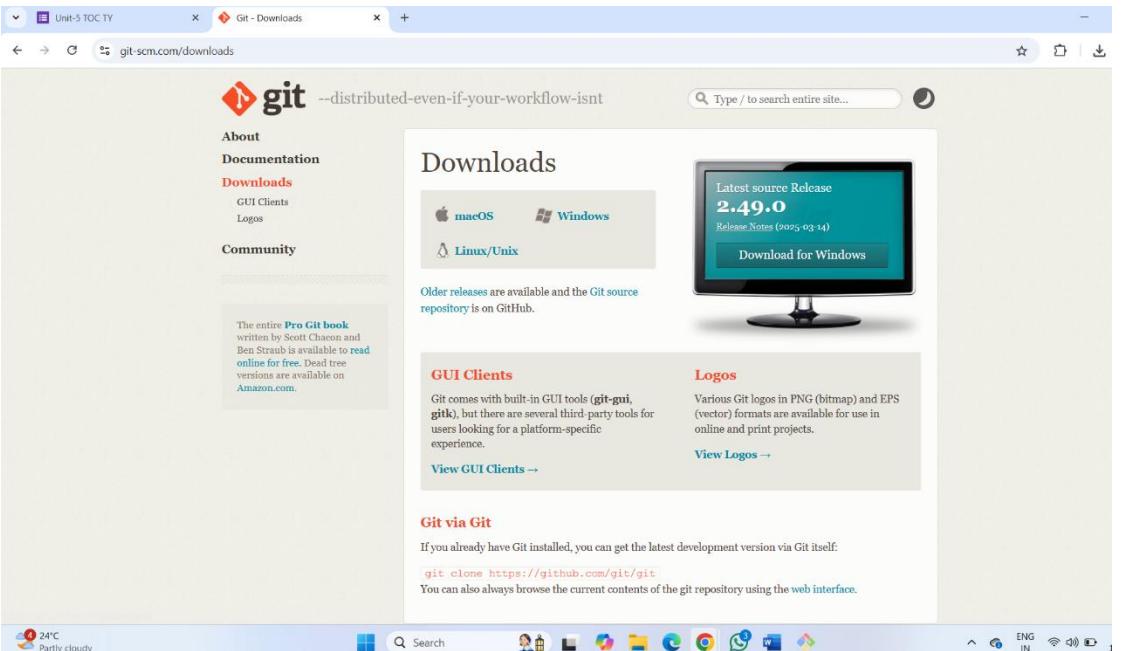
- Permissions on repositories (read/write/admin).
 - Roles: Owner, Maintainer, Contributor, etc.
-

8. CI/CD Integration

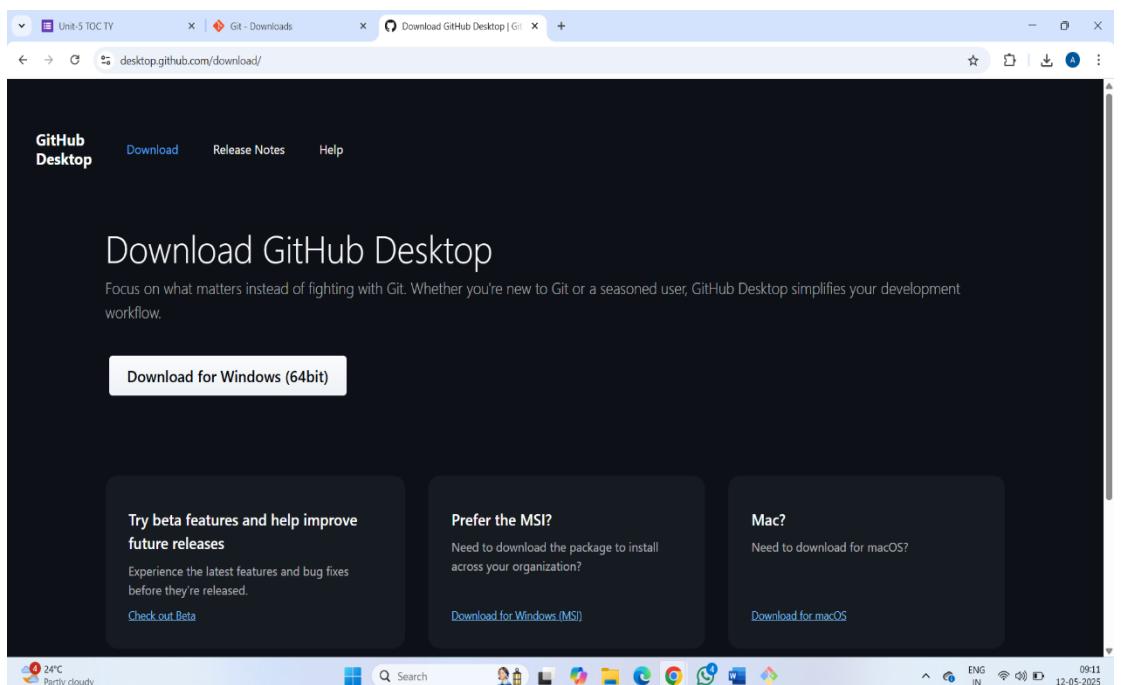
- Git is often integrated with tools like GitHub Actions, GitLab CI, Jenkins, etc.
- Ensures code is tested and deployed automatically after merging.

