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Connect a GitHub Repo with AWS

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```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS
Verifying      : perl-lib-0.65-477.amzn2023.0.6.x86_64

Installed:
git-2.47.1-1.amzn2023.0.2.x86_64
git-core-doc-2.47.1-1.amzn2023.0.2.noarch
perl-File-Find-1.37-477.amzn2023.0.6.noarch
perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64
git-core-2.47.1-1.amzn2023.0.2.x86_64
perl-Error-1:0.17029-5.amzn2023.0.2.noarch
perl-Git-2.47.1-1.amzn2023.0.2.noarch
perl-lib-0.65-477.amzn2023.0.6.x86_64

Complete!
• [ec2-user@ip-172-31-8-19 NEXTWORK-WEB-PROJECT]$ git --version
git version 2.47.1
○ [ec2-user@ip-172-31-8-19 NEXTWORK-WEB-PROJECT]$ []
```

Introducing Today's Project!

In today's project, we will be connecting a GitHub repository to AWS.

Key tools and concepts

Services I used were Git and GitHub repositories. Key concepts I learnt include version control, branching, staging, committing changes, pushing to a remote repository, and using GitHub as part of a C

Project reflection

This project took me approximately 1 hour. The most challenging part was setting up the correct folder structure and syncing it with GitHub. It was most rewarding to see my changes tracked and pushed successfully to a remote repository.

I did this project today to practice integrating Git and GitHub into my web app. Yes, this project met my goals by helping me understand repository setup, version control, and syncing code changes between a local envir



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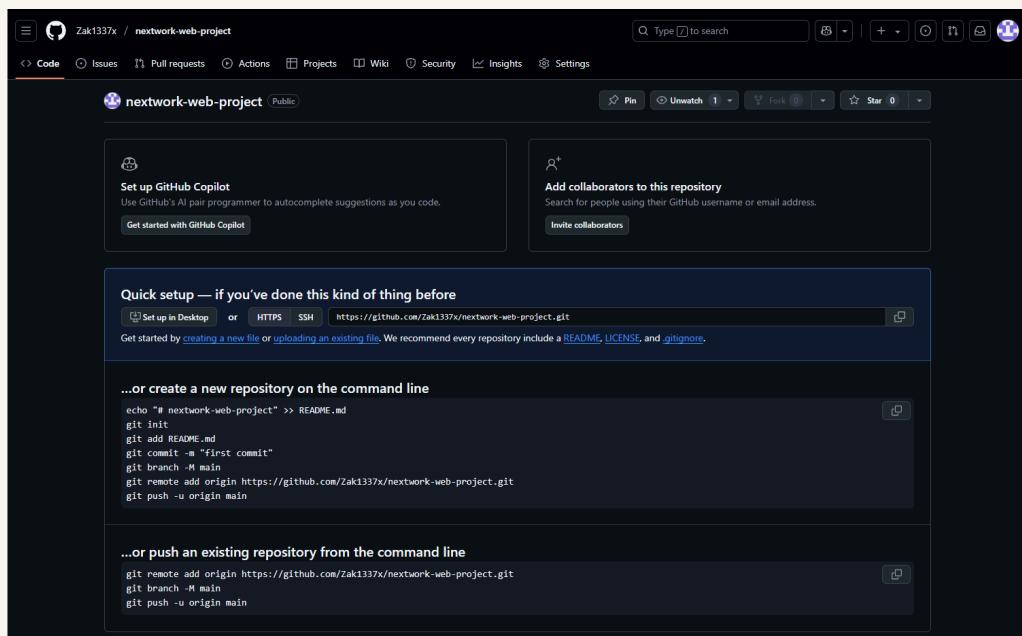
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This project is part two of a series of DevOps projects where I'm building a CI/CD pipeline! I'll be working on the next project tomorrow.

Git and GitHub

Git is like a version control system that allows you to rollback to older version of your code and also allows you to know who made changes, I installed Git using the commands: sudo dnf update -y sudo dnf install git -y

GitHub is a cloud storage space for different versions of the project that Git tracks. I am using GitHub in this project to see the changes I make to my files easily.

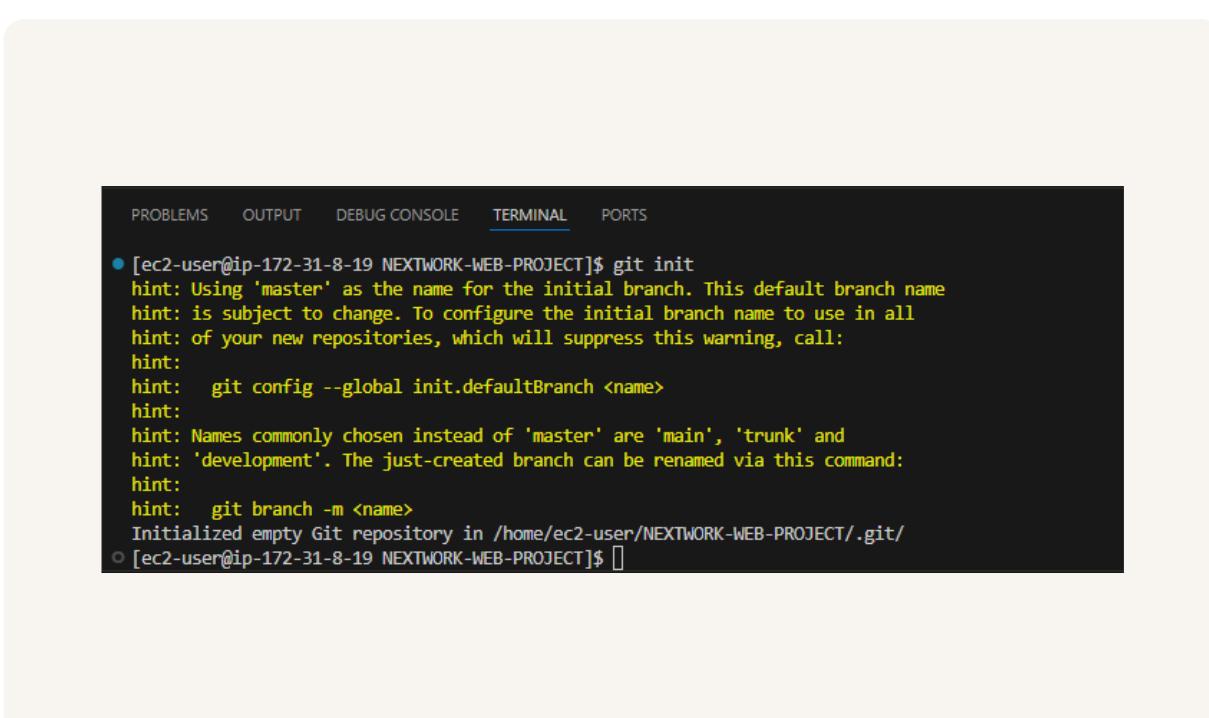


My local repository

A Git repository is folders that contain all our project files and their entire version history.

git init is a command that sets up the directory I'm in. as a local Git repository which means changes are now tracked for version control.

After running git init, the response from the terminal was a heads-up about naming the main branch master. A branch in Git is the main line of development, the branch where your production-ready code usually lives



The screenshot shows a terminal window with several tabs at the top: PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is underlined), and PORTS. The terminal content is as follows:

