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Connect a GitHub Repo with AWS



Shivam Kakade

A screenshot of a Mac OS X desktop featuring a Terminal window. The window displays the output of a 'git upgrade' command on an Amazon Linux system. The logs show the verification of various Perl modules and the installation of new versions. A warning message indicates a newer release of Amazon Linux is available. The terminal window is titled 'Terminal' and shows the date and time as 'Thu 7 Nov 10:43AM'. The desktop background is blue, and the Dock at the bottom contains icons for various applications like Finder, Mail, and Safari.

```
git upgrade --releasever=2023.6.26241028
Verifying : perl-Git-2.48.1-1.amzn2023.0.5.noarch 3/8
Verifying : perl-Error-1.10.17029-6.amzn2023.0.2.noarch 4/8
Verifying : perl-File-Find-1.37-477.amzn2023.0.6.noarch 5/8
Verifying : perl-Git-2.48.1-1.amzn2023.0.3.noarch 6/8
Verifying : perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64 7/8
Verifying : perl-Lib-0.65-477.amzn2023.0.6.x86_64 8/8
=====
WARNING:
A newer release of "Amazon Linux" is available.

Available Versions:
Version 2023.6.26241028:
Run the following command to upgrade to 2023.6.26241028:
dnf upgrade --releasever=2023.6.26241028

Release notes:
https://docs.aws.amazon.com/linux/s12023/release-notes/relnotes-2023.6.26241028.html

Version 2023.6.26241031:
Run the following command to upgrade to 2023.6.26241031:
dnf upgrade --releasever=2023.6.26241031

Release notes:
https://docs.aws.amazon.com/linux/s12023/release-notes/relnotes-2023.6.26241031
=====
Installed:
git-2.48.1-1.amzn2023.0.3.x86_64
git-core-2.48.1-1.amzn2023.0.3.x86_64
git-core-doc-2.48.1-1.amzn2023.0.3.noarch
perl-Error-1.10.17029-5.amzn2023.0.2.noarch
perl-File-Find-1.37-477.amzn2023.0.6.noarch
perl-Git-2.48.1-1.amzn2023.0.3.noarch
perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64
perl-Lib-0.65-477.amzn2023.0.6.x86_64
=====
Complete!
[ec2-user@ip-172-31-38-120 ~]$ git --version
git version 2.48.1
[ec2-user@ip-172-31-38-120 ~]$
```



Shivam Kakade
NextWork Student

NextWork.org

Introducing Today's Project!

What is GitHub?

GitHub is a platform for version control and collaboration, enabling developers to store and manage code. In today's project, I used GitHub to store my web app code, track changes, and push updates to the remote repository for version control.

One thing I didn't expect...

One thing I didn't expect in this project was the need to manually commit and push changes to see them reflected on GitHub. Initially, I thought changes would appear automatically, but I learned the importance of committing and pushing them.

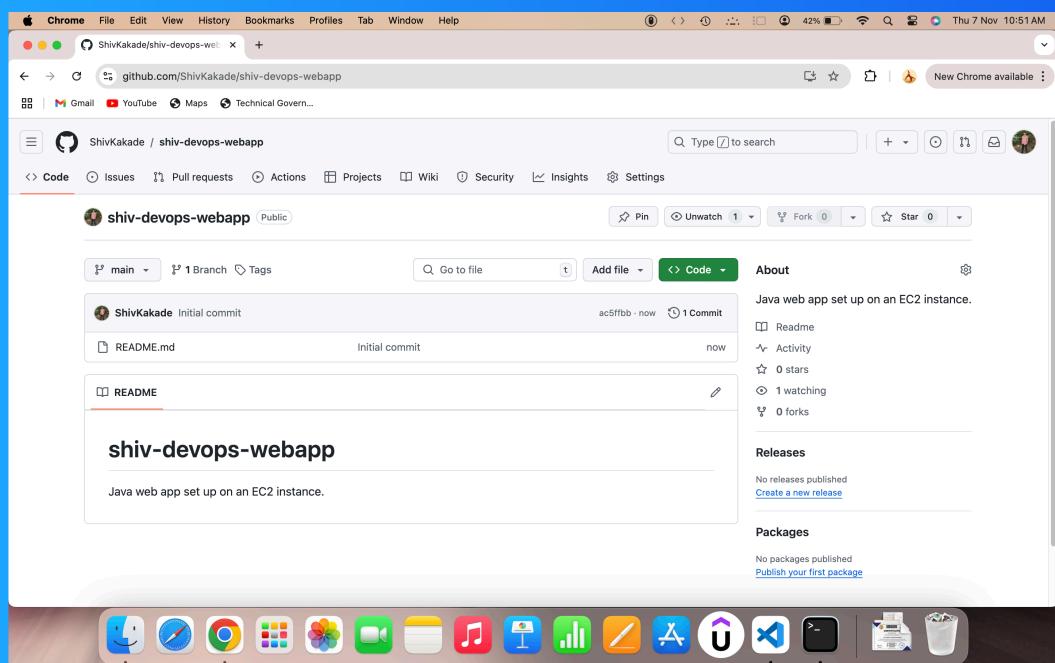
This project took me...

