CI/CD with GitHub Actions

1. Create a new feature branch for the CI setup:

```
git checkout -b feature/ci-workflow-setup
```

2. Create the necessary directories: In the root of your ecommerce-product-page-team project folder, create the .github directory, and then a workflows directory inside it.

```
mkdir -p .github/workflows
```

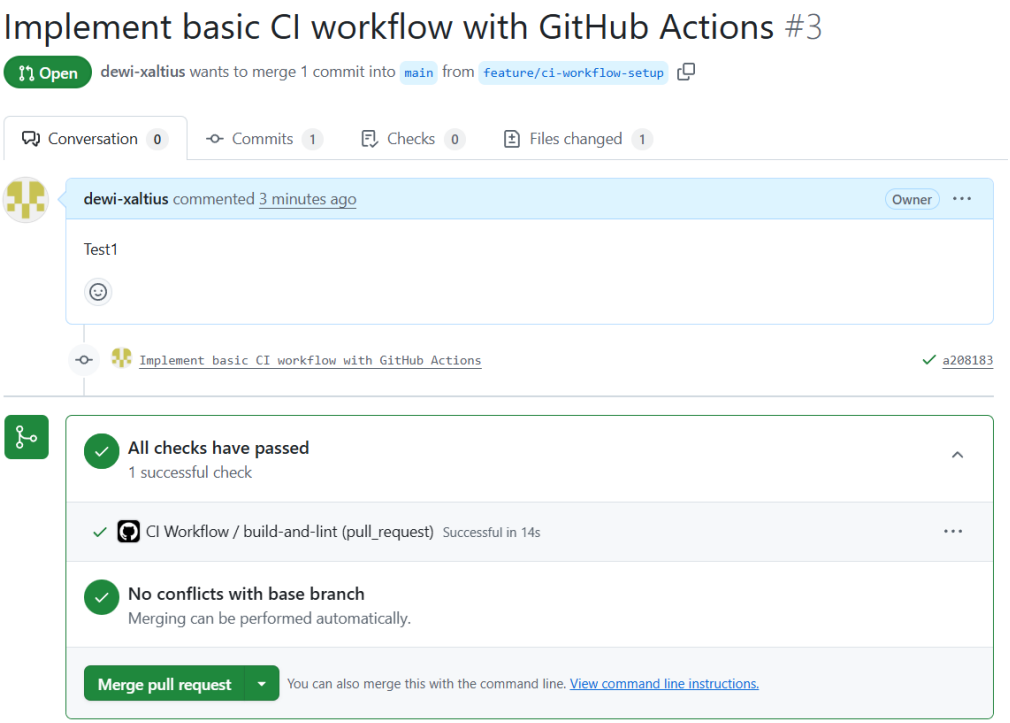
The -p flag ensures that parent directories are created if they don't already exist.

3. Create the CI Workflow File: ci.yaml. This file tells GitHub Actions when to run, what steps to perform, and on what environment.