```
● [ec2-user@ip-172-31-8-19 NEXTWORK-WEB-PROJECT]$ git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/ec2-user/NEXTWORK-WEB-PROJECT/.git/
○ [ec2-user@ip-172-31-8-19 NEXTWORK-WEB-PROJECT]$ 
```

To push local changes to GitHub, I ran three commands

git add

The first command I ran was "git remote add origin <https://github.com/Zak1337x/nextwork-web-project.git>" A staging area is a place where you prepare changes before committing them.

git commit

The second command I ran was "git commit -m "Updated index.jsp with new content"" Using '-m' means you can leave a message describing what the commit is about.

git push

The third command I ran was "git push -u origin master" Using '-u' means you are telling the Git to remember to push to master by default.

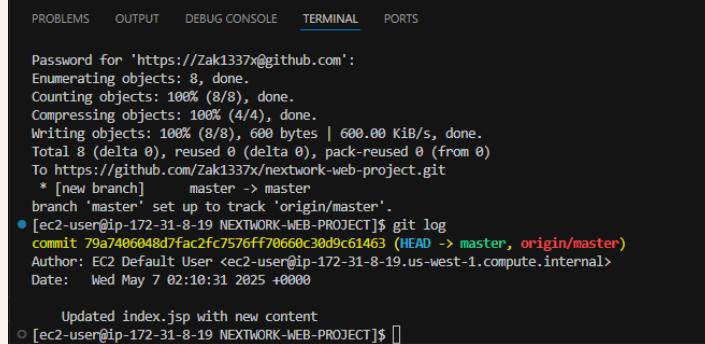
Authentication

When I commit changes to GitHub, Git asks for my credentials because Git need to authenticate my identity by asking for your GitHub credentials

Local Git identity

Git needs my name and email because it needs to keep track of who made changes.

Running git log showed me that my latest commit (79a7406048d7...) is on the master branch, with the message "Updated index.jsp with new content"



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

Password for 'https://Zak1337x@github.com':
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Compressing objects: 100% (4/4), done.
Writing objects: 100% (8/8), 600 bytes | 600.00 KiB/s, done.
Total 8 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/Zak1337x/nextwork-web-project.git
 * [new branch]      master -> master
branch 'master' set up to track 'origin/master'.
● [ec2-user@ip-172-31-8-19 NEXTWORK-WEB-PROJECT]$ git log
commit 79a7406048d7fac2fc576ff7066c30d9c1463 (HEAD -> master, origin/master)
Author: EC2 Default User <ec2-user@ip-172-31-8-19.us-west-1.compute.internal>
Date:   Wed May 7 02:10:31 2025 +0000

    Updated index.jsp with new content
○ [ec2-user@ip-172-31-8-19 NEXTWORK-WEB-PROJECT]$ []
```

