

# Getting Started With GitHub Actions

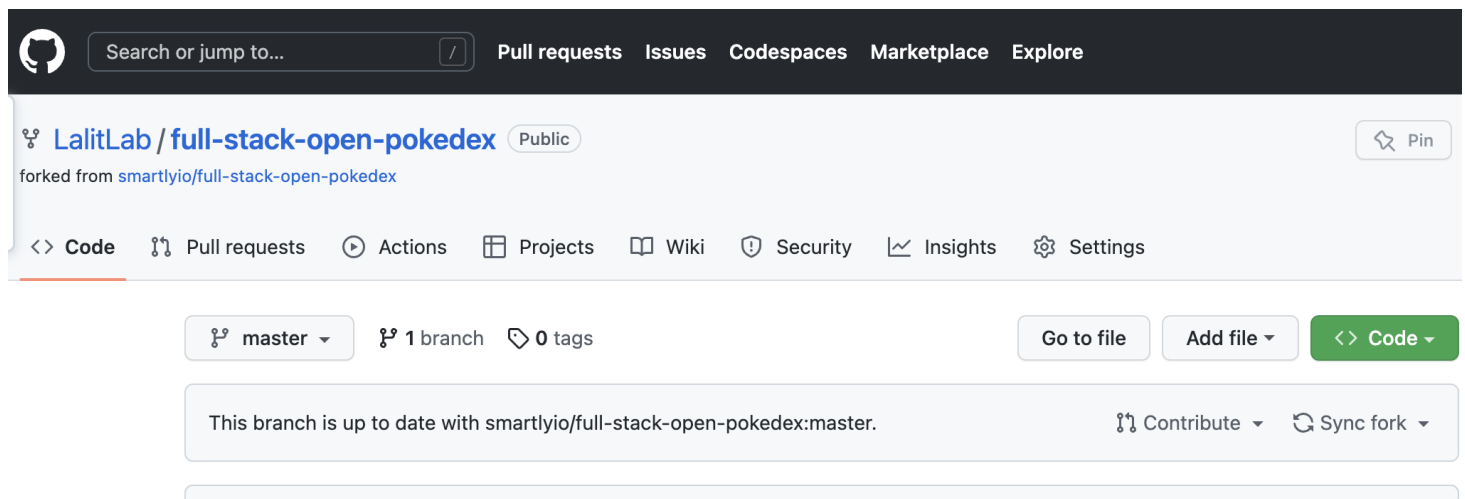
1. Follow instructions: [Introduction to CI/CD](#)
2. Complete exercises: [Getting started with GitHub Actions](#)

## Exercises

### Exercise 11.2 - Fork the repo and try on system

#### Fork the example repository:

First I forked the example repository [smartlyio/full-stack-open-pokedex](#) to my Github account as [LalitLab/full-stack-open-pokedex](#)



#### Try the project locally on system

1. Then cloned the repository to my system to implement the exercises locally.
  - ▶ clone the repo locally
2. Run `npm install` locally to install project dependencies
  - ▶ install dependencies
3. Start the code in development mode
  - ▶ app started in development mode
4. Now run tests
  - ▶ running tests locally
5. Now run lint
  - ▶ `npm run eslint`

## Exercise 11.3 - Create Hello World! workflow

In this exercise, the intention is to get started with the GitHub actions. Create a simple workflow through which we will print Hello World! in GitHub action.


- Created folder `.github/workflows` . GitHub Actions lives under this path.
- Next created a `hello.yaml` file containing the GitHub action code below to print Hello World!

```
name: Hello World! # Name of the workflow


on: # This is used to manage the workflow triggering
  push:
    branches:
      - master

jobs: # This jobs will be executed when workflow triggers
  hello_world_job: # Name of the Job
    runs-on: ubuntu-20.04 # The GitHub runner will use Ubuntu 20.04 as OS steps:
    steps:
      - name: Say hello
        run: echo "Hello World!"
```

- Once the code with the hello workflow was committed to master branch the Hello World! workflow got triggered immediately.



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← Hello World!

✔️ **Create workflow to print hello world #2**

 Summary

Jobs

✔️ hello\_world\_job

Run details

🕒 Usage

📄 Workflow file

**hello\_world\_job**  
succeeded 5 minutes ago in 0s

▼ ✔️ Set up job

1 Current runner version: '2.299.1'  
2 ▶ Operating System  
6 ▶ Runner Image  
11 ▶ Runner Image Provisioner  
13 ▶ GITHUB\_TOKEN Permissions  
27 Secret source: Actions  
28 Prepare workflow directory  
29 Prepare all required actions

▼ ✔️ Say hello

1 ▶ Run echo "Hello World!"  
4 Hello World!


▼ ✔️ Complete job

1 Cleaning up orphan processes

## Exercise 11.4 - Extend the Hello World! workflow to display date and directory content

- In this exercise, we extend the hello.yaml workflow to display date and directory content. For this added below two steps to the hello\_world\_job job.
  - name: Now it is  
run: date
  - name: Directory content  
run: ls -l

- This commit in the workflow results in below:

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← Hello World!