This project took me 30 minutes to complete.

Git and GitHub

I installed Git using the commands sudo dnf update -y : The sudo dnf update -y command is used to update all packages on a system sudo dnf install git -y : The sudo dnf install git -y command is used to install Git on a system

GitHub is a platform for version control and collaboration, using Git to track code changes. It's used for storing code, managing versions, and enabling teams to collaborate efficiently on projects and review code seamlessly.





Shivam Kakade
NextWork Student

NextWork.org

My local repository

A Git repository is a storage space for a project that tracks changes to files and code. It contains the complete history of changes, including multiple versions, allowing developers to collaborate, revert to changes, and manage code efficiently

The git init command initializes a new Git repository in the current directory. It creates a hidden .git folder that stores configuration and history, enabling version control and tracking changes for your project.

In Git, a branch is a parallel version of a project. It allows developers to work on new features or fixes independently, without affecting the main codebase. Branches can be merged back into the main branch once the work is complete.

The screenshot shows a Mac OS X desktop environment. In the foreground, a terminal window is open with the title 'SSH: ec2-3-88-65-52.compute-1.amazonaws.com'. The terminal shows the following command and output:

```
[ec2-user@ip-172-31-38-129 shiv-web-project]$ cd shiv-web-project
[ec2-user@ip-172-31-38-129 shiv-web-project]$ git --version
git version 2.17.1
[ec2-user@ip-172-31-38-129 shiv-web-project]$ git init
Initialized empty Git repository in /home/ec2-user/shiv-web-project/.git/
[ec2-user@ip-172-31-38-129 shiv-web-project]$
```

Below the terminal, a code editor window titled 'index.jsp' is displayed. The code content is:

```
<html>
  <head>
    <title>Hello - ShIV</title>
  </head>
  <body>
    <h2>Hello - ShIV</h2>
    <p>This is my NextWork Shiv web application working!</p>
  </body>
</html>
```

The code editor interface includes an Explorer sidebar on the left showing the project structure, and a Timeline sidebar at the bottom. The status bar at the bottom right indicates 'Ln 12, Col 1' and 'UTF-8'.



To push local changes to GitHub, I ran three commands

git add

The first command I ran was `git add ..`. This stages all changes in the working directory, preparing them for commit. A staging area is where changes are temporarily stored before being committed, allowing selective inclusion in commits.

git commit

The second command I ran was `git commit -m "commit message"`. Using `-m` means I provided a commit message directly in the command, describing the changes made. This message helps track the purpose of the commit in the project history.

git push

The third command I ran was `git push -u origin main`. Using `-u` means I set the upstream branch, so future pushes can be done with just `git push`, and it will know which remote branch to push to (in this case, `main` on `origin`).



Shivam Kakade

NextWork Student

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Authentication

When I commit changes to GitHub, Git asks for my credentials because it needs to authenticate my identity to ensure I have permission to push changes to the remote repository. This ensures secure access to my GitHub account.

Local Git identity

Git requires a name and email to associate your commits with an identity. This information is used to track who made changes to the codebase and provides clear attribution in the version history, ensuring accountability and collaboration.

Running `git log` shows the commit history of the repository. It displays a list of commits, along with details such as the commit hash, author name, email, date, and commit message, providing a timeline of changes made in the project.

```
MacBook-Pro:~ ec2-user$ ssh -o StrictHostKeyChecking=no git@ec2-3.8-65-85-23.compute-1.amazonaws.com
Last login: Fri Aug 17 17:31:35 UTC 2018 from 108.162.145.145
git@ec2-3.8-65-85-23:~ % cd /var/www/html/ec2-3.8-65-85-23/
git@ec2-3.8-65-85-23:~/var/www/html/ec2-3.8-65-85-23 % git status
On branch master
Your branch is up-to-date with 'origin/master'.
  nothing to commit, working tree clean
git@ec2-3.8-65-85-23:~/var/www/html/ec2-3.8-65-85-23 % git pull
remote: Counting objects: 1, done.
remote: Total 1 (delta 0), reused 0 (delta 0), pack-reduced 0
remote: 
remote: From https://github.com/Shivakumar9999/ec2-3.8-65-85-23
 * [new branch]  master      -> origin/master
Updating 8a2e0d0..f2a2a2c
remote: Total 0 (delta 0), reused 0 (delta 0), pack-reduced 0
remote: 
remote: Create a pull request for 'master' on GitHub by visiting:
remote:   https://github.com/Shivakumar9999/ec2-3.8-65-85-23/pulls/new?base=master
remote: 
remote: To https://github.com/Shivakumar9999/ec2-3.8-65-85-23.git
 * [new branch]  master      -> master
git@ec2-3.8-65-85-23:~/var/www/html/ec2-3.8-65-85-23 % git log --oneline
commit f2a2a2c (HEAD) [Shivakumar9999 2018-08-17 17:31:35 +0530] "Initial commit"
Author: EC2 Default User <ec2-user@ec2-3.8-65-85-23.1.ec2.internal>
Date:  Fri Aug 17 17:31:35 UTC 2018

  Updated index.php with new content
git@ec2-3.8-65-85-23:~/var/www/html/ec2-3.8-65-85-23 % ls
index.php
git@ec2-3.8-65-85-23:~/var/www/html/ec2-3.8-65-85-23 %
```