TASK- 1

*) Download git and git desktop



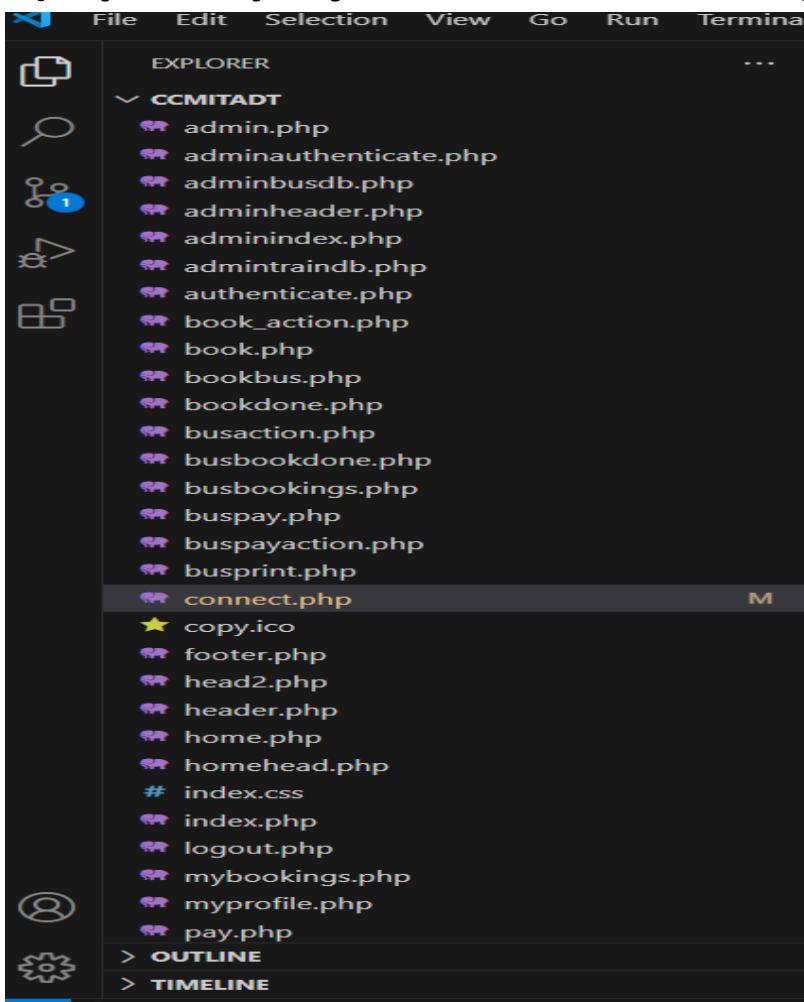
*)



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>

```

The screenshot shows a Windows desktop environment with the VS Code application open. The terminal tab is active, displaying the following command sequence:

