



# **Introduction to automation**

Mathias COUSTÉ  
10.03.2022

# 1



## **What is automation?**

# A little history

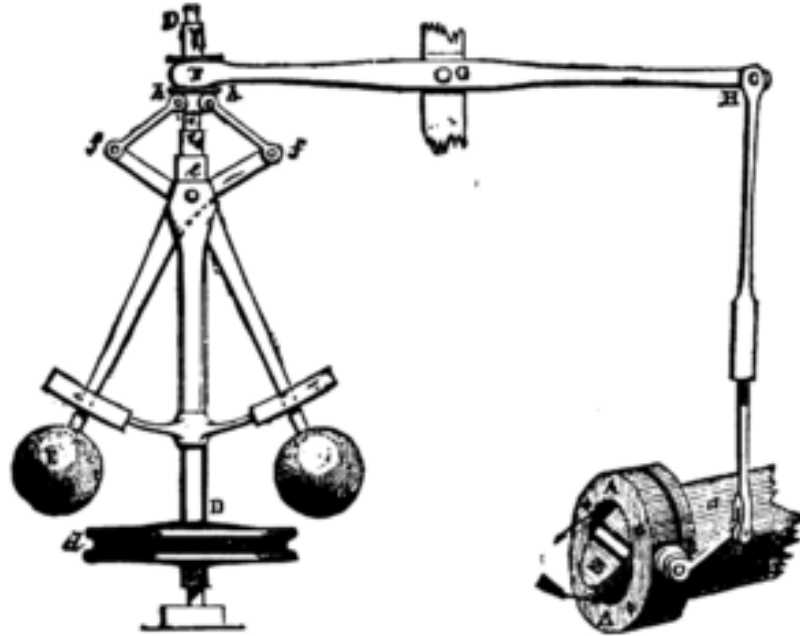


FIG. 4.—Governor and Throttle-Valve.

