# GitLab and Cl

How to get started with GitLab and CI



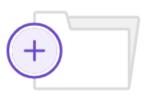




- Login to your GitLab account
- Click on

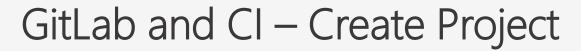
Group -> Create group

 Assign group name "testgr" and click on "Create Group" without changing any setting.



#### Create group

Assemble related projects together and grant members access to several projects at once.

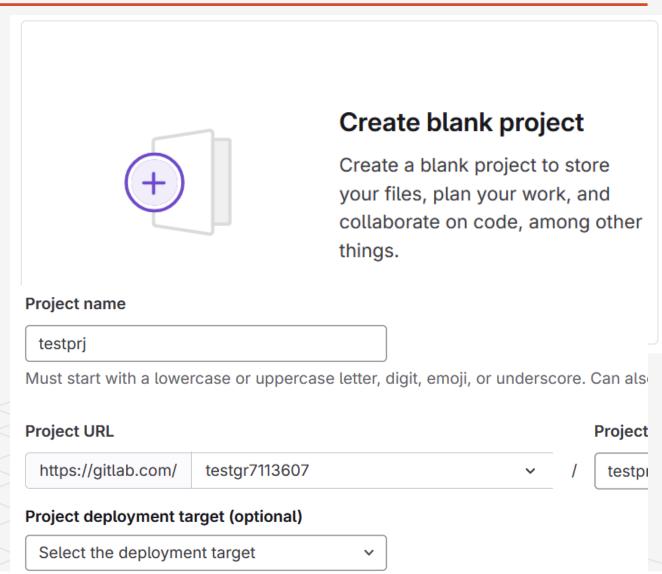


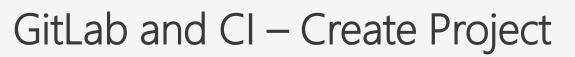


Click on

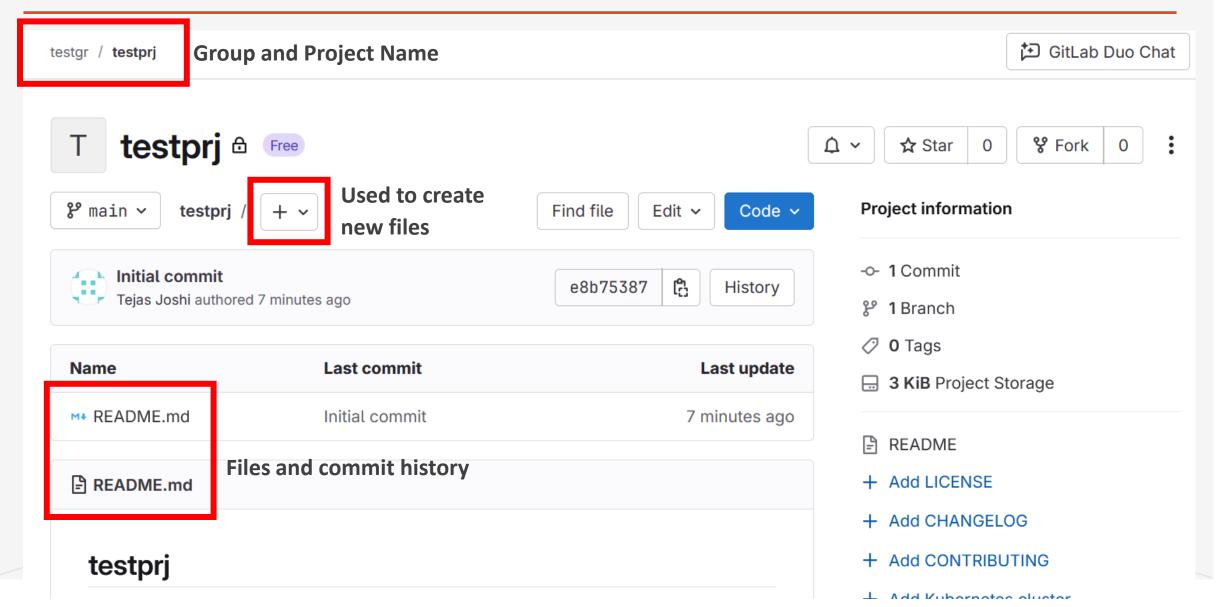
Project -> Create blank Project

- Assign project name "testprj" and select "testgr" under Project URL for this project.
- Then, click on "Create Project" without changing any setting.