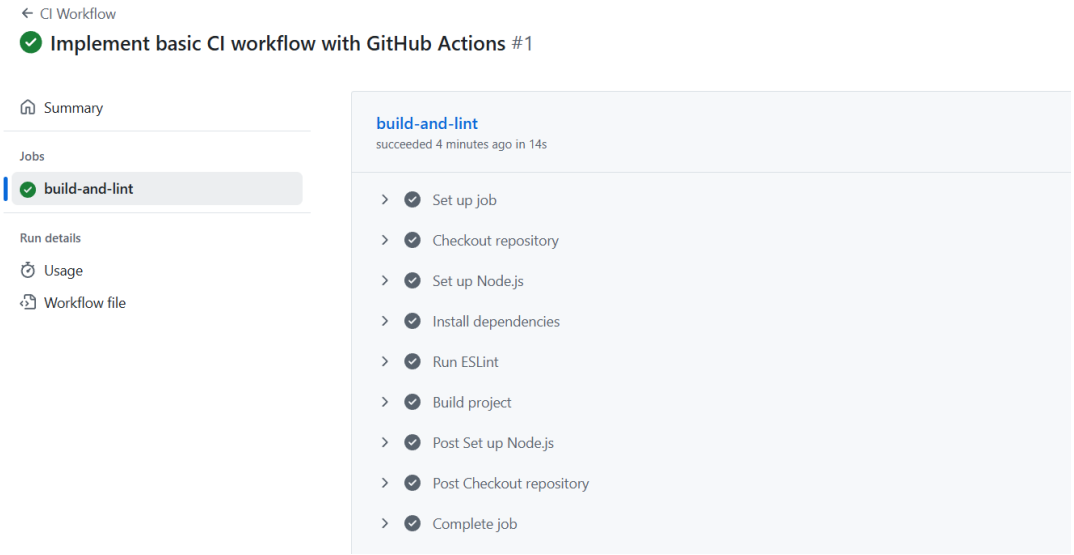
```yaml
# .github/workflows/ci.yaml
# This workflow defines the Continuous Integration (CI) process for your project.

name: CI Workflow # The name of your workflow, displayed in the GitHub Actions tab.

# Controls when the workflow will run.
on:
  # Triggers the workflow on 'push' events to the 'main' branch.
  # This means every time code is pushed directly to 'main' (or a PR is merged into 'main').
  push:
    branches: [ main ] # Indented 2 spaces from 'push'

  # Triggers the workflow on 'pull_request' events targeting the 'main' branch.
  # This is crucial for pre-merge checks, ensuring code quality before integration.
  pull_request:
    branches: [ main ] # Indented 2 spaces from 'pull_request'

  # Allows you to run this workflow manually from the GitHub Actions tab.
  # Useful for testing or re-running failed workflows.
  workflow_dispatch: # Indented 2 spaces from 'on'

# A workflow run is made up of one or more jobs that can run sequentially or in parallel.
jobs: # Top-level element, starts at column 0
  # Defines a single job named "build-and-lint".
  build-and-lint: # Indented 2 spaces from 'jobs'
    # The type of runner (virtual environment) that the job will execute on.
```

```yaml
    # 'ubuntu-latest' provides a fresh Linux environment with necessary
tools.
    runs-on: ubuntu-latest # Indented 2 spaces from 'build-and-lint'

    # Steps represent a sequence of tasks that will be executed as part
of this job.
    steps: # Indented 2 spaces from 'build-and-lint'
      # Step 1: Checkout repository
      # Uses the 'actions/checkout' action to clone your repository into
the runner's workspace.
      # This allows your job to access your code.
      - name: Checkout repository # Indented 2 spaces from 'steps'
(hyphen for list item, then 2 spaces for 'name')
        uses: actions/checkout@v4 # Indented 2 spaces from 'name'

      # Step 2: Set up Node.js environment
      # Uses the 'actions/setup-node' action to configure the Node.js
environment.
      # We specify Node.js version 18, which is a common and compatible
version for Vite React apps.
      # 'cache: npm' caches npm dependencies, significantly speeding up
subsequent runs.
      - name: Set up Node.js # Indented 2 spaces from 'steps'
        uses: actions/setup-node@v4 # Indented 2 spaces from 'name'
        with: # Indented 2 spaces from 'uses'
          node-version: '18' # Indented 2 spaces from 'with'
          cache: 'npm' # Indented 2 spaces from 'with'

      # Step 3: Install project dependencies
      # Executes the 'npm install' command to download and install all
project dependencies.
      - name: Install dependencies # Indented 2 spaces from 'steps'
        run: npm install # Indented 2 spaces from 'name'

      # Step 4: Run ESLint
      # Executes the 'npm run lint' script defined in your package.json.
      # This step checks for code style issues and potential errors,
ensuring code quality.
      - name: Run ESLint # Indented 2 spaces from 'steps'
        run: npm run lint # Indented 2 spaces from 'name'

      # Step 5: Build project
      # Executes the 'npm run build' script defined in your package.json.
      # This step compiles your React project for production, verifying
that it can be successfully built
      # and catches any build-time errors.
      - name: Build project # Indented 2 spaces from 'steps'
        run: npm run build # Indented 2 spaces from 'name'
```