```

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

```

*) push in GitHub

The screenshot shows a web browser displaying a GitHub repository page for 'aakashtmit/projectdevops'. The commit history is listed, with the first commit by 'aakashtmit' circled in black.

| Commit | Description | Time |
|---------------------------|----------------------|--------------------------|
| aakashtmit Initial commit | Update README.md | 1803d02 - 13 minutes ago |
| README.md | Add files via upload | 4 years ago |
| admin.php | Add files via upload | 4 years ago |
| adminauthenticate.php | Add files via upload | 4 years ago |
| adminbusdb.php | Add files via upload | 4 years ago |
| adminheader.php | Add files via upload | 4 years ago |
| adminindex.php | Add files via upload | 4 years ago |
| adminraindb.php | Add files via upload | 4 years ago |
| authenticate.php | Add files via upload | 4 years ago |
| book.php | Add files via upload | 4 years ago |
| book.action.php | Add files via upload | 4 years ago |
| bookbus.php | Add files via upload | 4 years ago |
| bookdone.php | Add files via upload | 4 years ago |
| busaction.php | Add files via upload | 4 years ago |
| busbookdone.php | Add files via upload | 4 years ago |
| busbookings.php | Add files via upload | 4 years ago |

*) project successfully uploaded

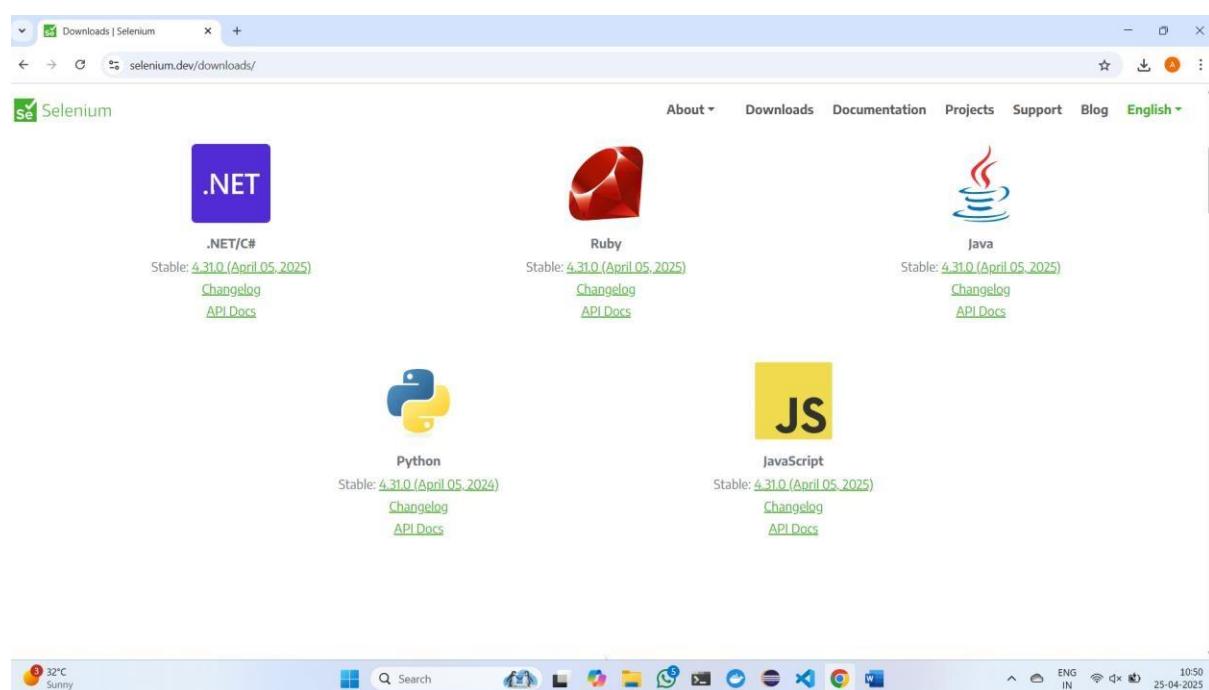
TASK 2 - TEST IN JAVA WITH NG

TA2

QUESTION 3 –

STEP 1 –

INSTALLATION OF SLENUIM JAR FILE FROM OFFICAL WEBSITE



STEP 2- DOWNLOAD MAVEN REPO

STEP 3 -OPEN ECLIPSE AND INSTALL TEST NG FROM SOFTWARE

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/6.12.0>
- <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 –

