

# CSI3025 Application Development and Deployment Architecture LAB (L35+L36 slot)

Winter Semester 2023-24

## LAB FAT

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Github repo: <https://github.com/laasya-dev/ADDA-Lab-FAT.git>

Question:

Implement a CI/CD pipeline with the following real-world scenario:

**Scenario:** You're building a Python web application.

**Task:** Create a workflow that runs on push to the `main` branch, installs dependencies using `pip install`, and builds the application using a custom script (`build.sh`).

## Steps:

Step 1: Create a Simple Python Web Application and name it 'app.py'

```
app.py
1  from flask import Flask
2
3  app = Flask(__name__)
4
5  @app.route('/')
6  def hello():
7      return 'Hello, World! Laasya'
8
9  if __name__ == '__main__':
10     app.run(debug=True)
11
```

Step 2: Set up GitHub Repository and Push Code

The screenshot shows a GitHub repository page for 'ADD-A-Lab-FAT' by user 'laasya-dev'. The repository is public and has 9 commits. The file list includes .github/workflows, README.md, app.py, and build.sh. The README file is selected and displays the following content:

**ADD-A-Lab-FAT**

Name: Laasya Ojaswini Bulusu

Reg no: 20MIC0065

**Question:**

Implement a CI/CD pipeline with the following real-world scenario: Scenario: You're building a Python web application. Task: Create a workflow that runs on push to the main branch, installs dependencies using pip install, and builds the application using a custom script (build.sh).

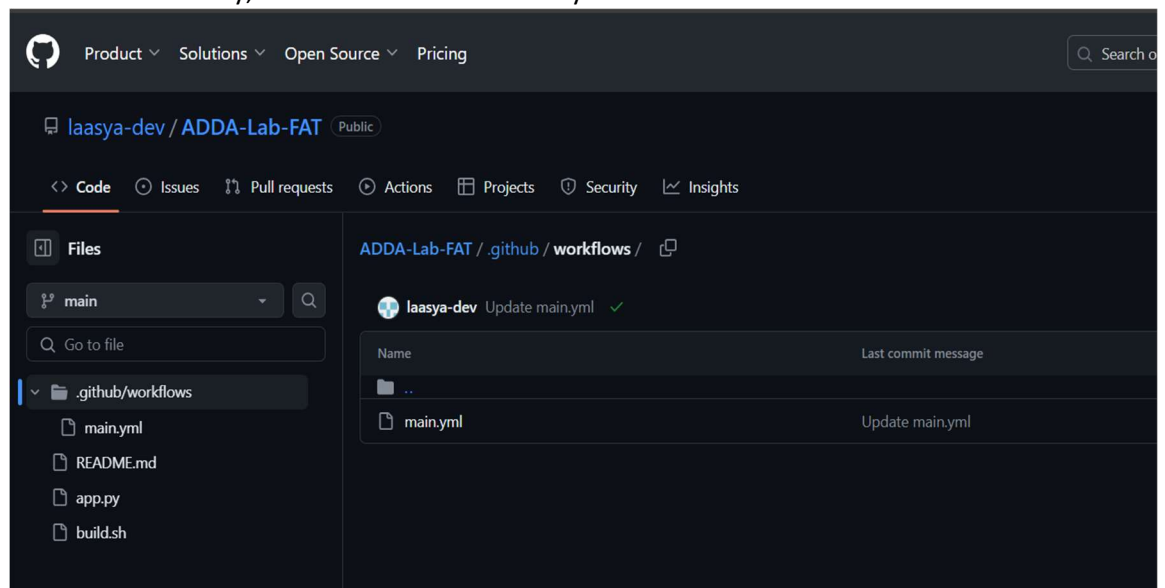
The right sidebar shows repository statistics: 0 stars, 1 watching, 0 forks. The 'Languages' section shows Python at 99.4% and Shell at 0.6%.

Step 3: Create a Custom Build Script and name it 'build.sh'