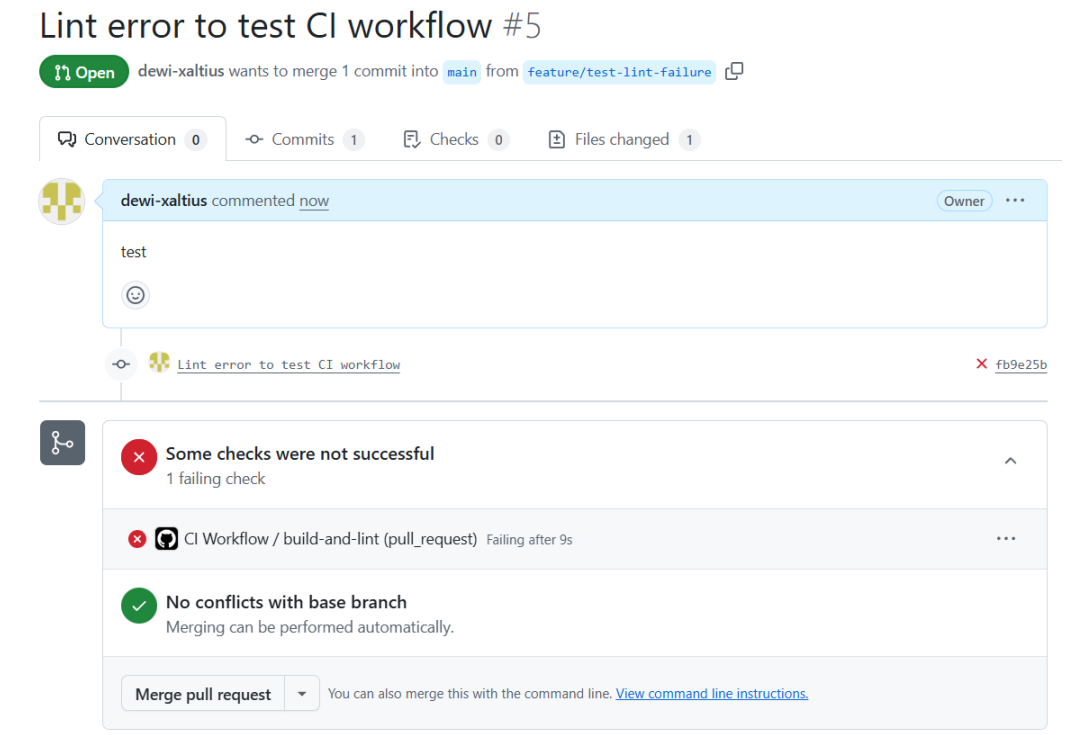
4. Commit and Push the Workflow File to GitHub
5. Create a Pull Request to trigger the CI workflow