```

package seleniumscript;
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
}

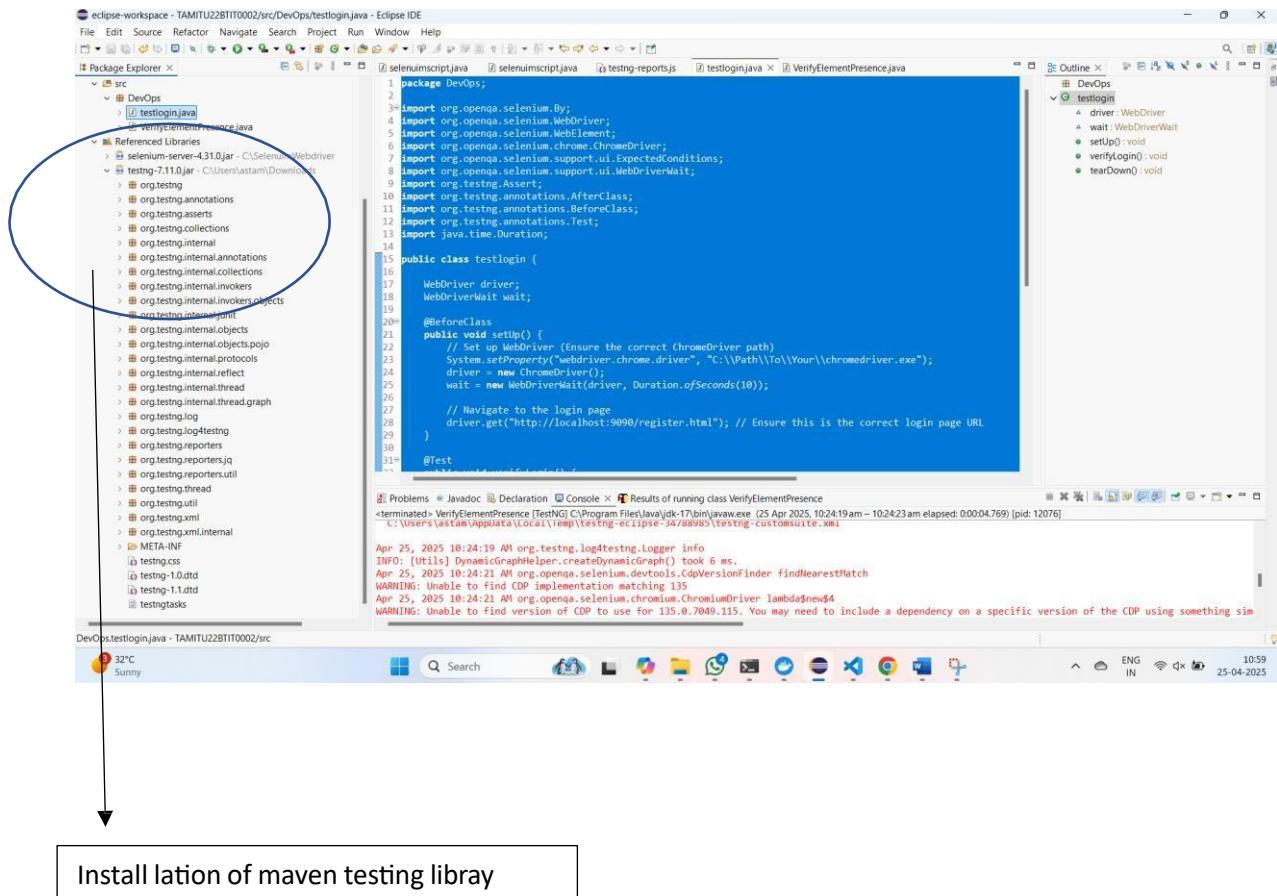
@Test
public void verifyLogin() {
    String title = driver.getTitle();
    Assert.assertEquals(title, "Registration Page");
}

```

We successfully install test ng

Installation of library jar file

Step 6



Code for logon 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();