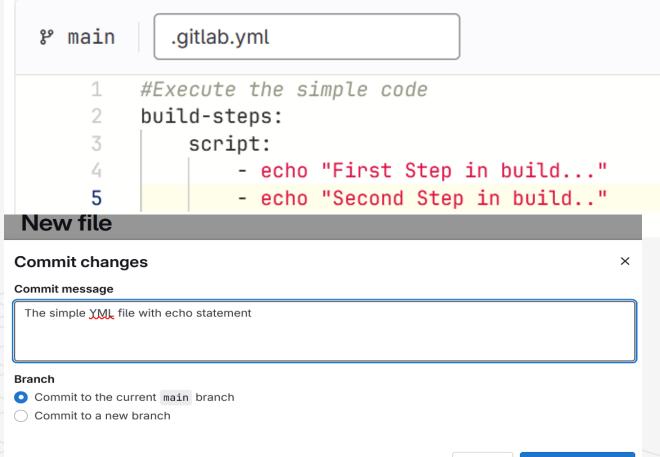




4

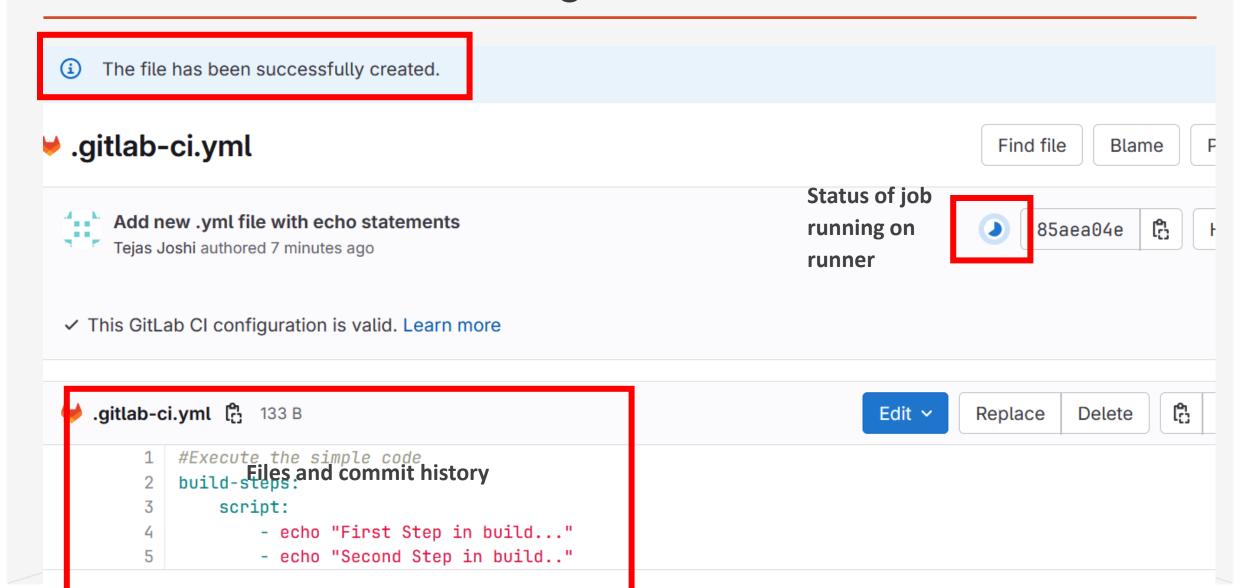
- Create a new file with name ".gitlab.yml".
- And add simple echo statements and click on "Commit Changes".

#### New file



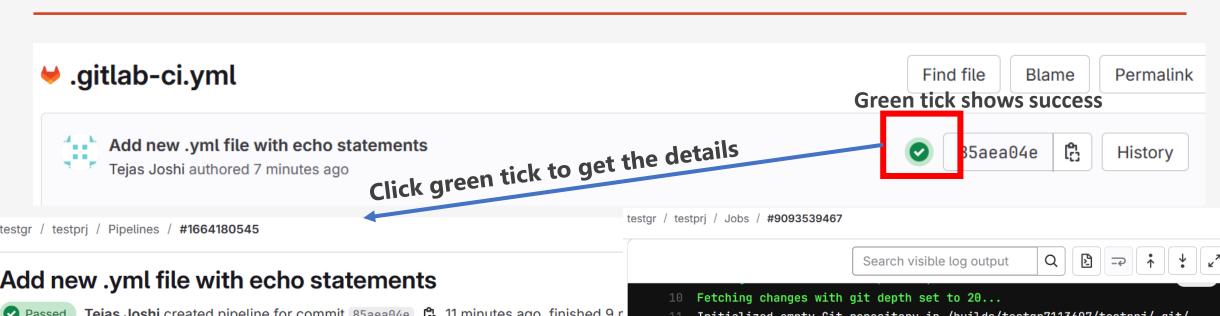


#### GitLab and CI – After creating a file



#### GitLab and CI – After creating a file





Add new .yml file with echo statements

Passed Tejas Joshi created pipeline for commit 85aea04e 11 minutes ago, finished 9 r

For main

Latest © 1 job 1 1.81 1 1 minute 48 seconds, queued for 0 seconds

Pipeline Jobs 1 Tests 0

Click green tick to get the runner log

test

Fetching changes with git depth set to 20...

