Build Your First

CI/CD PIPELINE

START

FEB 21 2026

FLORIDA DRUPAL CAMP

Build Your First CI/CD Pipeline

(And Add a Quality Check While You're At It!)

Tugboat

Amber Matz *Developer Advocate*

FLDC FLORIDA DRUPAL CAMP

What will we learn today?

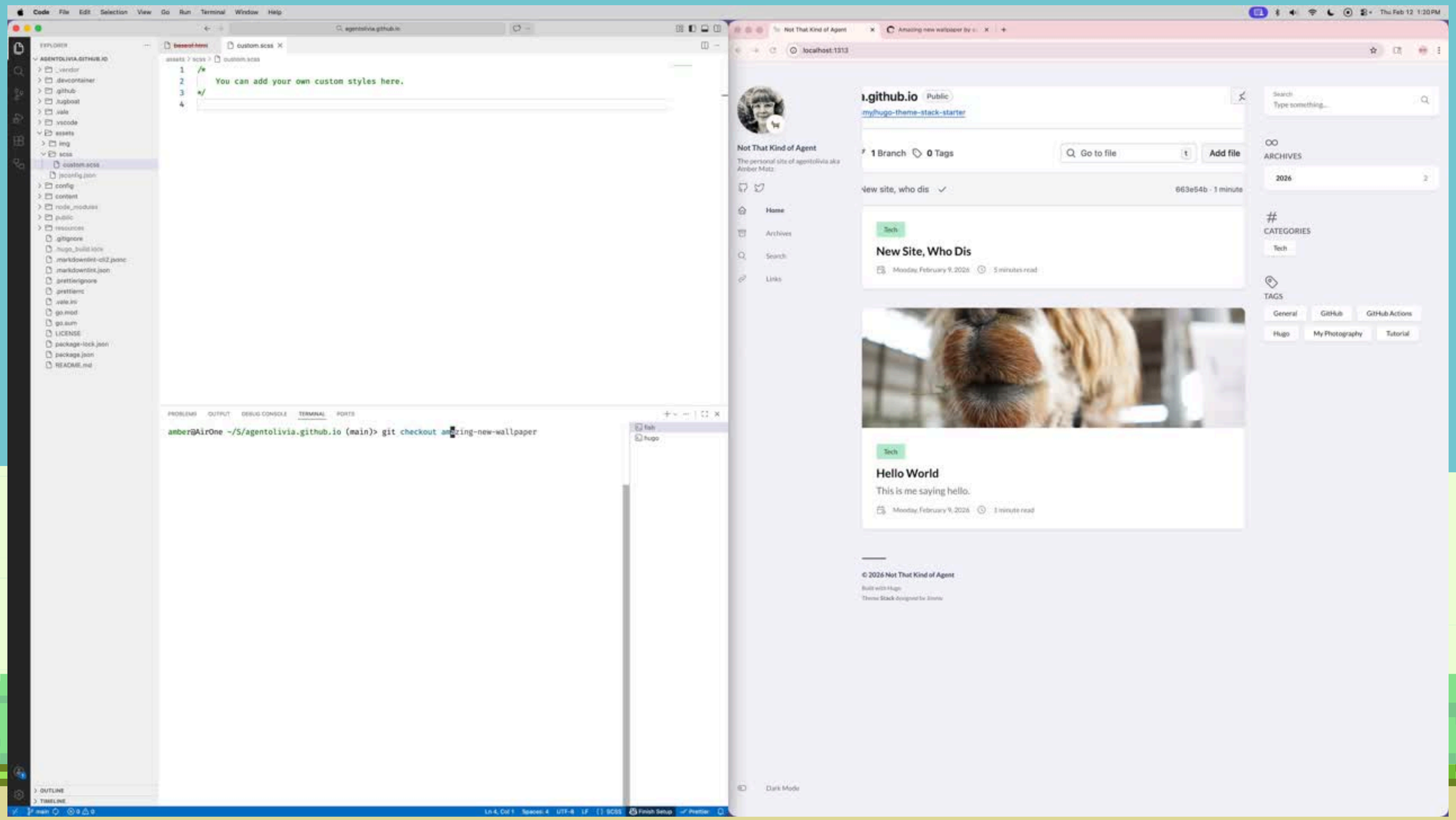
- How I created a sandbox to learn CI/CD concepts
- A process of adding a local CLI tool to a CI/CD check
- 6 essential concepts I learned along the way

What is CI/CD?

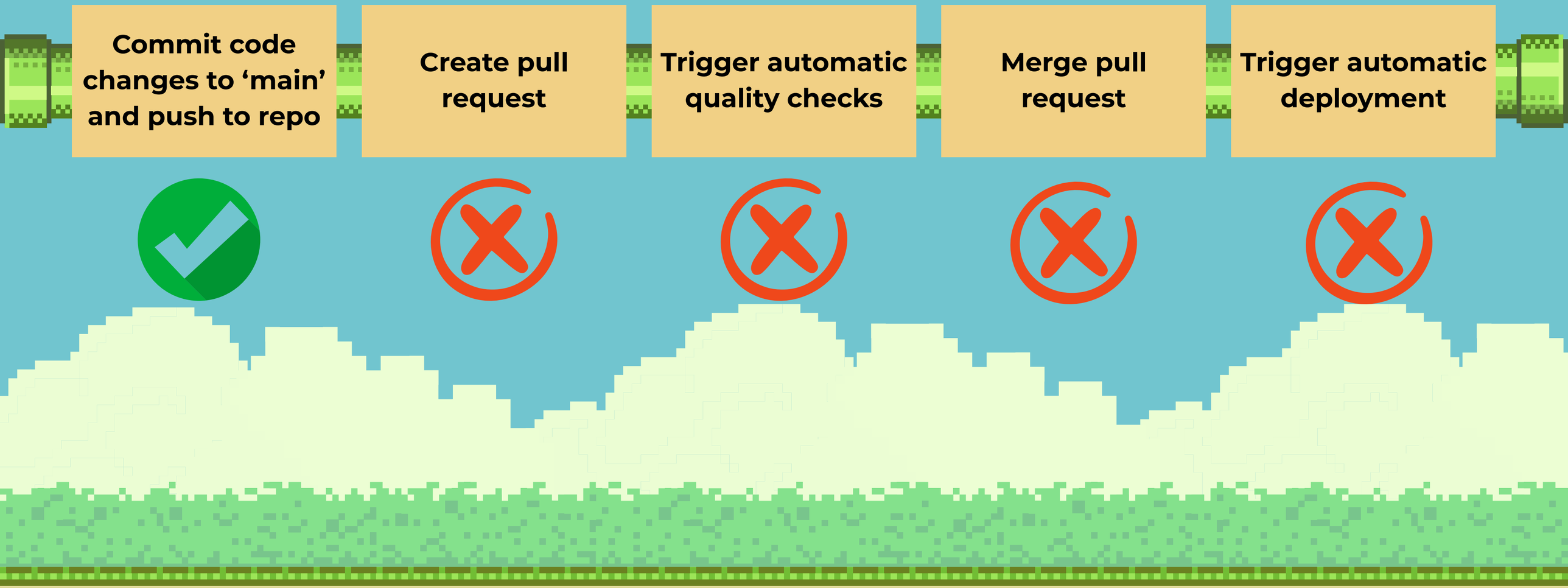
CI = Continuous Integration
CD = Continuous Development

In software delivery, the ability to say that the **code that lives on the main** trunk can be **deployed at any time** because **automated checks passed**, or the ability to **automatically ship every change** with confidence because automated checks passed, or **the journey to try and get there**.

A simple CI/CD pipeline with automated checks



Where I Started...



My Sandbox

I created and set up a new repo that builds and deploys a Hugo site to GitHub Pages using GitHub Actions.