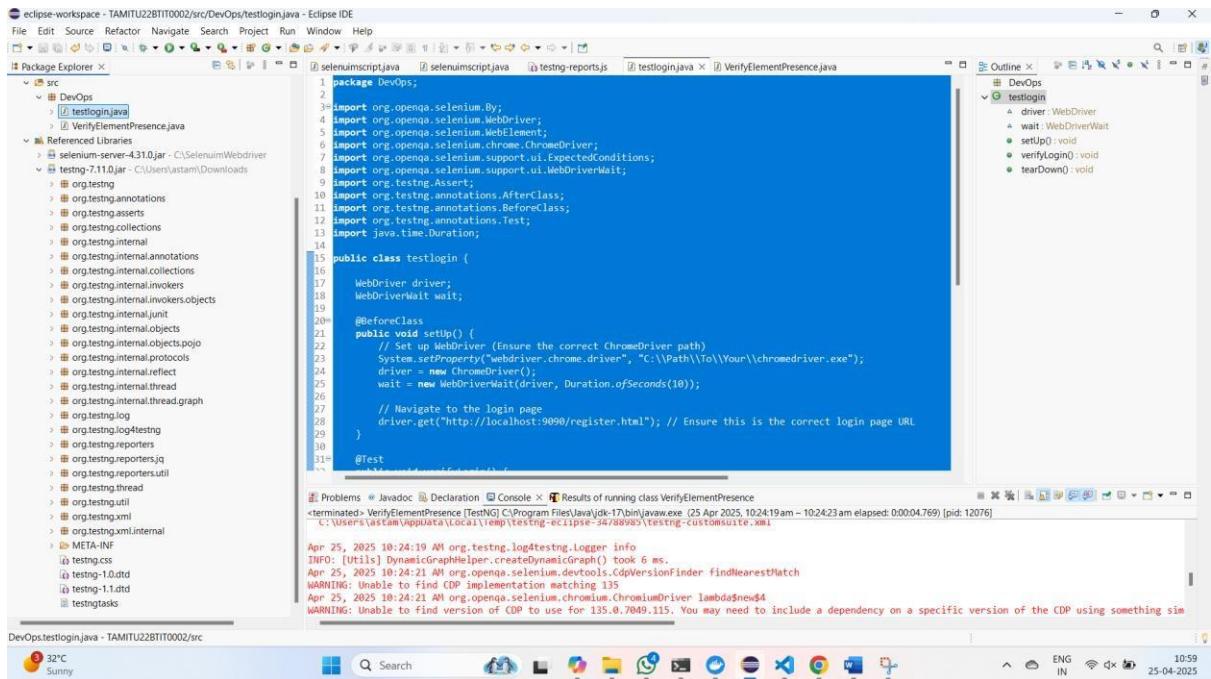
    // Verify login success with an updated selector
    WebElement confirmationMessage =
wait.until(ExpectedConditions.visibilityOfElementLocated(By.cssSelector(".confirmation-class"))); // Update
based on actual site

    // 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 elemetn 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
```