Initialized empty Git repository in /builds/testgr7113607/testprj/.git/
Created fresh repository.

Checking out 85aea04e as detached HEAD (ref is main)...

Skipping Git submodules setup

\$ git remote set-url origin "\${CI\_REPOSITORY\_URL}"

Executing "step\_script" stage of the job script

Using docker image sha256:9b7e6c941969a4c237e2279c56b241deeab02099eeb6623d2
3d8dacf46c5b0cc for ruby:3.1 with digest ruby@sha256:da5c30fb27e6691500e7fa
1505f447748cfab455aee155087ff7d06e912ef79a ...

\$ echo "First Step in build..."

First Step in build...

\$ echo "Second Step in build..."

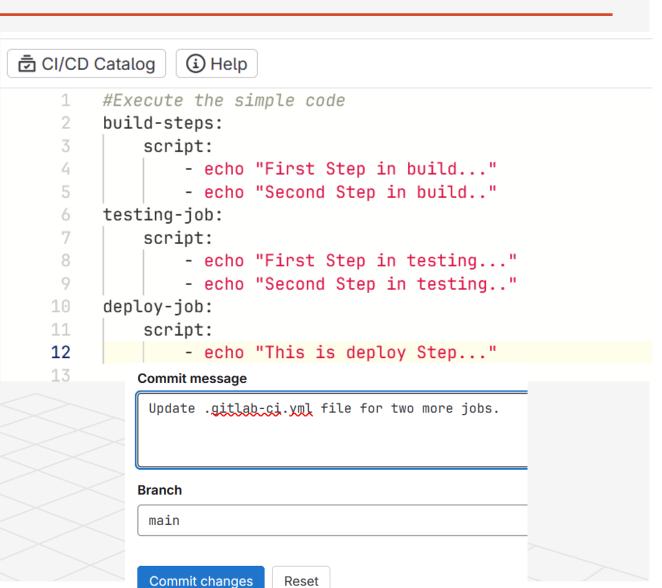
Second Step in build...

Cleaning up project directory and file based variables

Job succeeded

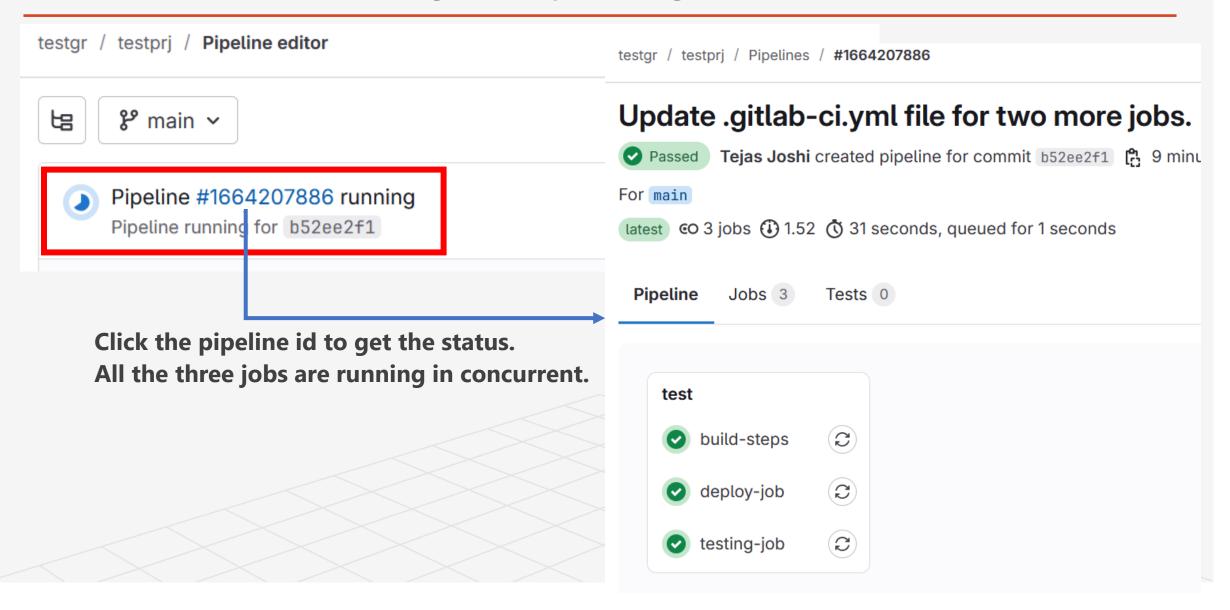


- Click on Project and select the .yml file for editing in pipeline editor.
- Add two more jobs in the file as shown.
- Add commit message and then click on Commit Changes.





