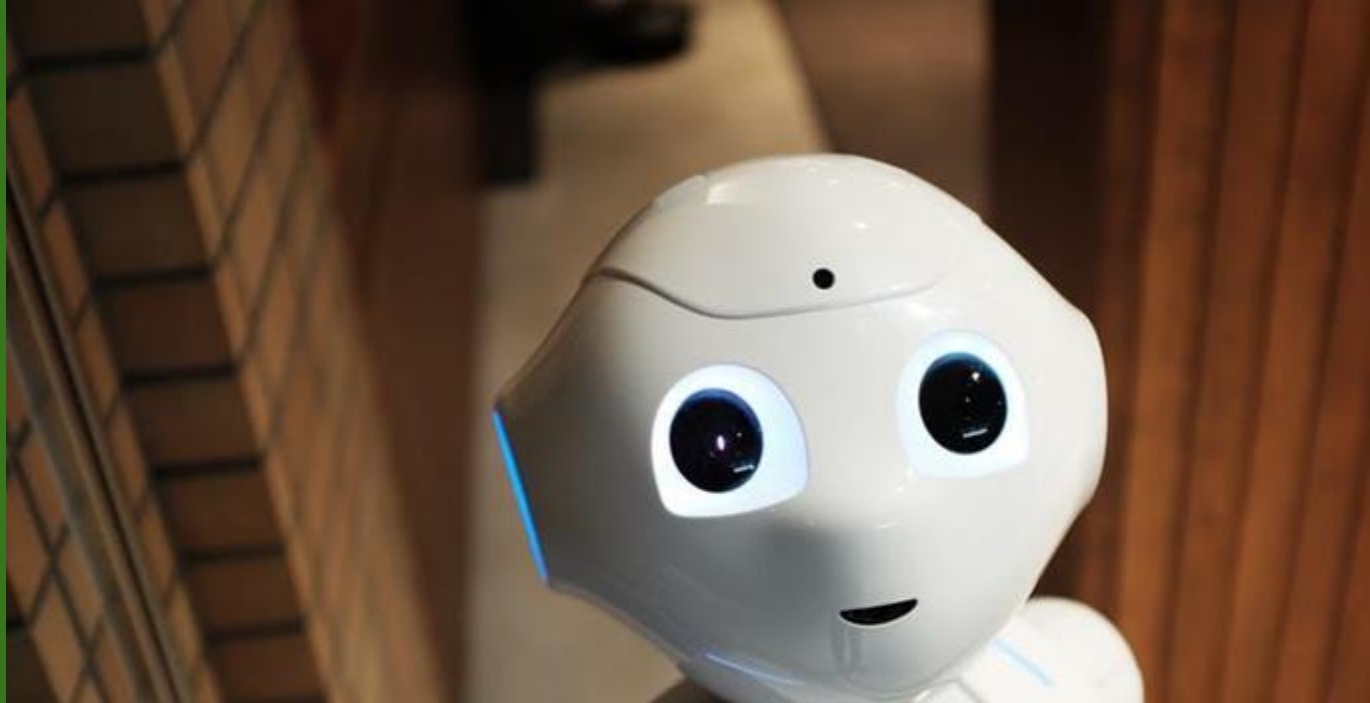




Introduction to automation

Philippe COLLET, Mathias COUSTÉ
05.03.2020

1



What is automation?

A little history

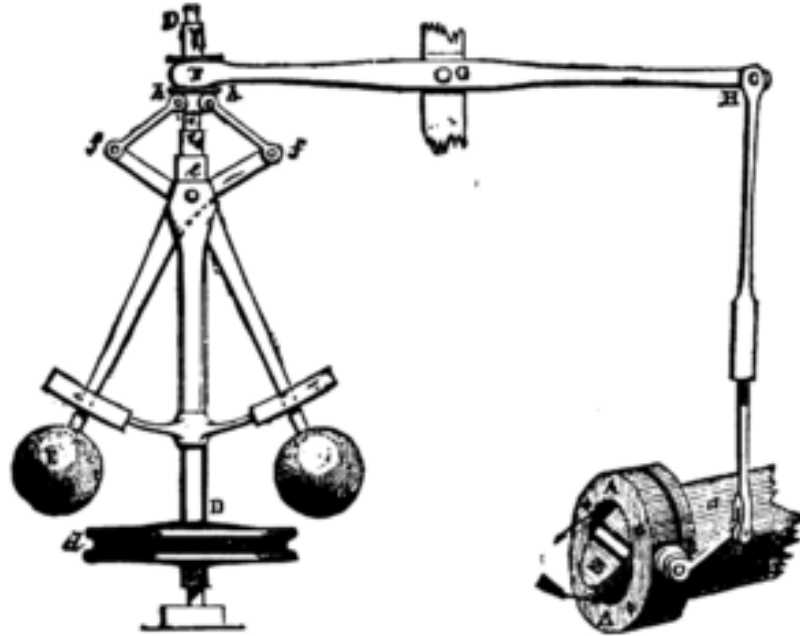


FIG. 4.—Governor and Throttle-Valve.

James Watt - 1788

What can we automate?

How to know if something should be automated?

- Is it done by a human?
- Is it expensive?
- Is it recurrent?



What about computer sciences?



- If something is hard to do, do it often.
- Our job is to automate things for others but we sometimes forget to do it for ourselves.
- With good automation a developer will spend more time delivering value.

