



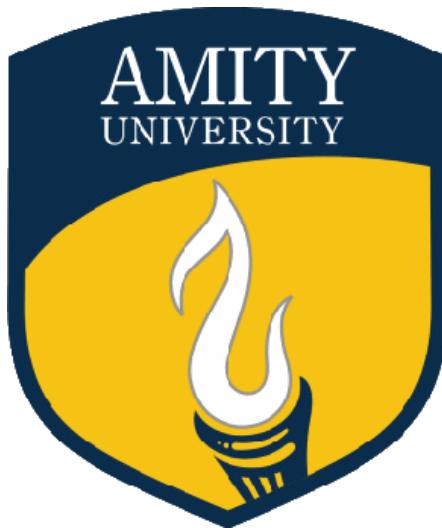
AMITY UNIVERSITY, MUMBAI

AMITY UNIVERSITY MAHARASHTRA

AMITY INSTITUTE OF INFORMATION TECHNOLOGY

DevOps

MCA – SEM I



Name of the Student: Narayan Behera

Program/Semester: MCA / SEMESTER I

Enrolment Number: A710145025032

AMITY UNIVERSITY MAHARASHTRA



AMITY UNIVERSITY, MUMBAI

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Amity Institute of Information Technology

CERTIFICATE

This is to certify that, Mr./Ms. _____ Student of MCA Semester I (Batch 2025-27) has completed the _____ during the academic year 2025-26, under the internal guidance of Prof. _____.

Signed by Guide :

Date :



INDEX

SR No.	PRACTICAL	PAGE No.	REMARKS
01	Source code Management using Git & GitHub, GitLab in Collaborative teaming, Store, marge, version control of the code		
02	Lab on continuous Integration from different developers into a single piece of software using Jenkins.		
03	Testing the application using Selenium		
04	Testing the form using Selenium		
05	Testing automation and HTML report generation using selenium		
06	Containerization using Docker		



Practical 1

Source code Management using Git & GitHub, GitLab in Collaborative teaming, Store, marge, version control of the code

Create new repo

The screenshot shows a GitHub profile page for the user 'narayanbehera14'. The profile picture is a circular portrait of a man with dark hair and a beard, wearing a dark suit jacket. Below the profile picture, the user's name 'Narayan Behera' and GitHub handle 'narayanbehera14' are displayed. A bio section states: 'An aspiring SDE | Python, JavaScript, SQL, Bootstrap | DSA Enthusiast | Web Projects (Canteen & Coffee Systems) | Bsc CS Graduate 2025'. The 'Edit profile' button is located below the bio. The 'Repositories' tab is selected, showing 74 repositories. The repositories listed are:

- react.js_start** (Public)
JavaScript Updated yesterday
- narayanbehera14** (Public)
Updated 2 days ago
- Devops_practical** (Public)
HTML Updated 4 days ago
- React.js_practical** (Public)
JavaScript Updated last week
- JAVA.PRACTICAL_sem1_MCA** (Public)
Java Updated 2 weeks ago

At the top of the page, there is a search bar with the placeholder 'Type / to search', and a green 'New' button. A yellow arrow points from the bottom right towards the 'New' button. The bottom of the screen shows a taskbar with various application icons and system status indicators like battery level and date/time.



AMITY UNIVERSITY, MUMBAI

S narayanbehera14 / Devops_practical

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

Devops_practical Public

main 2 Branches 0 Tags Go to file Add file Code

narayanbehera14 updated 89b6411 · 4 days ago 4 Commits

File	Last Commit	Time Ago
branches	updated	4 days ago
report	updated	last month
README.md	first commit	last month
form_automation.py	updated	last month
main.py	updated	last month
push git 1.pdf	updated	last month
selenium.pdf	updated	last month
test_automation.py	updated	last month

README

About No description, website, or topics provided.

Readme Activity 0 stars 0 watching 0 forks

Releases No releases published Create a new release

Packages No packages published Publish your first package

Languages HTML 54.9% Python 44.7%

24°C Clear Search ENG IN 22:37 08-12-2025



Copy the url and clone it

The screenshot shows a GitHub repository page for 'Devops_practical'. The 'Code' tab is selected. A yellow arrow points to the 'Clone' button in the 'Local' section of the dropdown menu. The URL 'https://github.com/narayanbehera14/Devops_practical' is visible in the dropdown.

Clone the Repository for Collaboration

A collaborator would run:

```
git clone https://github.com/Dheeraj2002kumar/devops-git-lab.git  
cd devops-git-lab
```

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> git clone https://github.com/Dheeraj2002kumar/devops-git-lab.git  
Cloning into 'devops-git-lab'...  
remote: Enumerating objects: 3, done.  
remote: Counting objects: 100% (3/3), done.  
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
Receiving objects: 100% (3/3), done.  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker>
```



AMITY UNIVERSITY, MUMBAI

Create your sample file:

```
echo "This is test.txt for Git lab." > test.txt
```

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface. The terminal at the bottom displays the command:

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> echo "This is test.txt for Git lab." > test.txt
```

The output shows the file has been created:

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> [ ]
```

The code editor shows the file `test.txt` with the content:

```
1 This is test.txt for Git lab.
```

The Explorer sidebar shows the project structure:

- OPEN EDITORS: `test.txt`
- DEVOPS GIT LAB:
 - `.vscode`
 - `README.md`
 - `test.txt`



Push the code txt file in github

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:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> echo "This is test.txt for Git lab." > test.txt
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> echo "This is test.txt for Git lab." > test.txt
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git add .
warning: in the working copy of '.vscode/c_cpp_properties.json', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of '.vscode/launch.json', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of '.vscode/settings.json', LF will be replaced by CRLF the next time Git touches it
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git commit -m "add test.txt file in gitHub"
[main dc4ff44] add test.txt file in gitHub
 4 files changed, 101 insertions(+)
create mode 100644 .vscode/c_cpp_properties.json
create mode 100644 .vscode/launch.json
create mode 100644 .vscode/settings.json
create mode 100644 test.txt
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git push origin main
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 8 threads
Compressing objects: 100% (7/7), done.
Writing objects: 100% (7/7), 1.51 KiB | 1.51 MiB/s, done.
Total 7 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/Dheeraj2002kumar/devops-git-lab.git
 99b8261..dc4ff44 main -> main
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab>
```

You can see the test.txt file

Create a New Branch for Editing test.txt

```
git checkout -b feature-update-testfile
```

The screenshot shows a terminal window with the following command sequence:

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git branch
* main
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git checkout -b feature-update-testfile
Switched to a new branch 'feature-update-testfile'
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git branch
* feature-update-testfile
  main
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab>
```



AMITY UNIVERSITY, MUMBAI

Modify the file:

```
echo "New update: Version 2" >> test.txt
```

A screenshot of the Visual Studio Code interface. The left sidebar shows the project structure with files like 'test.txt', 'DEVOPS-GIT-LAB', and 'README.md'. The main area shows the content of 'test.txt':

```
1 This is test.txt for Git lab.
2 New update: Version 2
3
```

The bottom panel contains a terminal window with the following git history:

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git branch
* main
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git checkout -b feature-update-testfile
Switched to a new branch 'feature-update-testfile'
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git branch
* feature-update-testfile
  main
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> echo "New update: Version 2" >> test.txt
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab>
```

Stage and commit:

```
git add test.txt
git commit -m "Added version 2 update in test.txt"
```

Push the branch:

```
git push origin feature-update-testfile
```



AMITY UNIVERSITY, MUMBAI

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface. The terminal window at the bottom displays a PowerShell session for a 'devops-git-lab' repository. The user has run several commands to update a file named 'test.txt':

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git branch
* feature-update-testfile
  main
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> echo "New update: Version 2" >> test.txt
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git add test.txt
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git commit -m "Added version 2 update in test.txt"
[feature-update-testfile bb26665] Added version 2 update in test.txt
 1 file changed, 0 insertions(+), 0 deletions(-)
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git push origin feature-update-testfile
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 351 bytes | 351.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
remote:
remote: Create a pull request for 'feature-update-testfile' on GitHub by visiting:
remote:   https://github.com/Dheeraj2002kumar/devops-git-lab/pull/new/feature-update-testfile
remote:
To https://github.com/Dheeraj2002kumar/devops-git-lab.git
 * [new branch]      feature-update-testfile -> feature-update-testfile
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab>
```

The Explorer sidebar on the left shows a folder structure for 'DEVOPS-GIT-LAB' containing '.vscode', 'README.md', and 'test.txt'. The 'test.txt' file is open in the editor, displaying its contents:

```
1 This is test.txt for Git lab.
2 New update: Version 2
3
```



Create a Pull Request (PR)

In GitHub:

1. Open the repo
2. Click **Compare & Pull Request**
3. Add title: “Update test.txt to version 2”
4. Add description
5. Submit PR
6. Another team member reviews
7. Click **Merge Pull Request**

Update your local repo after merge:

```
git checkout main  
git pull origin main
```

The screenshot shows a Microsoft Visual Studio Code interface. On the left is the Explorer sidebar with a file tree containing 'test.txt' under 'OPEN EDITORS' and 'DEVOPS-GIT-LAB' folder which includes '.vscode' and 'README.md'. The main area is a terminal window titled 'devops-git-lab' showing the following command history:

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git branch  
* feature-update-testfile  
  main  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> echo "New update: Version 2" >> test.txt  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git add test.txt  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git commit -m "Added version 2 update in test.txt"  
[feature-update-testfile bb2665] Added version 2 update in test.txt  
1 file changed, 0 insertions(+), 0 deletions(-)  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\devops-git-lab> git push origin feature-update-testfile  
Enumerating objects: 5, done.  
Counting objects: 100% (5/5), done.  
Delta compression using up to 8 threads  
Compressing objects: 100% (3/3), done.  
Writing objects: 100% (3/3), 351 bytes | 351.00 KiB/s, done.  
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
remote: Resolving deltas: 100% (1/1), completed with 1 local object.  
remote:  
remote: Create a pull request for 'feature-update-testfile' on GitHub by visiting:  
remote: https://github.com/Dheeraj2002kumar/devops-git-lab/pull/new/feature-update-testfile  
remote:  
To https://github.com/Dheeraj2002kumar/devops-git-lab.git  
 * [new branch] feature-update-testfile -> feature-update-testfile  
remote:  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git checkout main  
Switched to branch 'main'  
Your branch is up to date with 'origin/main'.  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\devops-git-lab>
```

The status bar at the bottom indicates 'Ln 1, Col 1' and 'Plain Text'.