#### GitLab and CI – Adding multiple stages





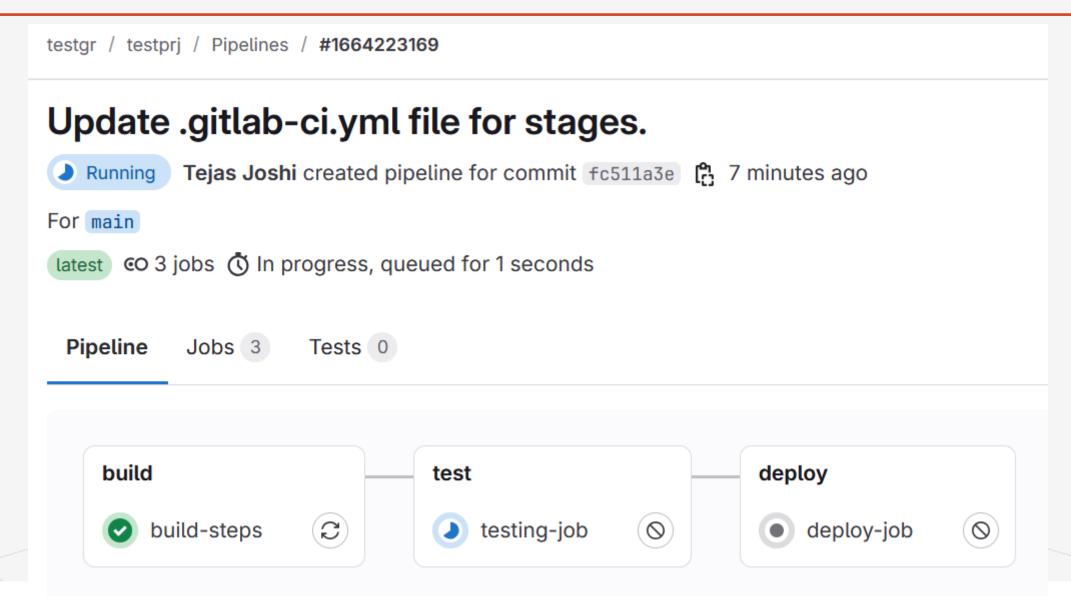
#### GitLab and CI – Adding multiple stages

- Click on Project and select the .yml file for editing in pipeline editor.
- Add "stages" in the file as shown.
- Add commit message and then click on Commit Changes.
- Check the pipeline editor (as shown in previous slide).

```
Ō CI/CD Catalog ☐ Help
        #Execute the simple code
        stages:
             - build
             - test
             - deploy
        build-steps:
             stage: build
   10
            script:
                 - echo "First Step in build..."
   12
                 - echo "Second Step in build.."
   13
        testing-job:
   14
             stage: test
   15
             script:
                 - echo "First Step in testing..."
   16
   17
                 - echo "Second Step in testing.."
   18
        deploy-job:
   19
             stage: deploy
   20
             script:
                 - echo "This is deploy Step..."
```



## GitLab and CI – Adding multiple stages





#### GitLab and CI – Adding before and after script

- Click on Project and select the .yml file for editing in pipeline editor.
- Add "before\_script" and "after\_script" in the file as shown.
- Add commit message and then click on Commit Changes.
- Check the pipeline editor (as shown in previous slide).

```
#Execute the simple code
          stages:
              - build
              - test

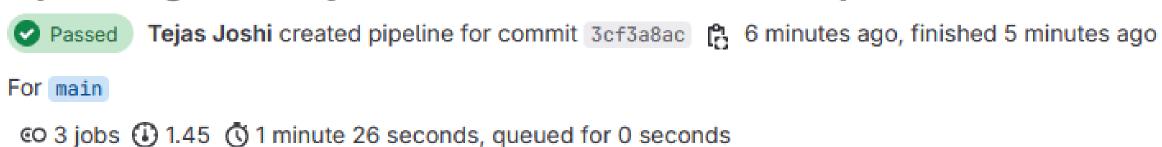
    deploy

          before_script:
              - echo "this is before script"
          after_script:
      12
              - echo "this is after script"
      13
          build-steps:
      15
              stage: build
              script:
              echo "First Step in build..."
                  - echo "Second Step in build.."
      18
      19 testing-job:
              stage: test
              script:
                  - echo "First Step in testing..."
                  - echo "Second Step in testing.."
          deploy-job:
              volunt caneta
```

