Hosting Portfolio Website with GitOps and Github Actions

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Technology Stack

Github Pages – Used to host the static website directly from a Git repository.

GitHub Actions – Automates the deployment process, enabling a GitOps workflow.

Google Firebase Studio – AI-assisted development environment used to generate the static site content.

Git – Ensures full version control and traceability of all changes.

HTML / CSS – Used for structuring and styling the website content.

VSCodium – My primary editor for writing and managing the project files.

Project Overview

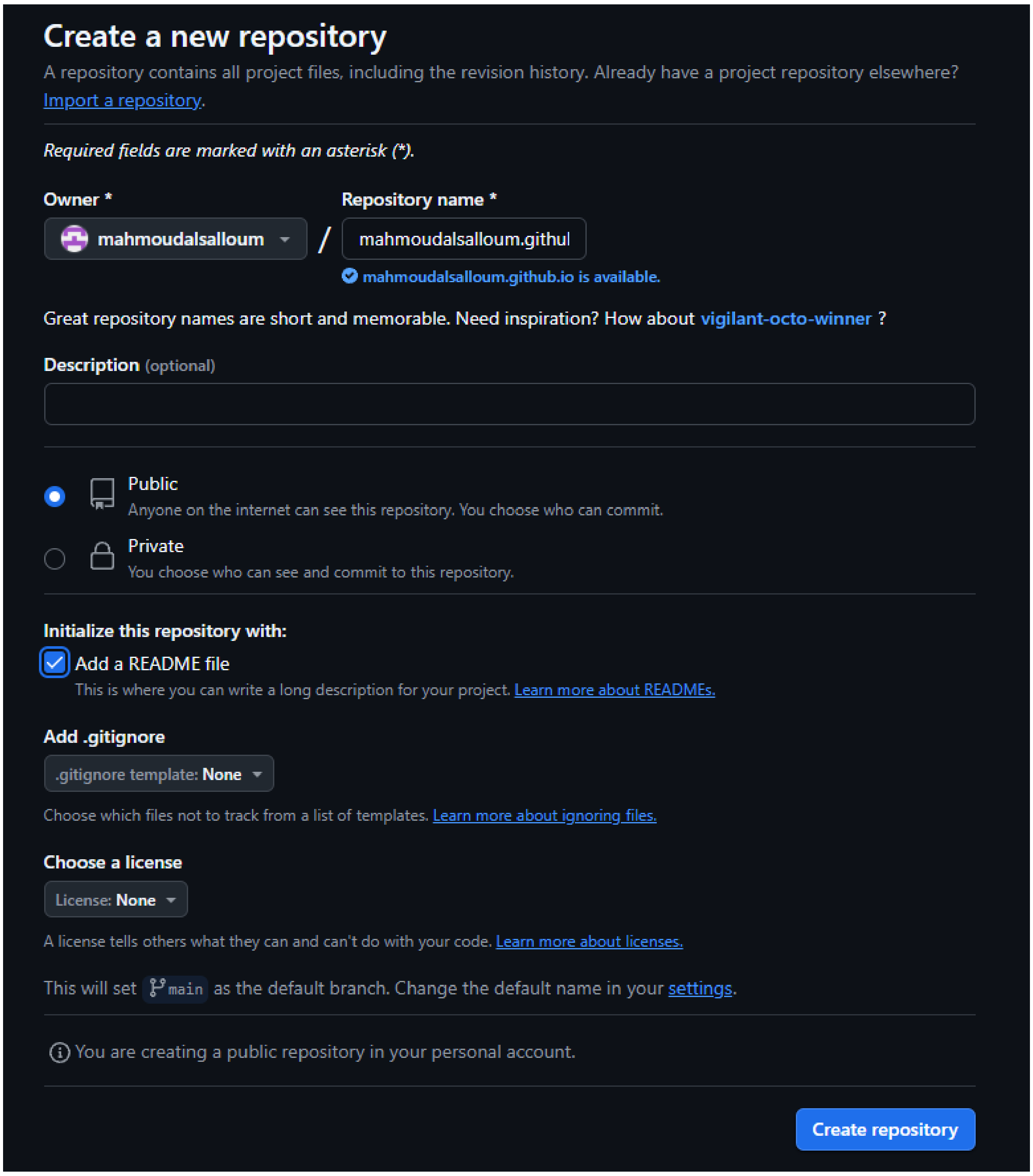
Welcome to my project!