Used this template

CaiJimmy/hugo-theme-stack-starter

Named the repo

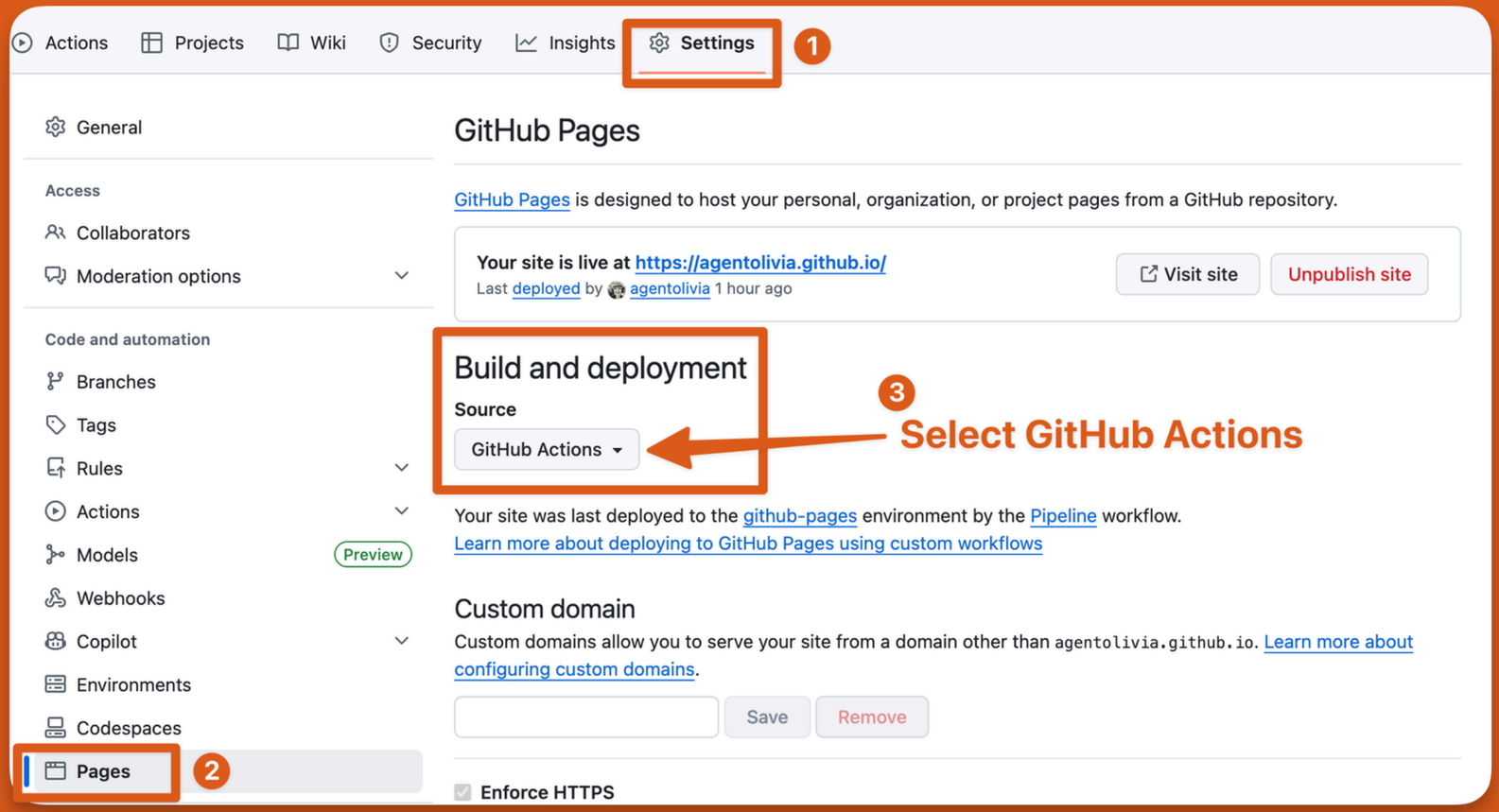
agentolivia.github.io

my username on GitHub

Using GitHub Actions

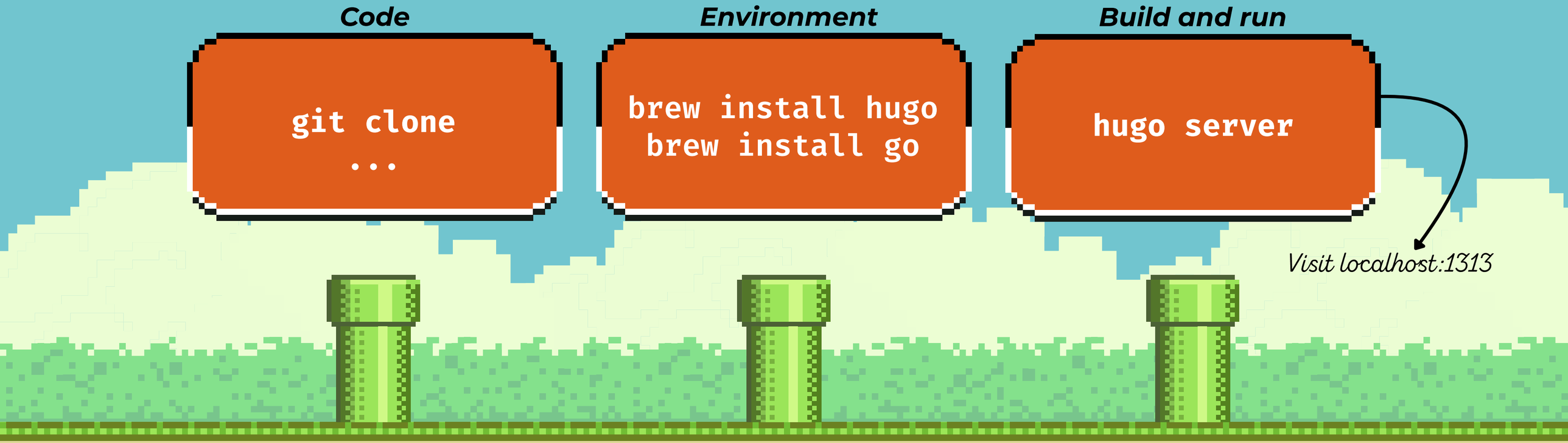
Settings > Pages > Source:
GitHub Actions

Settings > Pages > Source: GitHub Actions



Set up local

Get the code and your environment set up to build and run the site on your machine.



Code editor CLI

git checkout step-1-first-deploy

.github/workflows/deploy.yml

Initial commit · agentolivia/ag

Not That Kind of Agent

Gemini

github.com/agentolivia/agentolivia.github.io/commit/b924e34

Filter files...

- .devcontainer
- .github/workflows
  - deploy.yml
  - update-theme.yml
- .gitignore
- .vscode
- LICENSE
- README.md
- assets
- config/_default
- content
- go.mod
- go.sum