*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



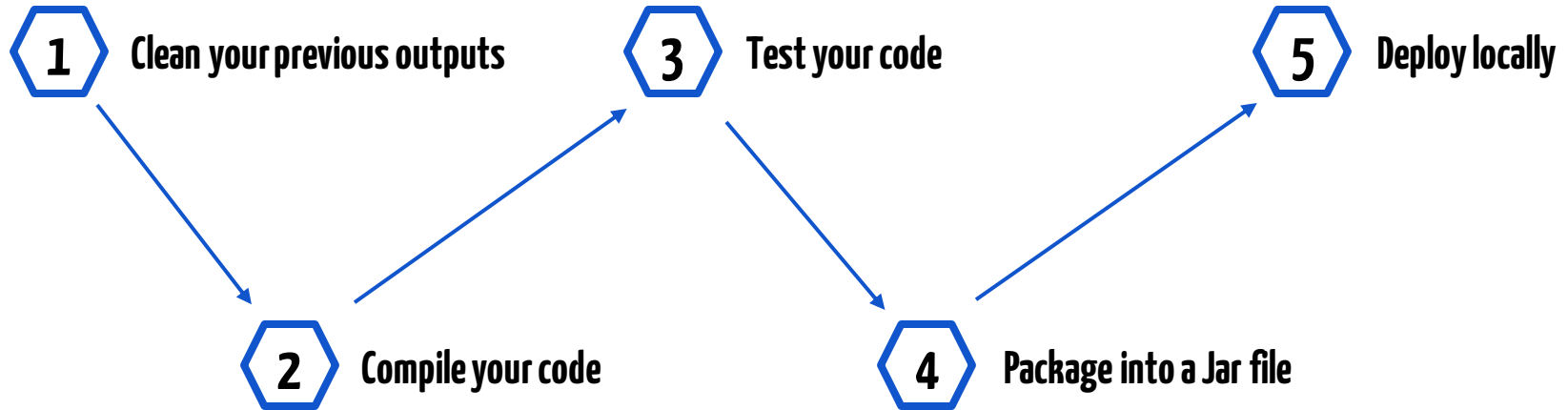
**Automation you already know**

# 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

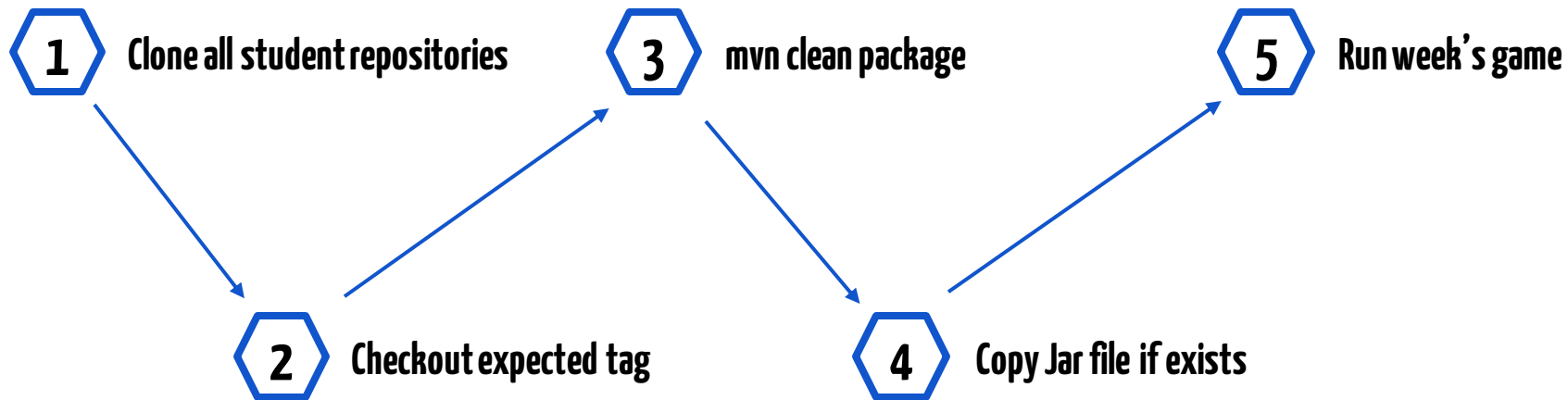
```
user ~ $ > mvn clean install
```





# QGL weekly retrieve script

```
user ~ $ > ./retrieve.SH WEEK6
```

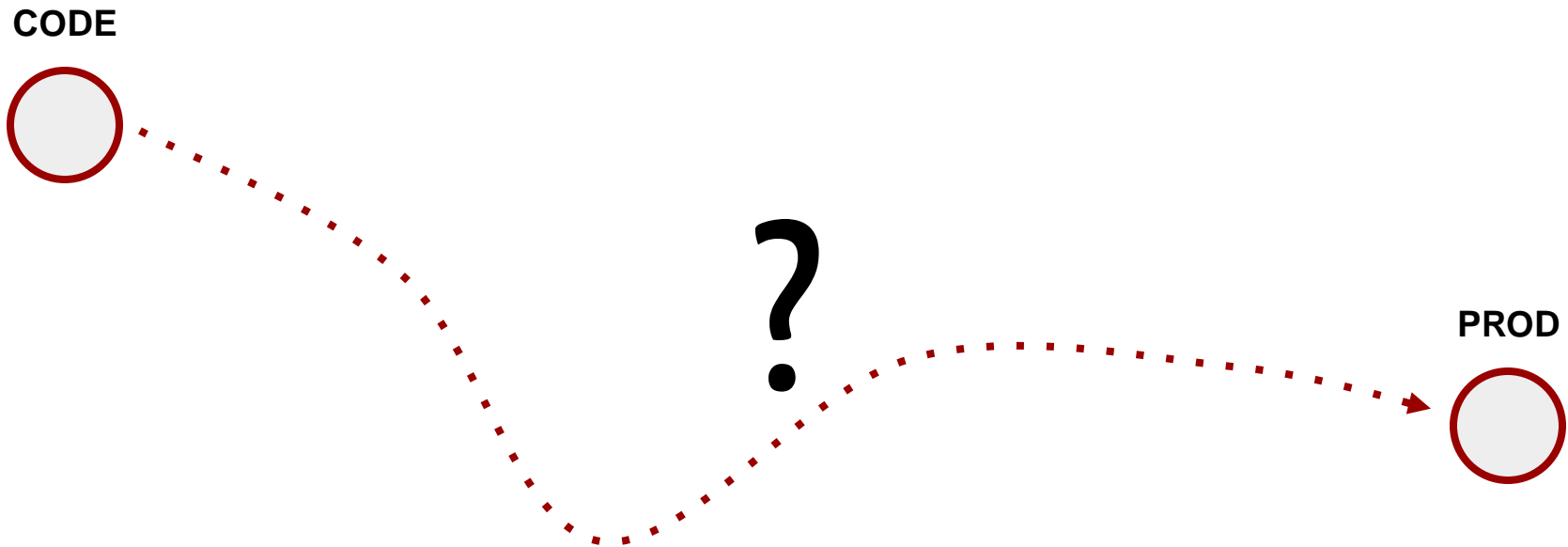


# 3

An abstract digital network background featuring a complex web of glowing blue lines and nodes, with some nodes highlighted in green and red, set against a dark blue background.