AMITY UNIVERSITY, MUMBAI

```
File Edit Selection View Go Run Terminal Help
OPEN EDITORS
  × test.txt
DEVOPS-GIT-LAB
  > vscode
    README.md
  test.txt
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git add test.txt
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git commit -m "Added version 2 update in test.txt"
[feature-update-testfile bb26e05] Added version 2 update in test.txt
 1 file changed, 0 insertions(+), 0 deletions(-)
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git push origin feature-update-testfile
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 351 bytes | 351.00 KiB/s, done.
total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
remote:
remote: Create a pull request for 'feature-update-testfile' on GitHub by visiting:
remote:   https://github.com/Dheeraj2002kumar/devops-git-lab/pull/new/feature-update-testfile
remote:
To https://github.com/Dheeraj2002kumar/devops-git-lab.git
 * [new branch]  feature-update-testfile -> feature-update-testfile
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab> git pull origin main
From https://github.com/Dheeraj2002kumar/devops-git-lab
 * branch      main      -> FETCH_HEAD
Already up to date.
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\devops-git-lab>
Ln 1, Col 1 Spaces: 4 UTF-16 LE CRLF Plain Text Go Live
```

feature-update-testfile-1 had recent pushes 2 seconds ago

main 2 Branches 0 Tags

Dheeraj2002kumar update the changes

add test.txt file in gitHub 69f8786 - 15 minutes ago 5 Commits

README

devops-git-lab

About

No description, website, or topics provided.

Activity

0 stars

0 watching

0 forks

Releases

No releases published

Create a new release

Packages

No packages published

Publish your first package

Add a description

Write Preview

Add your description here...

Markdown is supported Paste, drop, or click to add files

Create pull request

Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).

Assignees

No one —assign yourself

Labels

None yet

Projects

None yet

Milestone

No milestone

Development

Use **Closing keywords** in the description to automatically close issues

Helpful resources

[GitHub Community Guidelines](#)



AMITY UNIVERSITY, MUMBAI

The screenshot shows a GitHub pull request interface. At the top, a green banner indicates "All checks have passed" with one successful check. Below this, a section for "GitGuardian Security Checks" shows "Successful in 1s — No secrets detected". A note states "No conflicts with base branch" and "Merging can be performed automatically". A prominent green button labeled "Merge pull request" is at the bottom of this section. A yellow arrow points from the "Commit message" field down towards this button. The "Commit message" field contains the text "Merge pull request #2 from Dheeraj2002kumar/feature-update-testfile-1". The "Extended description" field below it contains "Added version 2 update in test.txt". To the right of the main pull request details, there are sections for Labels, Projects, Milestone, Development, and Notifications, each with a "None yet" status and a gear icon. At the bottom right, it says "1 participant".



Mirror GitHub Repository to GitLab

Create a GitLab repo:

- Go to <https://gitlab.com> → New Project → Import from GitHub

The screenshot shows the GitLab dashboard with the sidebar open. The 'Projects' tab is selected in the sidebar. The main area displays a list of personal projects, each with a small icon, the repository name, and the owner's name. A prominent yellow arrow points to the 'New project' button located at the top right of the project list. The dashboard also features a search bar at the top and various navigation links like 'Explore projects' and 'Contributed'.

Project Name	Owner	Created
dheeraj kumar / XTable	dheeraj kumar	3 months ago
dheeraj kumar / XStates	dheeraj kumar	3 months ago
dheeraj kumar / XSpellCheck	dheeraj kumar	3 months ago
dheeraj kumar / XPagination	dheeraj kumar	3 months ago
dheeraj kumar / XModal	dheeraj kumar	3 months ago
dheeraj kumar / XLogin	dheeraj kumar	3 months ago
dheeraj kumar / XDisplayNames	dheeraj kumar	3 months ago



AMITY UNIVERSITY, MUMBAI

gitlab.com/projects/new

Your work / Projects / New project

Create new project

- Create blank project**
Create a blank project to store your files, plan your work, and collaborate on code, among other things.
- Create from template**
Create a project pre-populated with the necessary files to get you started quickly.
- Import project**
Migrate your data from an external source like GitHub, Bitbucket, or another instance of GitLab.
- Run CI/CD for external repository**
Connect your external repository to GitLab CI/CD.

You can also create a project from the command line. Show command

https://gitlab.com/projects/new#import_project

gitlab.com/projects/new#import_project

Your work / Projects / New project / Import project

Import project

Migrate your data from an external source like GitHub, Bitbucket, or another instance of GitLab.

Import project from

- Q Migrating GitLab projects? Migrating projects when you migrate groups by using direct transfer is recommended. What is direct transfer?

History

GitLab export GitHub Bitbucket Cloud Bitbucket Server FogBugz Gitea Repository by URL Manifest file

https://gitlab.com/projects/new#import_project



AMITY UNIVERSITY, MUMBAI

The screenshot shows the 'Import repositories from GitHub' page on GitLab. On the left, there's a sidebar with various project management options like Home, Projects, Groups, Issues, Merge requests, To-Do List, Milestones, Snippets, Activity, Import history, Workspaces, Environments, Operations, and Security. The main area has a header 'Import repositories from GitHub' and a sub-header 'Select the repositories you want to import'. It includes tabs for 'Owned', 'Collaborated', and 'Organization'. A search bar contains the text 'devops-git-lab'. Below the search bar is a section titled 'Advanced import settings' with a warning about importing collaborators. There are three checked checkboxes under this section: 'Use alternative comments import method', 'Import Markdown attachments (links)', and 'Import collaborators'. At the bottom, there's a table with columns 'From GitHub', 'To GitLab', and 'Status'. A row shows 'Dheeraj2002kumar/devops-git-lab' in the 'From GitHub' column and 'dheeraj1612 / devops-git-lab' in the 'To GitLab' column. The 'Status' column shows 'Not started' with an 'Import' button. A yellow arrow points to the 'Import' button.

Write repository name and import it



AMITY UNIVERSITY, MUMBAI

The screenshot shows the 'Import repositories from GitHub' interface on the GitLab web application. A modal dialog box is open, asking the user if they are sure they want to import the project to a personal namespace. The modal contains the following text:
Are you sure you want to import the project to a personal namespace?
When you import to a personal namespace, all contributions are assigned to the personal namespace owner and they cannot be reassigned. To map contributions to real users, import to a group instead. [Learn more.](#)

Below the modal, the import settings are visible, including options for alternative comments import method, Markdown attachments, and collaborators. The 'From GitHub' section shows the repository 'Dheeraj2002kumar/devops-git-lab'. The 'To GitLab' section shows the target repository 'dheeraj1612/devops-git-lab'. The status bar indicates 'Not started' and has an 'Import' button.

The screenshot shows the 'Import repositories from GitHub' interface on the GitLab web application, displaying the completed import status. The modal from the previous screenshot has been closed. The import settings are identical to the previous screenshot. The 'From GitHub' section shows the repository 'Dheeraj2002kumar/devops-git-lab'. The 'To GitLab' section shows the target repository 'dheeraj1612/devops-git-lab'. The status bar indicates 'Complete' with a green checkmark, 'Details' (with a link), and 'Labels' (9/9).



GitLab Collaboration Workflow

A teammate clones from GitLab:

```
git clone https://gitlab.com/dheeraj1612/devops-git-lab.git
```

```
cd devops-git-lab
```

A screenshot of a web browser displaying a GitLab project page. The URL in the address bar is <https://gitlab.com/dheeraj1612/devops-git-lab>. The page shows a single commit titled "add test.txt file in GitHub" made by "dheeraj kumar" 25 minutes ago. The commit message is "add test.txt file in GitHub". The repository contains files ".vscode", "README.md", and "test.txt". The "Code" tab is selected. On the right side, there is a sidebar with "Project information" including 2 commits, 2 branches, 0 tags, and 3 KiB Project Storage. It also lists options like README, Add LICENSE, Add CHANGELOG, Add CONTRIBUTING, Enable Auto DevOps, Add Kubernetes cluster, Set up CI/CD, Add Wiki, and Configure Integrations. At the bottom, it shows the creation date as December 07, 2025. The left sidebar shows the project navigation menu with "Pinned", "Issues", and "Merge requests" sections, and a list of management, planning, and operational tools.