Thank you for taking the time to explore my portfolio. In this project, I built and deployed a fully automated, static portfolio website using GitHub Pages. The goal was to create a centralized, professional space to showcase my work in IT, DevOps, and System Administration.

This site is not only a portfolio but also a live demonstration of modern DevOps practices. It is maintained using GitOps workflow powered by GitHub Actions. Every change made to the content is automatically deployed via CI/CD pipelines, ensuring that the website is always up to date and version controlled. You are experiencing the result of that workflow right now!

Implementation Steps

I began by creating a new GitHub repository named mahmoudalsalloum.github.io. This repository serves as the home for my personal portfolio website, which is hosted directly via GitHub Pages. It is configured to automatically deploy the latest version of the site from main branch, enabling a seamless and automated deployment process See Figure 1.



Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? Import a repository.

Required fields are marked with an asterisk (*).

Owner * mahmoudalsalloum / Repository name * mahmoudalsalloum.githul

mahmoudalsalloum.github.io is available.

Great repository names are short and memorable. Need inspiration? How about vigilant-octo-winner ?

Description (optional)

[✓ Public] Anyone on the internet can see this repository. You choose who can commit.

Private You choose who can see and commit to this repository.

Initialize this repository with:

[✓] Add a README file
This is where you can write a long description for your project. Learn more about READMEs.

Add .gitignore

.gitignore template: None

Choose which files not to track from a list of templates. Learn more about ignoring files.

Choose a license

License: None

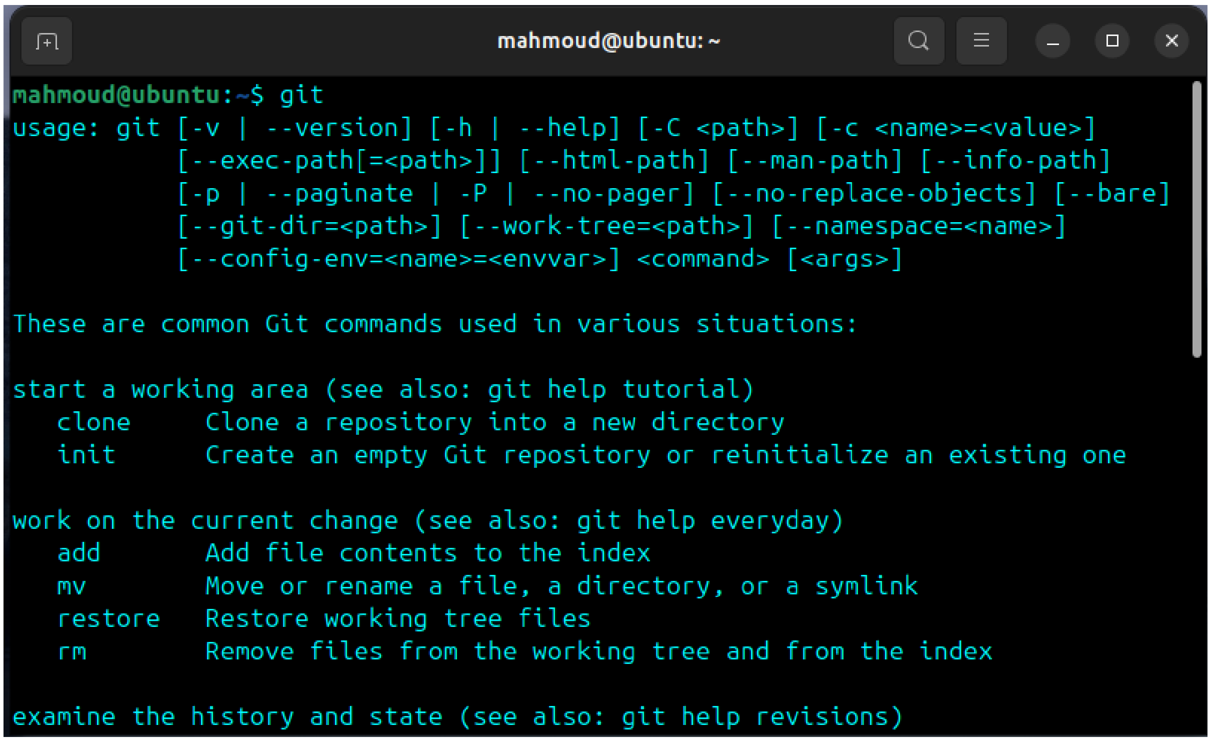
A license tells others what they can and can't do with your code. Learn more about licenses.