35 files changed +831 -0 lines changed

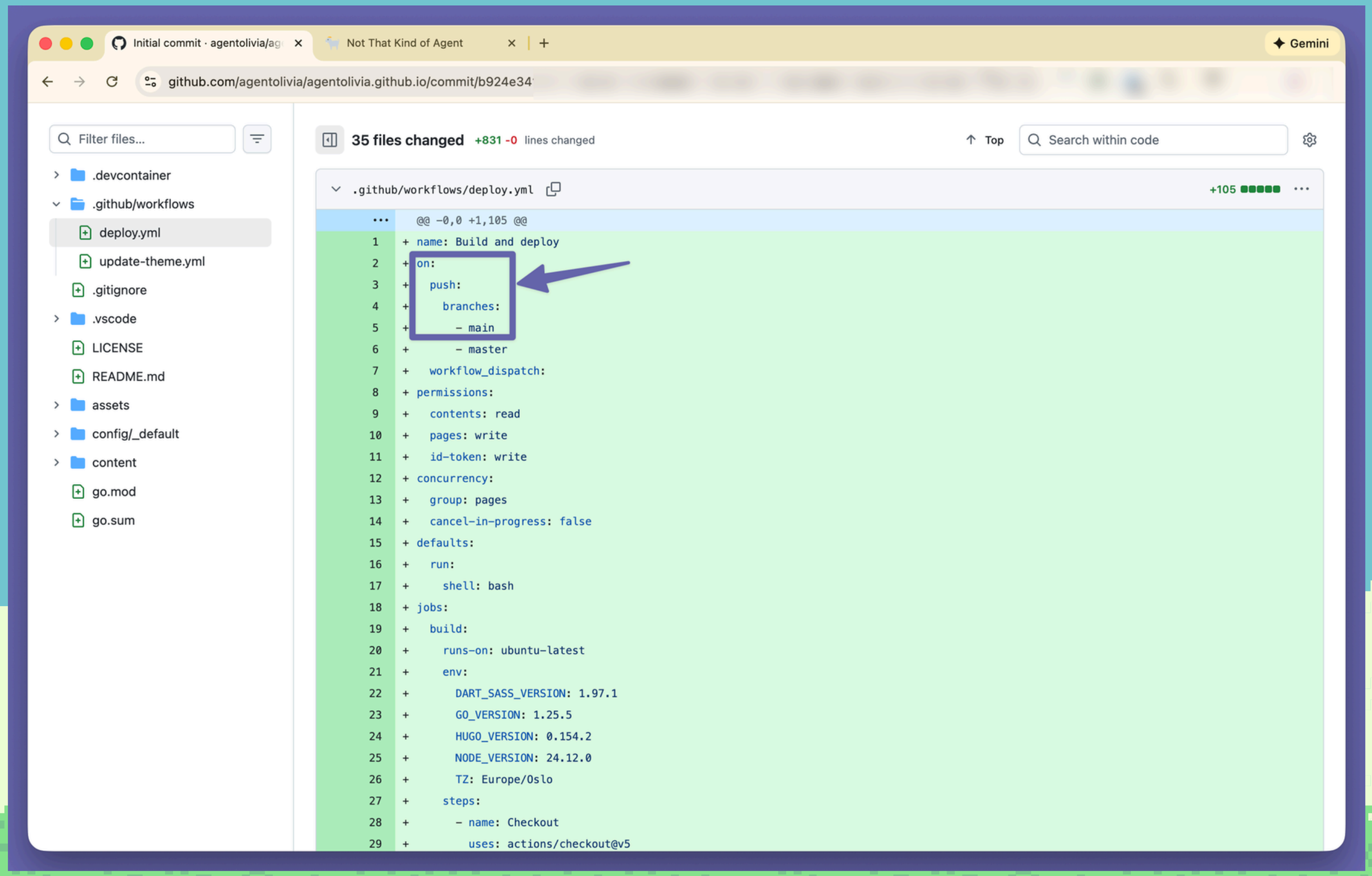
.github/workflows/deploy.yml

```
@@ -0,0 +1,105 @@
+ name: Build and deploy
+ on:
+   push:
+     branches:
+       - main
+       - master
+   workflow_dispatch:
+ permissions:
+   contents: read
+   pages: write
+   id-token: write
+ concurrency:
+   group: pages
+   cancel-in-progress: false
+ defaults:
+   run:
+     shell: bash
+ jobs:
+   build:
+     runs-on: ubuntu-latest
+     env:
+       DART_SASS_VERSION: 1.97.1
+       GO_VERSION: 1.25.5
+       HUGO_VERSION: 0.154.2
+       NODE_VERSION: 24.12.0
+       TZ: Europe/Oslo
+     steps:
+       - name: Checkout
+         uses: actions/checkout@v5
```

Where I Started...After I Got Started

Commit code changes to ‘main’ and push to repo	Create pull request	Trigger automatic quality checks	Merge pull request to ‘main’ branch	Trigger automatic deployment

...With a new repo based on the Hugo Stack theme starter template repository.


Initial commit · agentolivia/ag
Not That Kind of Agent
Gemini
github.com/agentolivia/agentolivia.github.io/commit/b924e34
Filter files...
.devcontainer
.github/workflows
deploy.yml
update-theme.yml
.gitignore
.vscode
LICENSE
README.md
assets
config/_default
content
go.mod
go.sum
35 files changed +831 -0 lines changed
Top
Search within code
.github/workflows/deploy.yml
+105
@@ -0,0 +1,105 @@
+ name: Build and deploy
+ on:
+   push:
+   branches:
+   - main
+   - master
+   workflow_dispatch:
+ permissions:
+   contents: read
+   pages: write
+   id-token: write
+ concurrency:
+   group: pages
+   cancel-in-progress: false
+ defaults:
+   run:
+   shell: bash
+ jobs:
+   build:
+   runs-on: ubuntu-latest
+   env:
+   DART_SASS_VERSION: 1.97.1
+   GO_VERSION: 1.25.5
+   HUGO_VERSION: 0.154.2
+   NODE_VERSION: 24.12.0
+   TZ: Europe/Oslo
+   steps:
+   - name: Checkout
+   uses: actions/checkout@v5

A Process for Adding Your 1st Quality Check

Set up and test a tool locally before adding it to pipeline

1. **Install a CLI tool locally**
2. **Run it and tune config/ignore until it's useful**
3. **Add command(s) to 'scripts' key in package.json**
4. **Fix files until tool returns 0 failures**
5. **Commit changes to version control**

First Quality Check

Install a CLI tool locally. I chose Prettier.

Install

```
npm install
--save-dev
prettier
```

Create Config + Ignore

```
.prettierrc
.prettierignore
```

Add command to scripts

```
"format:check":
"prettier --check ."
```

package.json
“scripts”

Test it out locally

Run it. Refine config until it's useful.

Run the command

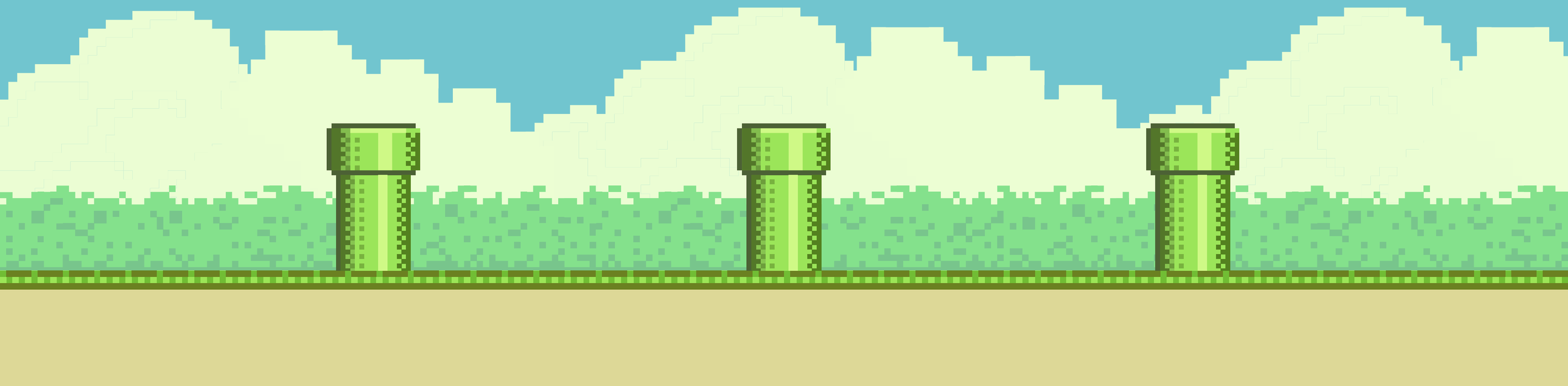
```
npm run
format:check
```

Modify tool config files

```
.prettierrc
.prettierignore
```

What did I need?

```
Node.js
```



Add workflow

Create a workflow that will run the command.