AMITY UNIVERSITY, MUMBAI

The screenshot shows the Visual Studio Code (VS Code) interface. The title bar says "git-test". The left sidebar has "EXPLORER", "OPEN EDITORS" (with "GIT-TEST" expanded), and "GIT-TEST" (with "devops-git-lab" selected). The main area is a dark-themed terminal window with the following text:

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\git-test> git clone https://gitlab.com/dheeraj1612/devops-git-lab.git
Cloning into 'devops-git-lab'...
remote: Enumerating objects: 13, done.
remote: Total 13 (delta 0), reused 0 (delta 0), pack-reused 13 (from 1)
Receiving objects: 100% (13/13), done.
Resolving deltas: 100% (2/2), done.
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\git-test> cd .\devops-git-lab\
```

The bottom status bar shows "powershell - devops-git-lab".

Create a new branch:

```
git checkout -b feature-v3
echo "Version 3 changes" >> test.txt
git add test.txt
git commit -m "Added version 3 changes"
git push --set-upstream origin feature-v3
```

On GitLab:

- Create **Merge Request**
- Run CI/CD pipeline (optional)
- Review & merge

Sync changes back to GitHub (if mirroring enabled)



AMITY UNIVERSITY, MUMBAI

git add test.txt
git commit -m "Added version 3 changes"
git push --set-upstream origin feature-v3

A yellow arrow points to the 'Create merge request' button on the GitHub repository page.

Project: devops-git-lab

Pinned: 0

Issues: 0

Merge requests: 0

Manage: Plan, Code, Build, Secure, Deploy, Operate, Monitor, Analyze, Settings

What's new: 3

Help

Collapse sidebar

Project information:

- 2 Commits
- 3 Branches
- 0 Tags
- 3 KiB Project Storage

README

+ Add LICENSE

+ Add CHANGELOG

+ Add CONTRIBUTING

+ Enable Auto DevOps

+ Add Kubernetes cluster

+ Set up CI/CD

+ Add Wiki

+ Configure Integrations

Created on: December 07, 2025



AMITY UNIVERSITY, MUMBAI

The screenshot displays two consecutive screenshots of the GitLab interface, illustrating the process of creating and merging a pull request.

Screenshot 1: New merge request

This screenshot shows the "New merge request" form. The "Title (required)" field contains "Added version 3 changes". The "Description" rich text editor has the text "good feature added". The "Assignee" dropdown is set to "Unassigned". The "Reviewer" dropdown is also set to "Unassigned". Under "Merge can start", the "Anytime" option is selected. In the "Merge options" section, the checkboxes for "Delete source branch when merge request is accepted" and "Squash commits when merge request is accepted" are checked. A yellow arrow points to the "Create merge request" button at the bottom.

Screenshot 2: Added version 3 changes

This screenshot shows the merge request details page. The title is "Added version 3 changes". It indicates that dheeraj kumar requested to merge "feature-v3" into "main". The "Merge requests" tab is selected, showing 1 merge request. The "Activity" section is empty. On the right side, there are sections for "0 Assignees" (None - assign yourself), "0 Reviewers" (None - assign yourself), "Labels" (None), "Milestone" (None), and "Time tracking" (No estimate or time spent). A yellow arrow points to the "Merge" button in the "Ready to merge!" section.

Click on merge



AMITY UNIVERSITY, MUMBAI

Project dheeraj kumar / devops-git-lab Merge requests / 1

Added version 3 changes

Merged dheeraj kumar requested to merge [feature-v3](#) into [main](#) just now

Overview 0 Commits 1 Pipelines 0 Changes 1 Add a to-do item

good feature added

0 Assignees Edit None - assign yourself

0 Reviewers Edit None - assign yourself

Labels Edit None

Milestone Edit None

Time tracking Edit No estimate or time spent

1 Participant

Try out GitLab Pipelines

Approve Approval is optional

Ready to merge!

Merge details

- 1 commit and 1 merge commit will be added to main (squashes 1 commit).
- Source branch will be deleted.

Activity

dheeraj kumar merged just now

dheeraj kumar mentioned in commit 0ffce5dc just now

Write a comment or drag your files here...

gitlab.com/dheeraj1612/devops-git-lab GitHub import · GitLab dheeraj kumar / devops-git-lab dheeraj2002kumar/devops-git-lab

Project dheeraj kumar / devops-git-lab

main devops-git-lab

Merge branch 'feature-v3' into 'main' 0ffce5dc dheeraj kumar authored 4 minutes ago

Name Last commit Last update

.vscode	add test.txt file in gitHub	42 minutes ago
README.md	Initial commit	51 minutes ago
test.txt	Added version 3 changes	10 minutes ago

README.md

devops-git-lab

Project information

- 4 Commits
- 2 Branches
- 0 Tags
- 4 kB Project Storage

README

- + Add LICENSE
- + Add CHANGELOG
- + Add CONTRIBUTING
- + Enable Auto DevOps
- + Add Kubernetes cluster
- + Set up CI/CD
- + Add Wiki
- + Configure Integrations

Created on December 07, 2025

What's new

Help

Collapse sidebar



AMITY UNIVERSITY, MUMBAI

The screenshot shows a GitLab interface for a project named "devops-git-lab". The main view displays a file named "test.txt" which contains the following content:

```
1 This is test.txt for Git lab.  
2 Version 3 changes  
3
```

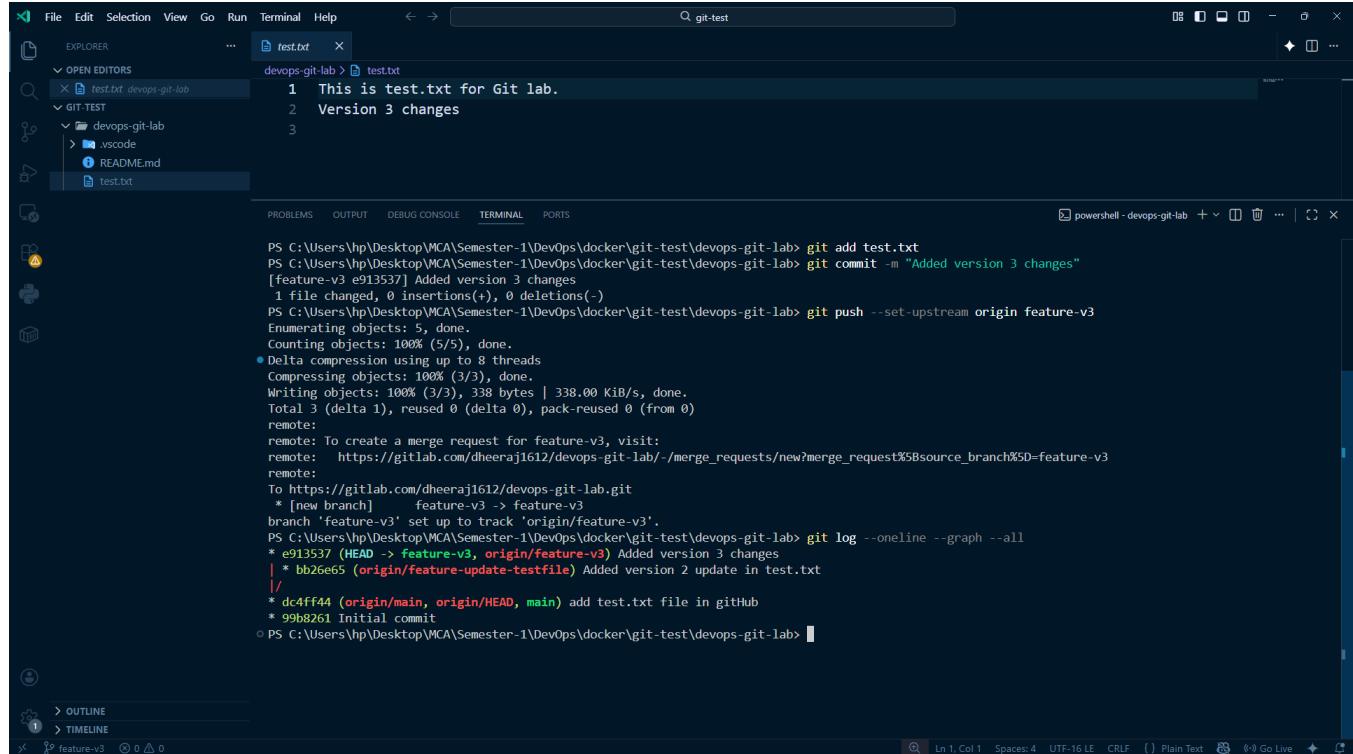
The interface includes a sidebar with various project management options like Manage, Plan, Code, Build, Secure, Deploy, Operate, Monitor, Analyze, and Settings. At the top, there are tabs for "main" and "devops-git-lab / test.txt". On the right, there are buttons for "Find file", "Blame", "Edit", and "History". A commit ID "e9135373" is also visible.



Checking Git History & Version Control

Show commit log:

```
git log --oneline --graph --all
```



The screenshot shows a terminal window in a code editor interface. The terminal tab is active, displaying the command `git log --oneline --graph --all`. The output shows a commit history for a file named `test.txt` in a repository named `devops-git-lab`. The commits are as follows:

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\git-test\devops-git-lab> git add test.txt
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\git-test\devops-git-lab> git commit -m "Added version 3 changes"
[feature-v3 e913537] Added version 3 changes
  1 file changed, 0 insertions(+), 0 deletions(-)
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\git-test\devops-git-lab> git push -set-upstream origin feature-v3
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 338 bytes | 338.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: To https://gitlab.com/dheeraj1612/devops-git-lab/-/merge_requests/new?merge_request%5Bsource_branch%5D=feature-v3
remote:
remote:   To https://gitlab.com/dheeraj1612/devops-git-lab.git
remote:     * [new branch]      feature-v3 -> feature-v3
remote:   branch 'feature-v3' set up to track 'origin/feature-v3'.
remote:
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\git-test\devops-git-lab> git log --oneline --graph --all
* e913537 (HEAD -> feature-v3, origin/feature-v3) Added version 3 changes
| * bb2665 (origin/feature-update-testfile) Added version 2 update in test.txt
|
* dc4ff44 (origin/main, origin/HEAD, main) add test.txt file in github
* 99b8261 Initial commit
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\git-test\devops-git-lab>
```