2



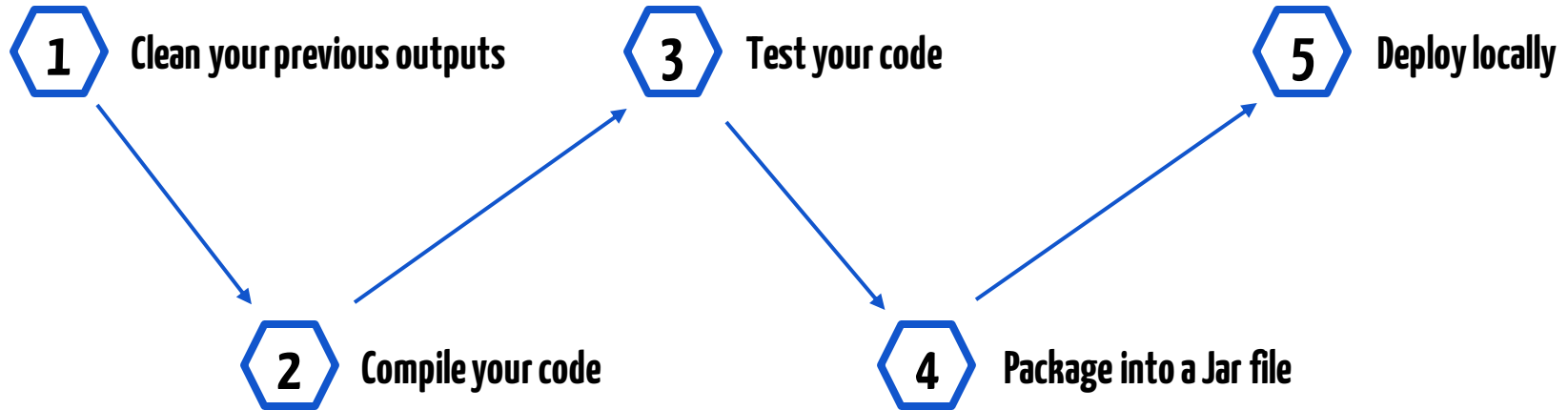
Automation you already know

Coding = Automating

```
private static void setupFolder(AppConfig config, TeamPool pool) {  
    // Create pool folder  
    File poolFolder = FileUtils.getFile(config.getWorkspaceFolder(), POOL_FOLDER_NAME_PREFIX + pool.getId());  
    if (!poolFolder.exists()) {  
        poolFolder.mkdir();  
    }  
  
    pool.setPoolFolder(poolFolder);  
  
    // Create teams config file  
    File teamsConfig = FileUtils.getFile(poolFolder, POOL_TEAMCONFIG_FILENAME);  
    try {  
        Files.writeString(Paths.get(teamsConfig.toURI()), pool.toConfigFile(), StandardOpenOption.CREATE,  
            StandardOpenOption.APPEND);  
    } catch (IOException e) {  
        e.printStackTrace();  
    }  
    pool.setTeamsConfigFile(teamsConfig);  
}
```

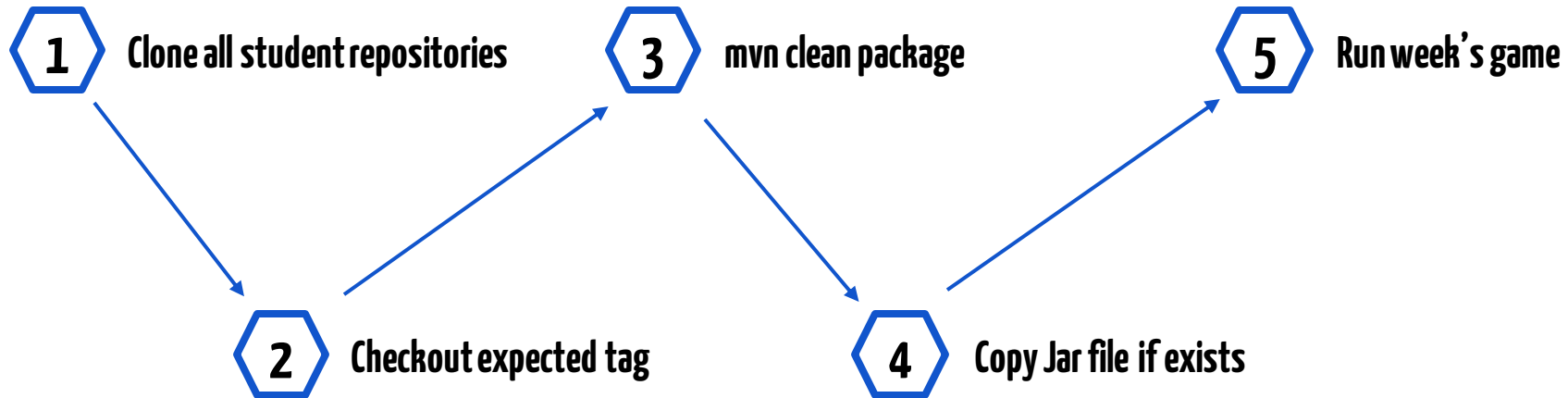
Maven

```
user ~ $ > mvn clean install
```



QGL weekly retrieve script

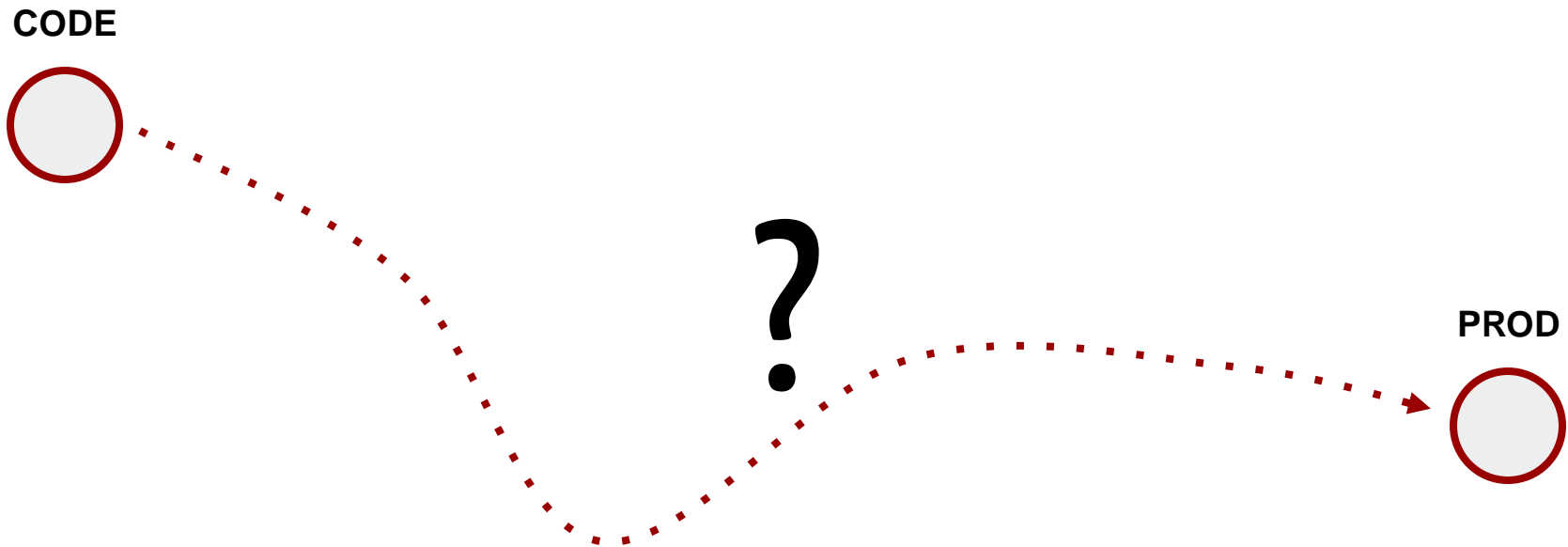
```
user ~ $ > ./retrieve.SH WEEK2
```



3

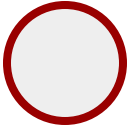
From code to prod !