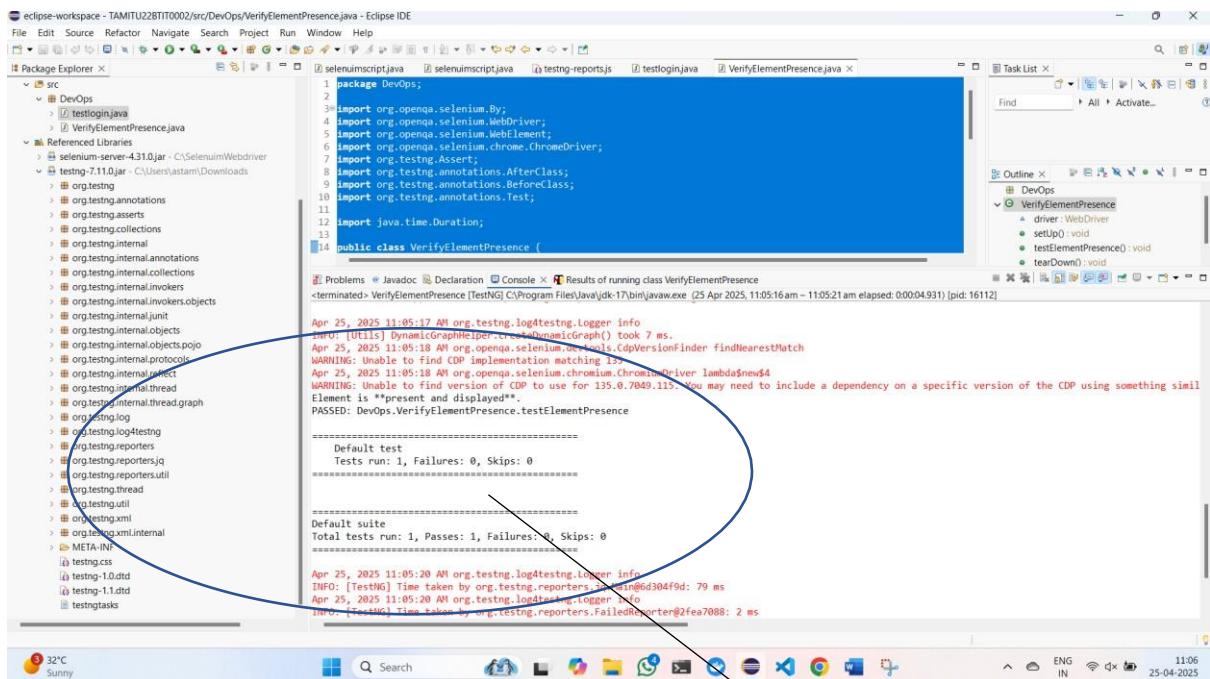
```

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 > + ^
=> sha256:727effbdd22687ddd74f4964b3cb6551fb3506cd8a11c3c753b5c7bf078555148 12.28MB / 12.28MB
=> sha256:968lac5f3e3b0548fa3ae2227c9a0e25b6828f0b19ebad016d52e3627cb3c994 488B / 488B
=> extracting sha256:254ef724d77862dc53abbd3bf0e27f9d2f64293999cd3d0aaad8a8fe5a6680659 3.2s
=> sha256:9e624203aed6a54ecf23f22503964c723d682591cc56a5a93af38a4155fe0025 11.42MB / 11.42MB
=> sha256:a6f9d43f5dbf7cf8e6299e60dea369c984c89db8745261796298b61335e60be5 2.45kB / 2.45kB
=> sha256:cbe5f891bc0d100edbe9f2cd88ac7fb2c2001c36c0e04e4b5e34c52abe3dc 243B / 243B
=> sha256:d3ce6e7971450271619017d6a3240f83b7a2057327cd5f1828717bece34e4efa 889B / 889B
=> sha256:4f4fb708e0f4a461fa02571ae0db9a0dc1e0cd5577484a6d75e68dc38e8acc1 32B / 32B
=> extracting sha256:45d7899cd9c8451a765135948c716269205dc8b162d38818203f11a2143b6d17f 0.0s
=> extracting sha256:1d365997708e54d1b5f7bb031e8995c72e3e81b8d1a1c103811d24b991b883 5.8s
=> extracting sha256:b98ca3230ca2b3d3fc702c8668ba6ec5180696b7847ae5cd8b7b99ec47a5df58 0.0s
=> extracting sha256:a2de5d8c515699c97669985d92ad7e071c450562b0b2bd3c0432192a80521554 0.5s
=> extracting sha256:ff5d5a2cd550651b6c53e3a7f6ad0b5836f21b0f65932c8ad56d8c73235a63 0.0s
=> extracting sha256:41763122faa0bc5ab13d5b12b160f50426e6cb8624061a898244c9ed101ec 0.0s
=> extracting sha256:22607dd74f4964b3cb6551fb3506cd8a11c3c753b5c7bf078555148 0.1s
=> extracting sha256:9684ac5f3e3b0548fa3ae2227c9a0c25b6828f0b19ebad016d52e3627cb3c994 0.0s
=> extracting sha256:cbe5f891bc0d100edbe9f2cd88ac7fb2c2001c36c0e04e4b5e34c52abe3dc 1.1s
=> extracting sha256:46f9d43f5dbf7cf8e6229e60da369c984c89db8745261796298b61335e60be5 0.0s
=> extracting sha256:d3ce6e7971450271619017d6a3240f83b7a2057327cd5f1828717bece34e4efa 0.0s
=> extracting sha256:4f4fb708e0f4a461fa02571ae0db9a0dc1e0cd5577484a6d75e68dc38e8acc1 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
e0fc1bb0b19b186594ca4736c26585e27621263e30fc049127c3e345530b6e91

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

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: 2B