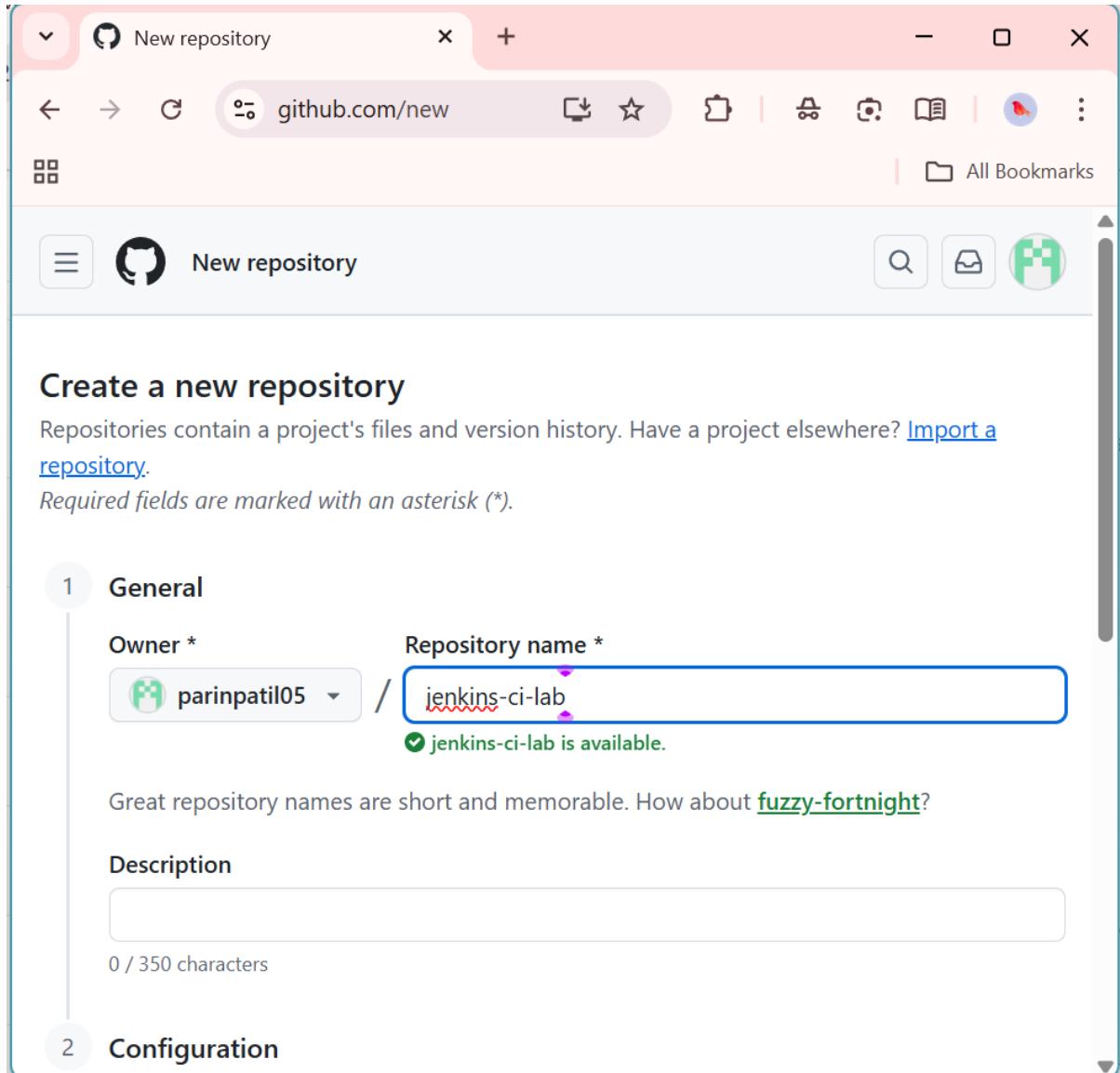
You can also merge using github



Practical 2

Lab on continuous Integration from different developers into a single piece of software using Jenkins.
using Jenkins.

The screenshot shows the GitHub Dashboard. On the left, there's a sidebar titled "Top repositories" listing several repositories owned by "parinpatil05": "testing", "Demo3", "Test1", "Demo", "Practical1", "EclipsePractical", and "devops-git-lab". Below this is a "Show more" link. The main area is titled "Home" with a search bar and a "Try the new dashboard experience" link. It features a "Ask anything" input field, a "+ Add repositories, files, and spaces" button, and three buttons: "Task (New)", "Create issue", and "Spark". A "Feed" section displays a trending repository "sarwarbeing-ai/Agentic_Design_Patterns" and a note about Antonio Gulli's book. A sidebar menu is open, showing options like "New issue", "New repository", "Import repository", "New codespace", "New gist", "New organization", "New project", and a note about spam accounts. At the bottom, a link to "View changelog" is visible.



A screenshot of a web browser showing the GitHub 'New repository' creation interface. The URL in the address bar is `github.com/new`. The main heading is 'Create a new repository'. Below it, a sub-instruction says 'Repositories contain a project's files and version history. Have a project elsewhere? [Import a repository](#)'. A note indicates 'Required fields are marked with an asterisk (*)'. The 'General' tab is selected, showing the 'Owner' dropdown set to 'parinpatil05' and the 'Repository name' input field containing 'jenkins-ci-lab', which is highlighted with a blue border and accompanied by the message 'jenkins-ci-lab is available.' Below the input field is a note: 'Great repository names are short and memorable. How about [fuzzy-fortnight](#)?'. There is also a 'Description' input field with a character limit of 350 characters. The 'Configuration' tab is visible at the bottom left.

New repository

github.com/new

All Bookmarks

Create a new repository

Repositories contain a project's files and version history. Have a project elsewhere? [Import a repository](#).

Required fields are marked with an asterisk (*).

1 General

Owner * Repository name *

parinpatil05 / jenkins-ci-lab

jenkins-ci-lab is available.

Great repository names are short and memorable. How about [fuzzy-fortnight](#)?

Description

0 / 350 characters

2 Configuration



AMITY UNIVERSITY, MUMBAI

```
Microsoft Corporation. All rights reserved.

PowerShell for new features and improvements! https://aka.ms/PSWindows

git clone https://github.com/parinpatil05/jenkins-ci-lab.git
ins-ci-lab'...
r to have cloned an empty repository.
cd jenkins-ci-lab
jenkins-ci-lab> echo "print('Build Successful')" > app.py
jenkins-ci-lab> dir

Users\Parin\jenkins-ci-lab

LastWriteTime          Length Name
-----      ----- ----
2-2025      13:20           56 app.py

jenkins-ci-lab>
```

Run this command in terminal / PowerShell:

```
docker run -d -p 9090:8080 -p 50000:50000 --name jenkins jenkins/jenkins:lts
```

```
jenkins-ci-lab> docker run -d -p 9090:8080 -p 50000:50000 --name jenkins jenkins/jenkins:lts
d491edd1f3ba35819ebb105ca55d0f09f6f1435b260904
jenkins-ci-lab> docker ps
  COMMAND           CREATED          STATUS          PORTS
               NAMES
jenkins/jenkins:lts   "/usr/bin/tini -- /u..."  13 seconds ago  Up 13 seconds  0.0.0.0:50000->50000/tcp, [::]:50000->8080/tcp, [::]:9090->8080/tcp   jenkins
jenkins-ci-lab>
```

Open browser:

<http://localhost:8080>

A screenshot of a web browser window showing the Jenkins 'Unlock Jenkins' setup page. The URL in the address bar is 'localhost:9090/login?from=%2F'. The page title is 'Getting Started'. The main heading is 'Unlock Jenkins'. A text block explains that a password has been written to the log and on the server, with a link to 'not sure where to find it?'. Below this is a code snippet in red: '/var/jenkins_home/secrets/initialAdminPassword'. A text instruction says 'Please copy the password from either location and paste it below.' A text input field labeled 'Administrator password' is shown, with a 'Continue' button at the bottom right.

Getting Started

Unlock Jenkins

To ensure Jenkins is securely set up by the administrator, a password has been written to the log ([not sure where to find it?](#)) and this file on the server:

```
/var/jenkins_home/secrets/initialAdminPassword
```

Please copy the password from either location and paste it below.

Administrator password

Continue

To get the admin password:

```
docker exec jenkins cat /var/jenkins_home/secrets/initialAdminPassword
```



The screenshot shows a web browser window with the URL `localhost:9090/login?from=%2F` in the address bar. The page title is "Getting Started". The main content is titled "Unlock Jenkins" and contains the following text: "To ensure Jenkins is securely set up by the administrator, a password has been written to the log ([not sure where to find it?](#)) and this file on the server:" followed by the path `/var/jenkins_home/secrets/initialAdminPassword`. Below this, a note says "Please copy the password from either location and paste it below." A text input field is provided for pasting the password, with placeholder dots visible. A "Continue" button is located at the bottom right of the input field.

Getting Started

Unlock Jenkins

To ensure Jenkins is securely set up by the administrator, a password has been written to the log ([not sure where to find it?](#)) and this file on the server:

`/var/jenkins_home/secrets/initialAdminPassword`

Please copy the password from either location and paste it below.

Administrator password

.....

Continue

A screenshot of a web browser showing the Jenkins 'Getting Started' page. The URL in the address bar is 'localhost:9090'. The page title is 'Getting Started'. It contains two main options: 'Install suggested plugins' (blue background) and 'Select plugins to install' (white background). Both options have descriptive text below them. At the bottom left, it says 'Jenkins 2.528.2'.