Build automation



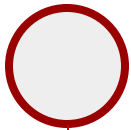
Build automation

CODE

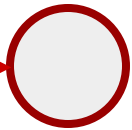


Build automation

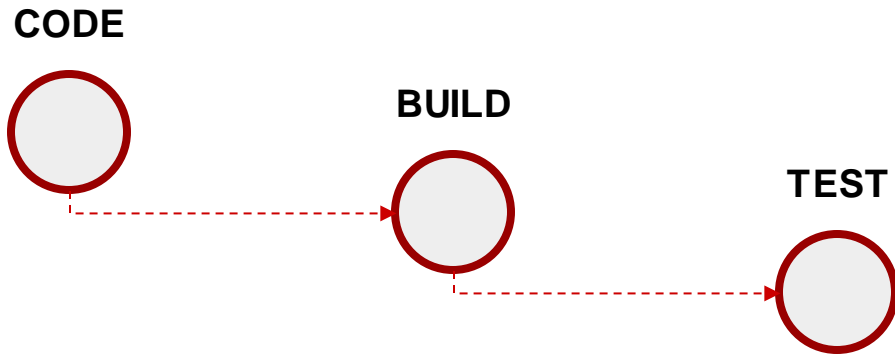
CODE



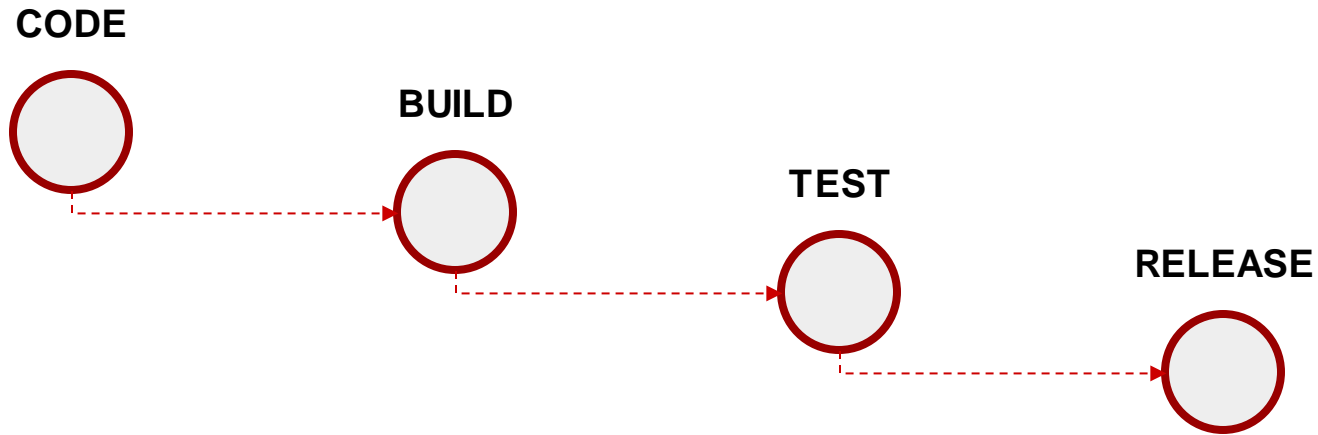
BUILD



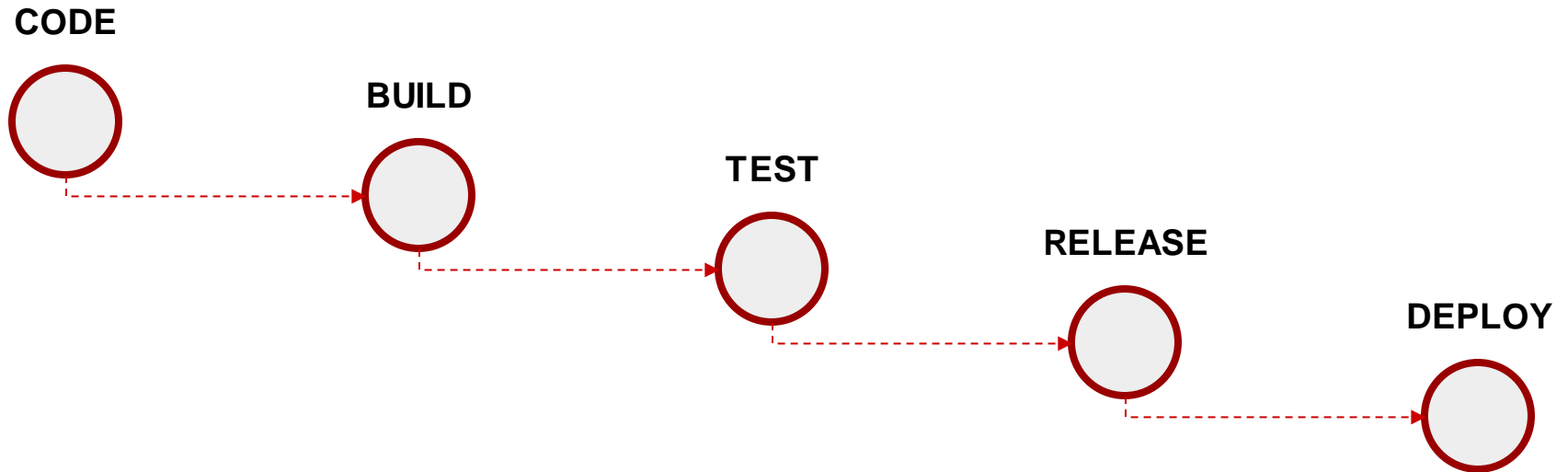
Build automation



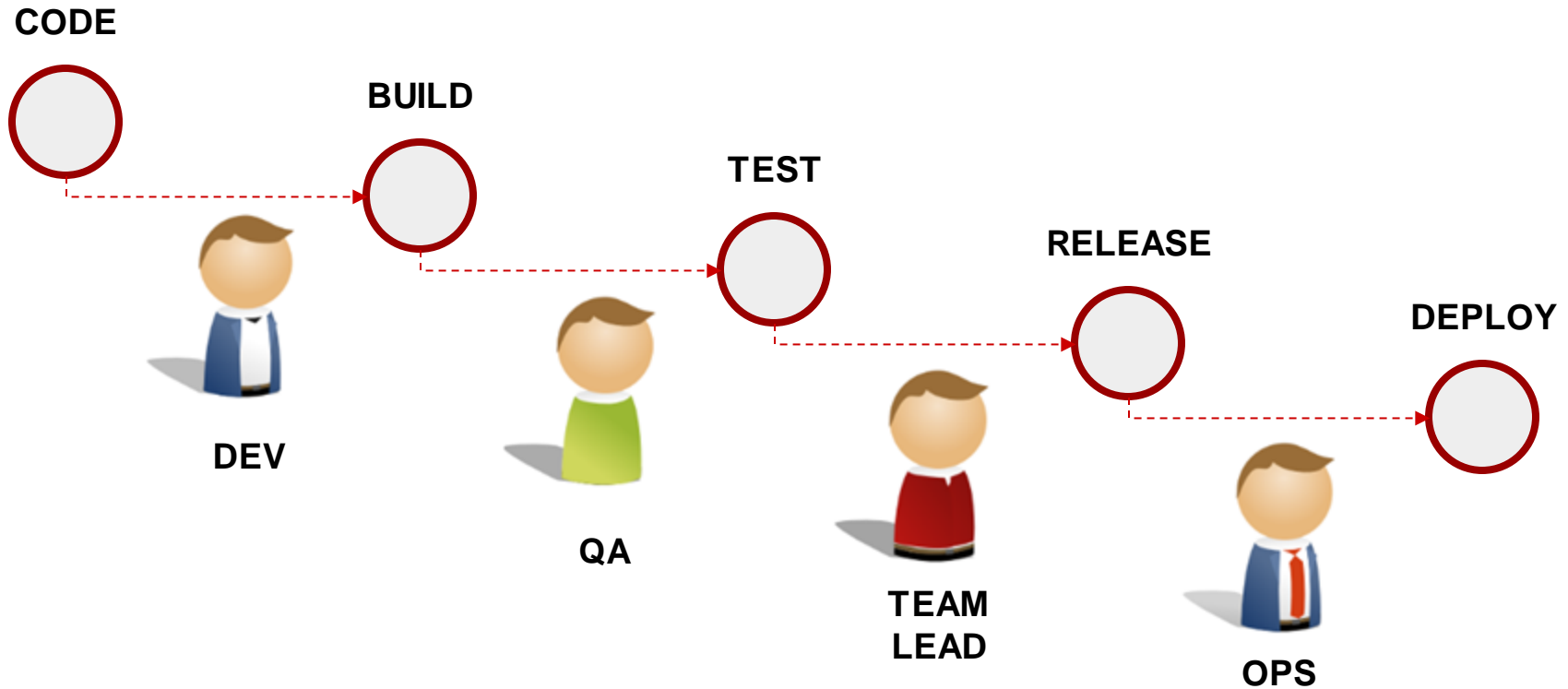
Build automation



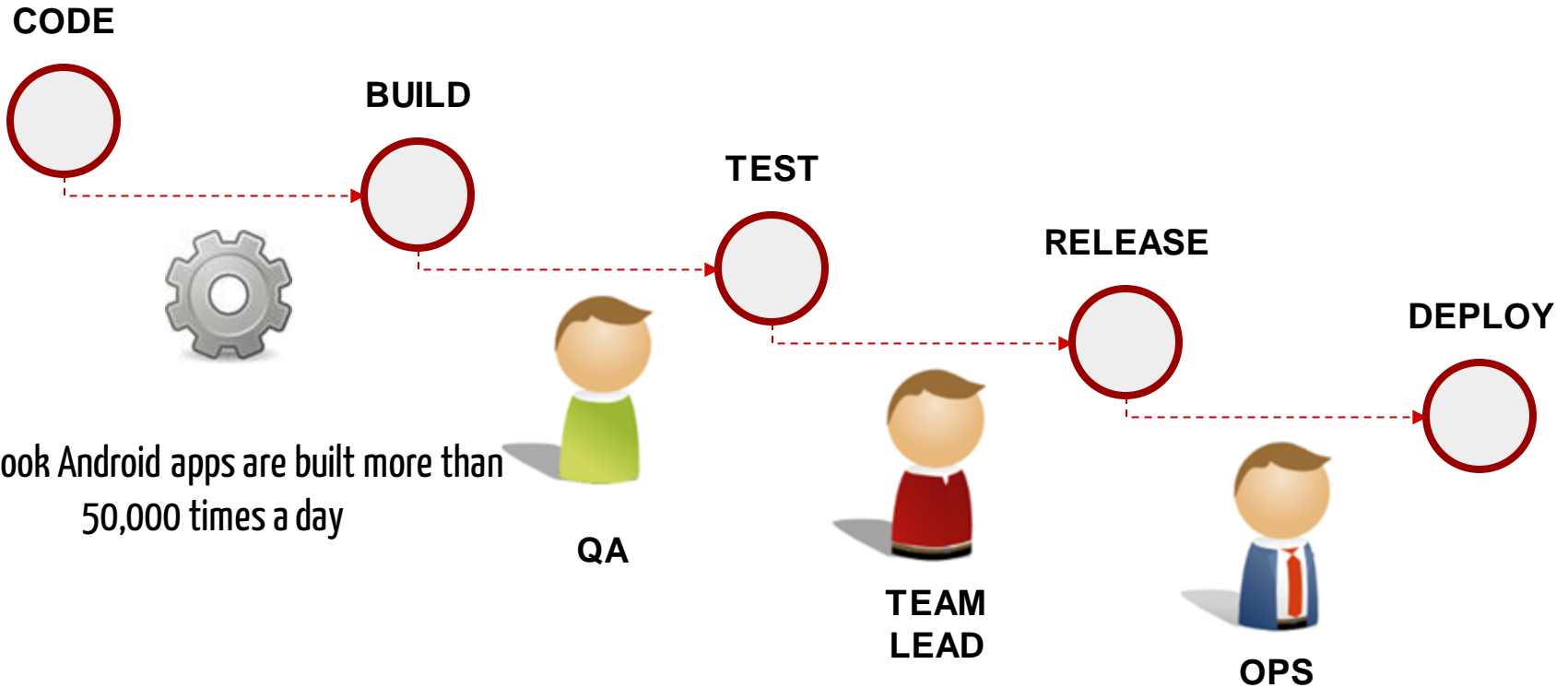
Build automation



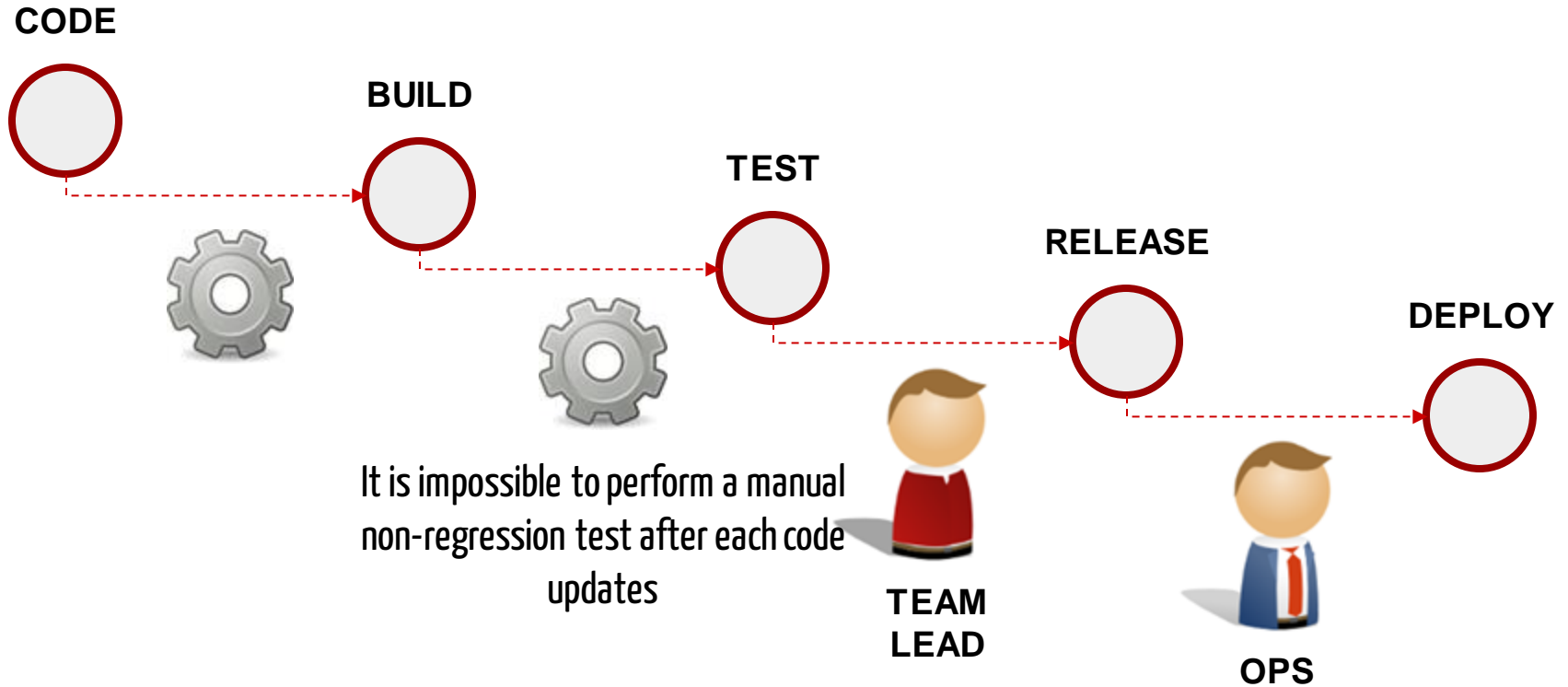