## ✓ Extend Hello World workflow to display date and directory list #6

 Summary

Jobs

✓ hello\_world\_job

Run details

 Usage

 Workflow file

### hello\_world\_job

succeeded now in 2s

> ✓ Set up job

> ✓ Say hello

✓ Now it is

1 ▶ Run date

4 Wed Jan 4 13:27:19 UTC 2023

✓ Directory content

1 ▶ Run `ls -l`

4 total 0

> ✓ Complete job

## Exercise 11.5 - In this create a new workflow to check the code for JavaScript linting

- Create a new file `pipeline.yaml` in the path `.github/workflows` with the below content

```
name: Deployment pipeline
```

```
on:
```

```
  push:
```

```
    branches:
```

```
      - master
```

```
jobs:
```

```
  simple_deployment_pipeline:
```

```
    runs-on: ubuntu-20.04
```

```
    steps:
```

```
      # GitHub Action to clone the repository code to vm/container running action
```

```
      - uses: actions/checkout@v3
```

```
      # GitHub action to install node
```

```
      - uses: actions/setup-node@v3
```

```
        with:
```

```
          # Install node with version 16
```

```
          node-version: "16"
```

```
      # Install node dependencies for the project
```

```
      - name: npm install
```

```
        run: npm install
```

```
      # Run the link to check for coding standards
```

```
      - name: lint
```

```
        run: npm run eslint
```

- As soon as the above workflow is committed to master branch it triggers the GH action which result in error in the lint as code is already having lint problems.

← Deployment pipeline

Add pipeline.yaml workflow to check the code for js linting #1

Summary

Jobs

simple\_deployment\_pipeline

Run details

Usage

Workflow file

Triggered via push 4 minutes ago Status Total duration Artifacts  
LalitLab pushed eb3dddb master Failure 42s -

pipeline.yaml  
on: push

simple\_deployment\_pipel... 23s

Annotations

10 errors

simple\_deployment\_pipeline: app.js#L1  
Strings must use singlequote

simple\_deployment\_pipeline: app.js#L1  
Extra semicolon

simple\_deployment\_pipeline: app.js#L2  
Extra semicolon

simple\_deployment\_pipeline: app.js#L5  
'process' is not defined

simple\_deployment\_pipeline: app.js#L5  
Extra semicolon

simple\_deployment\_pipeline: app.js#L7  
Strings must use singlequote

simple\_deployment\_pipeline: app.js#L7  
Extra semicolon


simple\_deployment\_pipeline: app.js#L10  
Unexpected console statement

simple\_deployment\_pipeline: app.js#L10  
Strings must use singlequote

simple\_deployment\_pipeline: app.js#L10  
Extra semicolon

## Exercise 11.6 - Fix the code for linting

- Did some googling to look for steps to fix linting errors. Followed below links to fix them:
  - <https://eslint.org/docs/latest/user-guide/configuring/language-options#specifying-globals>
  - [https://fullstackopen.com/en/part3/validation\\_and\\_es\\_lint#lint](https://fullstackopen.com/en/part3/validation_and_es_lint#lint)
  - <https://stackoverflow.com/questions/40271230/how-to-run-eslint-fix-from-npm-script>
- Once the changes in the [2617261](#) commit are pushed the workflow runs successfully without any error in off the steps as below:

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← Deployment pipeline

## ✓ Fix linting error in the code #2

 Summary

Jobs

✓ simple\_deployment\_pipeline

Run details

 Usage

 Workflow file

### simple\_deployment\_pipeline

succeeded 1 minute ago in 28s

- > ✓ Set up job
- > ✓ Run actions/checkout@v3
- > ✓ Run actions/setup-node@v3
- > ✓ npm install
- ▼ ✓ lint
  - 1 ▶ Run npm run eslint
  - 4
  - 5 > fullstackopen-cicd@1.0.0 eslint
  - 6 > eslint '\*\*/\*.js,\*.jsx'
  - 7
  - 8 Warning: React version not specified in your source code
- > ✓ Post Run actions/setup-node@v3
- > ✓ Post Run actions/checkout@v3
- > ✓ Complete job

## Exercise 11.7 - Building and testing

- In this exercise we will extend the pipeline workflow to execute Test cases
- Added below step into the file testing the code
  - name: test
  - run: npm test



- This step fails with error due to issue in one the test case.