Shivam Kakade
NextWork Student

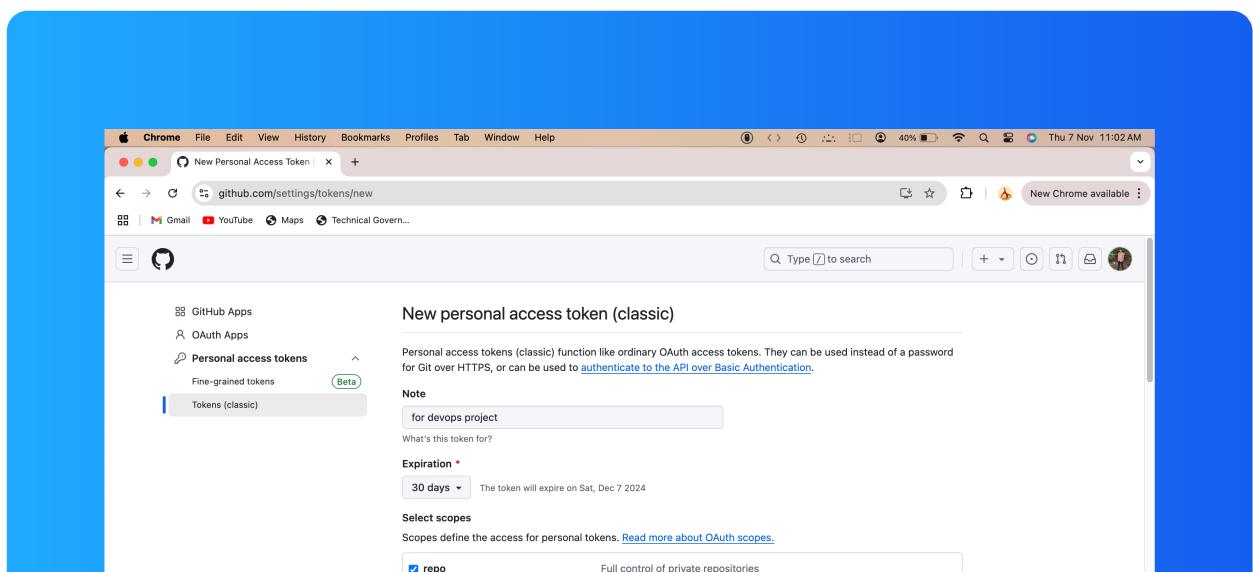
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GitHub tokens

GitHub authentication failed when I entered my pass because GitHub no longer supports password authentication for Git operations. Instead, it requires using a Personal Access Token for secure authentication, especially with two-factor authentication

A GitHub Personal Access Token (PAT) is a secure authentication method used in place of a password. It allows you to interact with GitHub, clone repositories, and perform actions while offering more security, especially with two-factor authentication

To set up a GitHub Personal Access Token (PAT), follow these steps: Log in to GitHub. Go to Settings > Developer Settings. Select Tokens (classic), then click Generate new token. Choose scopes (permissions). Generate and save the token securely.





Making changes again

I wanted to see Git working in action, so I updated the index.jsp file in the nextwork-web-project. I couldn't see the changes in my GitHub repo initially because I hadn't committed and pushed the changes to the remote repository yet.

I finally saw the changes in my GitHub repo after I committed the modifications to my local repository using git commit, then pushed the commit to the remote repository with git push. This synced my local changes with the GitHub repo.

The screenshot shows a Mac desktop with a blue-themed window. A Chrome browser window is open, displaying a GitHub code editor for a Java web application named 'shiv-devops-webapp'. The code editor shows the 'index.jsp' file with the following content:

```
<html>
<body>
<h2>Hello <Shiv>!</h2>
<p>This is my NextWork Shiv web application working!</p>
<p>If you see this line in Github, that means your latest changes are getting pushed to your cloud repo :o</p>
</body>
</html>
```