This will set `main` as the default branch. Change the default name in your settings.

You are creating a public repository in your personal account.

Figure 1: Create GitHub repository

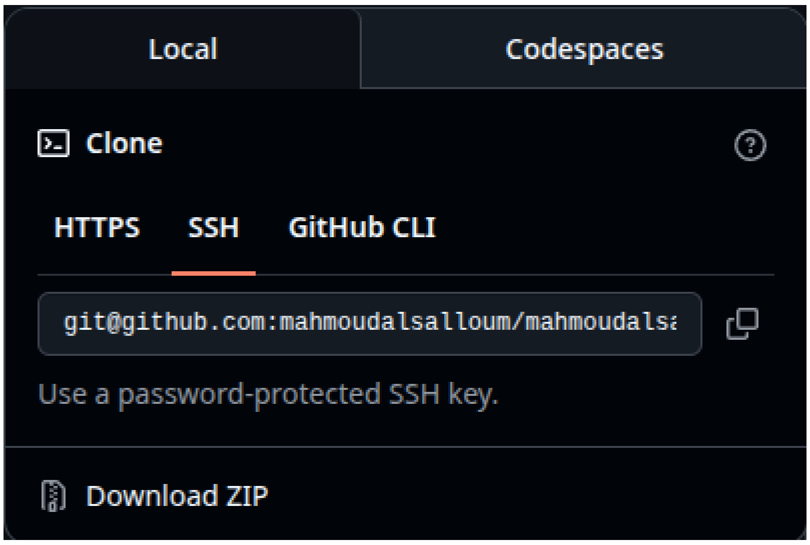
Next, I opened the Linux terminal to verify that Git was installed on the system. I did this by simply entering the command Git. The terminal responded with Git usage information and available command, confirming that Git was already installed and correctly configured on the system. See Figure 2.



```
mahmoud@ubuntu:~$ git
usage: git [-v | --version] [-h | --help] [-C <path>] [-c <name>=<value>]
           [--exec-path[=<path>]] [--html-path] [--man-path] [--info-path]
           [-p | --paginate | -P | --no-pager] [--no-replace-objects] [--bare]
           [--git-dir=<path>] [--work-tree=<path>] [--namespace=<name>]
           [--config-env=<name>=<envvar>] <command> [<args>]

These are common Git commands used in various situations:

start a working area (see also: git help tutorial)
   clone     Clone a repository into a new directory
   init      Create an empty Git repository or reinitialize an existing one

work on the current change (see also: git help everyday)
   add       Add file contents to the index
   mv        Move or rename a file, a directory, or a symlink
   restore   Restore working tree files
   rm        Remove files from the working tree and from the index

examine the history and state (see also: git help revisions)
```

Figure 2: Verify Git installation

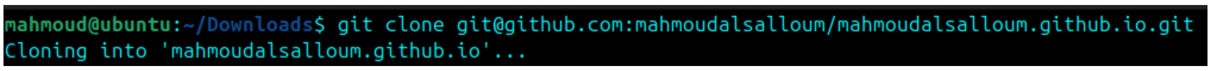
I returned to GitHub and copied the SSH clone link for the repository. I chose the SSH method because my system is already configured with SSH key, allowing for secure, token-free authentication. In the Linux terminal, I used the following to clone the repository to my local system. See Figure 3 and 4.



```
git@github.com:mahmoudalsalloum/mahmoudals
```

Use a password-protected SSH key.