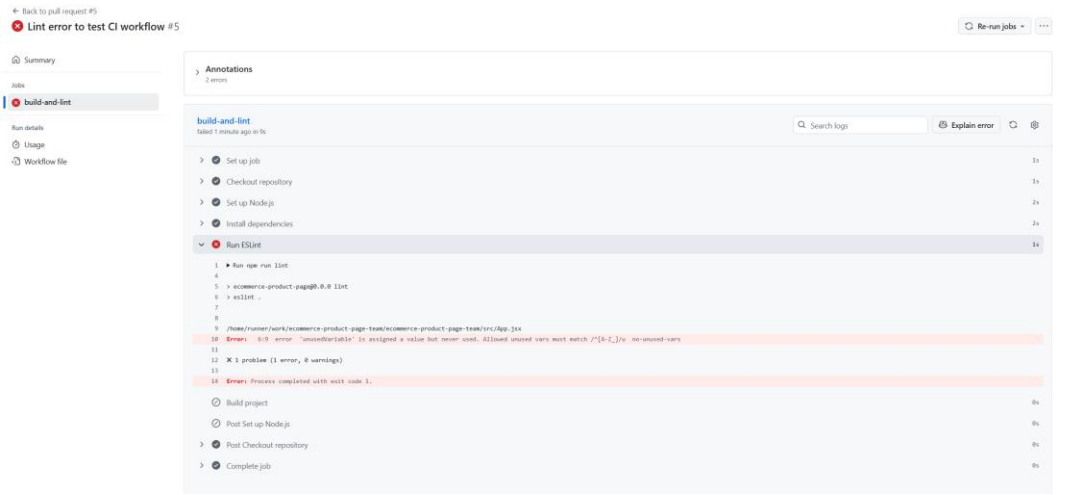


6. Navigate to Actions to see the details



7. Merge the PR to the main branch
8. If you have linting error, the CI workflow will fail:





9. Create a new feature branch for the CD workflow:

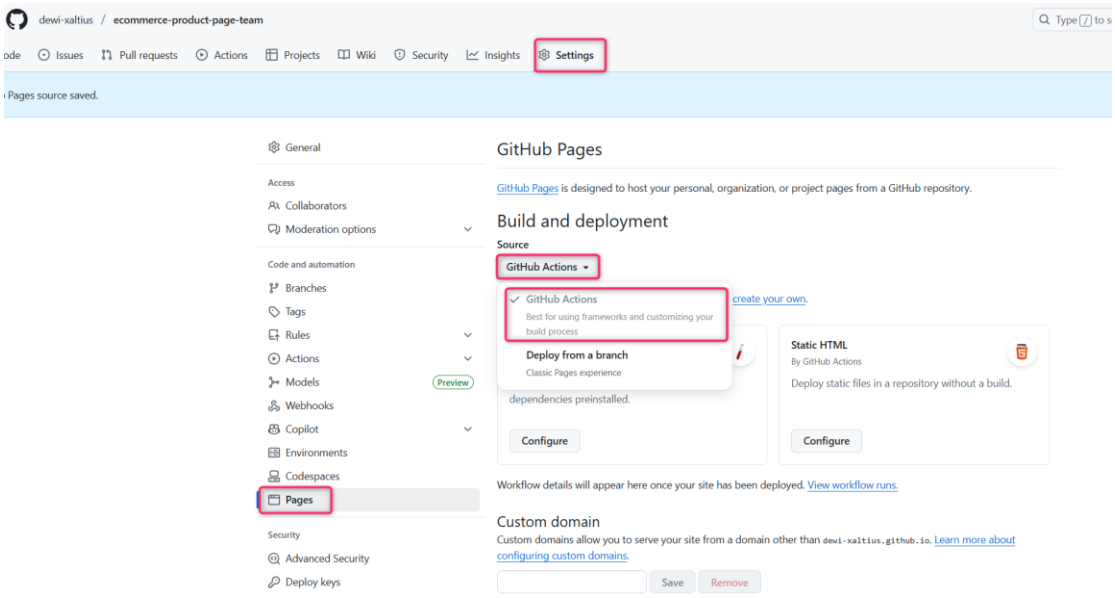
```
git checkout -b feature/setup-cd
```

10. Configure Vite for GitHub Pages: When you deploy to GitHub Pages, your site will be live at a URL like https://your-username.github.io/your-repo-name/. You need to tell Vite that the base path is /your-repo-name/, not just /.

```
import { defineConfig } from 'vite'
import react from '@vitejs/plugin-react'

// https://vite.dev/config/
export default defineConfig({
  plugins: [react()],
```

```
  base: '/ecommerce-product-page-team/',
})
```

11. Configure Your Repository for GitHub Pages: you need to tell your GitHub repository to accept deployments from GitHub Actions.

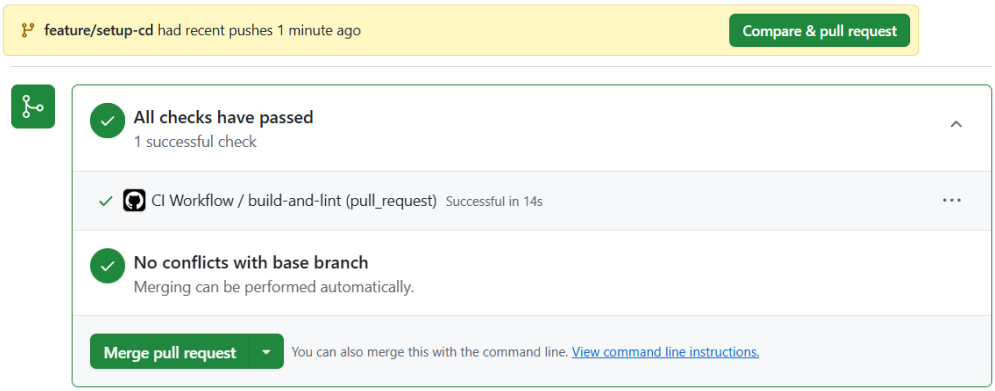


12. Create the Deployment Workflow File: We will create a new workflow file cd.yaml that is only responsible for deployment. It will run automatically after your CI checks pass and you merge your code into the main branch.