Build automation



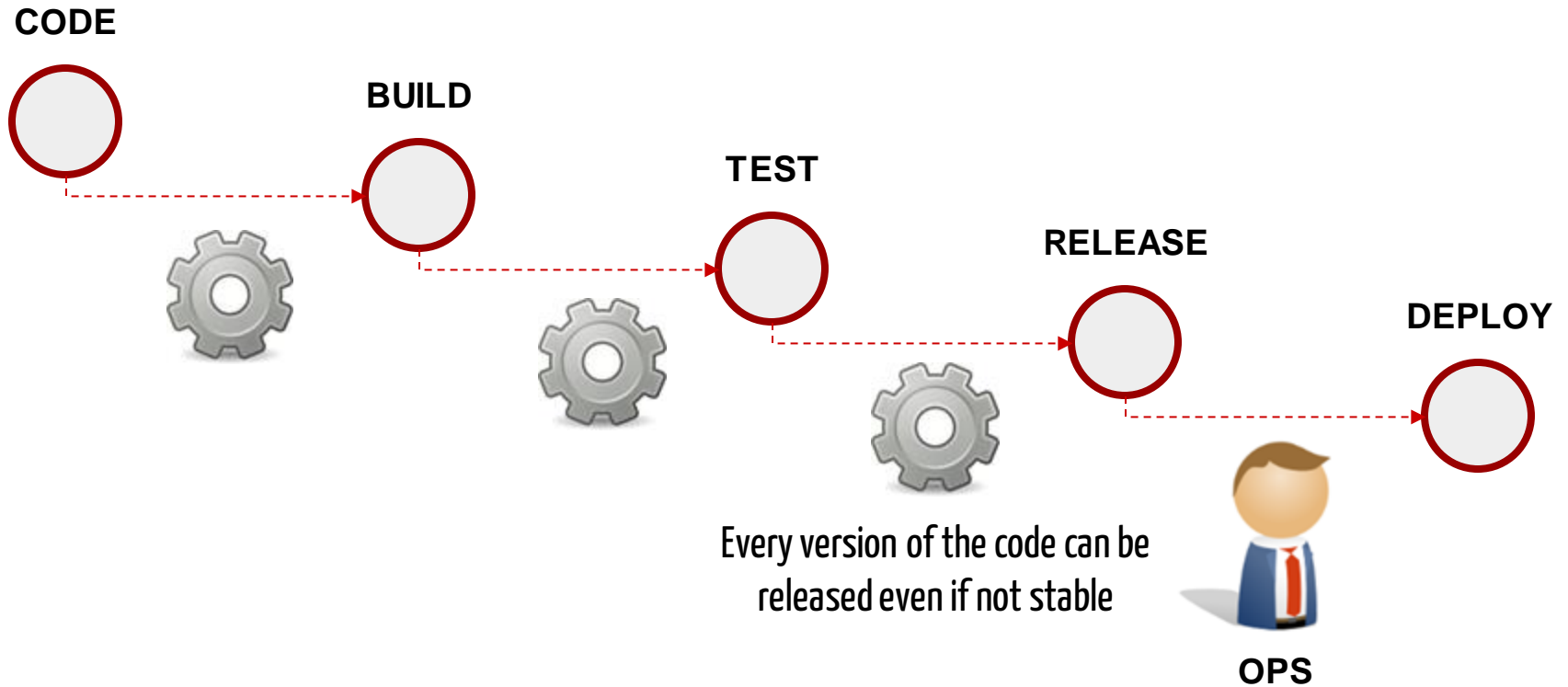
Build automation



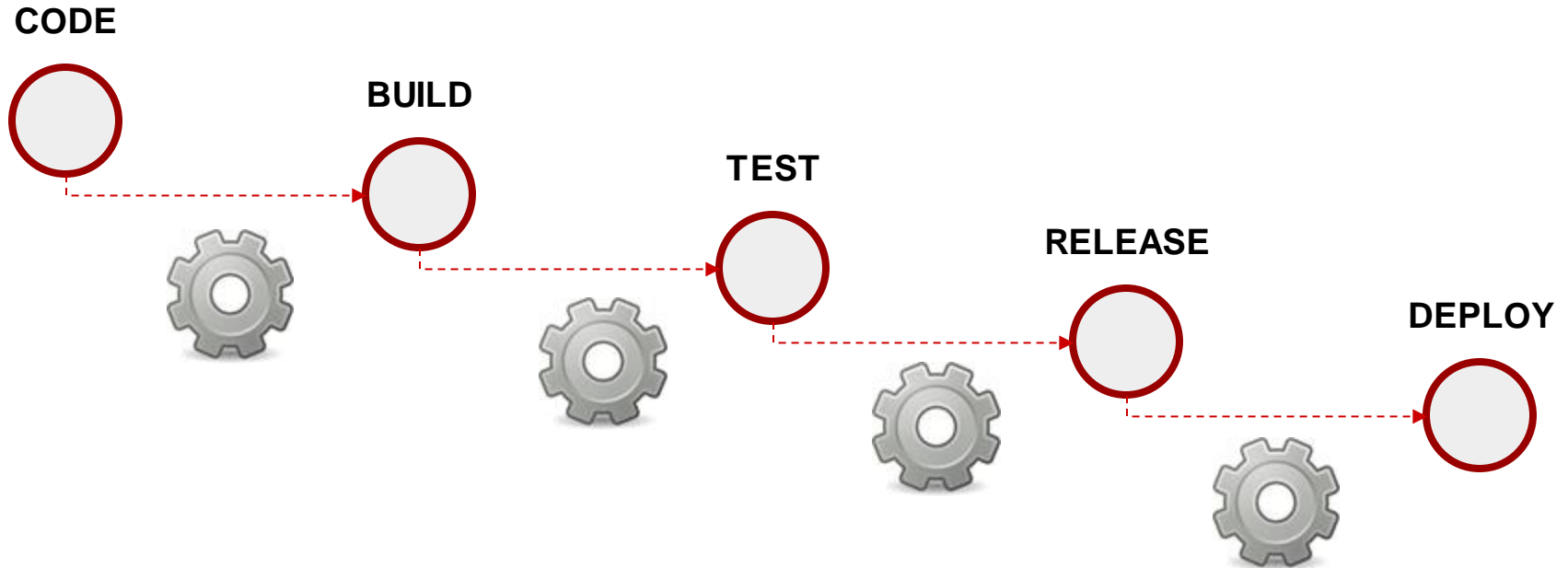
Build automation



Build automation

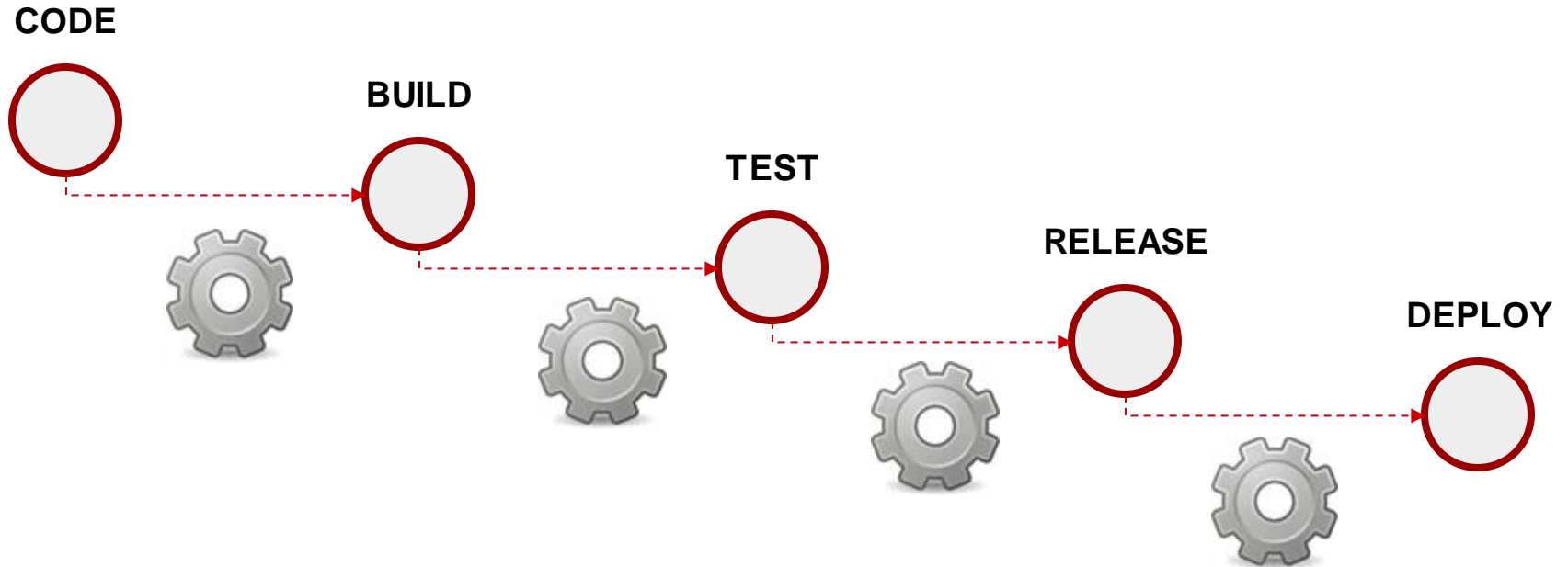


Build automation



Facebook deploy in production multiple times per day
(and you never notice it)

Build automation



<https://engineering.fb.com/web/rapid-release-at-massive-scale/>

Be DevOps



Q&A



Automating your project


Philippe COLLET, Mathias COUSTÉ
11.03.2020

1



Existing tools

Jenkins


 **Jenkins**


2


rechercher


Mathias Cousté | se déconnecter


Rafraîchissement automatique


 Nouveau Item


 Utilisateurs


 Historique des constructions


 Relations entre les builds


 Vérifier les empreintes numériques

 Administrer Jenkins








 Mes vues

 Identifiants




 New View

 Ajouter une description

Tous

S	M	Nom du projet	Dernier succès	Dernier échec	Dernière durée
		Escape Coding Game	s. o.	s. o.	ND
		leaf	s. o.	s. o.	ND
		MyKitchen	21 j - #4	s. o.	7 mn 28 s 

Icône: [S](#) [M](#) [L](#)

Légende  [RSS pour tout](#)  [RSS de tous les échecs](#)  [RSS juste pour les dernières compilations](#)

File d'attente des constructions (1)

[leaf » ngleaf](#)

État du lanceur de compilations

1 [leaf » leaf](#) [#20](#)


2 [MyKitchen](#) [#5](#)




Jenkins

Travis CI

Travis CI


[Dashboard](#)
[Changelog](#)
[Documentation](#)
[Help](#)



Search all repositories

My Repositories

Running (0/0)