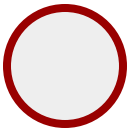
**From code to prod !**

# Build automation



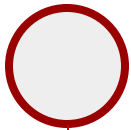
# Build automation

**CODE**

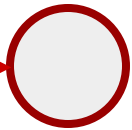


# Build automation

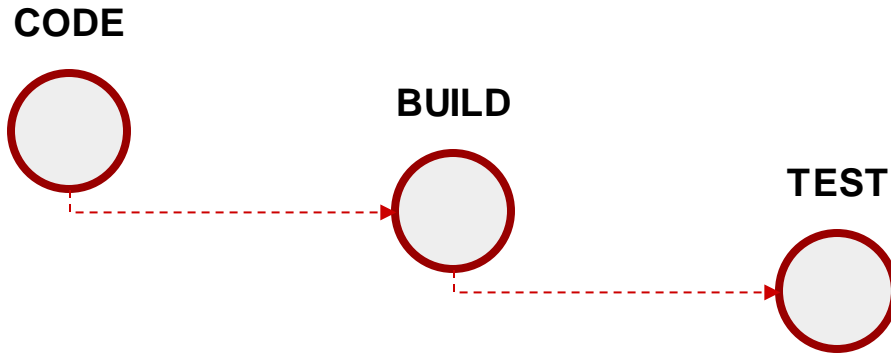