=> [internal] load metadata for docker.io/library/php:8.2-apache
=> [auth] library/php:pull token for registry-1.docker.io
=> [internal] load .dockerrignore
=> transferring context: 2B
=> [internal] load build context
=> transferring context: 20.69MB
[1/3] FROM docker.io/library/php:8.2-apache@sha256:e2408924aac97ed8dc0e0ba54adff30443fe7a940a87d7b0d083b36941 26.6s
=> resolve docker.io/library/php:8.2-apache@sha256:e2408924aac97ed8dc0e0ba54adff30443fe7a940a87d7b0d083b36941d 0.0s
=> sha256:4b83e98f906d144b5a1154d9a83de871e07a200d576c27f55339f12b 11.38kB / 11.38kB
=> sha256:254ef724d77862dc53abbd3bf0e27f9d2f64293999cd3d0aaad6a8fe5a6680659 28.23MB / 28.23MB
=> sha256:e2408924ac97ed8dc0e0ba54adff30443fe7a940a87d7b0d083b36941d8aa31 18.40kB / 18.40kB
=> sha256:45d7891bc98451a765135948c716260205cb162d38818203f41af2143b6d17f 226B / 226B
=> sha256:1d365907708e54d1b5f708e6031e8095c72e3ee81b8d1a1c103811d24b991b883 184.33MB / 184.33MB
=> sha256:b98ca3230ca2b3d3fc702c8668ba6ec5180696b7847ae5cd8b7994c7a5d5f0 226B / 226B
=> sha256:a2de5d8c515699c9760985d92ad7e071c4591332b0b2bd3c0432192e80521554 20.12MB / 20.12MB
=> sha256:ff5d5a2cecc550651bc6c3e3ac7f6ad0b536f21b0f65932c8ad56d8c73235a63 428B / 428B
=> sha256:41763122faa0bc5ab13d5b12b160f50426e6cb8624c06a1898244c9ed101ec 483B / 483B
=> sha256:727effbdd22607dd74f4964b3cb6551fb3506cd8a11c3c753b5c7bf078555148 12.28MB / 12.28MB
=> sha256:9684ac5f3e3b0548fa3ae2227c9a0e25b6828f0b19ebad016d52e3627cb3c994 488B / 488B
=> extracting sha256:254ef724d77862dc53abbd3bf0e27f9d2f64293999cd3d0aaad6a8fe5a6680659 3.2s
=> sha256:9e624203aed6a4ecf23f22503964c723d682591cc56a5a93af38a4155fe0025 11.42MB / 11.42MB
=> sha256:a6f9d43f5dbf7cf8e6299e60dea369c984c89db8745261796298b61335e60be5 2.45kB / 2.45kB
=> sha256:cbe5f891bc0d100edbe9f2cd88ac7fb2c2001c36c0e04e4b5e34c52abe3dc 243B / 243B
=> sha256:d3ce6e7971450271619017d6a3240f83b7a2057327cd5f1828717bece34e4efa 889B / 889B
=> sha256:4f4fb708e0f4a461fa02571ae0db9a0dc1e0cd5577484a6d75e68dc38e8acc1 32B / 32B
10.0s

C:\Windows\System32\cmd.e > + ^
28°C
Mostly sunny
Search ENG IN 10:05
12-05-2025