Getting Started

Plugins extend Jenkins with additional features to support many different needs.

Install suggested plugins

Install plugins the Jenkins community finds most useful.

Select plugins to install

Select and install plugins most suitable for your needs.

Jenkins 2.528.2



localhost:9090

Getting Started

Getting Started

Formatter			
Timestamper	Workspace Cleanup	Ant	Gradle
Pipeline	GitHub Branch Source	Pipeline: GitHub Groovy Libraries	Pipeline Graph View

** commons-lang3 v3.x Jenkins API
** Ionicons API
Folders
OWASP Markup Formatter
** ASM API
** JSON Path API

** - required dependency

Jenkins 2.528.2

localhost:9090

Create First Admin User

Username

Password

Confirm password

Jenkins 2.528.2 [Skip and continue as admin](#) [Save and Continue](#)



localhost:9090

Getting Started

Instance Configuration

Jenkins URL:

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the BUILD_URL environment variable provided to build steps.

The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

Jenkins 2.528.2 Not now Save and Finish

localhost:9090

Jenkins

+ New Item

Build History

Build Queue

No builds in the queue.

Build Executor Status

0/2

Add description

Welcome to Jenkins!

This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.

Start building your software project



localhost:9090/view/all/newJob

All Bookmarks

Jenkins / All / New Item

New Item

Enter an item name

Select an item type

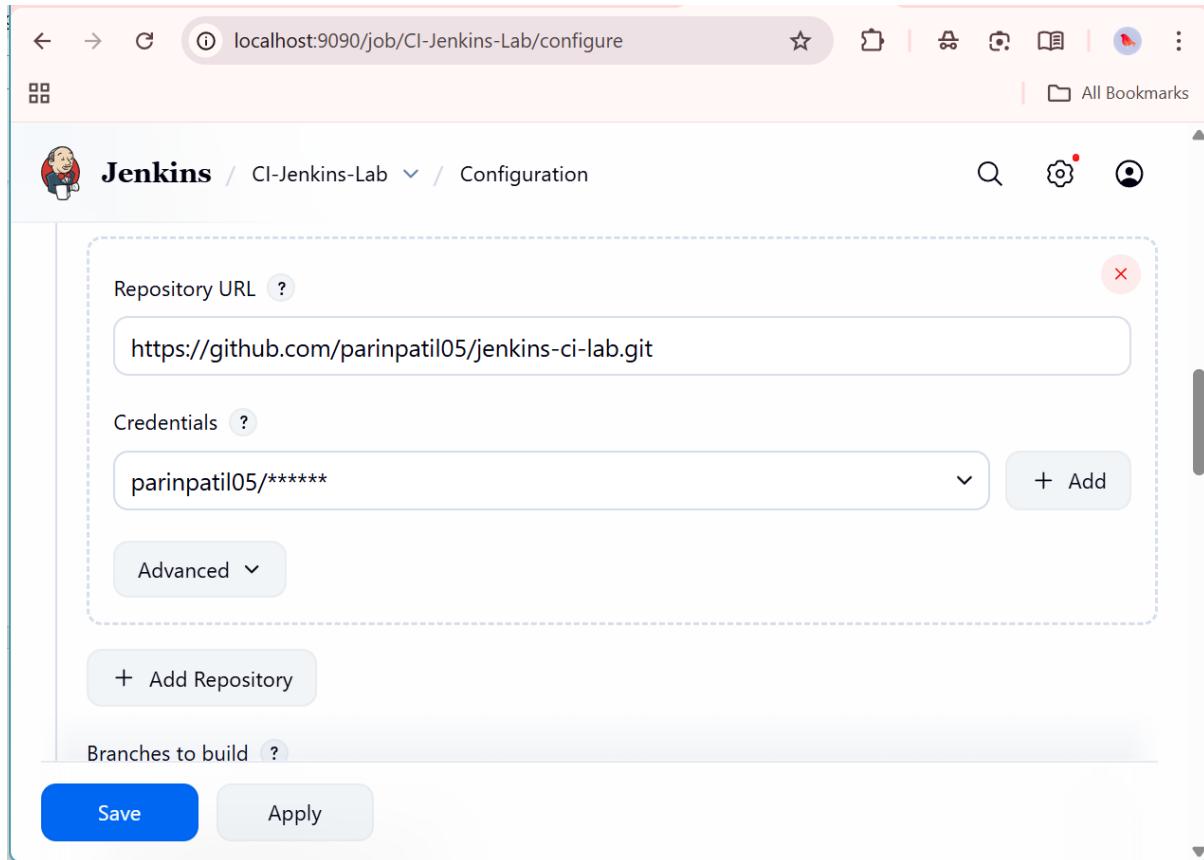
 Freestyle project
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

 Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job

OK



AMITY UNIVERSITY, MUMBAI



A screenshot of a web browser showing the Jenkins configuration page for a job named "CI-Jenkins-Lab". The URL in the address bar is "localhost:9090/job/CI-Jenkins-Lab/configure". The page displays the repository URL as "https://github.com/parinpatil05/jenkins-ci-lab.git" and the credentials as "parinpatil05/*****". There are buttons for "Save" and "Apply".

localhost:9090/job/CI-Jenkins-Lab/configure

Repository URL ?

https://github.com/parinpatil05/jenkins-ci-lab.git

Credentials ?

parinpatil05/*****

+ Add

Advanced ▾

+ Add Repository

Branches to build ?

Save Apply



The screenshot shows a web browser window with the URL `localhost:9090/job/CI-Jenkins-Lab/configure`. The page is titled "Configuration" under the Jenkins header. A sidebar on the left lists "Build Steps" with a sub-section for "Add build step". A dropdown menu is open, showing options such as "Execute Windows batch command", "Execute shell" (which is highlighted), "Invoke Ant", "Invoke Gradle script", "Invoke top-level Maven targets", "Run with timeout", and "Set build status to "pending"" on GitHub commit". To the right of the dropdown, a descriptive text explains that build steps can be used for "sending notifications, archiving artifacts, or triggering other jobs".



AMITY UNIVERSITY, MUMBAI

localhost:9090/job/CI-Jenkins-Lab/configure

Jenkins / CI-Jenkins-Lab / Configuration

Automate your build process with ordered tasks like code compilation, testing, and deployment.

Execute shell

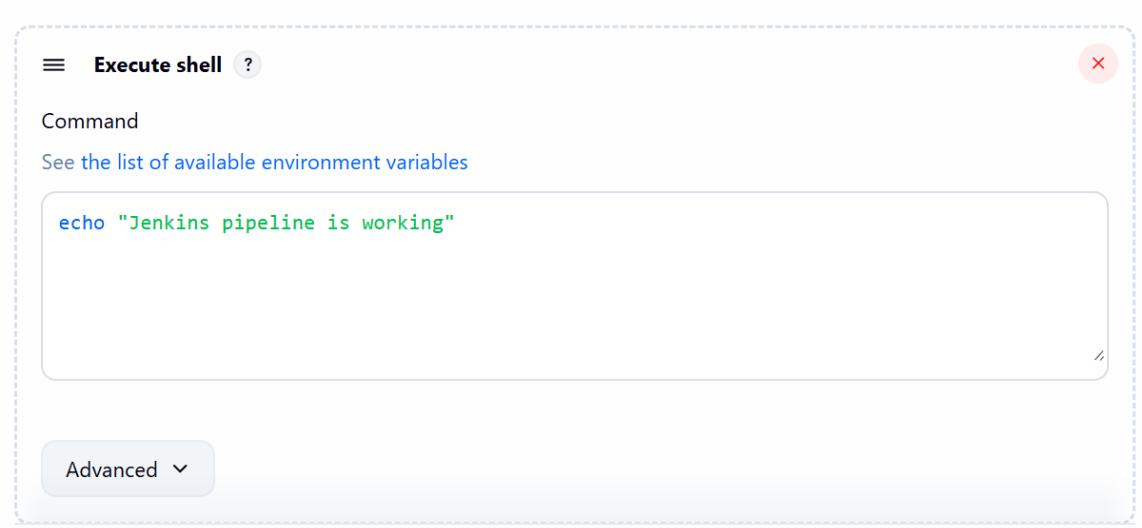
Command

See the list of available environment variables

```
echo "Jenkins pipeline is working"
```