**CODE**



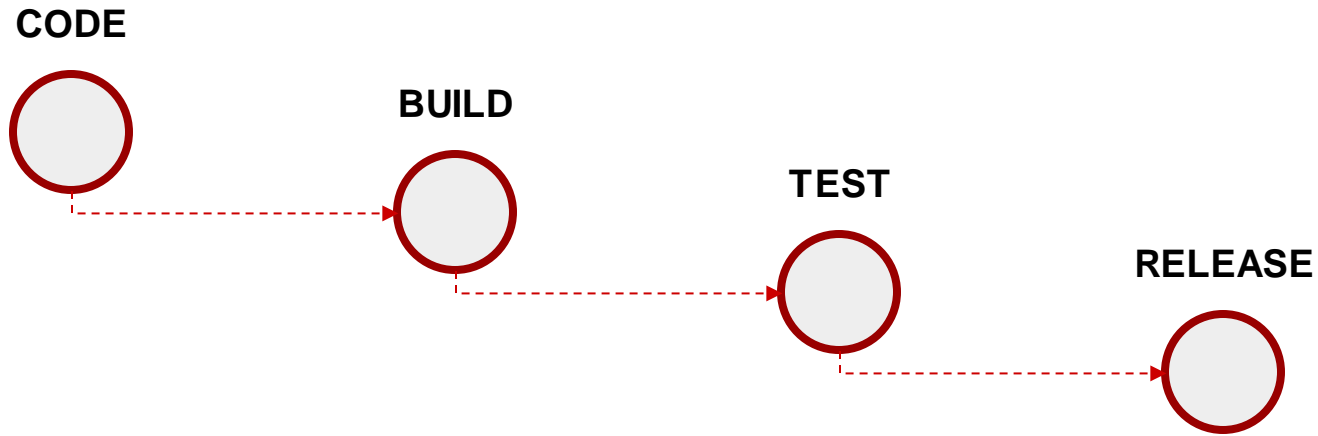
**BUILD**



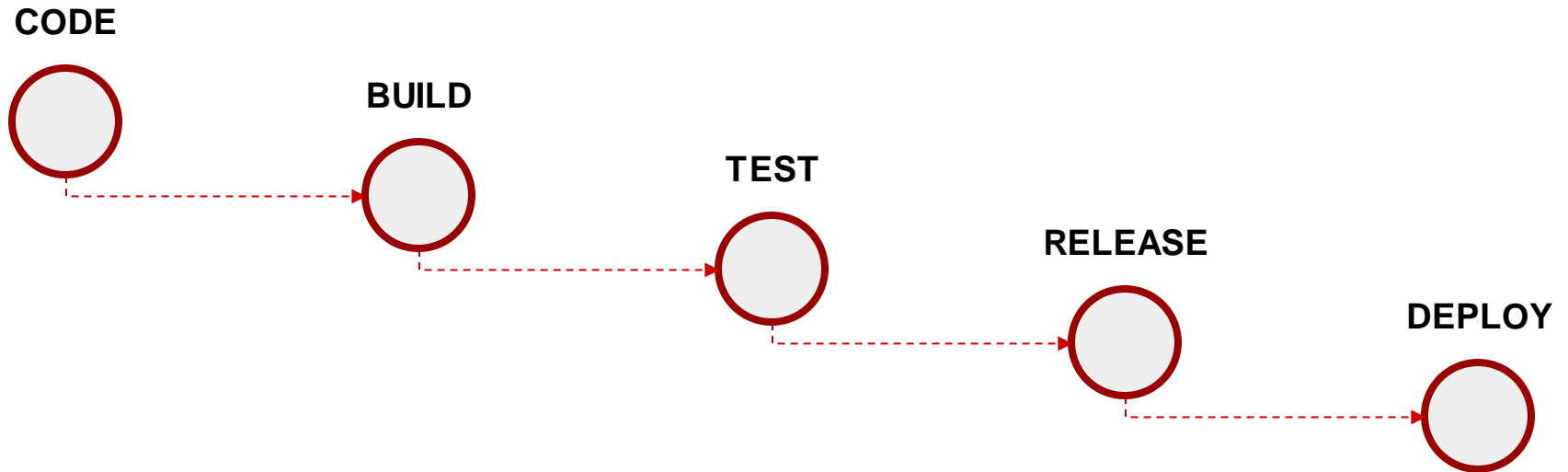
# Build automation



# Build automation

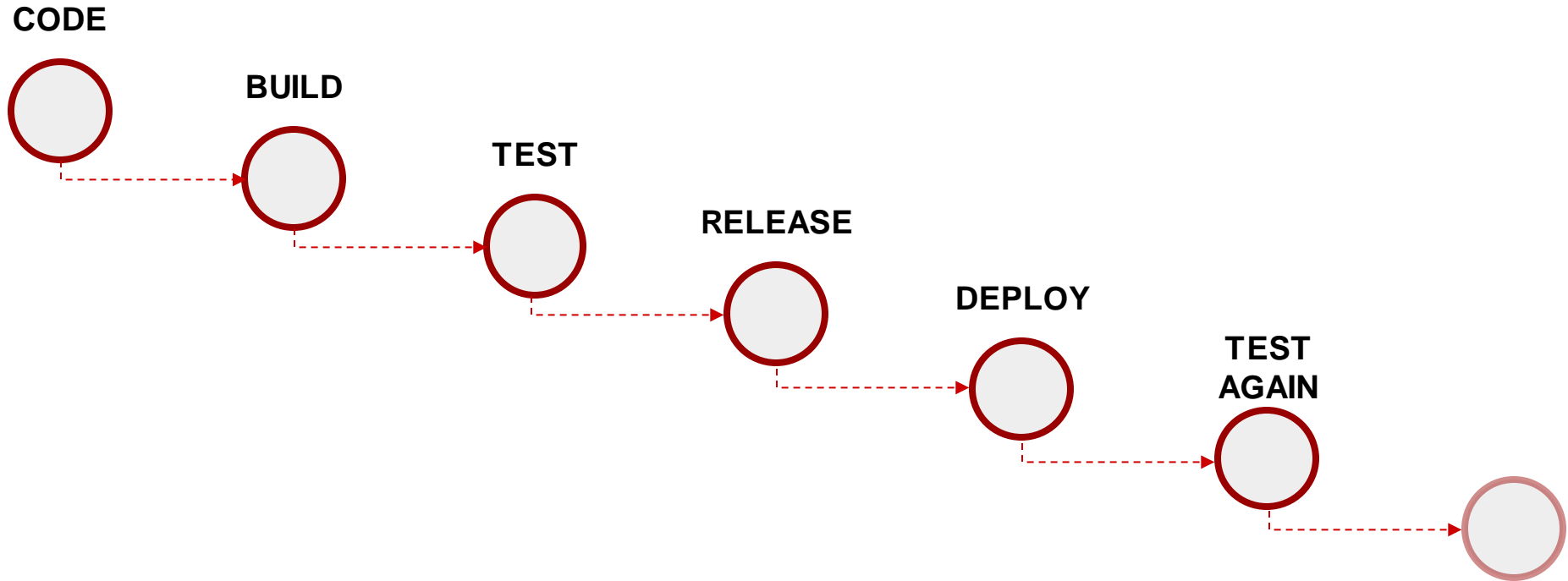


# Build automation

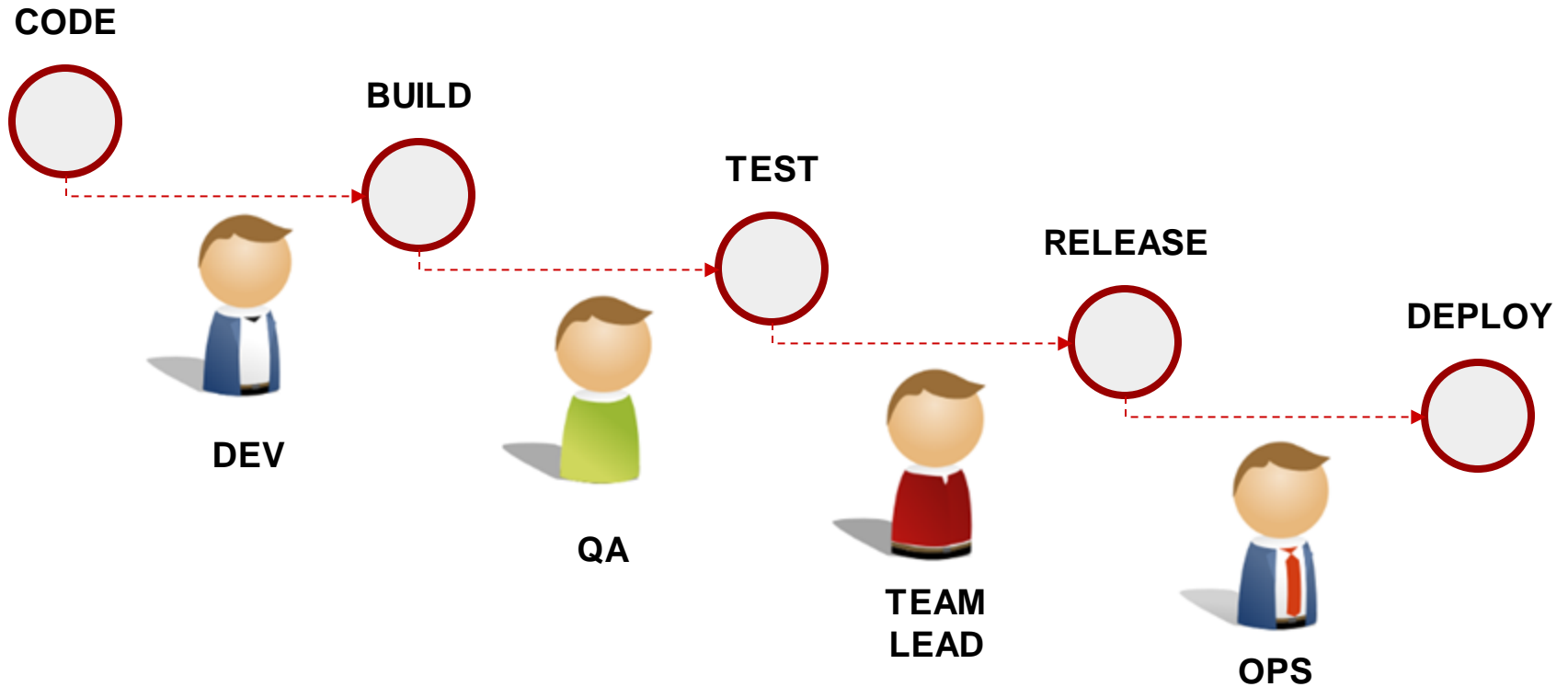




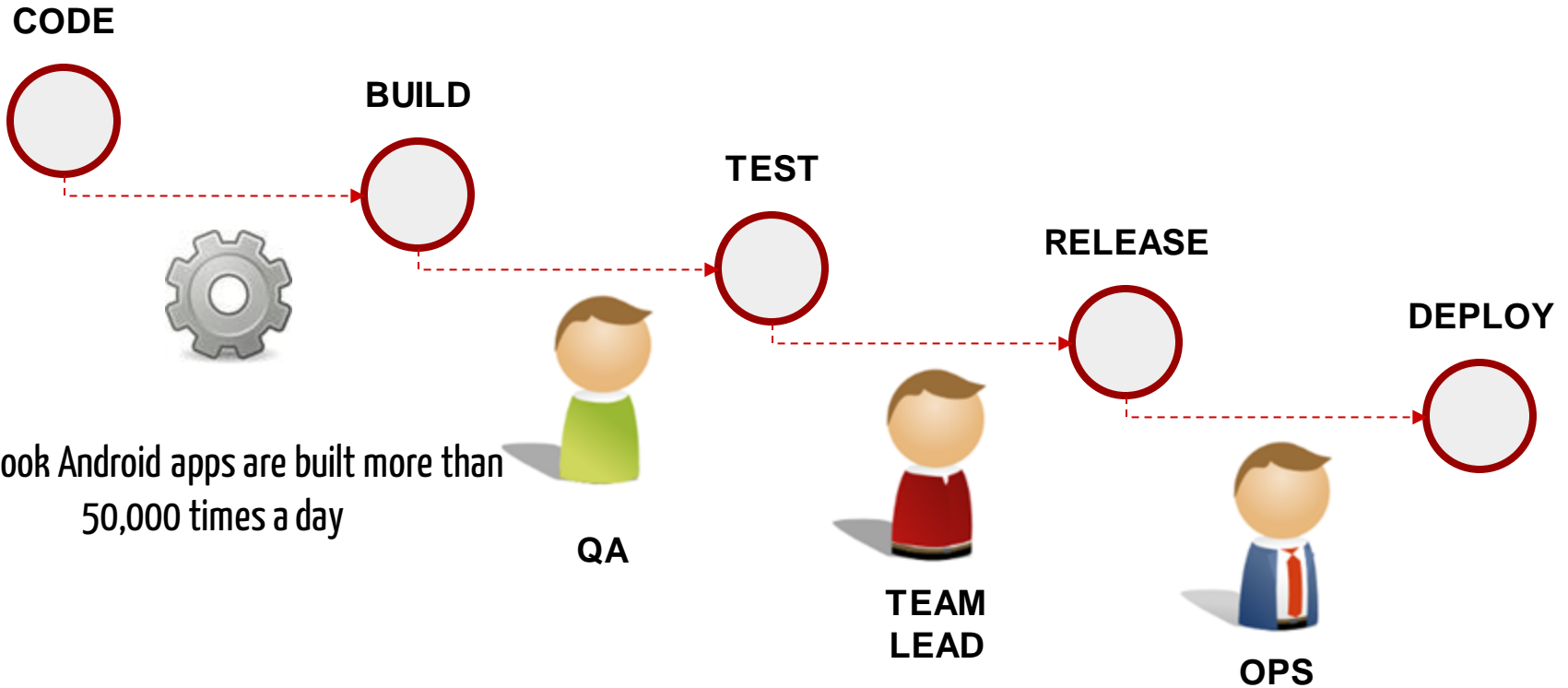