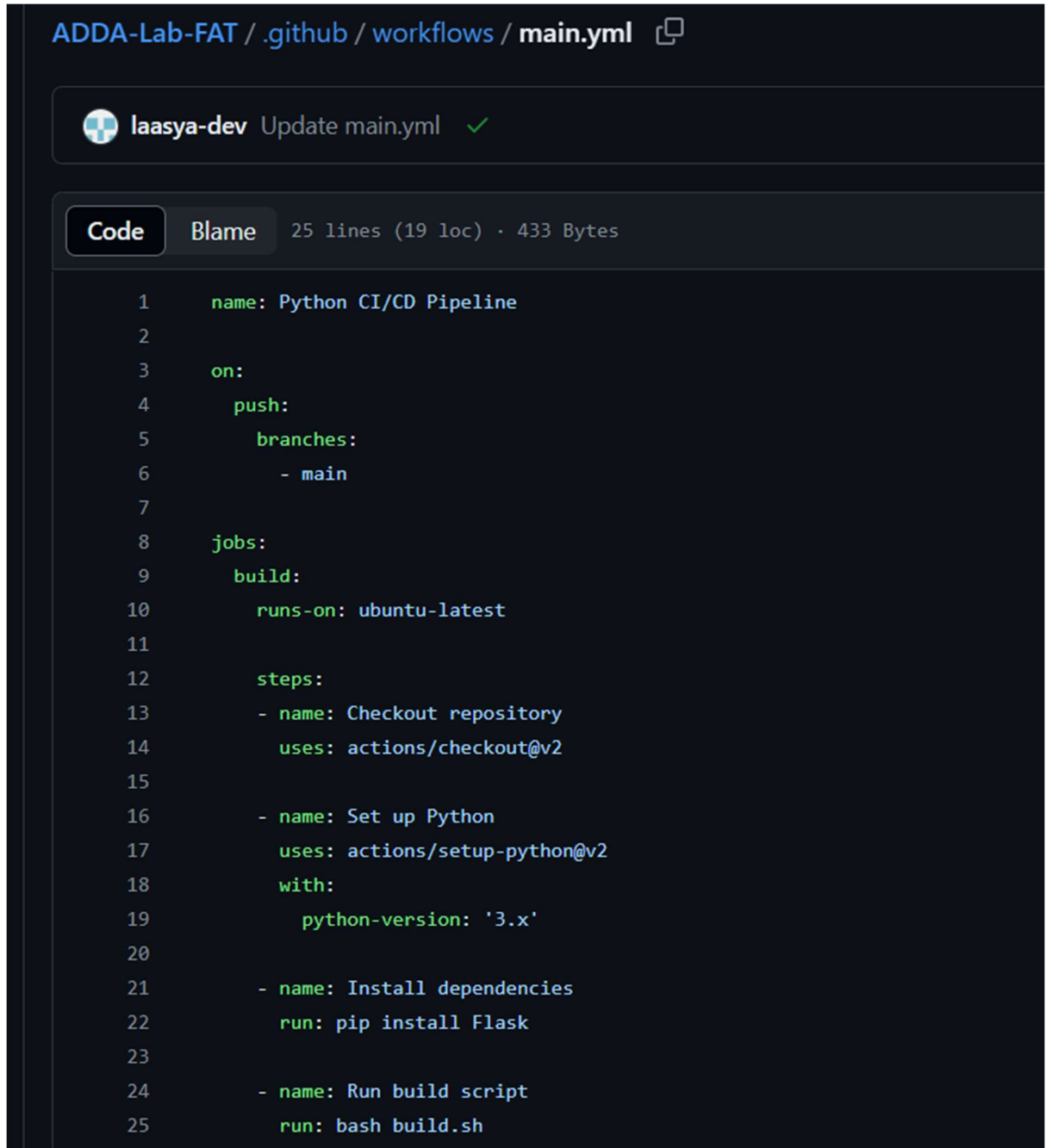
```
$ build.sh
1  #!/bin/bash
2
3  echo "Build script executed successfully"
4  chmod +x build.sh
```

Step 4: Set up CI/CD Pipeline with GitHub Actions

1. Create Workflow File: In the repository, create a directory named '.github/workflows'. Inside this directory, create a file named 'main.yml'.



2. Define the workflow in 'main.yml' as follows:



The screenshot shows the GitHub interface for the file `main.yml` in the repository `ADDA-Lab-FAT`. The file is located at `.github/workflows/main.yml`. A commit by `laasya-dev` is shown with the message `Update main.yml` and a green checkmark. Below the commit information, there are tabs for `Code` and `Blame`. The `Code` tab is selected, showing the content of the file. The file is a YAML workflow named `Python CI/CD Pipeline`. It triggers on a `push` to the `main` branch. The workflow consists of a single job named `build` that runs on `ubuntu-latest`. The job has three steps: 1. `Checkout repository` using `actions/checkout@v2`. 2. `Set up Python` using `actions/setup-python@v2` with `python-version: '3.x'`. 3. `Install dependencies` using `run: pip install Flask`. 4. `Run build script` using `run: bash build.sh`.

```
1  name: Python CI/CD Pipeline
2
3  on:
4    push:
5      branches:
6        - main
7
8  jobs:
9    build:
10     runs-on: ubuntu-latest
11
12     steps:
13       - name: Checkout repository
14         uses: actions/checkout@v2
15
16       - name: Set up Python
17         uses: actions/setup-python@v2
18         with:
19           python-version: '3.x'
20
21       - name: Install dependencies
22         run: pip install Flask
23
24       - name: Run build script
25         run: bash build.sh
```

#### Step 5: Test the Workflow

1. Push Changes: Make any changes to your code and push them to the main branch on GitHub.
2. Check Workflow Status: Go to the "Actions" tab in your GitHub repository to view the status of the workflow.

laasya-dev / ADDA-Lab-FATPublic

<> Code

Issues

Pull requests

Actions

Projects

Security

Insights

Actions

All workflows

Workflows

Python CI/CD Pipeline

Management

Caches

All workflows

Showing runs from all workflows

4 workflow runs

Update main.yml

Python CI/CD Pipeline #4: Commit 4c8096b pushed by laasya-dev

main

Update main.yml

Python CI/CD Pipeline #3: Commit ee057f9 pushed by laasya-dev

main

Update app.py

Python CI/CD Pipeline #2: Commit 5354144 pushed by laasya-dev

main

Added build.sh and pipeline

Python CI/CD Pipeline #1: Commit 536a4ff pushed by laasya-dev

main

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<> Code

Issues

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Python CI/CD Pipeline

Update main.yml #4

Summary

Jobs

build

Run details

Usage

Workflow file

Triggered via push 39 minutes ago

Status

Total duration

Artifacts

laasya-dev pushed -> 4c8096bmain

Success

19s

—

main.yml

on: push

build10s

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Type to search

<> Code

Issues

Pull requests

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Settings

Python CI/CD Pipeline

Update main.yml #4

Re-run all jobs

Summary

Jobs

build

Run details

Usage

Workflow file

build

succeeded 39 minutes ago in 10s

Search logs

Set up job1s

Checkout repository0s

Set up Python0s

Install dependencies5s

Run build script0s

Post Set up Python0s

Post Checkout repository0s

Complete job0s