+

🔒

pns-si3-qgl / pns-si3-qgl-regatta-1920-mugiwara-crew

build unknown

Current

Branches

Build History

Pull Requests

More options

✓ pns-si3-qgl/pns-si3-qgl-reg # 16

⌚ Duration: 53 sec

📅 Finished: 3 hours ago

○ PNS-PS5-1819/baseline

⌚ Duration: -

○ mathiascouste/qgl-templat

⌚ Duration: -

○ pns-si3-qgl/pns-si3-qgl-reg

⌚ Duration: -

○ pns-si3-qgl/pns-si3-qgl-reg

⌚ Duration: -

○ pns-si3-qgl/pns-si3-qgl-reg

⌚ Duration: -

✓ feature/create-regatta-manager #12 Begin to create managers structure and add

↔ #16 passed

🔄 Restart build

🐛 Debug build

↔ Commit 55a3c4a

↔ Compare 55a3c4a60008

🔗 Branch feature/create-regatta-manager

👤 pauldevelopmentfr

🕒 Ran for 53 sec

📅 3 hours ago

🔧 </> JDK: openjdk11 Java

🔧 AMD64

Job log

View config

1 Worker information

6

7 Build system information

105

106

worker_info

system_info

docker_info

0.87s


0.81s

2.37s



Travis CI

Github Actions

 Search or jump to... / [Pull requests](#) [Issues](#) [Marketplace](#) [Explore](#)

[mathiascouste / qglwebrunner](#) Private Unwatch 1 Star 0 Fork 0

[Code](#) [Issues](#) [Pull requests](#) [Actions](#) [Projects](#) [Security](#) [Insights](#) [Settings](#)

Workflows

[New workflow](#)[All workflows](#)[Java CI with Maven](#)

Tell us how to make GitHub Actions work better for you with three quick questions.

[Give feedback](#)

All workflows

Showing runs from all workflows

34 workflow runs

Event ▾

Status ▾

Branch ▾

Actor ▾



Adding stats: day per day status

Java CI with Maven #34: Commit 749b8f3 pushed by mathiascouste

master

6 days ago

8m 10s



Update maven.yml

Java CI with Maven #33: Commit a3064af pushed by mathiascouste

master

7 days ago

10m 49s



Update maven.yml

Java CI with Maven #32: Commit 69e67bd pushed by mathiascouste

master

7 days ago

7m 10s



2



Github Actions' features

In the cloud

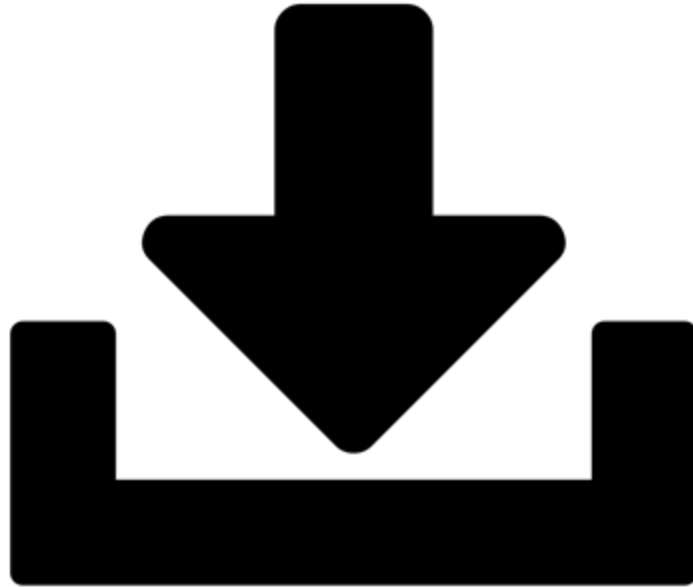


No installation ...

No integration ...

Configuration only!

Clone your Git repository



Run some specific tasks



PASS or FAIL

mathiascouste / qglwebrunner Private

Unwatch 1 Star 0 Fork 0

Code Issues Pull requests **Actions** Projects Security Insights

✓ Adding stats: day per day status

Java CI with Maven #34

Re-run jobs

Summary

Jobs

✓ build

Triggered via push 6 days ago
mathiascouste pushed 749b8f3 master
Status **Success** Total duration **8m 10s**
Billable time Artifacts
13m 6s -

maven.yml
on: push

✓ build

7m 54s



mathiascouste / qglwebrunner Private

Unwatch 1 Star 0 Fork 0

Code Issues Pull requests **Actions** Projects Security Insights

✗ Update maven.yml

Java CI with Maven #32

Re-run jobs

Summary

Jobs

✗ build

Triggered via push 7 days ago
mathiascouste pushed 69e67bd master
Status **Failure** Total duration **7m 10s**
Billable time Artifacts
6m 58s -

maven.yml
on: push

✗ build

6m 58s



Configuration

`.github/workflows/<filename>.yaml` (*at the root of your repository*)

```
name: PR Build

on: [push, pull_request ]

jobs:
  build:
    runs-on: ubuntu-latest
    steps:
      - name: Checkout project
        uses: actions/checkout@v2
      - name: Set up JDK 1.11
        uses: actions/setup-java@v1
        with
          java-version: 1.11
      - name: Maven build
        run: mvn clean package
```