Figure 3: SSH clone link for the repository



```
mahmoud@ubuntu:~/Downloads$ git clone git@github.com:mahmoudalsalloum/mahmoudalsalloum.github.io.git
Cloning into 'mahmoudalsalloum.github.io'...
```

Figure 4: git clone command

After cloning the repository, I opened VSCodium and loaded the cloned project directory. Inside the repository, I initialized a new project by creating two essential files:

Index.html – This file serves as the main entry point for the portfolio website.
Style.css – this file contains the custom styling for the website's layout and visual design.

These files form the core structure of the static site, where all the content and styles for my portfolio will be written and maintained. See Figure 5.

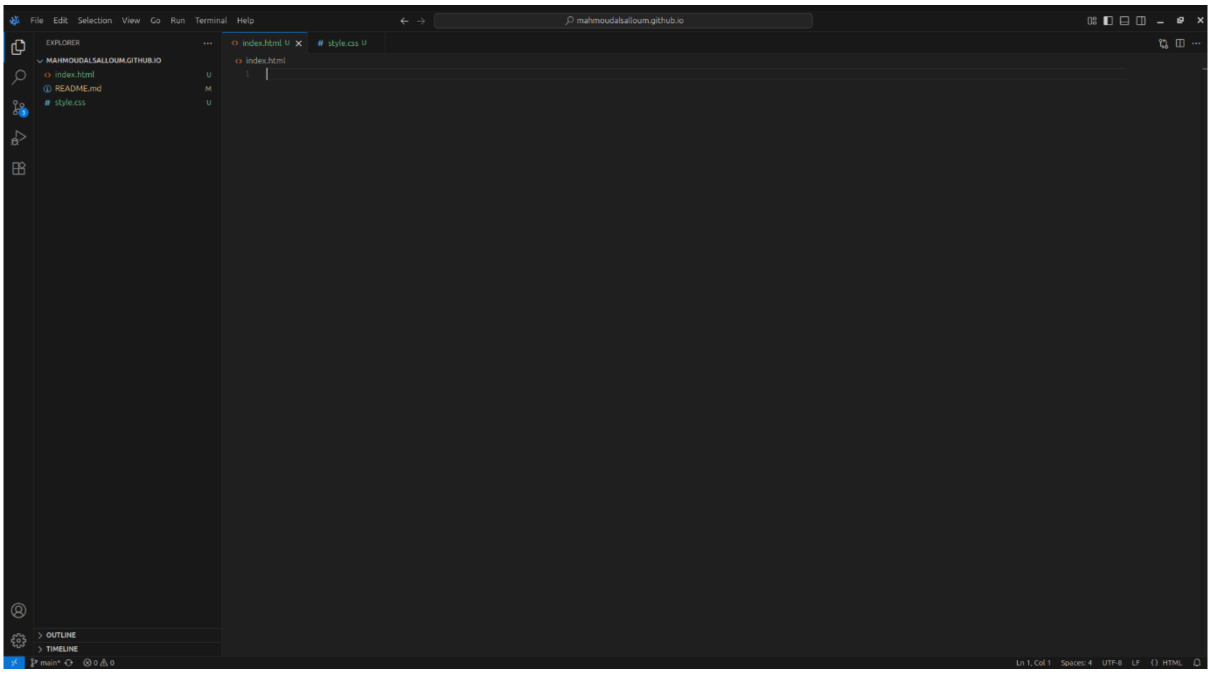

File Edit Selection View Go Run Terminal Help
mahmoudalsalloum.github.io
EXPLORER
MAHMOUDALSALLOUM.GITHUB.IO
index.html U
README.md M
style.css U
index.html U
style.css U
OUTLINE
TIMELINE
main*
Ln 1, Col 1 Spaces: 4 UTF-8 LF HTML

