



Lab 06: CI/CD Workflows

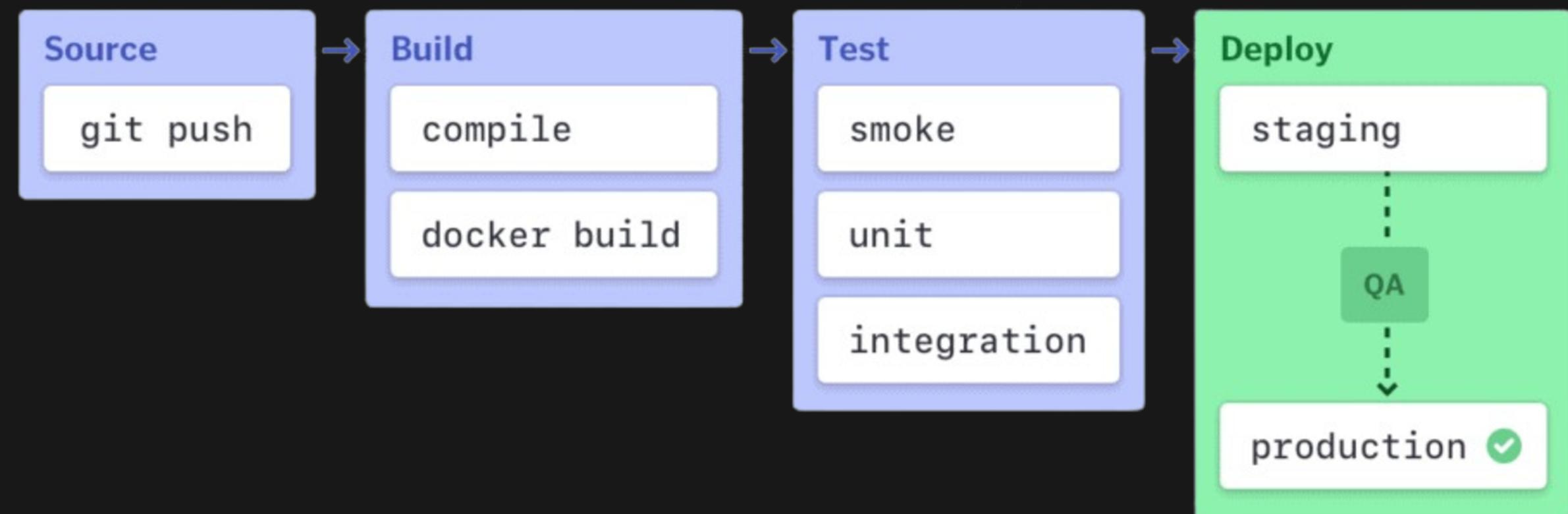
The MLOps Course

29 September 2025

Table of Contents

- 01 Introduction
- 02 CI/CD
- 03 Github Actions
- 04 Conclusion

Software release



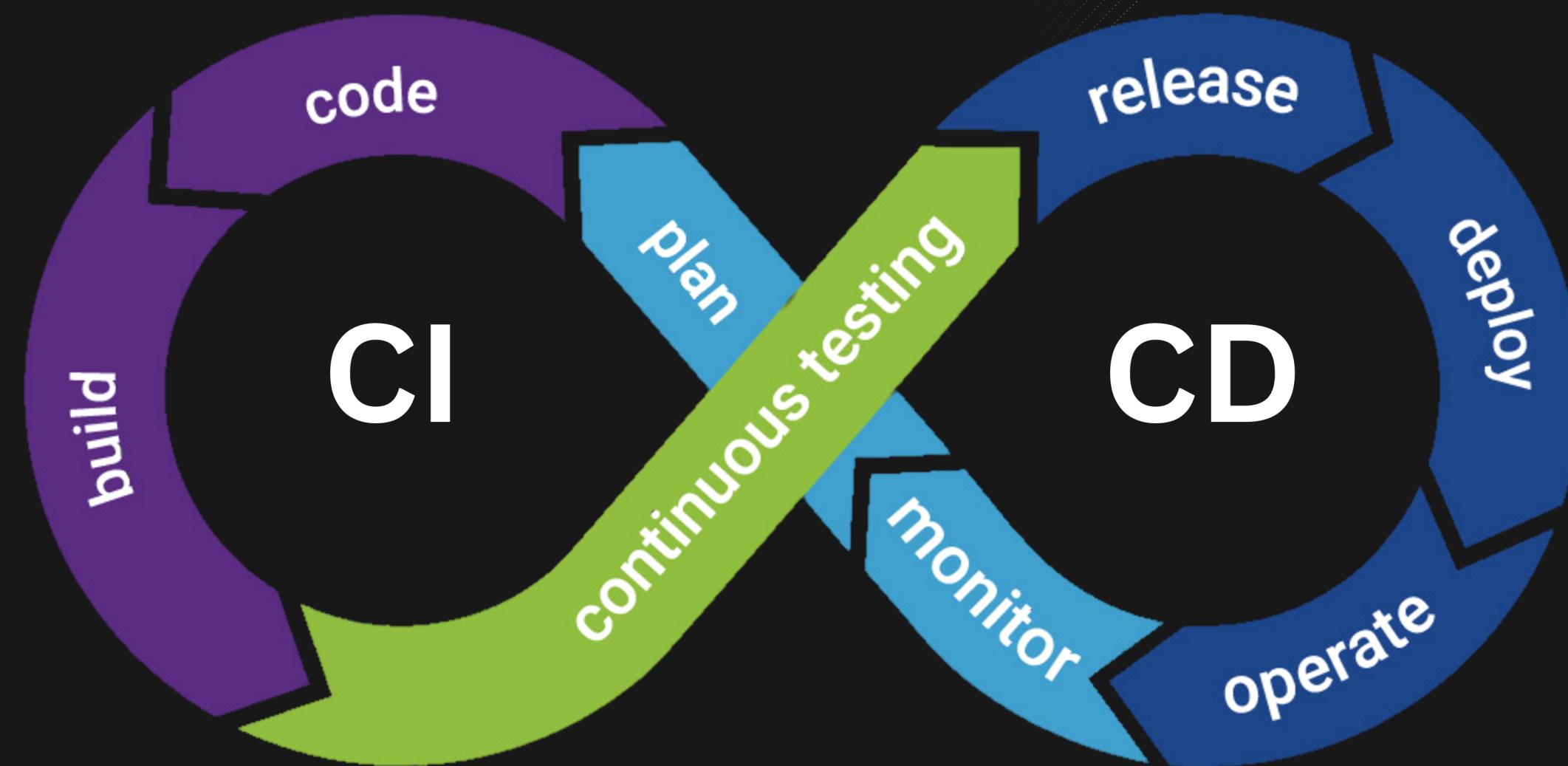
Introduction



Spend 10
minutes
doing the
task manually

Spend 10
hours
writing code
to automate it

Automated process



Benefits

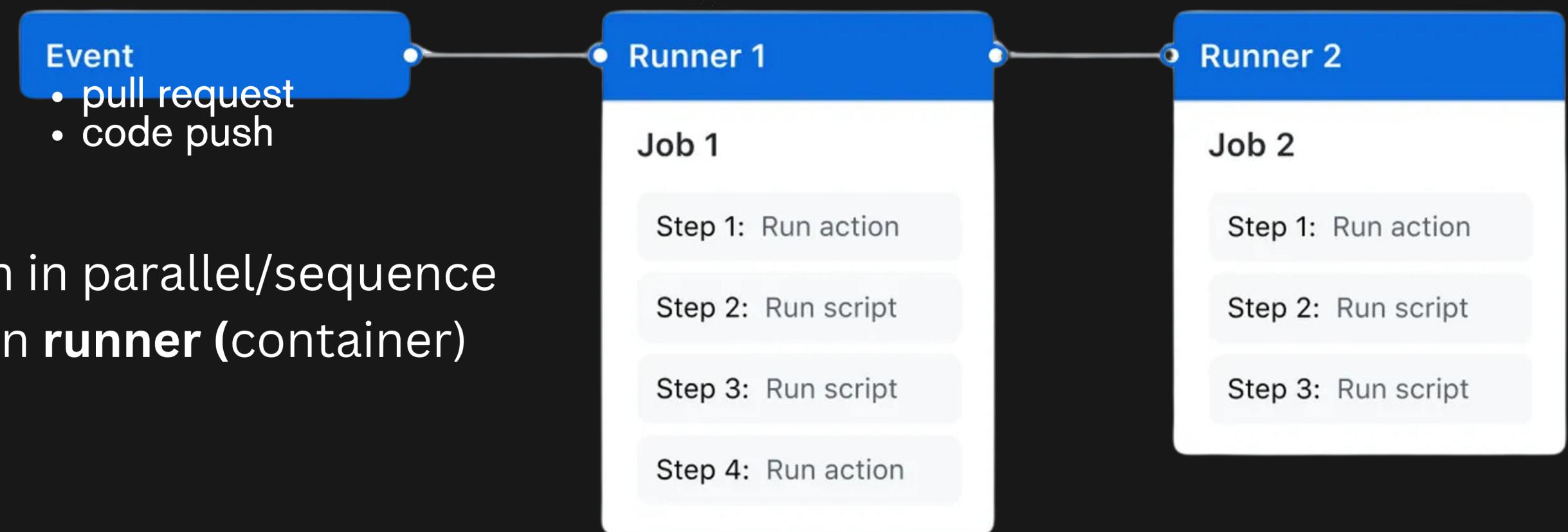
- finding bugs earlier
- faster delivery
- less manual effort
- observability -- logs generation

What is it?

- event driven
- task automation
- CI/CD workflows

Workflow

- consists of **jobs** that run in parallel/sequence