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← Deployment pipeline


## **Extend pipeline workflow to run integration tests #4**

 Summary

Jobs

 **simple\_deployment\_pipeline**










Run details

 Usage

 Workflow file

### simple\_deployment\_pipeline

failed 2 minutes ago in 33s

- >  Set up job
- >  Run actions/checkout@v3
- >  Run actions/setup-node@v3
- >  npm install
- >  lint
- >  test
  -  Post Run actions/setup-node@v3
- >  Post Run actions/checkout@v3
- >  Complete job

```

57     }
58
59     at PokemonPage (src/PokemonPage.jsx:29:11)
60
61     • <PokemonPage /> > should render previous and next urls if they exist
62
63     expect(element).toHaveAttribute("href", "/pokemon/vaporeon") // element.getAttribute("href") === "/pokemon/vaporeon"
64
65     Expected the element to have attribute:
66       href="/pokemon/vaporeon"
67     Received:
68       href="/pokemon/ditto"
69
70     120 |
71     121 |     expect(screen.getByText('Previous')).toHaveAttribute('href', '/pokemon/ditto')
72   > 122 |     expect(screen.getByText('Next')).toHaveAttribute('href', '/pokemon/vaporeon')
       |                                     ^
73
74     123 |   })
75     124 |
76     125 |   it('should not render previous and next urls if none exist', async () => {
77
78     at _callee6$ (test/PokemonPage.jest.spec.jsx:122:38)
79     at tryCatch (node_modules/regenerator-runtime/runtime.js:45:40)
80     at Generator.invoke [as _invoke] (node_modules/regenerator-runtime/runtime.js:274:22)
81     at Generator.prototype.<computed> [as next] (node_modules/regenerator-runtime/runtime.js:97:21)
82     at asyncGeneratorStep (node_modules/@babel/runtime/helpers/asyncToGenerator.js:3:24)
83     at _next (node_modules/@babel/runtime/helpers/asyncToGenerator.js:25:9)
84
85     PASS test/App.jest.spec.jsx
86     PASS test/PokemonList.jest.spec.jsx
87
88     Test Suites: 1 failed, 2 passed, 3 total
89     Tests:       1 failed, 7 passed, 8 total
90     Snapshots:   0 total
91     Time:        3.131s
92     Ran all test suites.
93     Error: Process completed with exit code 1.

```

## Exercise 11.8 - Fix failing integration test

- Once the changes in [9e8629f](#) commit are pushed to master branch the pipeline GH action triggers and runs successfully.

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← Deployment pipeline

✓ **Fix integration test 'should render previous and next urls if they ex... #5**

Summary

Jobs

✓ **simple\_deployment\_pipeline**

Run details

Usage

Workflow file

**simple\_deployment\_pipeline**  
succeeded 5 minutes ago in 28s

- > ✓ Set up job
- > ✓ Run actions/checkout@v3
- > ✓ Run actions/setup-node@v3
- > ✓ npm install
- > ✓ lint
- > ✓ test
- > ✓ Post Run actions/setup-node@v3
- > ✓ Post Run actions/checkout@v3
- > ✓ Complete job

## Exercise 11.9 - Add Simple end to test to test UI functionality

- Used documentation [https://fullstackopen.com/en/part5/end\\_to\\_end\\_testing](https://fullstackopen.com/en/part5/end_to_end_testing) to use cypruss framework to implement end to end testing.
- Added frontend tests in [b806136](#) commit.
- Extended the pipeline workflow with below steps

```
# End to end test frontend functionality
- name: e2e tests
  uses: cypress-io/github-action@v4
  with:
    build: npm run build
    start: npm run start-prod
    wait-on: http://localhost:3000
```

- Pipeline workflow ran successfully without any errors.

← Deployment pipeline

## ✓ Add end to end test to pipeline workflow #9

🏠 Summary

Jobs

✓ **simple\_deployment\_pipeline**

Run details

🕒 Usage

📄 Workflow file

### simple\_deployment\_pipeline

succeeded 4 minutes ago in 1m 15s

- > ✓ Set up job
- > ✓ Run actions/checkout@v3
- > ✓ Run actions/setup-node@v3
- > ✓ npm install
- > ✓ lint
- > ✓ test
- > ✓ e2e tests
- > ✓ Post Run actions/setup-node@v3
- > ✓ Post Run actions/checkout@v3
- > ✓ Complete job

## simple\_deployment\_pipeline

succeeded 5 minutes ago in 1m 15s

### ✓ e2e tests

149

150 Running: pokedex.cy.js

(1 of 1)

151

152

153 Pokedex

154 ✓ front page can be opened (1709ms)

159 ✓ Test squirtle page (362ms)

160

163

164 2 passing (4s)

165

166

167 (Results)

168

169

144 | Tests: 2

145 | Passing: 2

146 | Failing: 0

147 | Pending: 0

148 | Skipped: 0

149 | Screenshots: 0

150 | Video: true

151 | Duration: 3 seconds

152 | Spec Ran: pokedex.cy.js

153

154

155

156 (Video)

157

158 - Started processing: Compressing to 32 CRF

159 - Finished processing: /home/runner/work/full-stack-open-pokedex/full-stack-open-p

okedex/cypress/videos/pokedex.cy.js.mp4 (0 seconds)

160

161

162

163

164

165 (Run Finished)

166

167

168

169

170

171

172

173

Spec	Tests	Passing	Failing	Pending	Skipped
✓ pokedex.cy.js 00:03	2	2	-	-	-
✓ All specs passed! 00:03	2	2	-	-	-