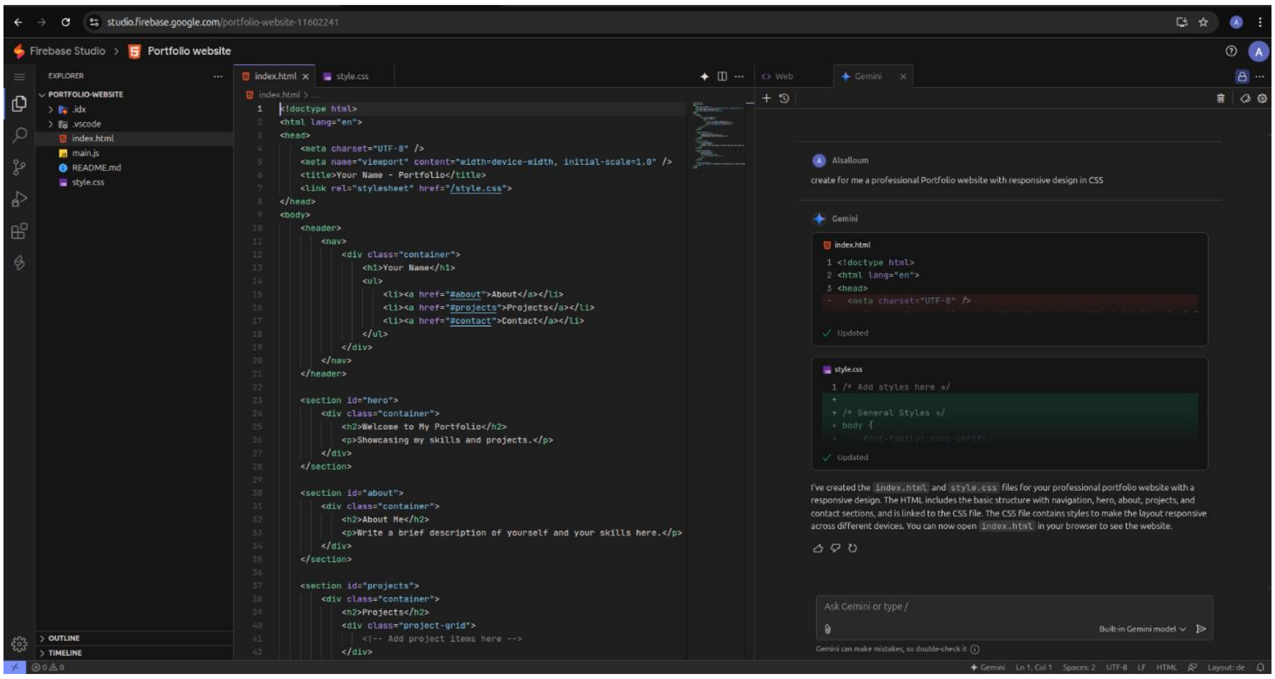
Figure 5: The new project in VSCodium

Next. I logged into the Firebase Studio platform and created a new web development project. Firebase Studio provides an AI-Powered environment that simplifies the design and coding process for static websites.

The interface is devided into two main panels:

- On one side, I had access to editable HTML and CSS files. These files demonstrate and structure the content and style of the website.
- On the other side, there are two tabs: one for interacting with Google Gemini, the integrated AI assistant, and another that provides a live preview of the website.

I used Gemini to describe the tasks and content I wanted for my portfolio. As Gemini generated and updated the HTML and CSS Code, the changes were instantly reflected in the live preview tab. This real-time feedback significantly accelerated the development process and improved the design iteration workflow. See Figure 6 and 7.



```html
<!doctype html>
<html lang="en">
<head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>Your Name - Portfolio</title>
    <link rel="stylesheet" href="/style.css">
</head>
<body>
    <header>
        <nav>
            <div class="container">
                <h1>Your Name</h1>
                <ul>
                    <li><a href="#about">About</a></li>
                    <li><a href="#projects">Projects</a></li>
                    <li><a href="#contact">Contact</a></li>
                </ul>
            </div>
        </nav>
    </header>

    <section id="hero">
        <div class="container">
            <h2>Welcome to My Portfolio</h2>
            <p>Showcasing my skills and projects.</p>
        </div>
    </section>

    <section id="about">
        <div class="container">
            <h2>About Me</h2>
            <p>Write a brief description of yourself and your skills here.</p>
        </div>
    </section>

    <section id="projects">
        <div class="container">
            <h2>Projects</h2>
            <div class="project-grid">
                <!-- Add project items here -->
            </div>
```

Alsalloum

create for me a professional Portfolio website with responsive design in CSS

Gemini

index.html

```
1 <!doctype html>
2 <html lang="en">
3 <head>
-   <meta charset="UTF-8" />
```

Updated

style.css

```
1 /* Add styles here */
+
+ /* General Styles */
+ body {
```

Updated

I've created the `index.html` and `style.css` files for your professional portfolio website with a responsive design. The HTML includes the basic structure with navigation, hero, about, projects, and contact sections, and is linked to the CSS file. The CSS file contains styles to make the layout responsive across different devices. You can now open `index.html` in your browser to see the website.

