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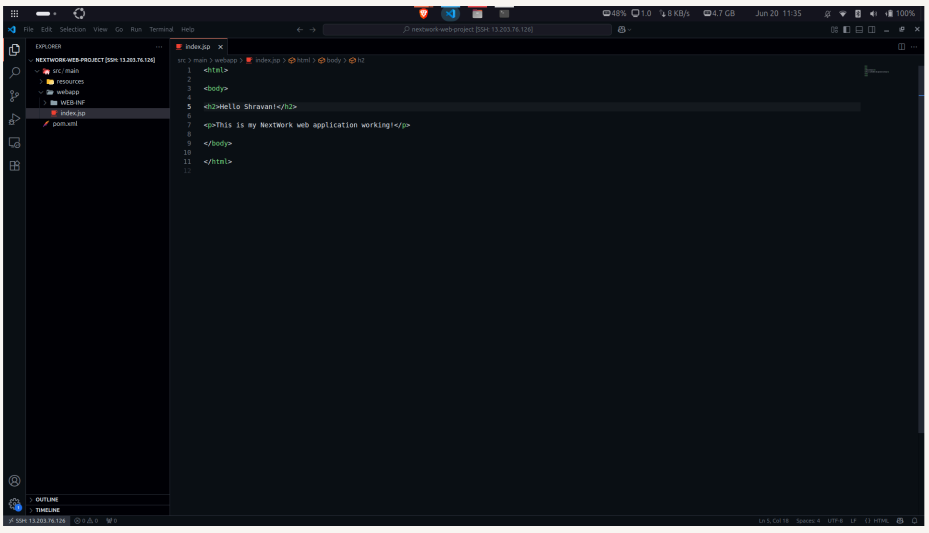
Set Up a Web App Using AWS and VS Code

Shravan Kumar Satapathy



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Introducing Today's Project!

Today, I'm setting up a foundational web app in the AWS cloud. This involves launching an EC2 instance, connecting via VS Code, installing Java/Maven, and generating a basic web app to kickstart my DevOps challenge.

Key tools and concepts

Services I used were AWS EC2, SSH, and VS Code. Key concepts learnt include remote instance connection, installing Maven and Java, generating a Java web app, and remote file editing via VS Code's SSH.

Project reflection

One thing I didn't expect was how truly seamless and intuitive the remote file editing in VS Code felt once the SSH connection was properly established with the EC2 instance. It really makes cloud development feel local.

This project took me approximately 1.5 hours. The most challenging part was establishing the remote SSH connection to the EC2 instance due to configuration complexities. It was most rewarding to successfully set up the EC2 environment and generate

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This project is part one of a grand series of DevOps endeavors where I'm building a comprehensive CI/CD pipeline! I'll be working on the next crucial phase very soon, to advance this pipeline's development and bring its full potential to fruition!

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Launching an EC2 instance

I started this project by launching an EC2 instance because I need a virtual server in the cloud to serve as the home for my web app's files and to perform my development work entirely within the AWS environment.

I also enabled SSH

SSH is Secure Shell, a protocol ensuring only authorized users access a remote server by verifying keys and encrypting data. I enabled SSH so that only my IP can securely access my EC2 instance and facilitate encrypted communication for development.

Key pairs

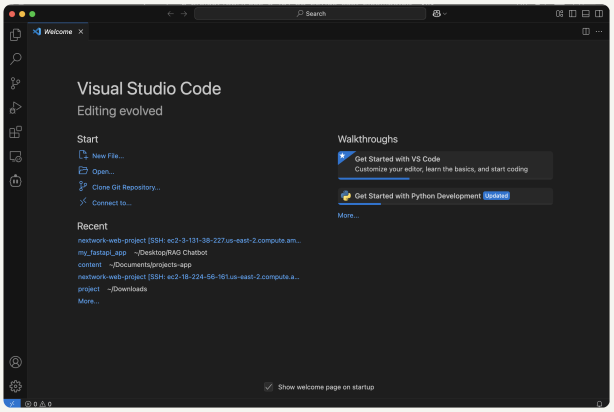
A key pair is like the keys to my virtual computer in EC2, allowing me to securely access my instance. It comprises a public key stored by AWS and a private key I download, verifying my access.