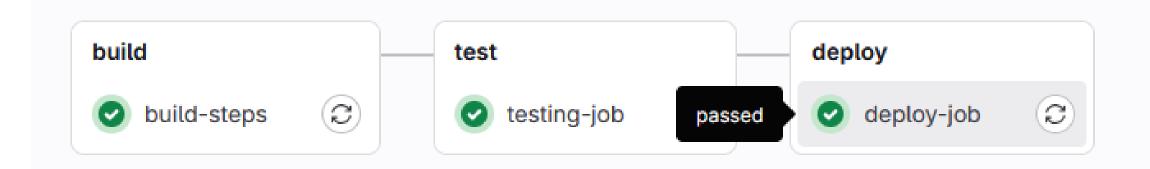


## GitLab and CI – Adding before and after script

#### Update .gitlab-ci.yml file before and after script added.



Pipeline Jobs 3 Tests 0





#### GitLab and CI – Adding before and after script

Search visible Created fresh repository. Checking out 3cf3a8ac as detached HEAD (ref is Skipping Git submodules setup \$ git remote set-url origin "\${CI\_REPOSITORY\_UR Executing "step\_script" stage of the job script Using docker image sha256:9b7e6c941969a4c237e22 b0cc for ruby:3.1 with digest ruby@sha256:da5c 55087ff7d06e912ef79a ... \$ echo "this is before script" this is before script \$ echo "First Step in build..." First Step in build... \$ echo "Second Step in build.." Second Step in build... Running after\_script Running after script... \$ echo "this is after script" this is after script Cleaning up project directory and file based va Job succeeded

```
Fetching changes with git depth set to 20...
Initialized empty Git repository in /builds/testgr
Created fresh repository.
Checking out 3cf3a8ac as detached HEAD (ref is mai
Skipping Git submodules setup
$ git remote set-url origin "${CI_REPOSITORY_URL}"
Executing "step_script" stage of the job script
Using docker image sha256:9b7e6c941969a4c237e2279c
b0cc for ruby:3.1 with digest ruby@sha256:da5c30fb
55087ff7d06e912ef79a ...
$ echo "this is before script"
this is before script
$ echo "This is deploy Step..."
This is deploy Step...
Running after_script
Running after script...
$ echo "this is after script"
this is after script
Cleaning up project directory and file based varia
Job succeeded
```



#### GitLab and CI – Running a bash script

Now create a "try.sh" bash script file as shown using new file option inside the project.

#### try.sh

```
Edit try.sh
Tejas Joshi authored 1 minute ago
```

```
try.sh the stry bash script."

1 #!/bin/bash
2 echo "this is try bash script."
3 touch myfile.txt
4 echo "Sample text added" > myfile.txt
5 echo "this is end of bash script."
```



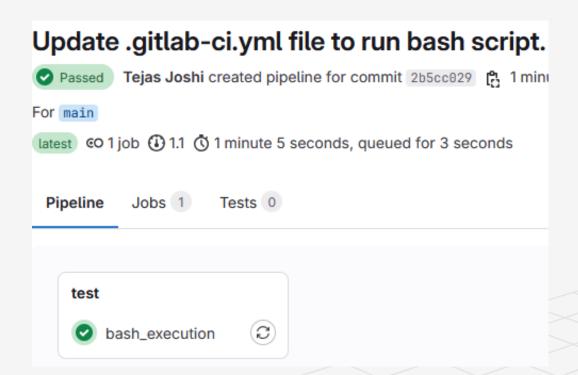
#### GitLab and CI – Running a bash script

- Now update the .yml file for executing the bash script as shown.
- Add commit message and then click on Commit Changes.
- Check the pipeline editor (as shown in previous slide).

```
Edit
      Visualize
                 Validate NEW
                                 Full configuration
                  Help
古 CI/CD Catalog
         # To run the bash script
         bash_execution:
              script:
                  - bash ./try.sh
```





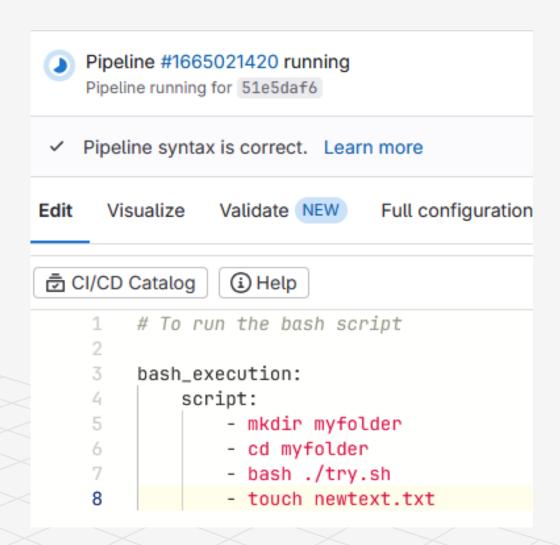


```
55087ff7d06e912ef79a ...
Preparing environment
Running on runner-jhcjxvh-project-66979527-con
4-1739253961-76c83eec...
Getting source from Git repository
Fetching changes with git depth set to 20...
Initialized empty Git repository in /builds/te
Created fresh repository.
Checking out 269b086c as detached HEAD (ref is
Skipping Git submodules setup
$ git remote set-url origin "${CI_REPOSITORY_U
Executing "step_script" stage of the job scrip
Using docker image sha256:9b7e6c941969a4c237e2
b0cc for ruby:3.1 with digest ruby@sha256:da5c
55087ff7d06e912ef79a ...
$ bash ./try.sh
this is try bash script.
this is end of bash script.
Cleaning up project directory and file based v
Job succeeded
```