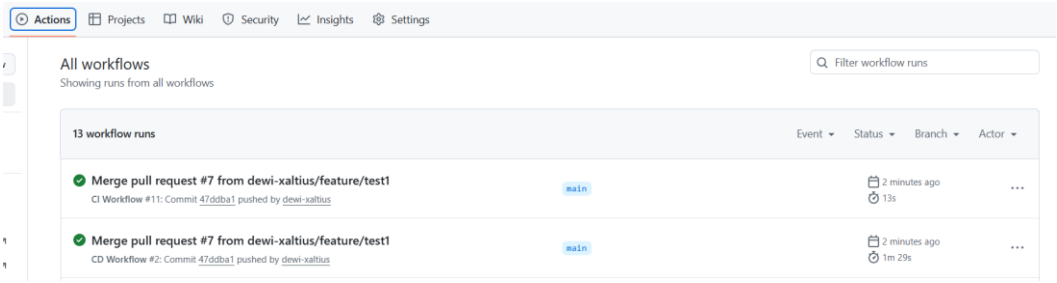
```
# .github/workflows/cd.yaml
# This workflow defines the Continuous Deployment (CD) process.

name: CD Workflow

# 1. Trigger: This workflow runs only on pushes to the 'main' branch.
# This means it will execute after a PR is merged into 'main'.
on:
  push:
    branches:
      - main

# 2. Permissions: Grant the necessary permissions for the workflow to
deploy to GitHub Pages.
permissions:
  contents: read
  pages: write
  id-token: write

# 3. Job: Define the deployment job.
```

```yaml
jobs:
  deploy:
    runs-on: ubuntu-latest
    environment:
      name: github-pages
      url: ${{ steps.deployment.outputs.page_url }} # The URL of the
deployed page.

    steps:
      # Step 1: Checkout your repository code.
      - name: Checkout repository
        uses: actions/checkout@v4

      # Step 2: Set up Node.js environment.
      - name: Set up Node.js
        uses: actions/setup-node@v4
        with:
          node-version: '18'
          cache: 'npm'

      # Step 3: Install project dependencies.
      - name: Install dependencies
        run: npm install

      # Step 4: Build the project for production.
      # The 'npm run build' command creates the 'dist' folder with your
static site.
      - name: Build project
        run: npm run build

      # Step 5: Configure GitHub Pages.
      - name: Setup Pages
        uses: actions/configure-pages@v5

      # Step 6: Upload the build artifact.
      # This action takes the contents of your 'dist' folder and prepares
it for deployment.
      - name: Upload artifact
        uses: actions/upload-pages-artifact@v3
        with:
          path: './dist'

      # Step 7: Deploy to GitHub Pages.
      # This action pushes your built code to the 'gh-pages' branch and
makes it live.
      - name: Deploy to GitHub Pages
        id: deployment
        uses: actions/deploy-pages@v4
```

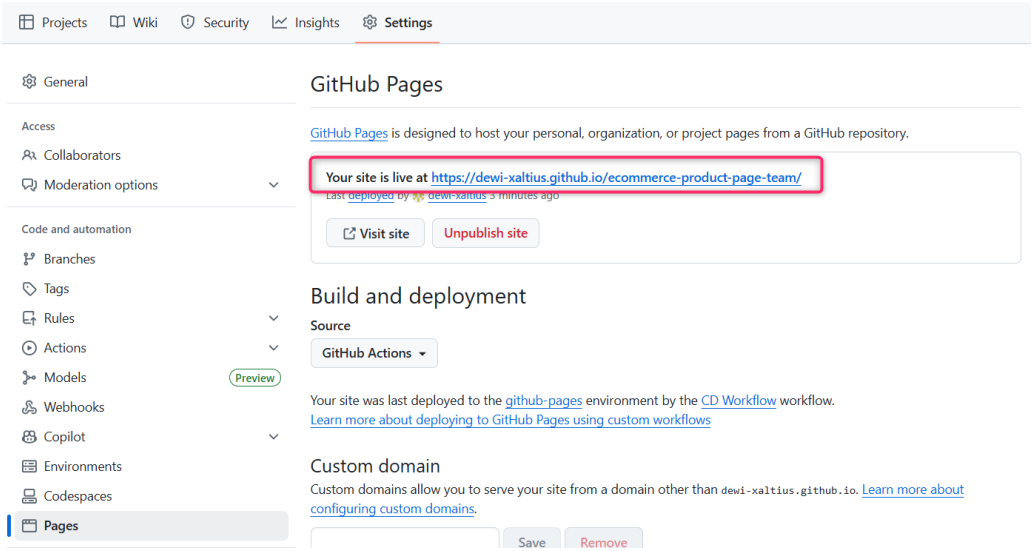
13. Create a PR:



14. Once you have merged the PR, you can check the Actions page:



15. You can check the published GitHub page:



16. After you finished merging, you can safely delete the feature branch in your repo. Then in your local, go to your main branch and pull the latest changes.

```
git checkout main
git pull origin main
```