# Build automation



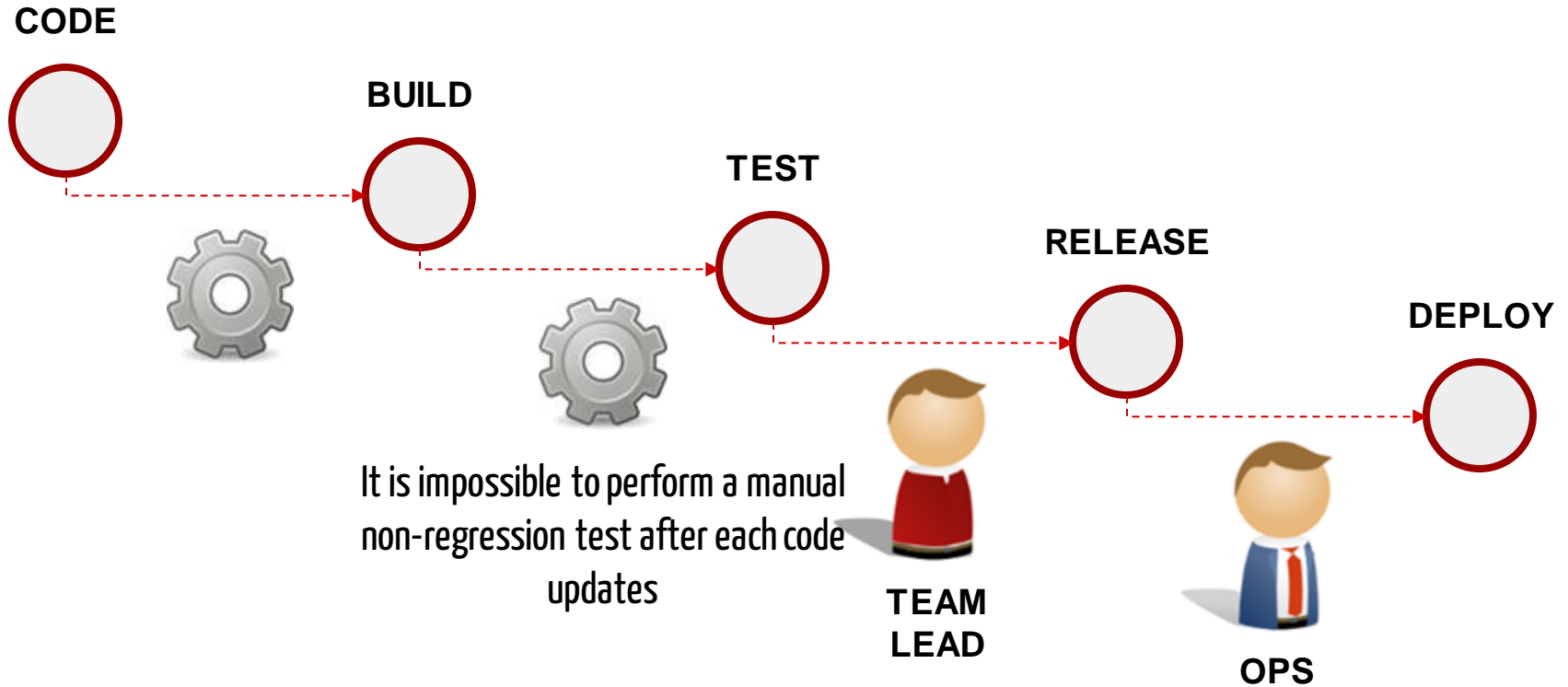
# Build automation



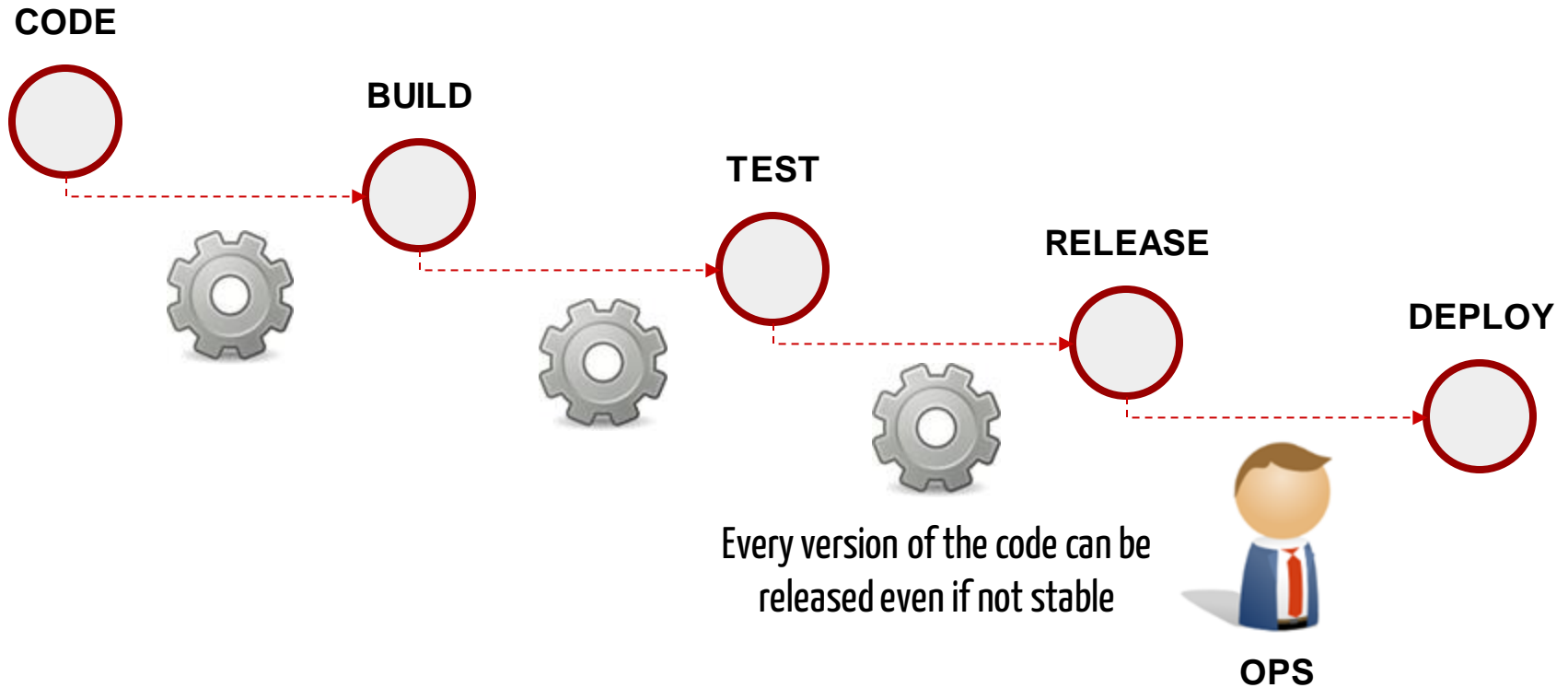
# Build automation



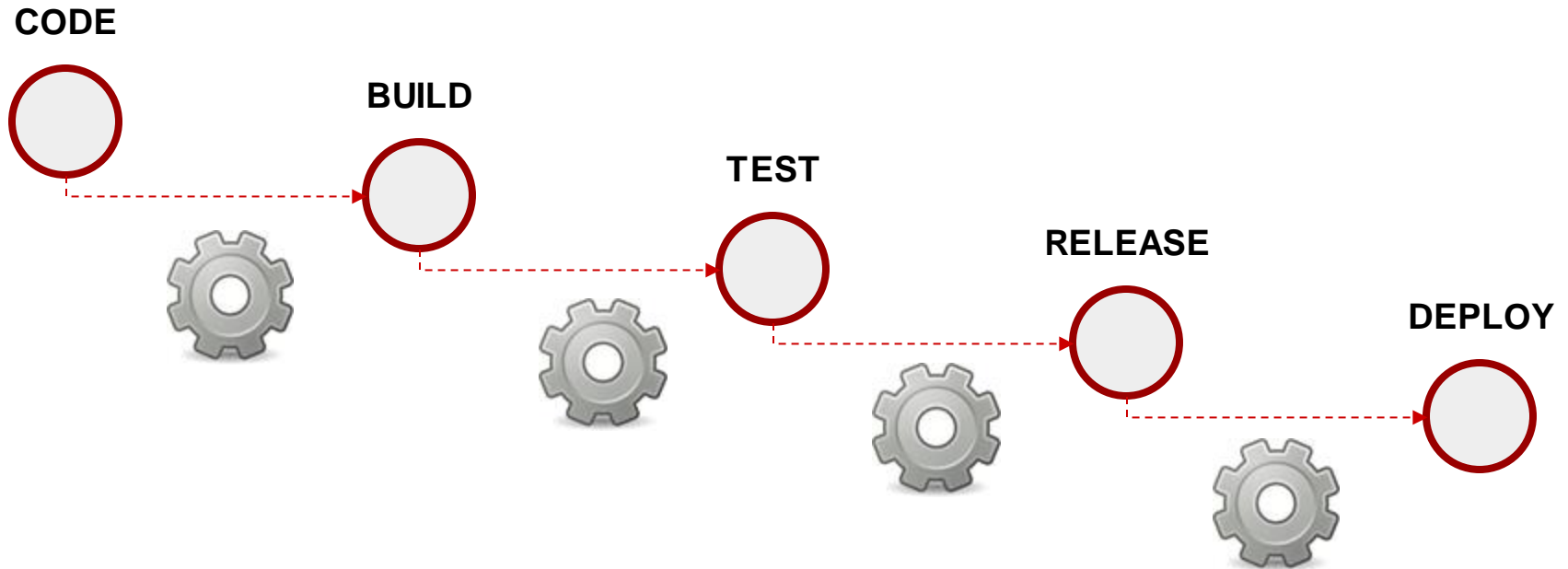
# Build automation



# Build automation

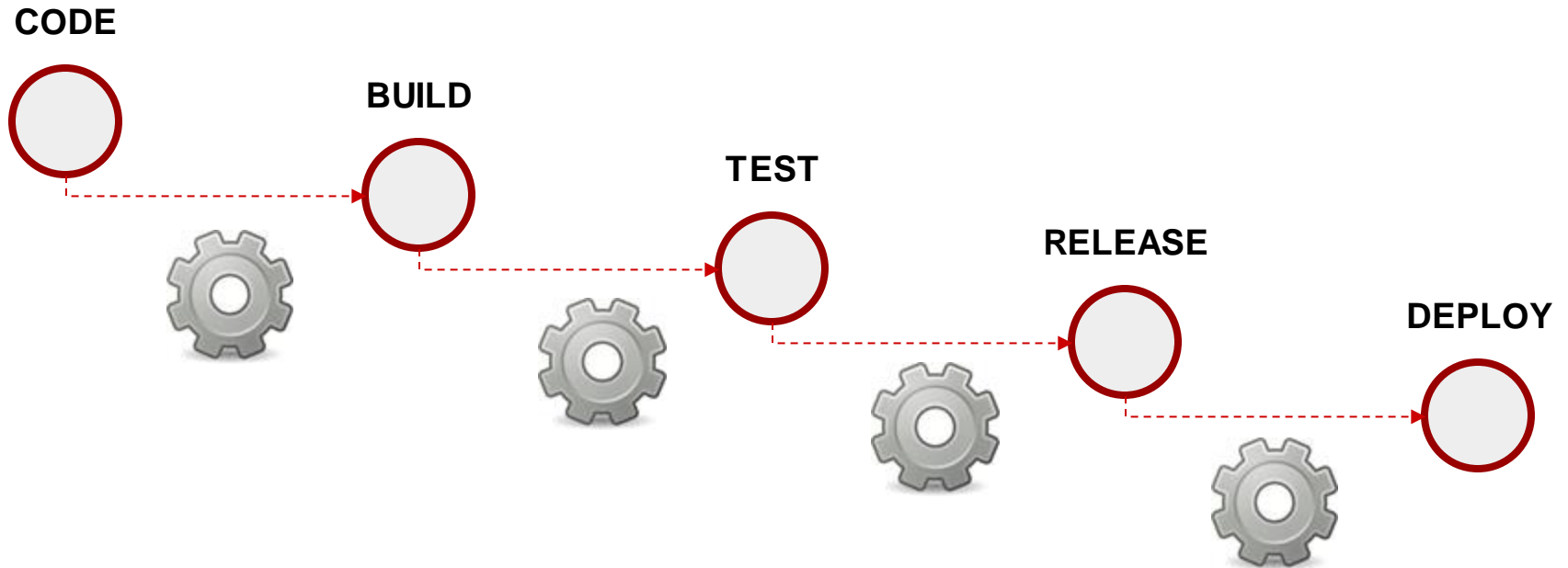