Advanced

Save Apply



localhost:9090/job/CI-Jenkins-Lab/

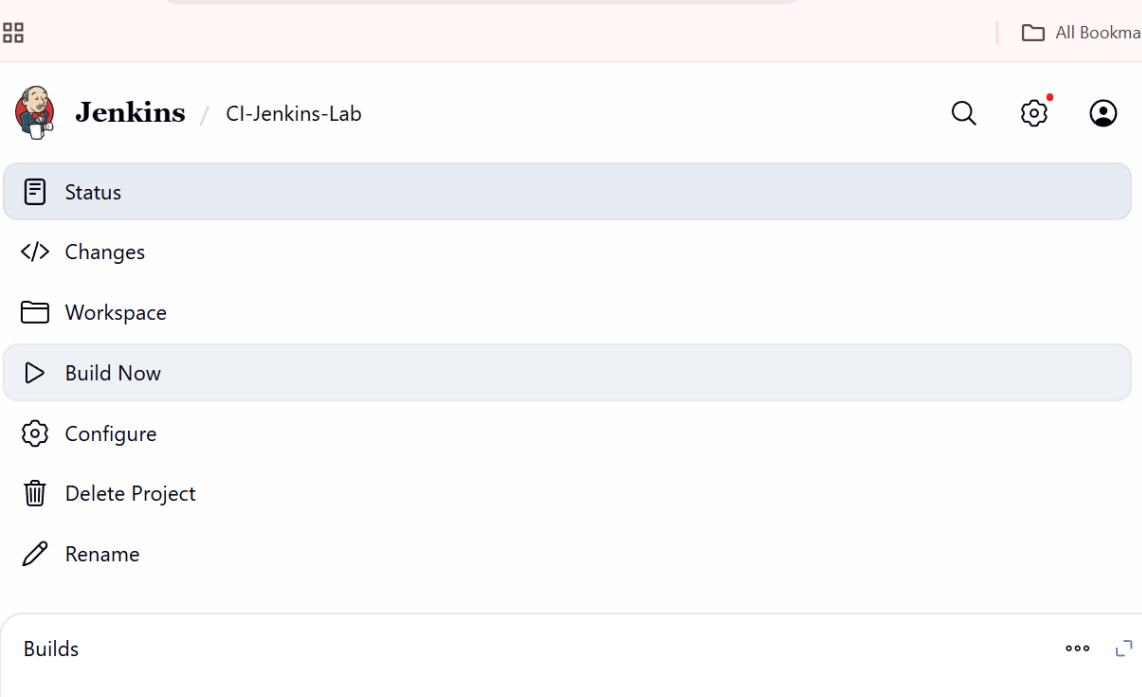
Jenkins / CI-Jenkins-Lab

Status Changes Workspace Build Now Configure Delete Project Rename

Builds

No builds

localhost:9090/job/CI-Jenkins-Lab/build?delay=0...





AMITY UNIVERSITY, MUMBAI

A screenshot of a web browser window. At the top, there is a header bar with a user icon, a search bar, and a "All Bookmarks" link. Below the header, the main content area shows the Jenkins interface for the "CI-Jenkins-Lab" project. On the left, there is a sidebar with icons for "Build Now", "Configure", "Delete Project", and "Rename". The main area is titled "Builds" and contains a "Filter" input field. Under "Today", two builds are listed: "#12 8:56 AM" and "#11 8:56 AM", both marked with green checkmarks. At the bottom of the page, there is a footer bar with the text "CI Jenkins Lab" and an "Add description" button.

A screenshot of a terminal window with a dark background. The terminal output shows a sequence of git commands being run in a directory named "jenkins-ci-lab". The commands include "echo", "git add app.py", "git commit -m 'Update A'", "git push", and "git pull origin main --rebase". The output indicates that the push was rejected because the remote contains work that the local does not have, and it suggests using "git pull --rebase" to integrate changes before pushing again. The pull command shows 3 objects being pulled, and the push command shows 3 objects being pushed. The final status shows the local repository is up-to-date with the remote.



AMITY UNIVERSITY, MUMBAI

```
\jenkins-ci-lab> echo "print('Update from developer B!')" >> app.py
\jenkins-ci-lab> git add app.py
\jenkins-ci-lab> git commit -m "Update B"
Update B
0 insertions(+), 0 deletions(-)
\jenkins-ci-lab> git push
  5 done.
  100% (5/5), done.
  using up to 8 threads
  100% (3/3), done.
  100% (3/3), 313 bytes | 104.00 KiB/s, done.
  , reused 0 (delta 0), pack-reused 0 (from 0)
  1 delta: 100% (1/1), completed with 1 local object.
https://github.com/parinpatil05/jenkins-ci-lab.git
Fc3 main -> main*
```

A screenshot of a web browser window displaying the Jenkins Git Polling Log. The URL in the address bar is "localhost:9090/job/Ci-Jenkins-Lab/scmPollLog/". The page header shows the Jenkins logo and the path "Ci-Jenkins-Lab / Git Polling Log". Below the header, there is a section titled "today" showing three successful poll logs: #13 at 9:06 AM, #12 at 8:56 AM, and #11 at 8:56 AM. The main content area is titled "Git Polling Log" and contains the following log output:

```
Started on Dec 8, 2025, 9:05:59 AM
Using strategy: Default
[poll] Last Built Revision: Revision 699b6a82365508b83067682b72b6757c9cedc632
(refs/remotes/origin/main)
The recommended git tool is: NONE
using credential 776c1f94-0aad-47d8-a1fa-18d44a3f748c
> git --version # timeout=10
> git --version # 'git version 2.47.3'
using GIT_ASKPASS to set credentials
> git ls-remote -h -- https://github.com/parinpatil05/jenkins-ci-lab.git # timeout=10
```



Practical 3

Testing the application using Selenium

```
from selenium import webdriver
from selenium.webdriver.chrome.service import Service
from selenium.webdriver.chrome.options import Options
from webdriver_manager.chrome import ChromeDriverManager
import time

chrome_path = "C:\\\\Program Files\\\\Google\\\\Chrome\\\\Application\\\\chrome.exe"

options = Options()
options.binary_location = chrome_path

print("Starting Chrome browser...")
driver = webdriver.Chrome(service=Service(ChromeDriverManager().install()),
options=options)

driver.get("https://www.google.com")
print("Opened:", driver.title)

time.sleep(5)
driver.quit()
print("Program ended ✅")
```

Run the code “python file_name.py”



AMITY UNIVERSITY, MUMBAI

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\seleniumPython>
PS Focus folder in explorer (ctrl + click) \Semester-1\DevOps\seleniumPython>
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\seleniumPython>
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\seleniumPython> python Main.py
Starting Chrome browser...
Opened: Google
```

Browser will open for 5 second and it will close after 5 second

The screenshot displays a terminal window on the right and a web browser window on the left. The terminal window shows the command `python Main.py` being run, with the output "Starting Chrome browser..." and "Opened: Google". The browser window shows the Google homepage with the search bar and various links. A small pop-up window from Google suggests using the built-in browser.

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\seleniumPython> python Main.py
Starting Chrome browser...
```

Opened: Google

Program ended ✓

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\seleniumPython>
```



Practical 4

Testing the form using Selenium

```
from selenium import webdriver
from selenium.webdriver.support.ui import WebDriverWait
from selenium.webdriver.common.by import By
from selenium.webdriver.support.ui import WebDriverWait
from selenium.webdriver.support import expected_conditions as EC
from selenium.webdriver.chrome.service import Service

from webdriver_manager.chrome import ChromeDriverManager
import time

# step 1: launch browser
driver = webdriver.Chrome(service=Service(ChromeDriverManager().install()))
driver.get("https://www.w3schools.com/html/html_forms.asp")
driver.maximize_window()
time.sleep(2)

# step 2: scroll to the form
driver.execute_script("window.scrollTo(0, 800)")
time.sleep(1)

# step 3: fill out the example form
fname = driver.find_element(By.ID, "fname")
lname = driver.find_element(By.ID, "lname")

fname.clear()
lname.clear()

fname.send_keys("Dheeraj")
```



```
lname.send_keys("Kumar")

# step 4: submit the form (it opens in new tab)
submit_btn = driver.find_element(By.XPATH, "//input[@type='submit']")
submit_btn.click()

print("✅ Form filled and submitted successfully!")

time.sleep(4)
driver.quit()
```

Run the code “python file_name.py”

```
form_automation.py
15 time.sleep(2)
16
17 # step 2: scroll to the form
18 driver.execute_script("window.scrollTo(0, 800)")
19 time.sleep(1)
20
21 # step 3: fill out the example form
22 fname = driver.find_element(By.ID, "fname")
23 lname = driver.find_element(By.ID, "lname")
24
25 fname.clear()
26 lname.clear()
27
28 fname.send_keys("Dheeraj")
29 lname.send_keys("Kumar")
30
31 # step 4: submit the form (it opens in new tab)
32 submit_btn = driver.find_element(By.XPATH, "//input[@type='submit']")
33 submit_btn.click()
34
35 print("✅ Form filled and submitted successfully!")
```

PS C:\Users\hp\Desktop\WCA\Semester-1\DevOps\seleniumPython> python .\form_automation.py



An HTML form is used to collect user input. The user input is most often sent to a server for processing.

First name:
John

Last name:
Doe

Submit

Try it Yourself >

b)
/input[@type='submit'])

illy!")

python .\form_automation.py

HTML Tutorial

- HTML HOME
- HTML Introduction
- HTML Editors
- HTML Basic
- HTML Elements
- HTML Attributes
- HTML Headings
- HTML Paragraphs
- HTML Styles
- HTML Formatting
- HTML Quotations
- HTML Comments
- HTML Colors
- HTML CSS
- HTML Links
- HTML Images
- HTML Favicon
- HTML Page Title
- HTML Tables
- HTML Lists
- HTML Block & Inline
- HTML Div
- HTML Classes
- HTML Id
- HTML Buttons
- HTML Iframes
- HTML JavaScript
- HTML File Paths
- HTML Head
- HTML Layout
- HTML Responsive

HTML Forms

An HTML form is used to collect user input. The user input is most often sent to a server for processing.

Example

First name:
Dheeraj

Last name:
Kumar

Submit

Try it Yourself >

The <form> Element

The HTML `<form>` element is used to create an HTML form for user input:

```
<Form>
  .
  form elements
```



AMITY UNIVERSITY, MUMBAI

Submitted Form Data

Your input was received as:

```
fname=Dheeraj&lname=Kumar
```

The server has processed your input and returned this answer.

Note: This tutorial will not teach you how servers are processing input. Processing input is explained in our [PHP tutorial](#).