Create the file

.github/workflows

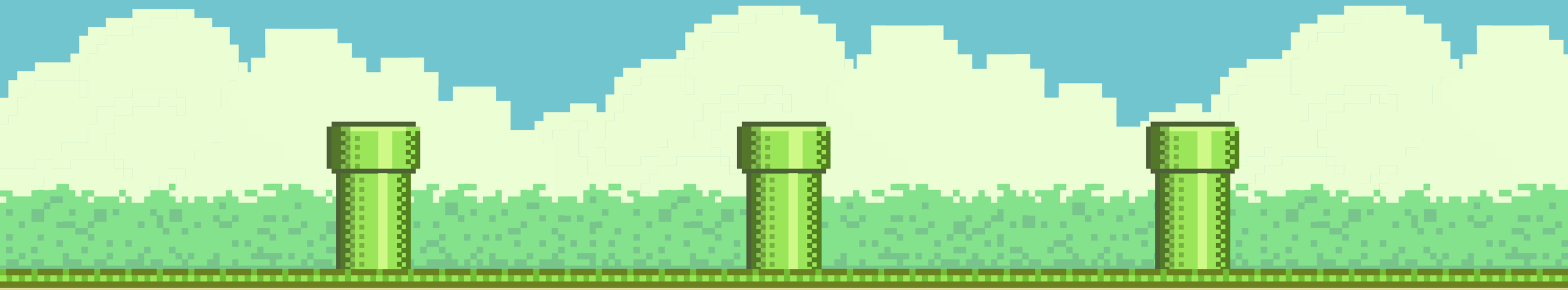
.yml extension req'd

Find an Action that fits

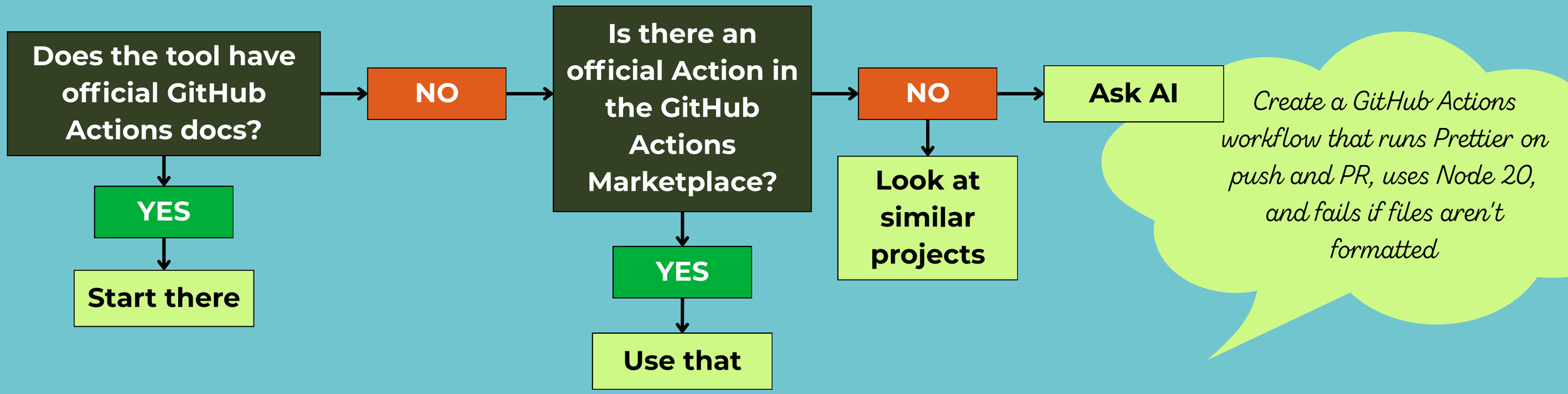
Tool's docs
GitHub Action
Marketplace

Install IDE extension

VS Code = GitHub
Actions extension

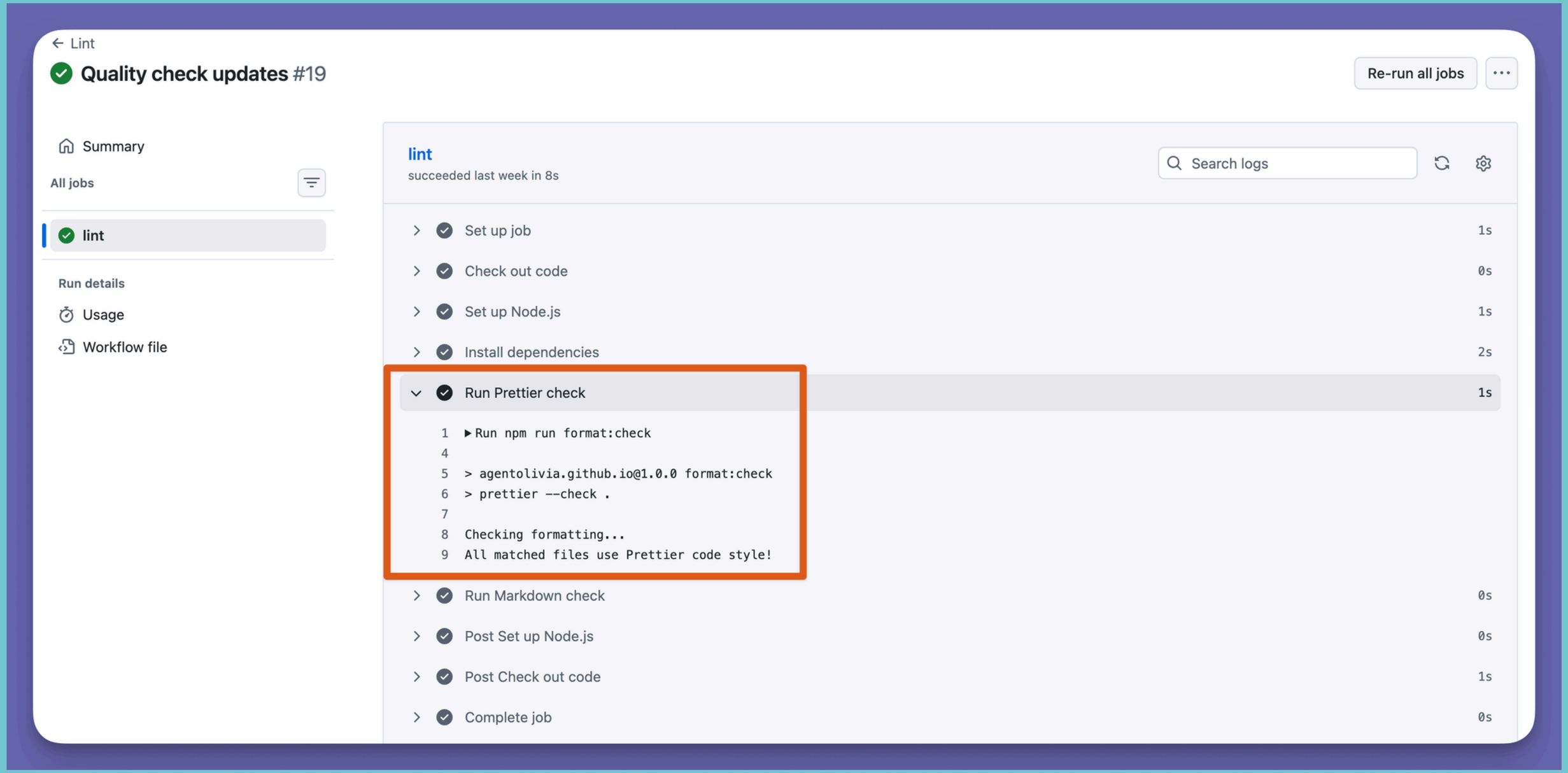


Get copypasta for GitHub Actions workflow



Code editor CLI

git checkout step-2-add-prettier-to-lint


Lint
Quality check updates #19
Re-run all jobs
Summary
All jobs
lint
Run details
Usage
Workflow file
lint
succeeded last week in 8s
Search logs
Set up job 1s
Check out code 0s
Set up Node.js 1s
Install dependencies 2s
Run Prettier check 1s
1 ▶ Run npm run format:check
4
5 > agentolivia.github.io@1.0.0 format:check
6 > prettier --check .
7
8 Checking formatting...
9 All matched files use Prettier code style!
Run Markdown check 0s
Post Set up Node.js 0s
Post Check out code 1s
Complete job 0s

← Build and deploy

Merge pull request #3 from agentolivia/quality-check-updates #18

Re-run all jobs ···

Summary

All jobs

- build
- deploy

Run details

- Usage
- Workflow file

Triggered via push last week	Status	Total duration	Artifacts
agentolivia pushed e96d766 main	Success	43s	1

deploy.yml

on: push

Artifacts

Produced during runtime

Name	Size	Digest
github-pages Expired	687 KB	sha256:46da32ba08a3cb620df7f4c1aa39058a56b5e6…

Where are we at?