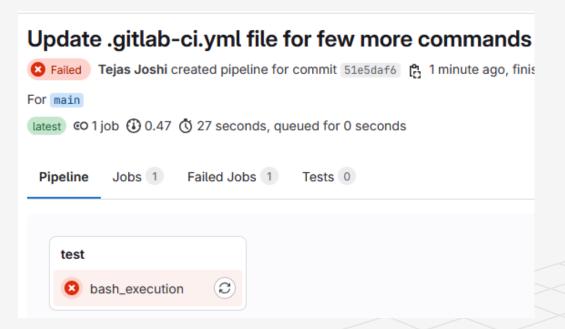
#### GitLab and CI – Running a bash script

- Now update the .yml file for few more commands as shown.
- Add commit message and then click on Commit Changes.
- Check the pipeline editor (as shown in previous slide).









The .sh file is not in the myfolder and hence giving the error

```
Preparing environment
Running on runner-jlguopmm-project-66979527-concur
64-1739254237-e3239c8f...
Getting source from Git repository
Fetching changes with git depth set to 20...
Initialized empty Git repository in /builds/testgr'
Created fresh repository.
Checking out 51e5daf6 as detached HEAD (ref is main
Skipping Git submodules setup
$ git remote set-url origin "${CI_REPOSITORY_URL}"
Executing "step_script" stage of the job script
Using docker image sha256:9b7e6c941969a4c237e2279c
b0cc for ruby:3.1 with digest ruby@sha256:da5c30fb2
55087ff7d06e912ef79a ...
$ mkdir myfolder
$ cd myfolder
$ bash ./try.sh
bash: ./try.sh: No such file or directory
Cleaning up project directory and file based varial
ERROR: Job failed: exit code 1
```



#### GitLab and CI – Running a artifacts and path

- Now update the .yml file for "artifacts & path" as shown. This will preserve the files and folders created by script.
- Add commit message and then click on Commit Changes.
- Check the pipeline editor (as shown in previous slide).

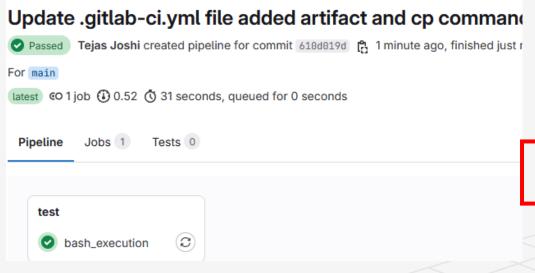
```
Pipeline syntax is correct. Learn more
Edit
      Visualize
                Validate NEW
                                Full configuration
Help
         # To run the bash script
         bash_execution:
             script:
                 - mkdir myfolder
                 - cp ./try.sh myfolder/
                 - cd myfolder
                 - bash ./try.sh

    touch newtext.txt

             artifacts:
                 paths:
                     - "./myfolder"
                 when: on_success
    14
                 access: all
    15
                 expire_in: 30 days
```



#### GitLab and CI – Running a artifacts and path

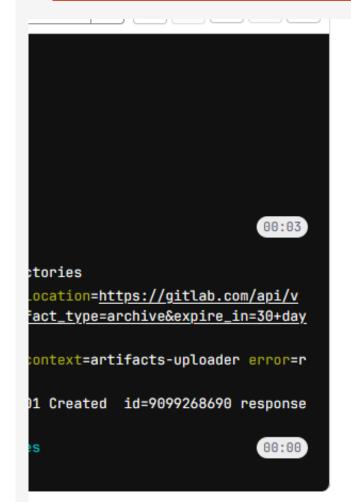


hence giving the error

```
$ mkdir myfolder
                                  $ cp ./try.sh myfolder/
                                  $ cd myfolder
                                  $ bash ./try.sh
                                  this is try bash script.
                                  this is end of bash script.
                                  $ touch newtext.txt
                                  Uploading artifacts for successful job
                                  Uploading artifacts...
                                  ./myfolder: found 4 matching artifact files and directories
                                  WARNING: Upload request redirected
                                                                                       location=https
                                  4/jobs/9099268690/artifacts?artifact_format=zip&artifact_type=arch
                                  s new-ort=nttps://gittab.com
                                  WARNING: Retrying...
                                                                                       context=artifa
                                  equest redirected
                                  Uploading artifacts as "archive" to coordinator... 201 Created id
The .sh file is not in the myfolder a status=201 Created token=glcbt-66
                                  Cleaning up project directory and file based variables
                                  Job succeeded
```