```

Docker Desktop PERSONAL

Search Ctrl+K

Ask Gordon BETA

Containers

Images

Volumes

Builds

Docker Hub

Docker Scout

Extensions

Images / php-website:latest

php-website:latest IN USE

3b185aca2501

CREATED 7 minutes ago SIZE 522.55 MB Recommended fixes Run Delete

Analyzed by Docker Scout

Give feedback

Layers (32)

Vulnerabilities Packages Give feedback

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...

Search Ctrl+K

Ask Gordon BETA

Containers

Images

Volumes

Builds

Docker Hub

Docker Scout

Extensions

Images Give feedback

View and manage your local and Docker Hub images. Learn more

Last refresh: 18 minutes ago

Space to be reclaimed 522.55 MB

Local Docker Hub repositories

522.55 MB / 0 Bytes in use 1 images

Search

Delete Actions

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

Selected 1 of 1

Walkthroughs

How do I run a container?

```
1. Run node
2. Add an app
3. Copy package.json
```

6 mins

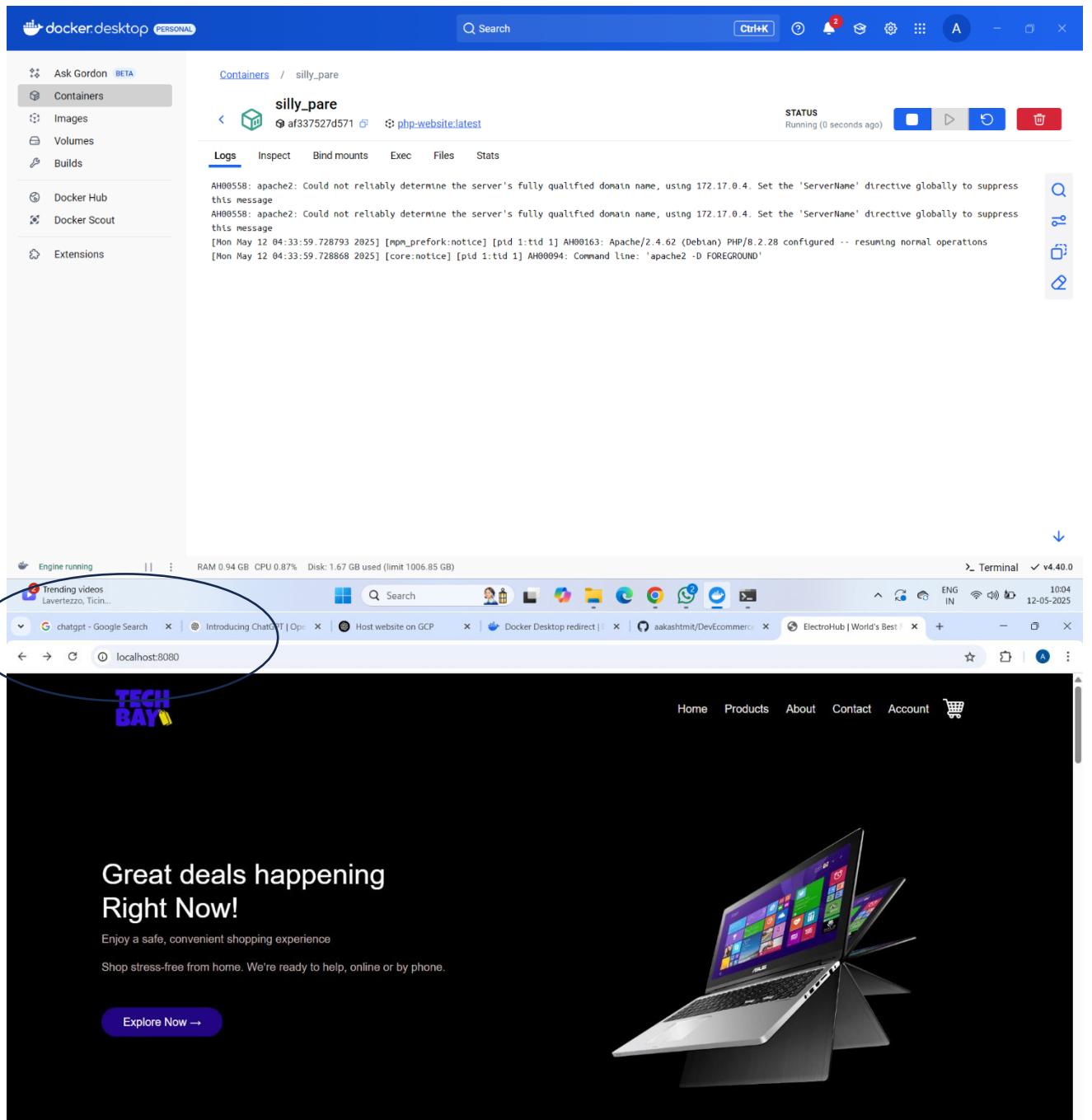
Run Docker Hub images

5 mins

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...



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