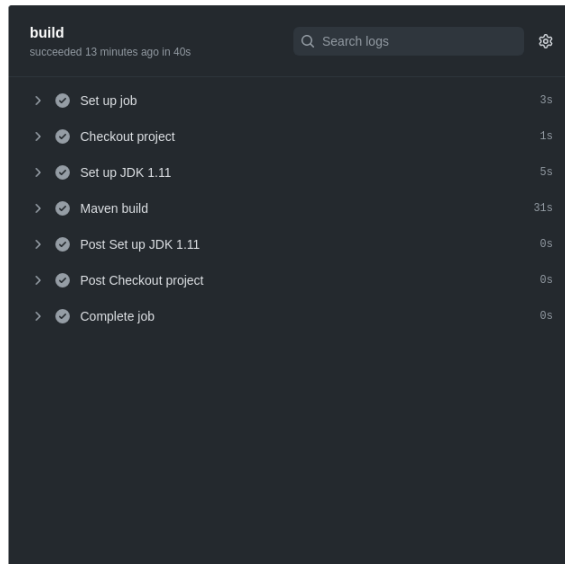
Configuration

`.github/workflows/<filename>.yaml` (*at the root of your repository*)

```
name: PR Build

on: [push, pull_request ]

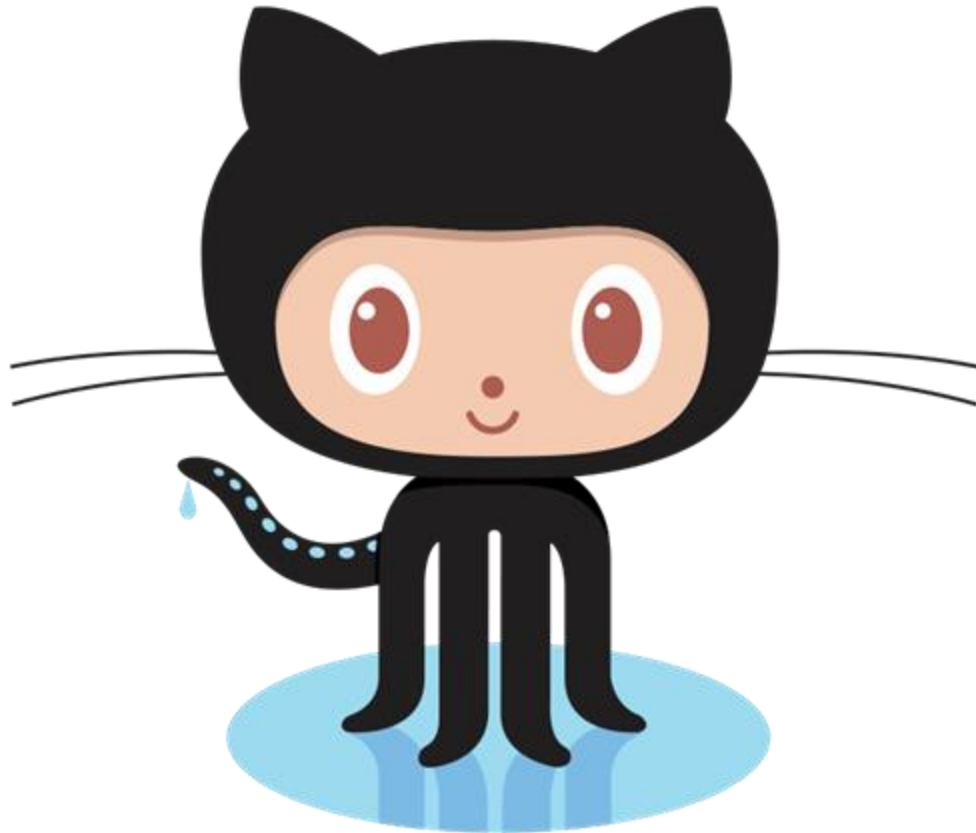
jobs:
  build:
    runs-on: ubuntu-latest
    steps:
      - name: Checkout project
        uses: actions/checkout@v2
      - name: Set up JDK 1.11
        uses: actions/setup-java@v1
        with
          java-version: 1.11
      - name: Maven build
        run: mvn clean package
```



3

Integration with other tools

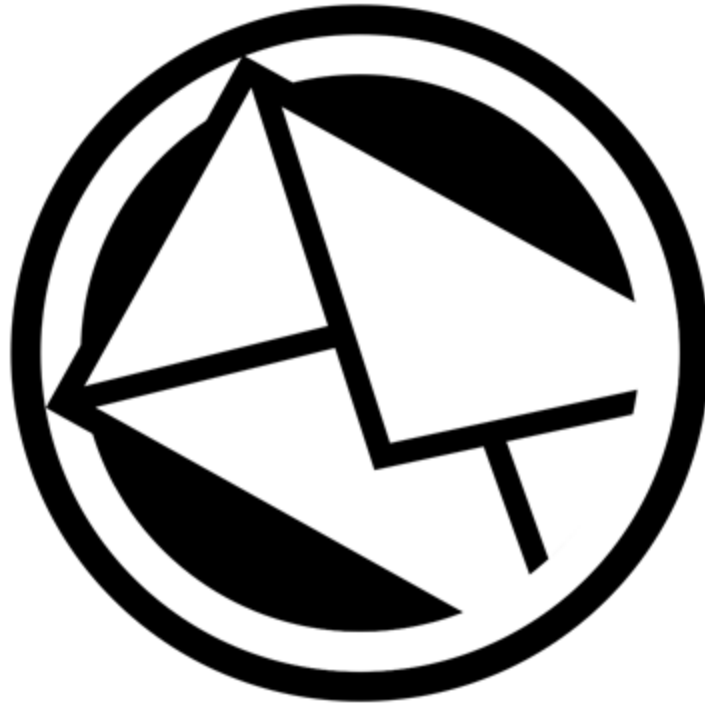
Github



Heroku

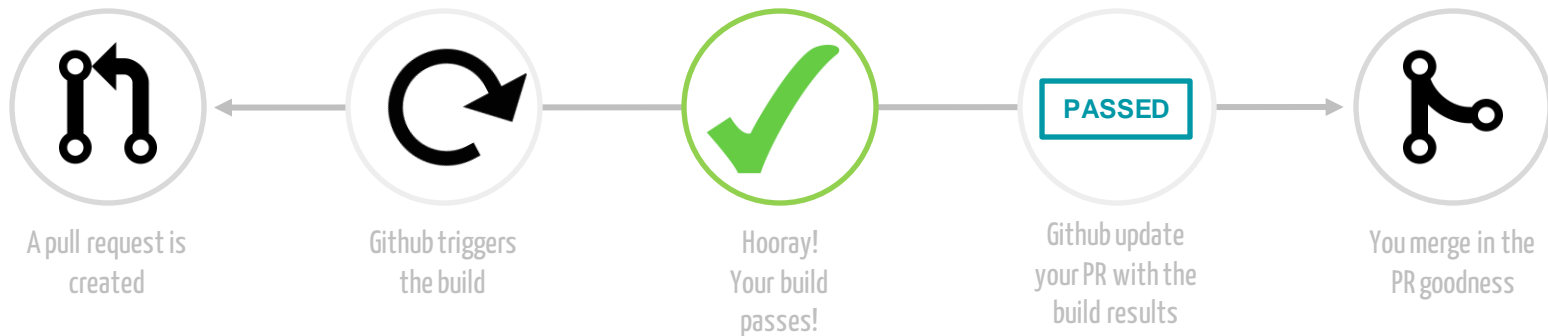


Get an email



Integration chains

Pull Request build flow



Branch build flow



4



What do we expect?

Setup 1

1_ Create a yaml file in .github/workflows

Any filename is allowed, but it must be a yaml file. You can declare multiple workflows (with different names), Github will know which one to execute.

Setup 2

2_ In your project, configure your workflows file

<https://docs.github.com/en/actions>

```
name: PR Build

on: [push, pull_request ]

jobs:
  build:
    runs-on: ubuntu-latest
    steps:
      - name: Checkout project
        uses: actions/checkout@v2
      - name: Set up JDK 1.11
        uses: actions/setup-java@v1
        with
          java-version: 1.11
      - name: Maven build
        run: mvn clean package
```

Increase confidence in your weekly delivery

Pull Request build flow



Warning

Github limits the free usage of the Github Actions service.

Total time is shared between the QGL teams.

Avoid doing flows that are too time consuming (Machine Learning, too frequent mutant coverage, ...)

If you see that Github blocks you from using it, please tell us as soon as possible.

Q&A