Commit changes on branch and push to repo

Create pull request

Trigger automatic quality checks

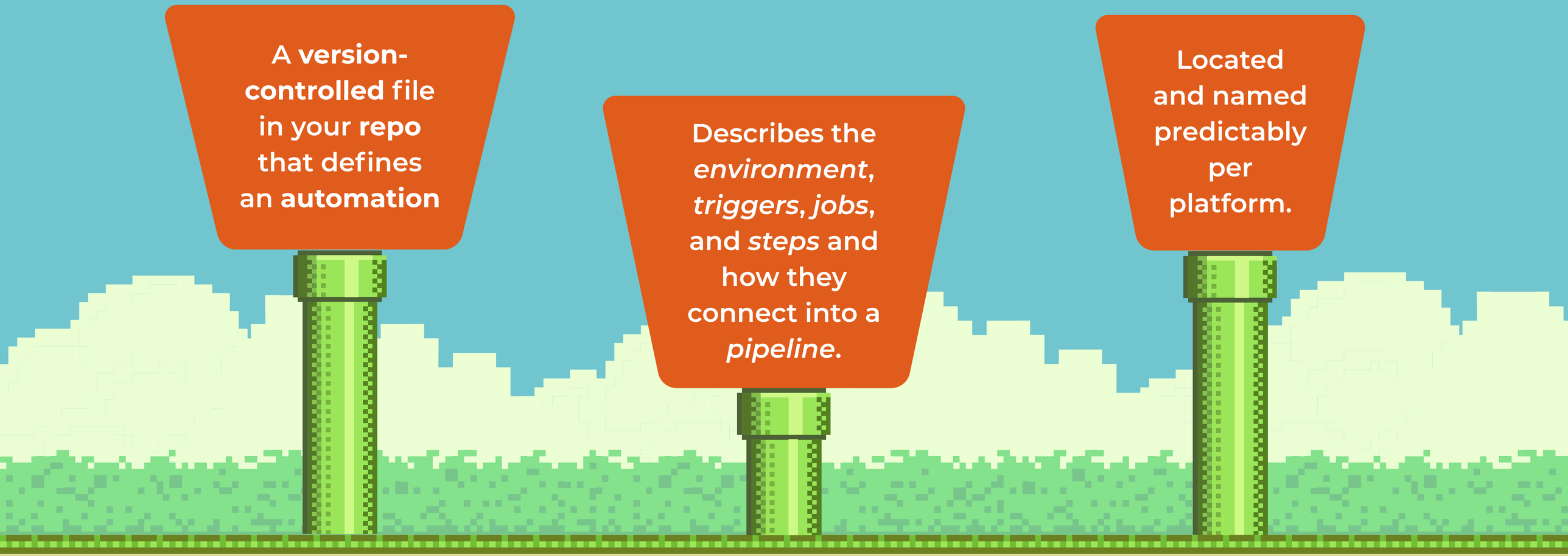
Merge pull request to ‘main’ branch

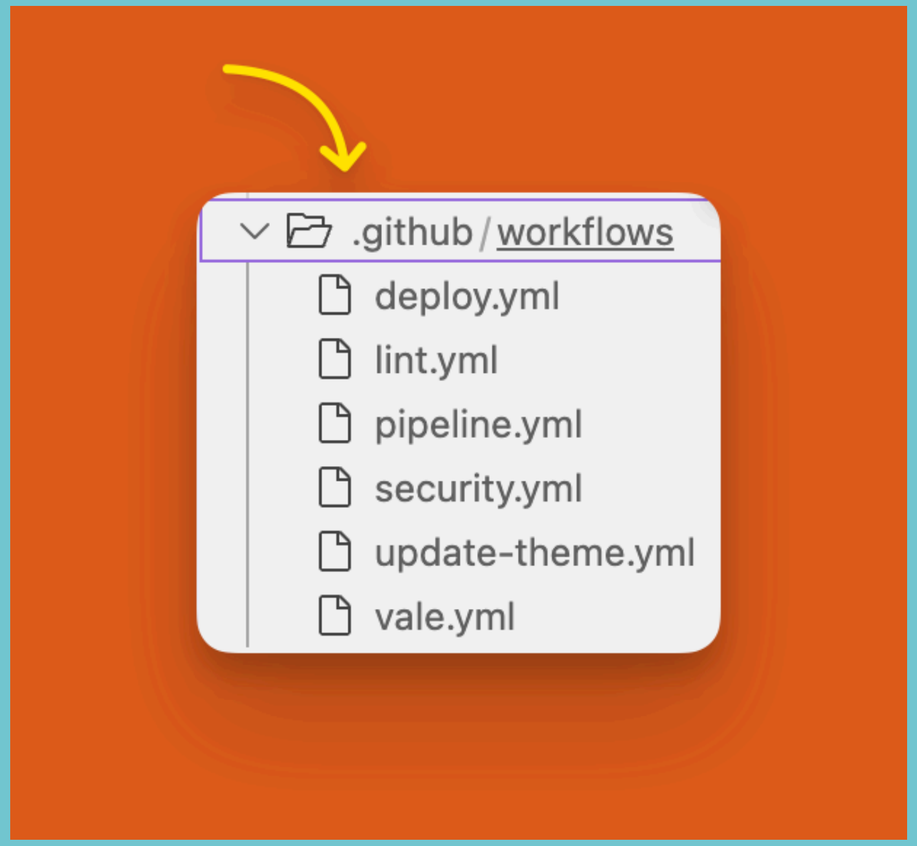
Trigger automatic deployment

Concept check-in

Concept:

The Config File




.github / workflows
deploy.yml
lint.yml
pipeline.yml
security.yml
update-theme.yml
vale.yml

Concept:

The Environment

```yaml
jobs:
  build:
    runs-on: ubuntu-latest
    env:
      DART_SASS_VERSION: 1.97.1
      GO_VERSION: 1.25.7
      HUGO_VERSION: 0.155.3
      NODE_VERSION: 24.12.0
      TZ: America/Los_Angeles
```

.github/workflows/deploy.yml

build

succeeded last week in 27s

Search logs

Set up job 3s

```
1  Current runner version: '2.331.0'
2  ▶Runner Image Provisioner
9  ▼Operating System
10   Ubuntu
11   24.04.3
12   LTS
13 ▶Runner Image
18 ▶GITHUB_TOKEN Permissions
22 Secret source: Actions
23 Prepare workflow directory
24 Prepare all required actions
25 Getting action download info
26 Download action repository 'actions/checkout@v5' (SHA:93cb6efe18208431cddfb8368fd83d5badbf9bfd)
27 Download action repository 'actions/setup-go@v5' (SHA:40f1582b2485089dde7abd97c1529aa768e1baff)
28 Download action repository 'actions/setup-node@v4' (SHA:49933ea5288caeca8642d1e84afbd3f7d6820020)
29 Download action repository 'actions/configure-pages@v5' (SHA:983d7736d9b0ae728b81ab479565c72886d7745b)
30 Download action repository 'peaceiris/actions-hugo@v3' (SHA:75d2e84710de30f6ff7268e08f310b60ef14033f)
31 Download action repository 'actions/cache@v4' (SHA:0057852bfaa89a56745cba8c7296529d2fc39830)
32 Download action repository 'actions/upload-pages-artifact@v3'
   (SHA:56afc609e74202658d3ffba0e8f6dda462b719fa)
33 Getting action download info
34 Download action repository 'actions/upload-artifact@v4' (SHA:ea165f8d65b6e75b540449e92b4886f43607fa02)
35 Complete job name: build
```

```yaml
jobs:
  build:
    runs-on: ubuntu-latest
    env:
      DART_SASS_VERSION: 1.97.1
      GO_VERSION: 1.25.7
      HUGO_VERSION: 0.155.3
      NODE_VERSION: 24.12.0
      TZ: America/Los_Angeles
```

.github/workflows/deploy.yml

Concept:

Jobs

← Build and deploy

Merge pull request #3 from agentolivia/quality-check-updates #18

Re-run all jobs ···

Summary

All jobs

- build
- deploy

Run details

- Usage
- Workflow file

Triggered via push last week	Status	Total duration	Artifacts
agentolivia pushed e96d766 main	Success	43s	1