#### GitLab and CI – Running a artifacts and path





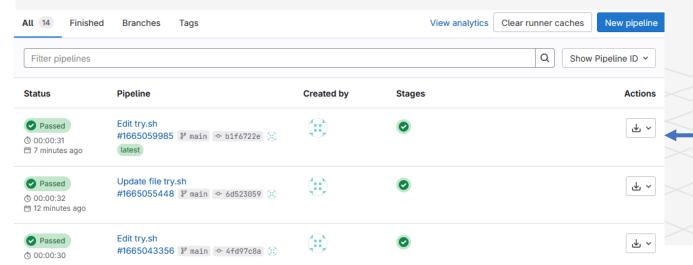
Check the right section of log for Job artifacts.

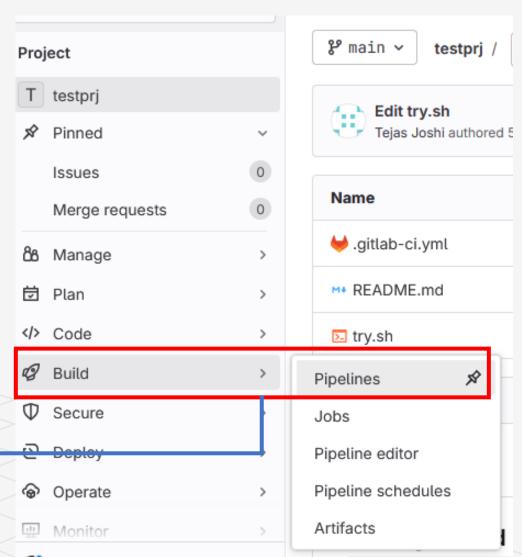
Click on Browse or Download to get the artifacts.



## GitLab and CI – Running pipeline manually

To run the pipeline manual, use the Build->Pipelines menu which displays all the pipelines previously created with their status.

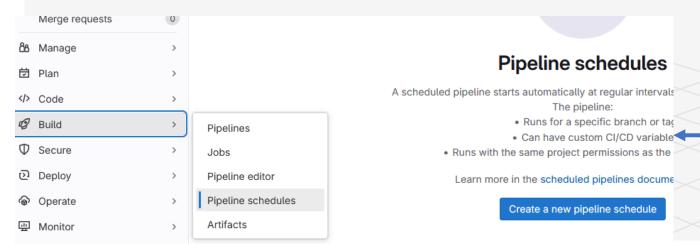


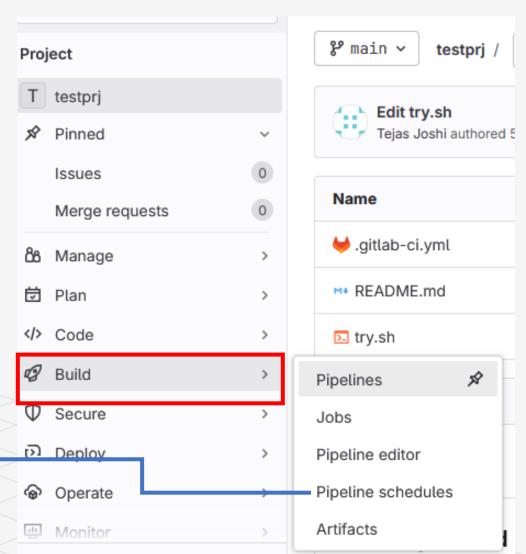




#### GitLab and CI – Scheduling of pipelines

To run the pipeline at a particular schedule, use the Build->Pipeline schedules menu and set the appropriate time.



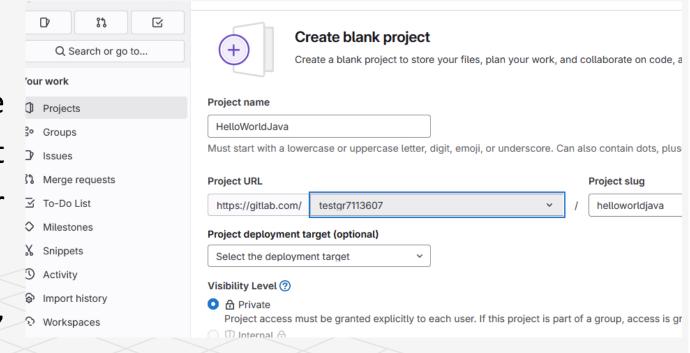




Click on

Project -> Create blank Project

- Assign project name "HelloWorldJava" and select "testgr" under Project URL for this project.
- Then, click on "Create Project" without changing any setting.