# Build automation



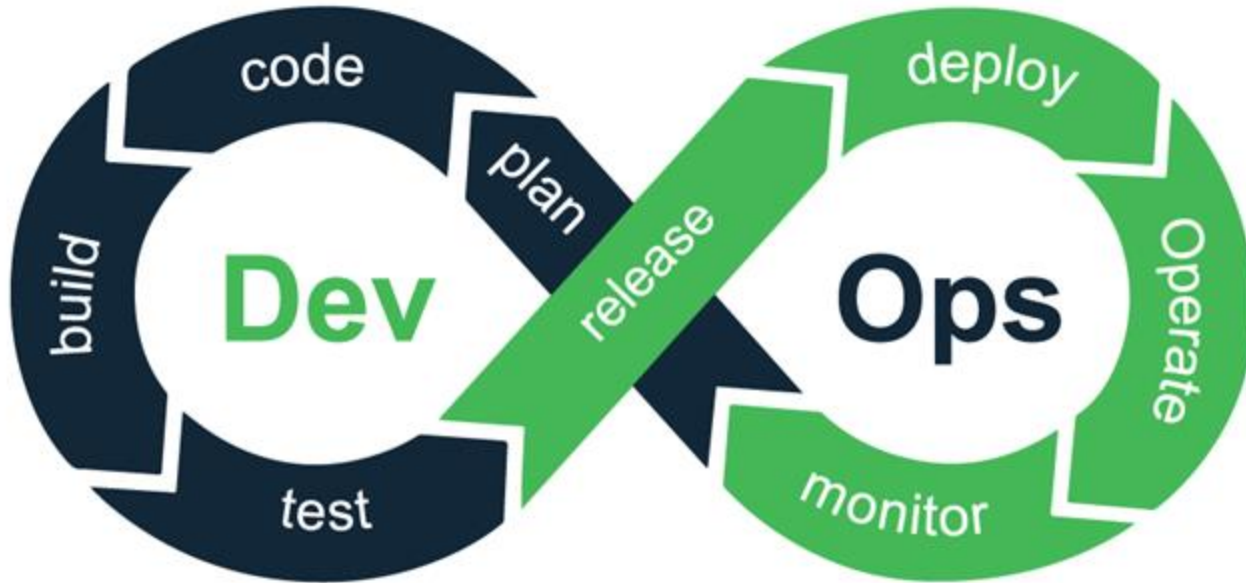
Facebook deploy in production multiple times per day  
(and you never notice it)

# Build automation



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

# Be DevOps





**Q&A**



**Automating your project**


Mathias COUSTÉ  
10.03.2022

# 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
		<a href="#">Escape Coding Game</a>	s. o.	s. o.	ND
		<a href="#">leaf</a>	s. o.	s. o.	ND
		<a href="#">MyKitchen</a>	21 j - <a href="#">#4</a>	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