Once I set up my key pair, AWS automatically downloaded my private key file in the .pem format. This file is essential for securely accessing my EC2 instance, acting as the unique digital key

Set up VS Code

VS Code is Visual Studio Code, a popular, free code editor I'm using to connect with my EC2 instance. It allows me to create, edit, and manage my web application's code directly within the cloud environment.

I installed VS Code to establish a secure connection to my EC2 instance. This enables me to directly create, edit, and manage my web application's code within the cloud, streamlining my development workflow.



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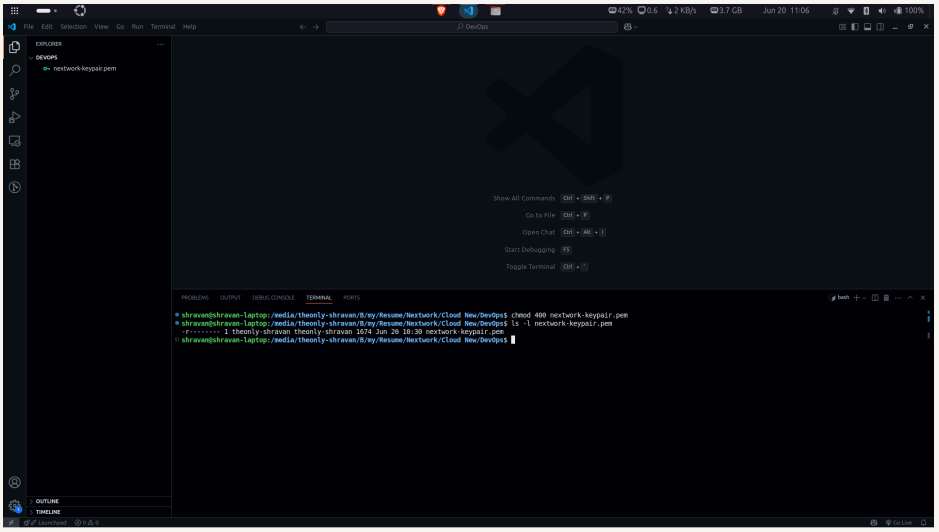
My first terminal commands

A terminal is where I send text instructions to my computer's operating system. The first command I ran for this project is cd "/media/theonly-shravan/B/my/Resume/Nextwork/Cloud New/DevOps", which navigated my terminal to my key pair file's location.

I updated my private key's permissions using "chmod 400 nextwork-keypair.pem". This command makes the file readable only by me(the owner), securing my secret key for EC2 instance access.



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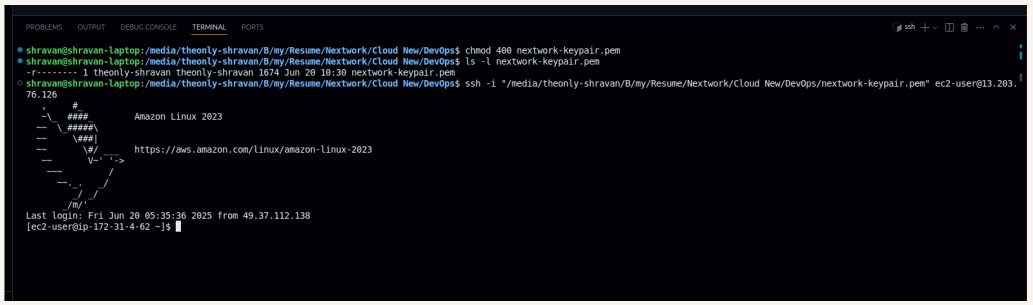
SSH connection to EC2 instance

To connect to my EC2 instance, I ran ssh -i "/media/theonly-shravan/B/my/Resume/Nextwork/Cloud New/DevOps/nextwork-keypair.pem" ec2-user@13.203.76.126. This command established a secure SSH connection using my private key.

This command required an IPv4 address

A server's IPv4 DNS is its public address, which the internet uses to locate and connect to the server. My local computer will use this DNS to find and establish a connection with my EC2 instance.



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Maven & Java

Apache Maven is a tool that helps build and organize Java projects, acting as a package manager to handle dependencies. It uses archetypes as templates, making it useful for kick-starting web apps and setting up their foundational structure.