- ∀ job runs inside its own **runner** (container)
- ∀ job has 1+ **steps**
- step = **action | script**



Workflow

- YAML file
- defined in **.github/workflows**

```
1 name: environments workflow
2
3 - on:
4   - push
5
6 - jobs:
7   - windows-job:
8     runs-on: windows-latest
9     steps:
10    - name: using powershell
11      shell: pwsh
12      run: Get-Location
13
14   - macos-job:
15     runs-on: macos-latest
16     steps:
17    - name: running in mac
18      shell: bash
19      run: echo Hello world
20
21   - linux-job:
22     runs-on: ubuntu-latest
23     steps:
24    - name: running in ubunutu
25      shell: bash
26      run: echo Hello world
```

Workflow

- YAML file
- defined in **.github/workflows**

run
commands

```
1 name: environments workflow
2
3 - on:
4   - push } event
5
6 - jobs:
7   - windows-job:
8     runs-on: windows-latest
9     steps:
10    - name: using powershell
11      shell: pwsh
12      run: Get-Location
13
14   - macos-job:
15     runs-on: macos-latest
16     steps:
17    - name: running in mac
18      shell: bash
19      run: echo Hello world
20
21   - linux-job:
22     runs-on: ubuntu-latest
23     steps:
24    - name: running in ubunutu
25      shell: bash
26      run: echo Hello world
```