# 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



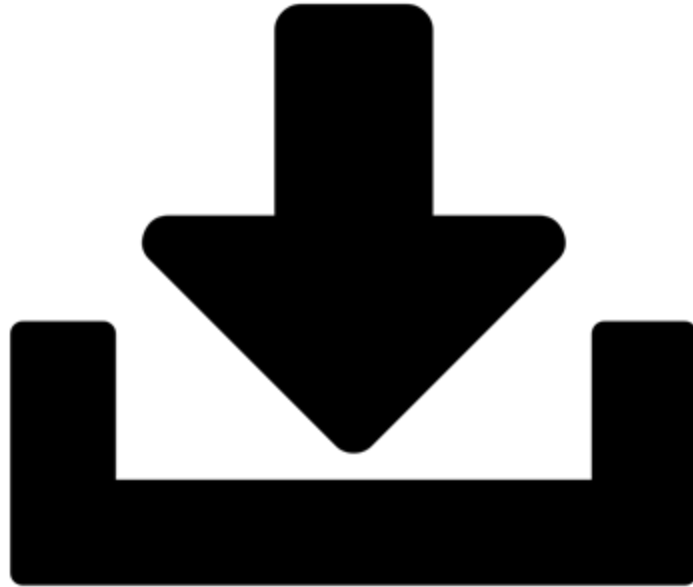
*No installation ...*

*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**

Triggered via push 6 days ago

mathiascouste pushed 749b8f3 master

Status: **Success** Total duration: **8m 10s**

Billable time: **13m 6s** Artifacts: -

**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**

Triggered via push 7 days ago

mathiascouste pushed 69e67bd master

Status: **Failure** Total duration: **7m 10s**

Billable time: **6m 58s** Artifacts: -

**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
```

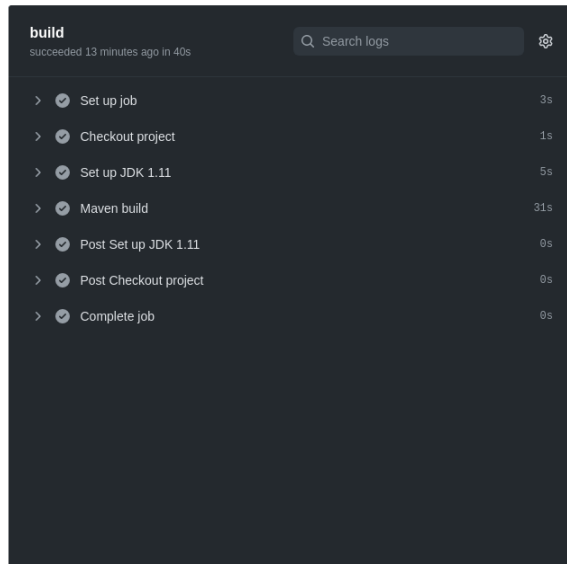
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        with
          java-version: 1.11
      - name: Maven build
        run: mvn clean package
```



# 3

## Integration with other tools

# Github



# Heroku





# Get an email



# Integration chains

## Pull Request build flow

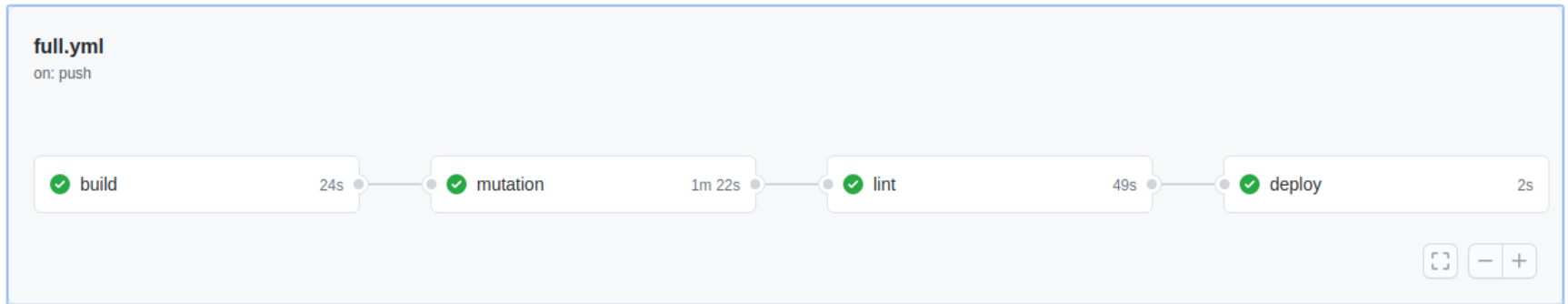


## Branch build flow



# Integration chains

## Direction Miage - Full CI Workflow



# 4

A close-up photograph of a dartboard. The board has a wooden face with black and white segments. A red and white checkered dart is stuck in the center. The background is blurred, showing the outer rings of the board and some numbers like '15'.

**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>

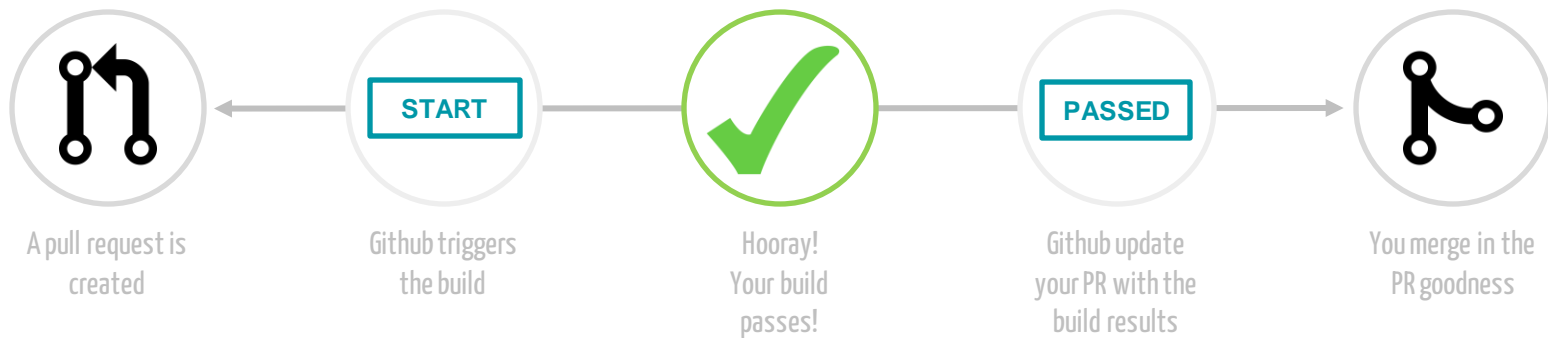
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    runs-on: ubuntu-latest
    steps:
      - name: Checkout project
        uses: actions/checkout@v2
      - name: Set up JDK 1.11
        uses: actions/setup-java@v1
        with
          java-version: 1.11
      - name: Maven build
        run: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