```
form_automation.py
15 time.sleep(2)
16
17 # step 2: scroll to the form
18 driver.execute_script("window.scrollTo(0, 800)")
19 time.sleep(1)
20
21 # step 3: fill out the example form
22 fname = driver.find_element(By.ID, "fname")
23 lname = driver.find_element(By.ID, "lname")
24
25 fname.clear()
26 lname.clear()
27
28 fname.send_keys("Dheeraj")
29 lname.send_keys("Kumar")
30
31 # step 4: submit the form (it opens in new tab)
32 submit_btn = driver.find_element(By.XPATH, "//input[@type='submit']")
33 submit_btn.click()
34
35 print("✅ Form filled and submitted successfully!")
```

PS C:\Users\Vip\Desktop\MCA\Semester-1\DevOps\seleniumPython> python .\form_automation.py
✅ Form filled and submitted successfully!



AMITY UNIVERSITY, MUMBAI

A screenshot of a terminal window from a code editor. The window has tabs at the top: PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is underlined), and PORTS. The terminal content shows the following:

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\seleniumPython> python .\form_automation.py
✓ Form filled and submitted successfully!
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\seleniumPython>
```



Practical 5

Testing automation and HTML report generation using selenium

```
import unittest
import time
import HtmlTestRunner
from selenium import webdriver
from selenium.webdriver.chrome.service import Service
from webdriver_manager.chrome import ChromeDriverManager

class TestWebsiteTitle(unittest.TestCase):

    def setUp(self):
        """Setup browser before each test"""
        self.driver =
webdriver.Chrome(service=Service(ChromeDriverManager().install()))
        self.driver.maximize_window()
        self.driver.get("https://concertcraze.netlify.app/")
        time.sleep(2)

    def test_title_verification(self):
        """Check if website title is correct"""
        driver = self.driver
        expected_title = "Landing Page" # correct title
        actual_title = driver.title

        self.assertEqual(expected_title, actual_title)
        print(f"Test Passed: Title matches -> {actual_title}")

    def tearDown(self):
        """Close browser after test"""
        self.driver.quit()
```



```
if __name__ == "__main__":
    unittest.main(
        testRunner=HTMLTestRunner.HTMLTestRunner(
            output='reports' # report folder will be created automatically
        )
    )
```

Run the code “Python file_name.py”

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\seleniumPython> python .\test_automation.py
Running tests...
-----
test_title_verification (__main__.TestWebsiteTitle.test_title_verification) ... OK (13.722435)s

-----
Ran 1 test in 0:00:13

OK

Generating HTML reports...
reports\TestResults__main__.TestWebsiteTitle_2025-12-07_22-53-03.html
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\seleniumPython>
```



A screenshot of a web browser showing the homepage of 'concertcraze.netlify.app'. The background image is a concert stage with bright lights and silhouettes of audience members' hands raised. Overlaid text reads 'Feel the Beat' and 'Grab your Seat'. Below this is a search bar with the placeholder 'Search by artist or venue' and a red 'Search' button. At the bottom of the main content area, there is a link to 'New upcoming Events'.

After completing the testing then it will generate the report

A screenshot of a browser window displaying a test results report titled 'Unittest Results'. The URL in the address bar is '127.0.0.1:5500/reports/TestResults__main__TestWebsiteTitle_2025-12-07_22-53-43.html'. The report shows a single test case: 'test_title_verification' under the section '__main___.TestWebsiteTitle'. The status of this test is 'Pass'. Below the table, a message states 'Test Passed: Title matches -> Landing Page'. At the bottom, it says 'Total: 1, Pass: 1 -- Duration: 27.83 s'.



Practical 6

Containerization using Docker

Write in terminal “npm init -y”

- PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> **npm init -y**
Wrote to [C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker\package.json](#):

```
{  
  "name": "docker",  
  "version": "1.0.0",  
  "description": "```bash\r docker pull nginx\r ```",  
  "main": "server.js",  
  "scripts": {  
    "test": "echo \"Error: no test specified\" && exit 1",  
    "start": "node server.js"  
  },  
  "keywords": [],  
  "author": "",  
  "license": "ISC",  
  "type": "commonjs"  
}
```

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> █
```



Create a file “Dockerfile” and write the code

```
# Use official Node.js LTS image
FROM node:18

# Create app directory
WORKDIR /app

# Copy package.json (for future npm installs)
COPY package.json .

# Install dependencies (if any in future)
RUN npm install

# Copy rest of the application files
COPY . .

# Expose port used by Node.js
EXPOSE 5000

# Start the application
CMD ["npm", "start"]
```



Create .dockerignore (recommended)

```
node_modules  
npm-debug.log
```

This keeps the image small.

Build the Docker image

From inside the project folder run:

```
docker build -t node-calculator .
```

The screenshot shows the VS Code interface with the terminal tab active. The command `docker build -t node-calculator .` is being run, and the terminal output is displayed. The output shows the Docker build process, which is completed successfully. The Dockerfile is located in the root directory of the project. The terminal also shows the Docker daemon running on the host machine.

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> docker build -t node-calculator .
[+] Building 90.0s (11/11) FINISHED
   => [internal] load build definition from Dockerfile
   => [internal] load metadata for docker.io/library/node:18
   => [internal] load metadata for docker.io/library/node:18
   => [auth] library/node:pull token for registry-1.docker.io
   => [internal] load .dockerignore
   => [internal] load build context
   => [internal] transfering context: 69B
   => [internal] load build context
   => [internal] transfering context: 319,4KB
-> [1/1] FROM docker.io/library/node:18@sha256:c6ae79e38498325db67193d391e6ec1d224d96c693a8a4d943498556716d3783
-> [internal] resolve docker.io/library@sha256:c6ae79e38498325db67193d391e6ec1d224d96c693a8a4d943498556716d3783
-> sha256:461077a72fb7fe40d34a37d6a19824d167724dd7f572ec50a1fdc41a3754d 4MB / 4MB
-> sha256:c6030cf16966552af16a06521669355017cf049a1c160193587e2858ce7 45,68MB / 45,68MB
-> sha256:3697be0c0889d071df4a37e1d491d00e769f3a32768c876dd2309b3c5145 1,25MB / 1,25MB
-> sha256:cd7f44f2bddcc4b7514474024bf3705de0dd6355a33be5a5a7808e57125 3,32KB / 3,32KB
-> sha256:7902f47ad4436e52b9b5cc81a95de249fd976310ef1bee159f29638783778c0 64,40MB / 64,40MB
-> sha256:e23ff099911d692f62b851cf49a1e93294288a115fc2d2d014180e4d3684d34ab 211,36MB / 211,36MB
-> sha256:37927ed901bb2608b7279cc6881bf6d5480268eca4aca9a37b9219e050bbdd4a 24,02MB / 24,02MB
-> sha256:3eb05d1a951146f122624e8a59ad1d1a1c7a8218adc0e05a200294964 48,49MB / 48,49MB
-> sha256:3eb05d1a951146f122624e8a59ad1d1a1c7a8218adc0e05a200294964 3,35MB / 3,35MB
-> sha256:3eb05d1a951146f122624e8a59ad1d1a1c7a8218adc0e05a200294964 0,95MB / 0,95MB
-> sha256:7902f47ad4436e52b9b5cc81a95de249fd976310ef1bee159f29638783778c0 4,15MB / 4,15MB
-> sha256:e23ff099911d692f62b851cf49a1e93294288a115fc2d2d014180e4d3684d34ab 26,95MB / 26,95MB
-> sha256:cd7f44f2bddcc4b7514474024bf3705de0dd6355a33be5a7808e57125 0,05MB / 0,05MB
-> sha256:c6030cf16966552af16a06521669355b1fcf46a5c1200193587e2858ce7 2,55MB / 2,55MB
-> sha256:3697be0c0889d071df4a37e1d491d00e769f3a32768c876dd2309b3c5145 0,15MB / 0,15MB
-> sha256:461077a72fb7fe40d34a376a1958c4d167722dd7f572ec50a1fdc41a3754d 0,05MB / 0,05MB
-> [2/5] WORKDIR /app
-> [3/5] COPY package.json .
-> [4/5] RUN npm install
-> [5/5] COPY . .
-> exporting to image
-> exporting layers
-> exporting manifest sha256:abe7352fe4885077945a66370a56d00efcc94129dfbae13c3fc60487ca913abb
-> exporting config sha256:53ceba0f0cb5e70a272e74b1ee60200bee312ef42d9498fb51b6b30301df7f7
-> exporting attestation manifest sha256:1fc264658655f6073b1e99e16d7612284ef57b1b81dc44952abeb699146d95
-> exporting manifest list sha256:eed3d3005a146af5f70a33ebfa4a58ad1ececc85d673a5ff7d100818ece82f1
-> naming to docker.io/library/node-calculator:latest
-> unpacking to docker.io/library/node-calculator:latest
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker>
```



AMITY UNIVERSITY, MUMBAI

docker desktop PERSONAL

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

Local Docker Hub repositories

0 Bytes / 1.02 GB in use 1 Images Last refresh: 16 minutes ago

Name	Tag	Image ID	Created	Size	Actions
node-calculator	latest	eed3dd3005a1	2 seconds ago	1.56 GB	D ⋮ Delete

Showing 1 item

Engine running RAM 2.55 GB CPU 0.00% Disk: 3.90 GB used (limit 1006.85 GB)

> Terminal v4.41.2

docker desktop PERSONAL

Containers [Give feedback](#) View all your running containers and applications. [Learn more](#)

Your running containers show up here

A container is an isolated environment for your code

 What is a container? 5 mins

 How do I run a container? 6 mins

[View more in the Learning center](#)

Engine running RAM 2.56 GB CPU 0.25% Disk: 3.90 GB used (limit 1006.85 GB)

> Terminal v4.41.2



Run the container

```
docker run -d -p 5000:5000 --name calc-container node-calculator
```

Now your server is running inside Docker.

A screenshot of a terminal window titled "docker". The window shows the command "docker run -d -p 5000:5000 --name calc-container node-calculator" being executed. The output of the command is displayed, showing the progress of the Docker build process. The build steps include extracting, working directory setup, copying package.json, running npm install, copying ., exporting image, exporting layers, exporting manifest, exporting config, exporting attestation manifest, exporting manifest list, naming to docker.io/library/node-calculator:latest, and unpacking to docker.io/library/node-calculator:latest. The total time taken for the build is approximately 1.35 seconds.