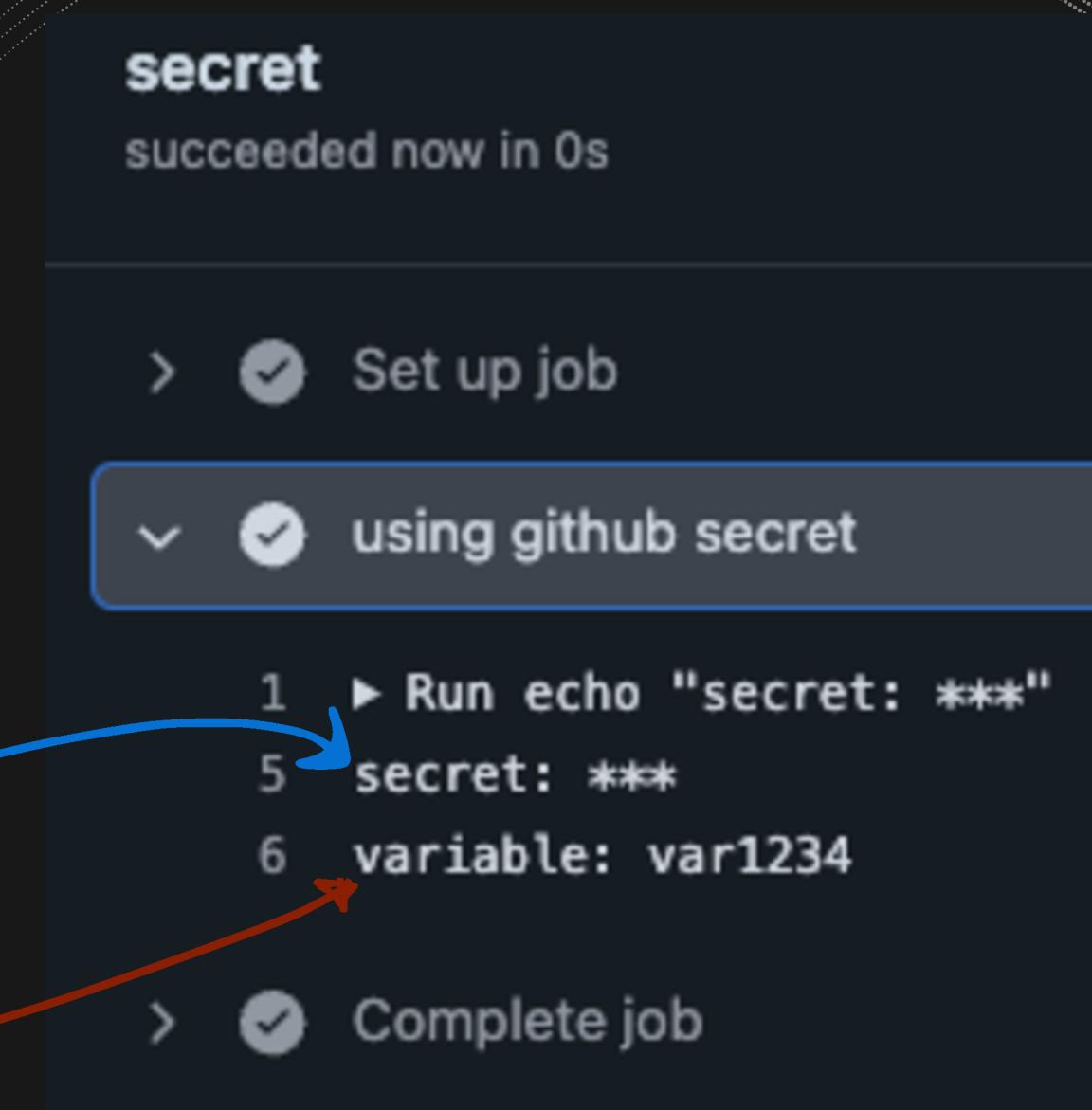
Workflow

- jobs run in parallel by default

```
1 name: job-dependency
2
3 - on:
4   - push
5
6 - jobs:
7   - checkout-job:
8     runs-on: ubuntu-latest
9     steps:
10    - name: Simulate Checkout
11      run: echo checking out
12
13   - install-packages-job:
14     runs-on: ubuntu-latest
15     needs:
16       - checkout-job
17     steps:
18    - name: Simulate install packages
19      run: echo installing packages
20
21   - run-test-job:
22     runs-on: ubuntu-latest
23     needs:
24       - install-packages-job
25     steps:
26    - name: Simulate test
27      run: echo running test
```

Secrets

```
1 name: secrets
2
3 on:
4   - push
5
6 jobs:
7   secret:
8     runs-on: ubuntu-latest
9   steps:
10    - name: using github secret
11      run:
12        echo "secret: ${{secrets.SECRET}}"
13        echo "variable: ${{vars.VARIABLE}}"
```



Key Takeaways



CI/CD

GitHub Actions