Ask Gemini or type /
Built-in Gemini model
Gemini can make mistakes, so double-check it
Gemini Ln 1, Col 1 Spaces: 2 UTF-8 LF HTML Layout: de

Figure 6: Google firebase studio panels with Google Gemini Assistant

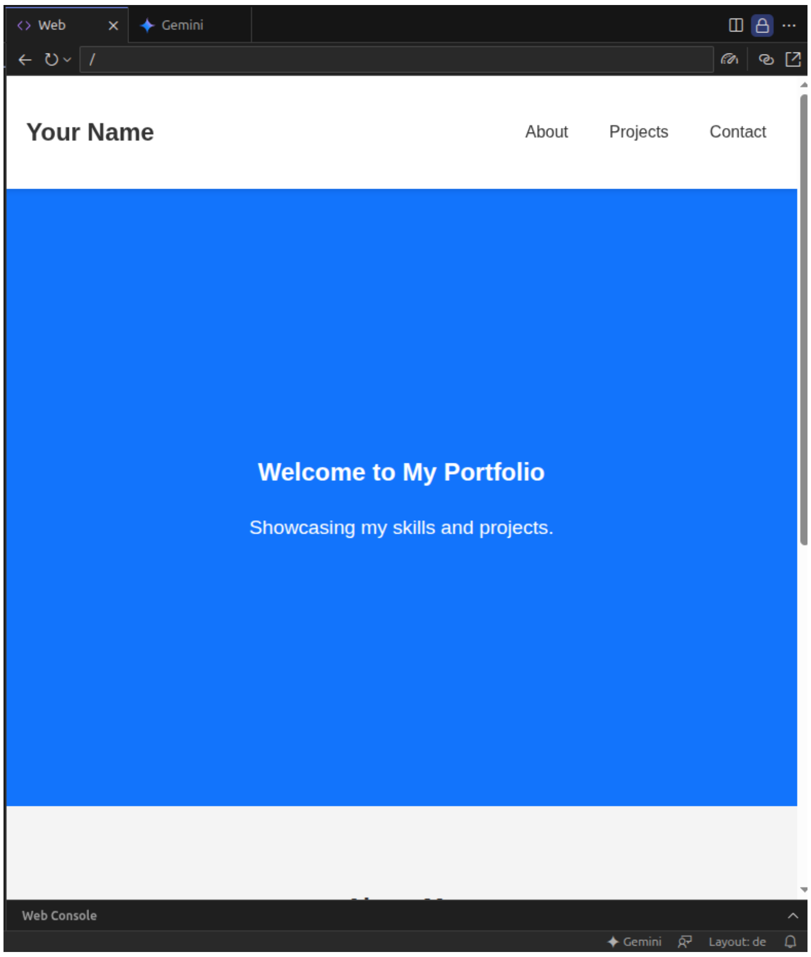


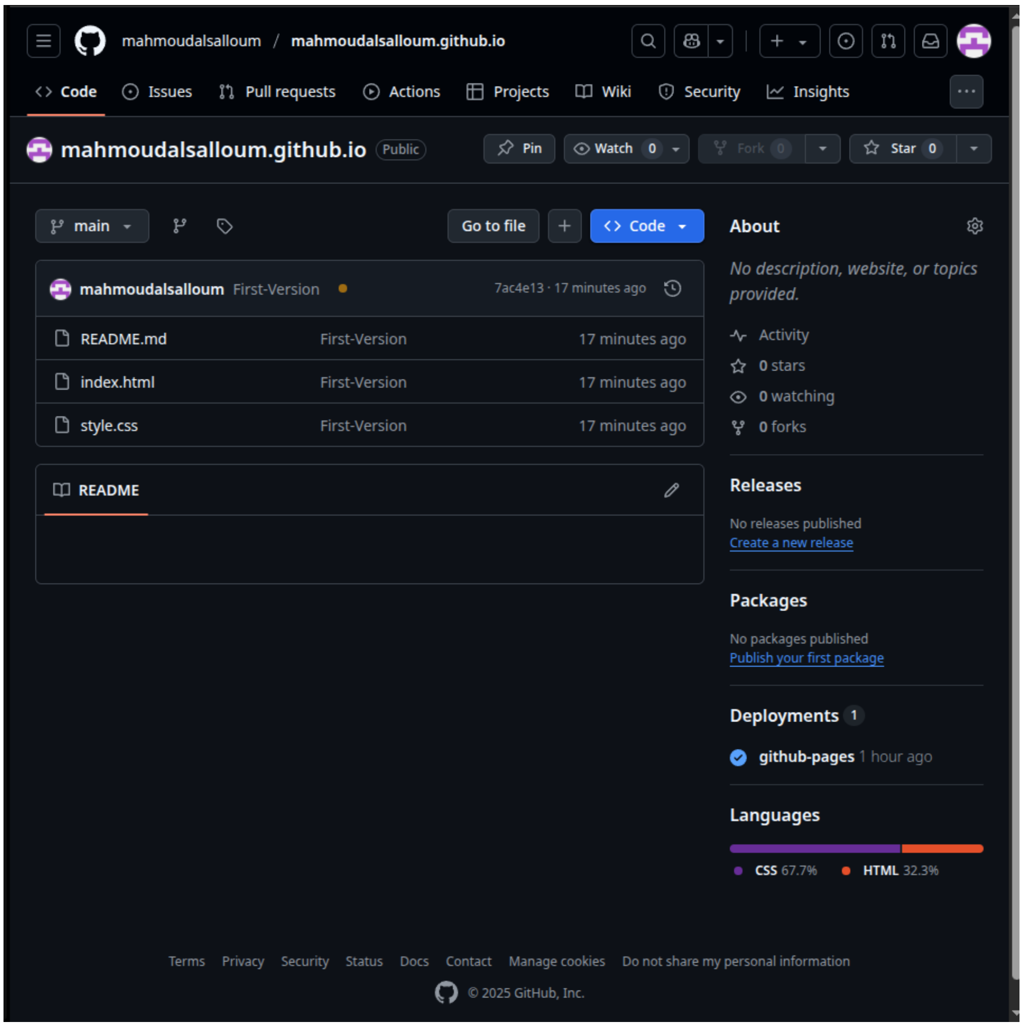
Figure 7: Live preview of the website

After completing the development in Google Firebase Studio, I copied all the generated code and added it to my local project directory within the cloned repository in VSCodium.

To test the GitOps workflow and deploy the portfolio website to GitHub Pages, I executed the following command in the terminal:

- Git add .
- Git commit -m “First-Version-Portfolio”
- Git push

This sequence staged all changes, committed them with a clear message, and pushed the updates to the remote GitHub repository. Subsequently, I was able to monitor the entire automated deployment process in GitHub Actions, confirming that the website was successfully built and published. See Figure 8 and 9.


mahmoudalsalloum / mahmoudalsalloum.github.io

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mahmoudalsalloum.github.io Public

Pin | Watch 0 | Fork 0 | Star 0

main | Go to file | + | Code

mahmoudalsalloum First-Version 7ac4e13 · 17 minutes ago

README.md	First-Version	17 minutes ago
index.html	First-Version	17 minutes ago
style.css	First-Version	17 minutes ago

README

About

No description, website, or topics provided.