- Create a "HelloWorld.java" file and add java code in it.
- Create a configuration file –
   ".gitlab-ci.yml" for the project.
- Contents of the configurations file are on next slide.

```
New file

Proposition

Proposition

Proposition

Proposition

Proposition

Proposition

Proposition

HelloWorld.java

Class HelloWorld {
    public static void main(String a[]) {
        System.out.println("Hello World");
        }
    }

The static void main(String a[]) {
        System.out.println("Hello World");
    }

The static void main(String a[]) {
        System.out.println("Hello World");
    }
```



#### GitLab and CI – Scheduling of pipelines

```
main
         .gitlab-ci.yml
                                    Apply a template >
      stages:
        - build
        - test
      before_script:
      - apt-get update && apt-get install -y openjdk-17-jdk # Install Java
      build:
        stage: build
 10
        script:
 11
          - javac HelloWorld.java # Compile the Java program
 12
          - ls -l
 13
        artifacts:
 14
          paths:
 15
            - HelloWorld.class # Save the compiled file for the next job
 16
        only:
 17
          - main
 18
 19
      test:
 20
        stage: test
 21
        script:
 22
          - ls -l # Verify if the class file is present
 23
          - java HelloWorld # Run the program to check execution
 24
        only:
 25
```

iava

• Add another statement in the java program check the output.

```
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amo
sr/bin/jstatd (jstatd) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amo
/usr/bin/serialver (serialver) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amo
r/bin/jhsdb (jhsdb) in auto mode
Setting up openjdk-17-jre:amd64 (17.0.14+7-1~deb12u1) ...
Setting up openjdk-17-jdk:amd64 (17.0.14+7-1~deb12u1) ...
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amo
/usr/bin/jconsole (jconsole) in auto mode
$ ls -l
total 16
-rw-r--r-- 1 root root 470 Feb 9 18:17 HelloWorld.class
-rw-rw-rw- 1 root root 151 Feb 9 18:17 HelloWorld.java
-rw-rw-rw- 1 root root 6194 Feb 9 18:17 README.md
$ java HelloWorld
Hello World
Another line in Hello World
Cleaning up project directory and file based variables
Job succeeded
```



To manually execute any of the stage of .yml file, one can add "when" as shown here –

```
only:
16
         - main
18
19
    test:
20
      stage: test
      when: manual'
      script:
23
         - ls -l # Verify if the class file is present
24
         - java HelloWorld # Run the program to check execution
25
      only:
26
         - main
```

```
Update .gitlab-ci.yml file test stage co
Passed Tejas Joshi created pipeline for commit 78ceb72b
For main
latest 60 2 jobs 10 0.99 10 59 seconds, queued for 0 second
 Pipeline
           Jobs 2
                     Tests 0
                                      •
    build
                          test
     build
                           test
                                      )
```



Open Git Bash on local machine and run following commands –

```
admin@DESKTOP-QBTKOPB MINGW64 ~
$ cd d:
admin@DESKTOP-QBTKOPB MINGW64 /d
$ mkdir HelloworldPrj
admin@DESKTOP-QBTKOPB MINGW64 /d
$ cd HelloWorldPrj
admin@DESKTOP-QBTKOPB MINGW64 /d/HelloworldPrj
$ git clone https://gitlab.com/testgr7113607/helloworldjava.git
Cloning into 'helloworldjava'...
remote: Enumerating objects: 15, done.
remote: Counting objects: 100\% (15/15), done.
remote: Compressing objects: 100\% (14/14), done.
remote: Total 15 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100\% (15/15), 4.40 KiB | 562.00 KiB/s, done.
Resolving deltas: 100% (2/2), done.
```



Run following commands – admin@DESKTOP-QBTKOPB MINGW64 /d/HelloworldPrj \$ cd helloworldjava dmin@DESKTOP-QBTKOPB MINGW64 /d/HelloWorldPrj/helloworldjava (main) \$ vi HelloWorld.java admin@DESKTOP-QBTKOPB MINGW64 /d/HelloworldPrj/helloworldjava (main) \$ git add . admin@DESKTOP-QBTKOPB MINGW64 /d/HelloworldPrj/helloworldjava (main) \$ git add HelloWorld.java admin@DESKTOP-QBTKOPB MINGW64 /d/HelloworldPrj/helloworldjava (main)

git commit -m "Local Machine added a statement.."



Run following commands –

```
admin@DESKTOP-QBTKOPB MINGW64 /d/HelloworldPrj/helloworldjava (main)
$ git push origin main
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), 400 bytes | 400.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
To https://gitlab.com/testgr7113607/helloworldjava.git
    78ceb72..d4c3ec5 main -> main
```