deploy.yml

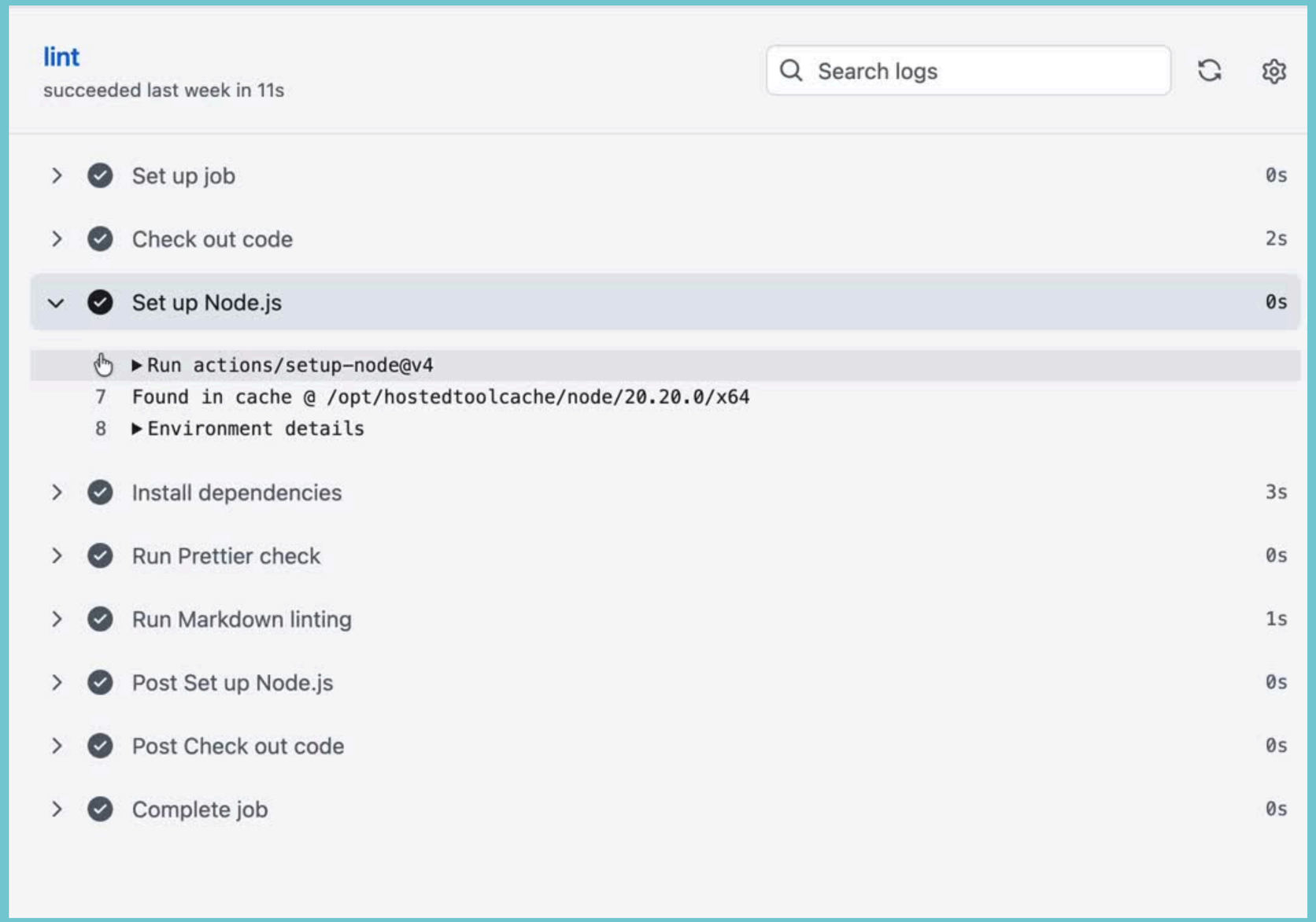
on: push

Artifacts

Produced during runtime

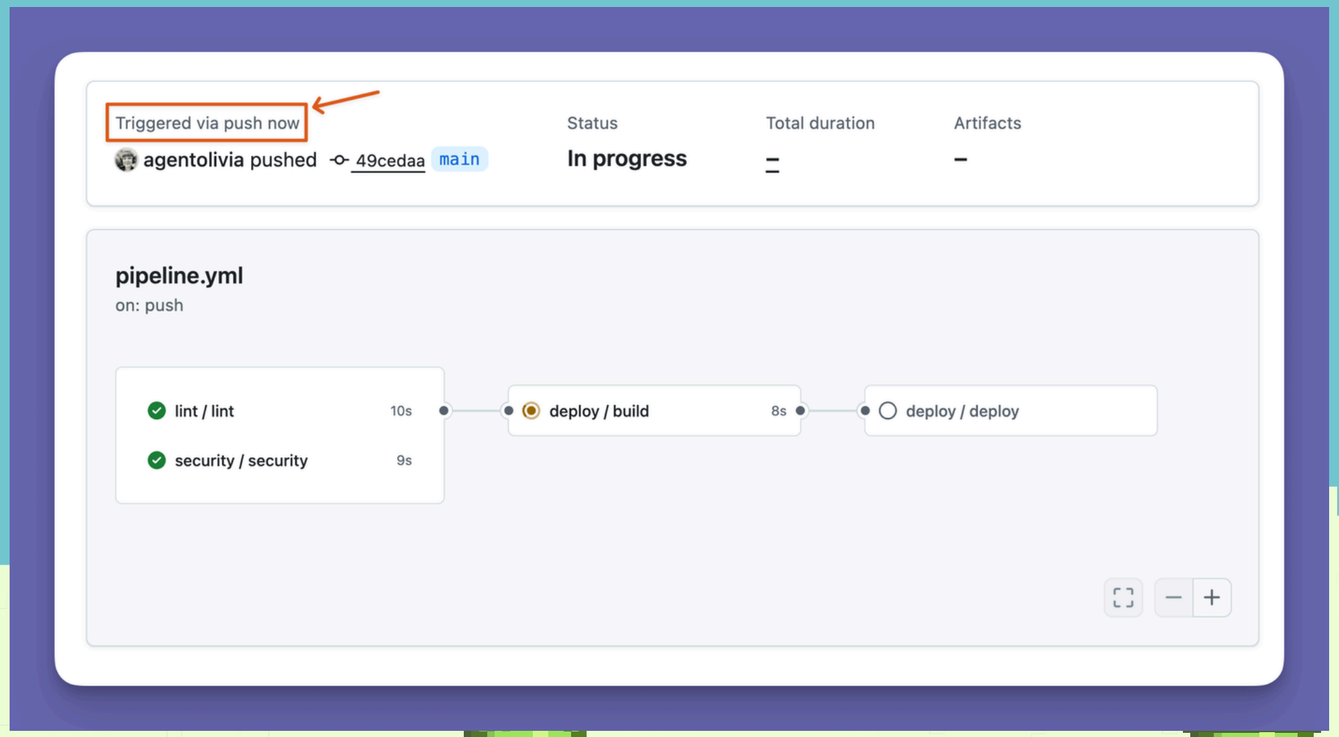
Name	Size	Digest
github-pages Expired	687 KB	sha256:46da32ba08a3cb620df7f4c1aa39058a56b5e6…


.github > workflows > lint.yml
1 name: Lint
2
3 on:
4 workflow_call:
5
6 jobs:
7 lint:
8 runs-on: ubuntu-latest
9
10 steps:
11 1 - name: Check out code
12 uses: actions/checkout@v4
13
14 2 - name: Set up Node.js
15 uses: actions/setup-node@v4
16 with:
17 node-version: '20'
18
19 3 - name: Install dependencies
20 run: npm ci
21
22 4 - name: Run Prettier check
23 run: npm run format:check
24
25 5 - name: Run Markdown check
26 run: npm run lint:markdown
27
Concept:
Steps