GitHub tokens

GitHub authentication failed when I entered my password because there are too many security risks and passwords can get intercepted over the internet.

A GitHub token is a secure string used to authenticate you (instead of the password) when accessing GitHub via the command line, scripts, or apps.

I could set up a GitHub token by generating a Personal Access Token from my GitHub account settings under Developer settings > Personal access tokens.

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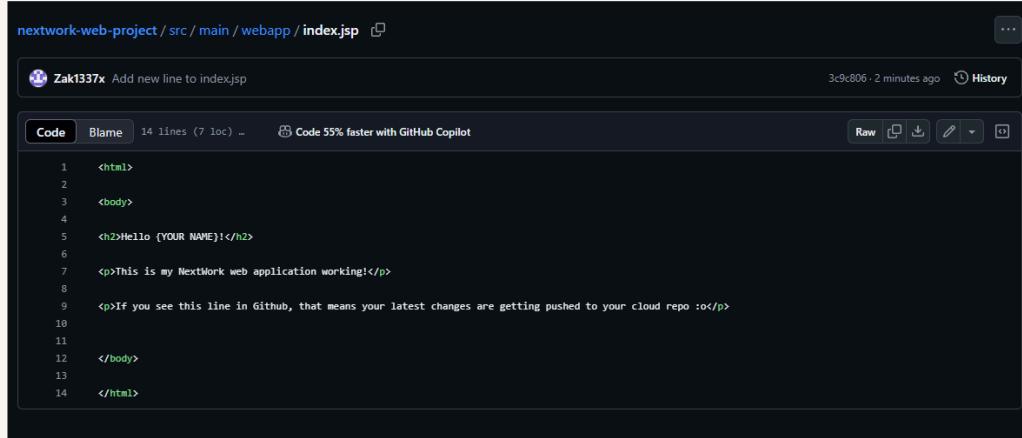
The screenshot shows the GitHub 'Personal access tokens' page. On the left, a sidebar lists 'GitHub Apps', 'OAuth Apps', and 'Personal access tokens'. Under 'Personal access tokens', 'Tokens (classic)' is selected. The main area is titled 'New personal access token (classic)'. It includes a note about personal access tokens functioning like OAuth tokens and can be used instead of a password for Git over HTTPS. A 'Note' box states: 'Generated for EC2 Instance Access. This is a part of NextWork's 7 D'. Below this is a 'Expiration' dropdown set to '7 days (May 13, 2025)'. A note below it says: 'The token will expire on the selected date'. The 'Select scopes' section contains a table of available scopes:

Scopes	Description
<input checked="" type="checkbox"/> repo	Full control of private repositories Access commit status Access deployment status Access public repositories Access repository invitations Read and write security events
<input type="checkbox"/> workflow	Update GitHub Action workflows
<input type="checkbox"/> write:packages	Upload packages to GitHub Package Registry Download packages from GitHub Package Registry
<input type="checkbox"/> delete:packages	Delete packages from GitHub Package Registry
<input type="checkbox"/> admin:org	Full control of orgs and teams, read and write org projects Read and write org and team membership, read and write org projects Read org and team membership, read org projects Manage org runners and runner groups
<input type="checkbox"/> admin:public_key	Full control of user public keys

Making changes again

I wanted to see Git working in action, so I edited index.jsp by adding a line to the code and saving it. I couldn't see the changes in my GitHub repo initially because the changes were not pushed to my GitHub.

I finally saw the changes in my GitHub repo after I ran these commands "git commit -m "Add new line to index.jsp" git push"



A screenshot of a GitHub code editor interface. The repository path is 'nextwork-web-project / src / main / webapp / index.jsp'. A commit message 'Add new line to index.jsp' is shown, made by user 'Zak1337x' 2 minutes ago. The code editor shows the following Java code:

```
1 <html>
2
3 <body>
4
5 <h2>Hello {YOUR NAME}!</h2>
6
7 <p>This is my NextWork web application working!</p>
8
9 <p>If you see this line in Github, that means your latest changes are getting pushed to your cloud repo :o</p>
10
11
12 </body>
13
14 </html>
```



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