```
File Edit Selection View Go Run Terminal Help ← → docker PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS powershell + - ×
0.1s
=> => extracting sha256:461077a72fb7fe40d34a37d6a1958c4d16772d0dd77f572ec50a1fdc41a3754d
=> [2/5] WORKDIR /app
=> [3/5] COPY package.json .
=> [4/5] RUN npm install
=> [5/5] COPY .
=> exporting to image
=> => exporting layers
=> => exporting manifest sha256:abe7352fe4885077945a66370a56d00efcc94129dfbae13c3fc60487ca913abb
=> => exporting config sha256:53cebd0fcbe5700a272e74b1ee6702beebe33f12ef42d9498fsb1bb30301df677
=> => exporting attestation manifest sha256:1fc264658655f6073ba1ee99e16d7612284ef57b1b81dc44952abeb699146d95
=> => exporting manifest list sha256:eed3d3005a146af5707aa33ebfa4a58ad1ececd85d673a5ff7d100818eceee82f1
=> => naming to docker.io/library/node-calculator:latest
=> => unpacking to docker.io/library/node-calculator:latest

View build details: docker-desktop://dashboard/build/desktop_linux/desktop-linux/rdnmmw082qzb39q2dvu7x5n8a
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> docker run -d -p 5000:5000 --name calc-container node-calculator
513856c5cd99e9f0c20ee59964a16bf7e7code63381c2512fab6834211c1486
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker>
```

In 1, Col 1 (0 selected) Spaces: 4 UTF-8 CRLF ⌂ gitignore ⌂ Go Live ⌂



AMITY UNIVERSITY, MUMBAI

The screenshot shows the Docker Desktop interface. On the left, a sidebar lists various sections: Ask Gordon (BETA), Containers (selected), Images, Volumes, Builds, Models (BETA), Docker Hub, Docker Scout, and Extensions. The main area is titled "Containers" with a sub-instruction "View all your running containers and applications. Learn more". It displays container CPU usage (0.00% / 800%) and memory usage (32MB / 3.63GB). A search bar and a filter button ("Only show running containers") are present. A table lists one container:

Name	Container ID	Image	Port(s)	CPU (%)	Last started	Actions
calc-container	513856c5ddc9	node-calculator	5000:5000	0%	1 minute ago	

A blue arrow points upwards from the table towards the container's status bar.

At the bottom, a message says "Showing 1 item". Below the table, there's a "Walkthroughs" section with two cards: "Multi-container applications" (8 mins) and "# docker init" (3 mins). A link "View more in the Learning center" is also present. The status bar at the bottom shows "Engine running", "RAM 2.58 GB CPU 0.25%", "Disk: 3.90 GB used (limit 1006.85 GB)", and "Terminal v4.41.2".

Now created the container “calc-container” Now click on the below of the port 5000:5000

The screenshot shows a web browser window with multiple tabs open. One tab is active and displays a simple calculator interface. The calculator has a numeric keypad (0-9, .) and arithmetic operators (+, -, ×, ÷, =) arranged in a grid. The operators +, - , ×, ÷, and = are highlighted in orange or green. Above the calculator is a large input field. The browser's address bar shows "localhost:5000". The status bar at the bottom indicates "Simple" and "v4.41.2".

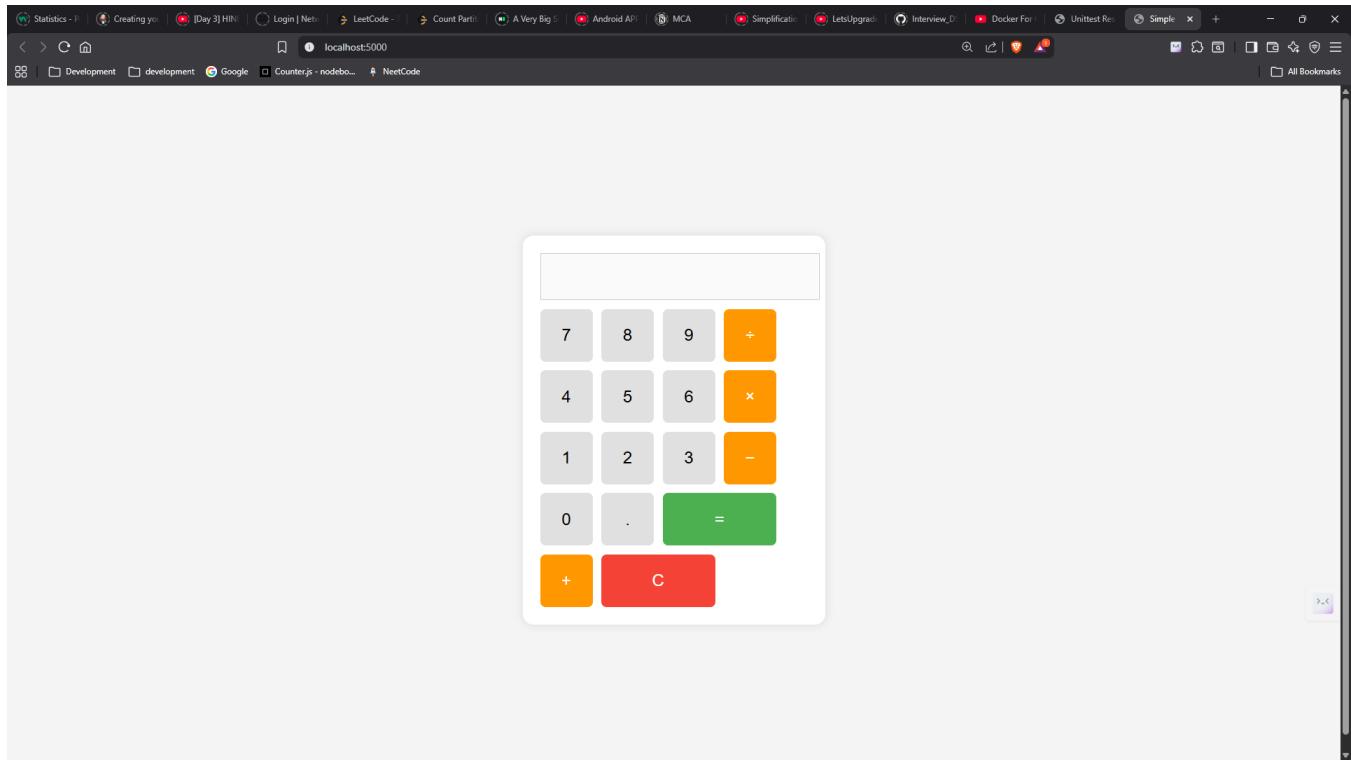


Test the application

Open in your browser:

`http://localhost:5000`

You should see **calculator.html** served by your node server from inside Docker.



You can also manually write <http://localhost:5000>

Now app is working fine



Optional: View logs

```
docker logs calc-container
```

```
0.1s
-> => extracting sha256:461077a72fb7fe40d34a37d6a1958c4d16772d0dd77f572ec50a1fdc41a3754d
-> [2/5] WORKDIR /app
-> [3/5] COPY package.json .
-> [4/5] RUN npm install
-> [5/5] COPY . .
-> exporting to image
-> => exporting layers
-> => exporting manifest sha256:abe7352fe4885077945a66370a56d00efcc94129dfbae13c3fc60487ca913abb
-> => exporting config sha256:53cebd0fcbe5700a272e74b1ee6702beeb3f12ef42d9498fs1bb30301ff677
-> => exporting attestation manifest: sha256:1fc264658655f6073b1ee99e16d7612284ef57b1b81dc44952abeb699146d95
-> => exporting manifest list sha256:eed3d3005a146af5767a33ebfa4a58ad1eccc85d673a5ff7d100818ece82f1
-> => naming to docker.io/library/node-calculator:latest
-> => unpacking to docker.io/library/node-calculator:latest

View build details: docker-desktop://dashboard/build/desktop_linux/desktop_linux/rdnmmwo82qzb39qzdvu7x5n8a
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> docker run -d -p 5000:5000 --name calc-container node-calculator
51385c5dc99ef0c20e5994a416bfe7c0le63381c2512fab68334211c1486
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> docker logs calc-container

> docker@1.0.0 start
> node server.js

Server has been started on port 5000
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker>
```



Optional: Stop & remove container

```
docker stop calc-container  
docker rm calc-container
```

```
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> docker run -d -p 5000:5000 --name calc-container node-calculator  
513856c5dc99e9f0c20ee59964a16bfe7c0de63381c2512fab68334211c1486  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> docker logs calc-container  
  
> docker@1.0.0 start  
> node server.js  
  
Server has been started on port 5000  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> docker stop calc-container  
calc-container  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> docker images  
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE  
node-calculator  latest   eed3dd3005a1  15 minutes ago  1.57GB  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> docker rm calc-container  
calc-container  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> docker images  
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE  
node-calculator  latest   eed3dd3005a1  15 minutes ago  1.57GB  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker> docker ps -a  
CONTAINER ID  IMAGE      COMMAND      CREATED      STATUS      PORTS      NAMES  
PS C:\Users\hp\Desktop\MCA\Semester-1\DevOps\docker>
```

Docker ps -a # it will show all container

Docker images # it will show all images