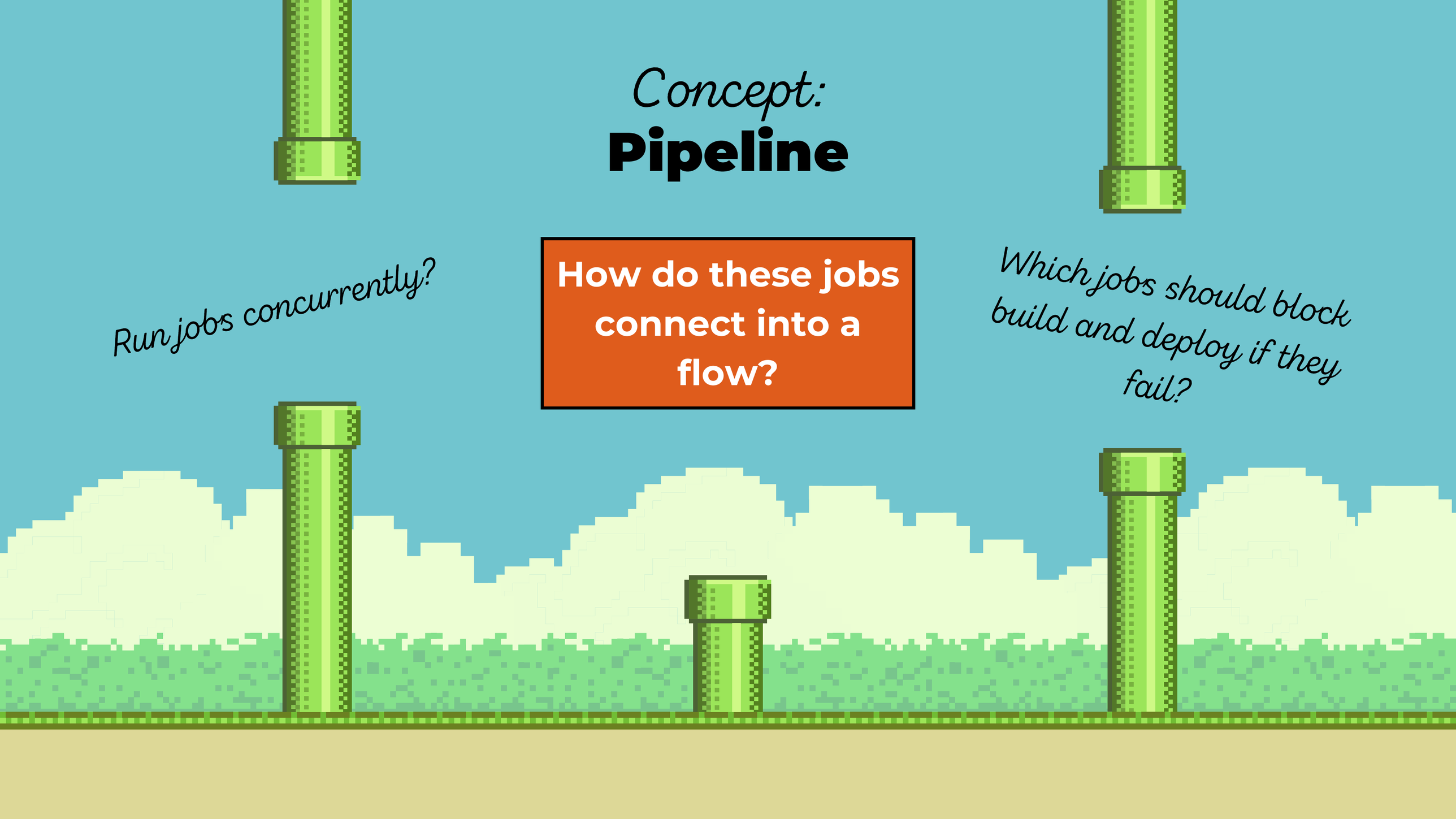

lint
succeeded last week in 11s
Search logs
Set up job 0s
Check out code 2s
Set up Node.js 0s
▶ Run actions/setup-node@v4
7 Found in cache @ /opt/hostedtoolcache/node/20.20.0/x64
8 ▶ Environment details
Install dependencies 3s
Run Prettier check 0s
Run Markdown linting 1s
Post Set up Node.js 0s
Post Check out code 0s
Complete job 0s


.github > workflows > lint.yml
1 name: Lint
2
3 on:
4 workflow_call:
5
6 jobs:
7 lint:
8 runs-on: ubuntu-latest
9
10 steps:
11 1 - name: Check out code
12 uses: actions/checkout@v4
13
14 2 - name: Set up Node.js
15 uses: actions/setup-node@v4
16 with:
17 node-version: '20'
18
19 3 - name: Install dependencies
20 run: npm ci
21
22 4 - name: Run Prettier check
23 run: npm run format:check
24
25 5 - name: Run Markdown check
26 run: npm run lint:markdown
27

Concept: **Triggers**




```yaml
on:
  push:
    branches:
      - main
  pull_request:
    branches:
      - main
```


Concept:
Pipeline
Run jobs concurrently?
How do these jobs connect into a flow?
Which jobs should block build and deploy if they fail?

On GitHub:
Update pipeline and test lint failure#7

https://github.com/agentolivia/agentolivia.github.io/pull/7

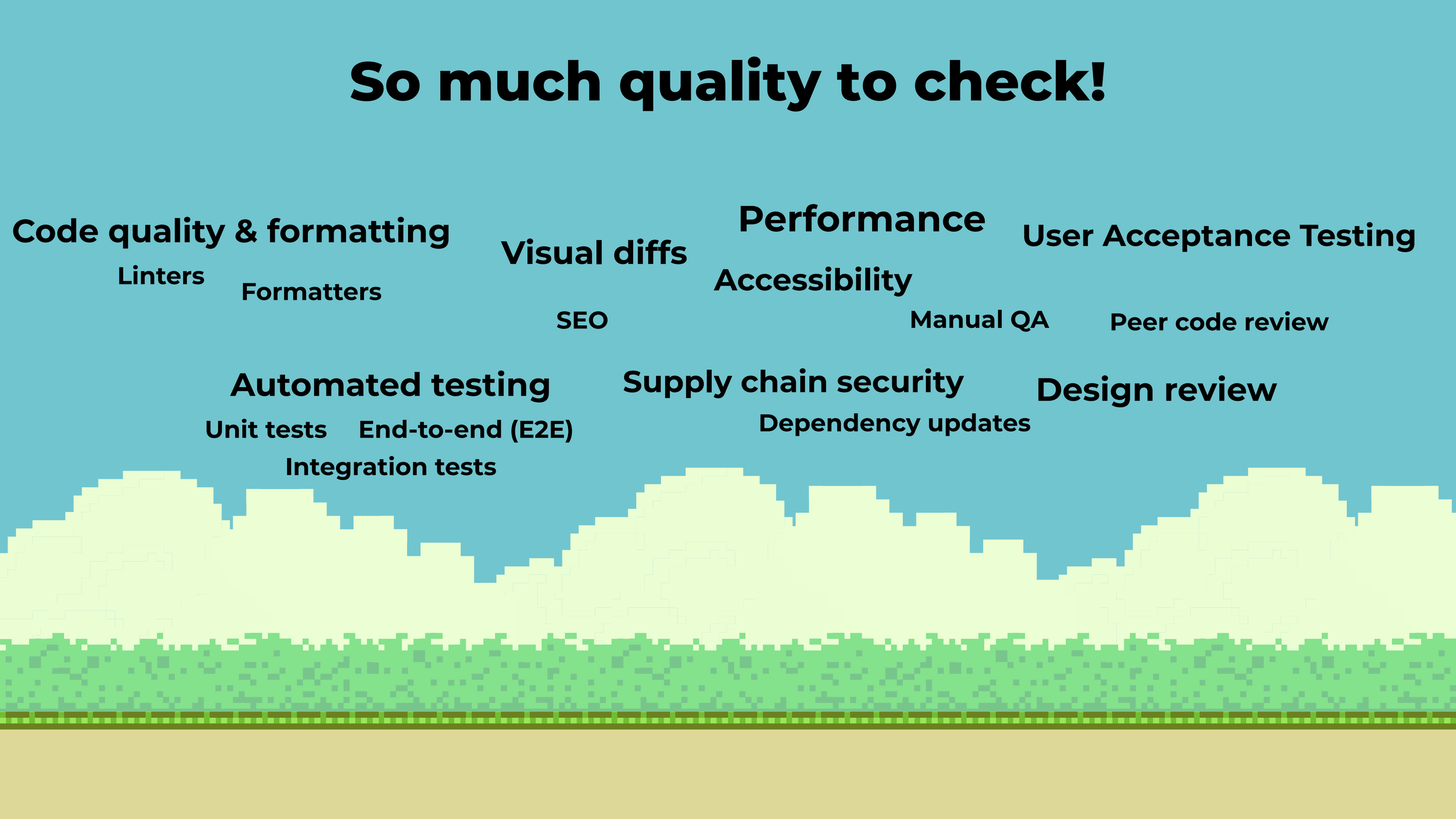
On GitHub:
Refactored security check and updated package to remove vulnerability#8