Activity
0 stars
0 watching
0 forks

Releases

No releases published
Create a new release

Packages

No packages published
Publish your first package

Deployments 1

github-pages 1 hour ago

Languages

CSS 67.7% HTML 32.3%

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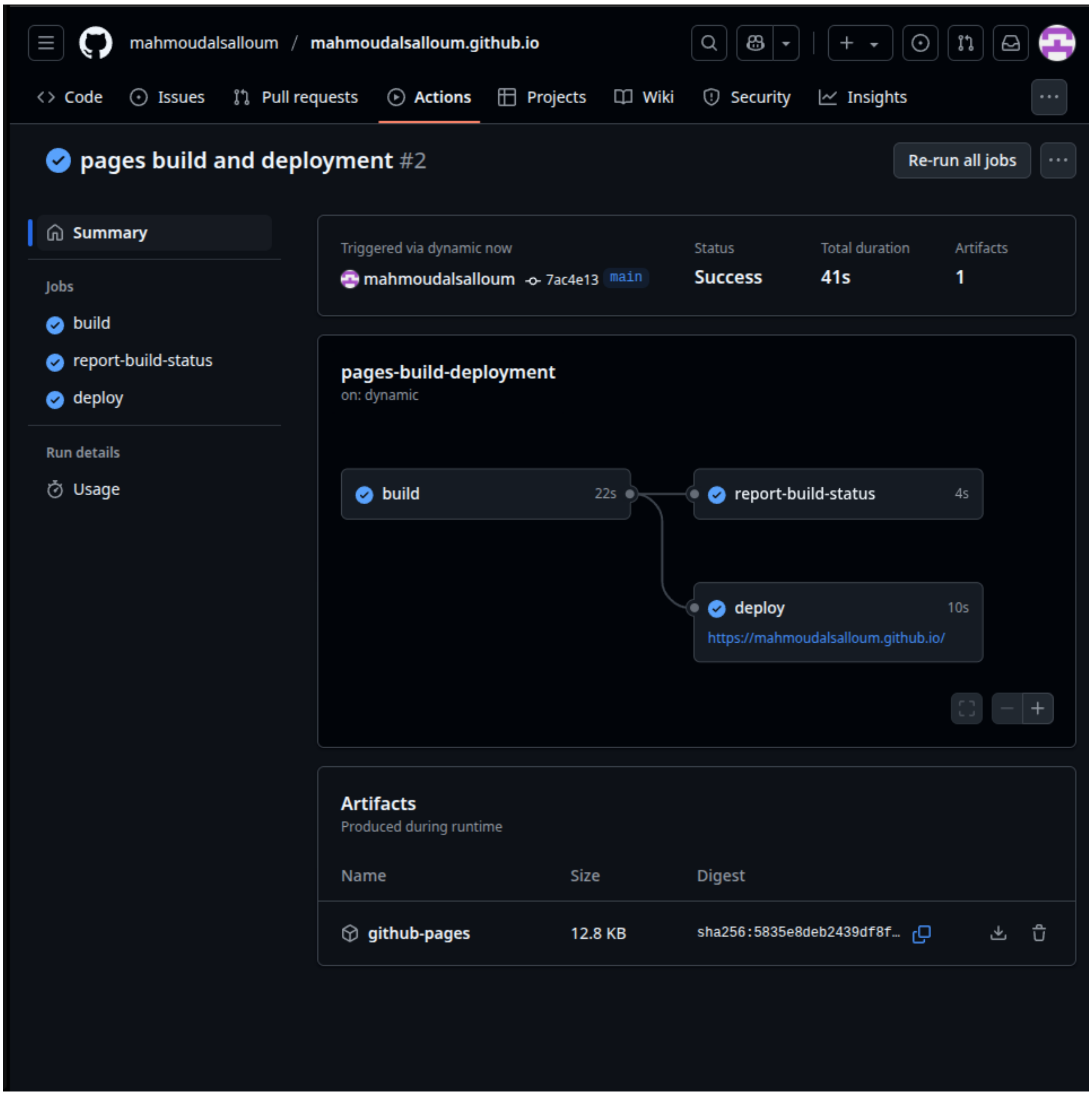
Figure 8: Files were successfully added to the GitHub repository



pages build and deployment #2

Triggered via dynamic now: mahmoudalsalloum 7ac4e13 main
Status: Success
Total duration: 41s
Artifacts: 1

Jobs: build, report-build-status, deploy

pages-build-deployment
on: dynamic

build 22s
report-build-status 4s
deploy 10s
https://mahmoudalsalloum.github.io/

Name	Size	Digest
github-pages	12.8 KB	sha256:5835e8deb2439df8f…

Figure 9: The workflow in GitHub

Throughout the project, I repeatedly cloned the repository, made improvements locally, and then deployed the changes using GitOps workflow. This iterative process continued until the portfolio website reached a professional and polished state.

By leveraging GitOps and automated deployments, I was able to save significant time and ensure consistent, reliable updates to the website.