https://github.com/agentolivia/agentolivia.github.io/pull/8

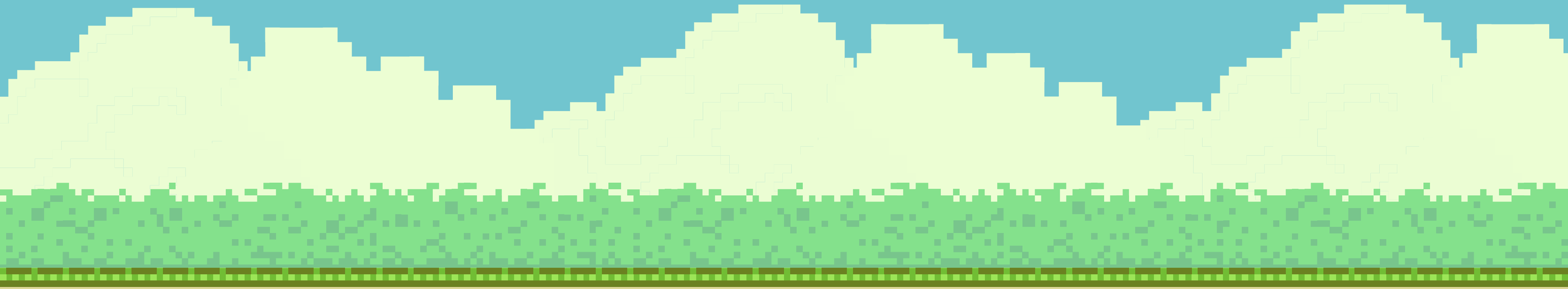
Code editor CLI

git checkout step-3-pipeline-refactor

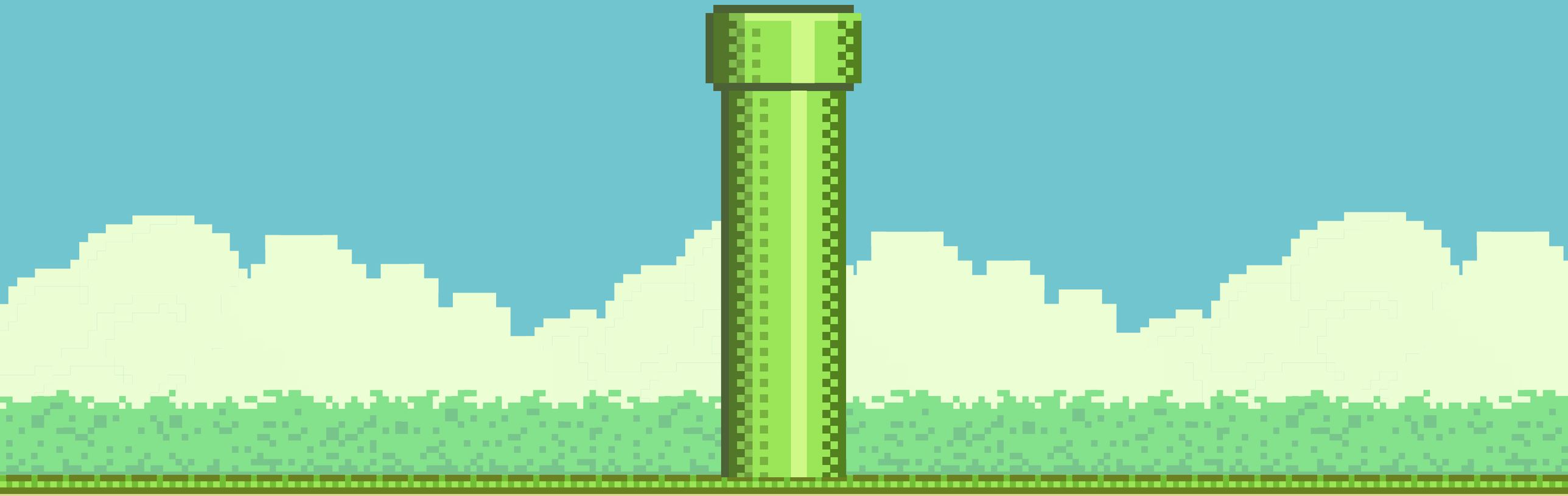
So much quality to check!

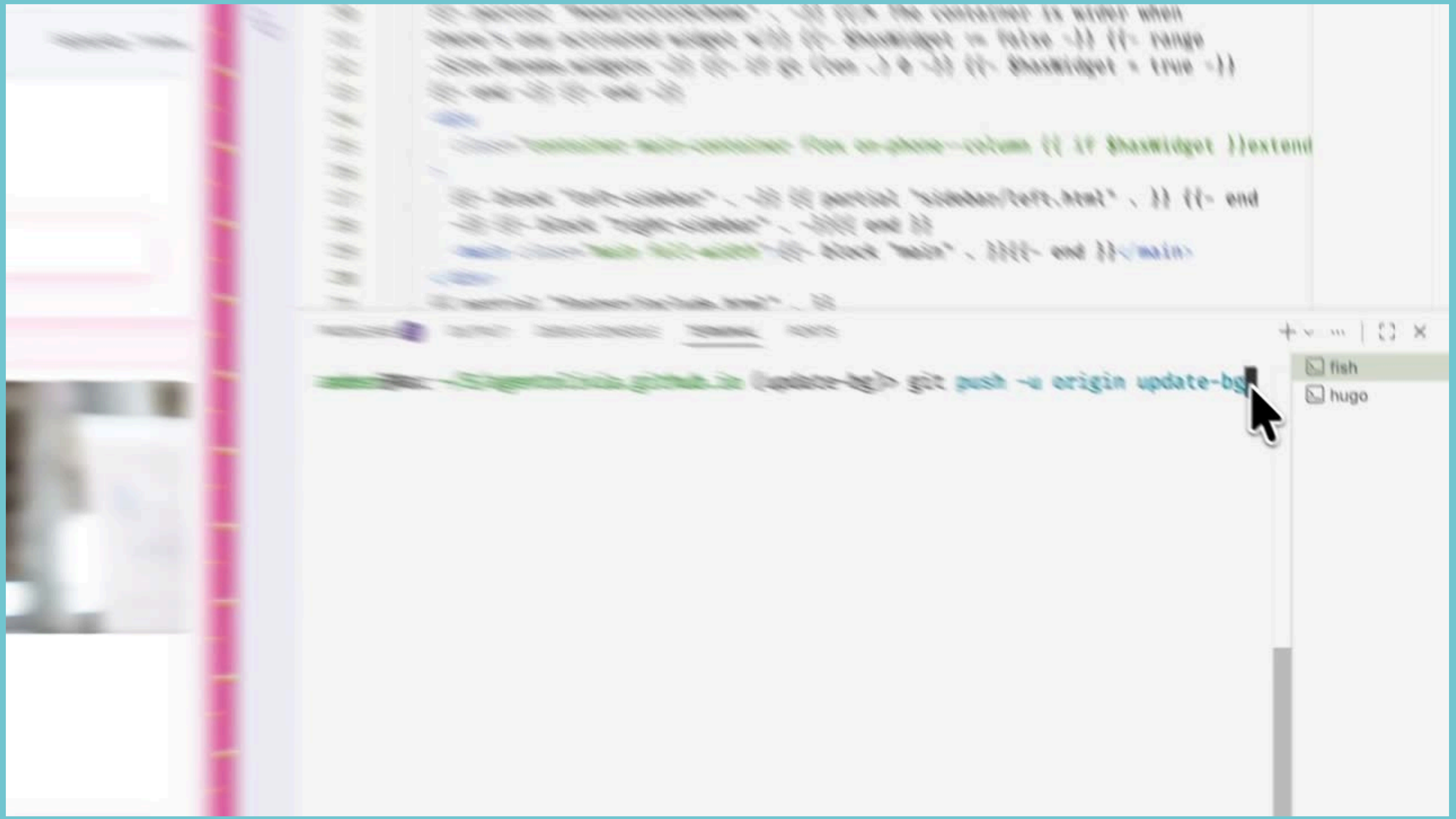


What is **one tool** you **love to use** in your IDE that **you could add to a CI/CD pipeline** that would run **automatically** on every pull request?



final boss demo




git push -u origin update-bg
fish
hugo

Where am I at now?

Commit changes on branch and push to repo	Create pull request	Trigger automatic quality checks	Merge pull request to ‘main’ branch	Trigger automatic deployment

Now with more pipeline!

What did we learn?

- How I created a sandbox to learn CI/CD concepts
- A process of adding a local CLI tool to a CI/CD check
- 6 essential concepts

Config File!

Environment!

Jobs!

Steps!

Triggers!

The Pipeline FTW!

Now Go and Build Your First CI/CD Pipeline

(And Add a Quality Check While You're At It!)

Amber Matz *Developer Advocate*

Tugboat

tugboatqa.com

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Resources

My repo:
https://github.com/agentolivia/agentolivia.github.io

GitHub Actions Marketplace
https://github.com/marketplace?type=actions

GitHub Actions Docs
https://docs.github.com/en/actions