Maven is required in this project because its a powerful tool for kick-starting Java web projects. It utilizes archetypes as templates to set up the foundational web app structure, enabling me to quickly establish the necessary files for development.

Java is a popular programming language used to build various applications, from mobile apps to large enterprise systems. It's essential for this project as Maven requires it to operate and build our web app.

Java is required in this project because Maven, the build tool we're using, needs Java to operate. Without it, we wouldn't be able to use Maven to generate and build our web application effectively.

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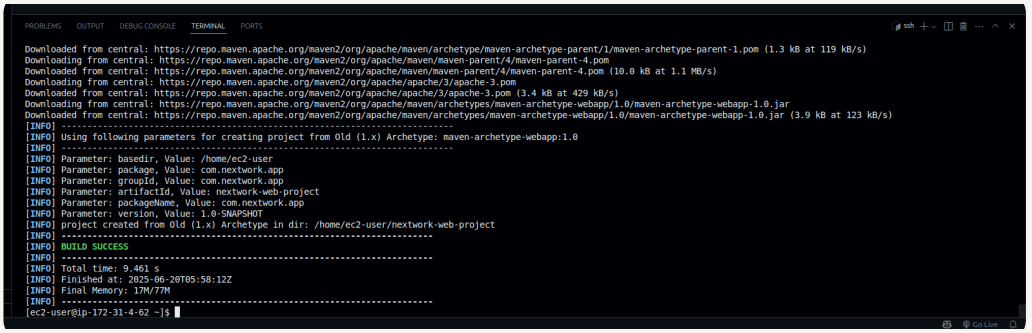
Create the Application

I generated a Java web app using the command mvn archetype:generate -DgroupId=com.nextwork.app -DartifactId=nextwork-web-project -DarchetypeArtifactId=maven-archetype-webapp -DinteractiveMode=false. This created a new web app project strucuture.

I installed Remote - SSH, a VS Code extension for secure remote connections. I installed it to unlock VS Code's IDE features, enabling easy file navigation and code editing directly on my EC2 instance for simpler web app management.

Configuration details required to set up a remote connection include the Host (matching the EC2 instance's IPv4 DNS), the IdentityFile (matching nextwork-keypair.pem's local path), and the User (which should be 'ec2-user').



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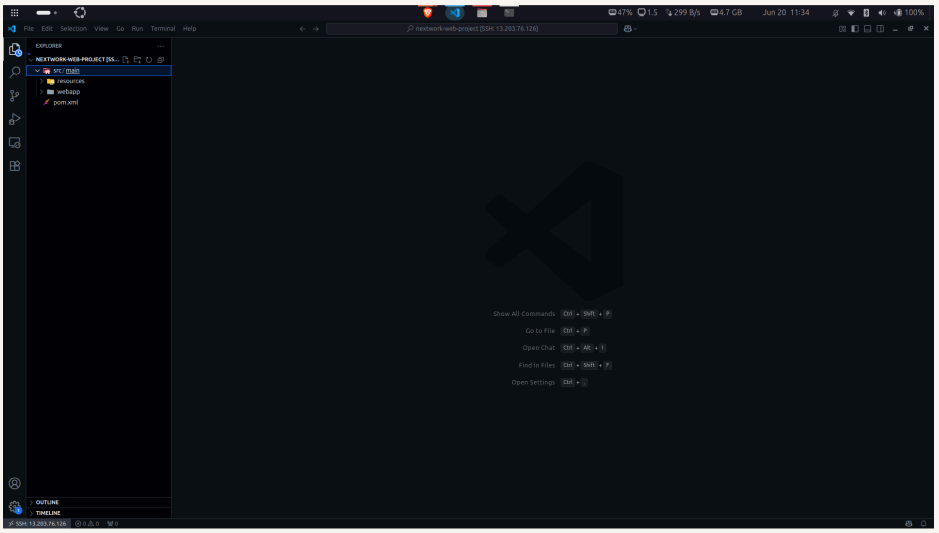
Create the Application

Using VS Code's file explorer, I could see the nextwork-web-project folder, which contains all the foundational files and subfolders that constitute my Java web application.

Two of the project folders created by Maven are src and webapp. The src folder holds the web app's source code. The webapp folder is a subfolder within src, specifically containing web app files like HTML, CSS, JavaScript, and JSP.



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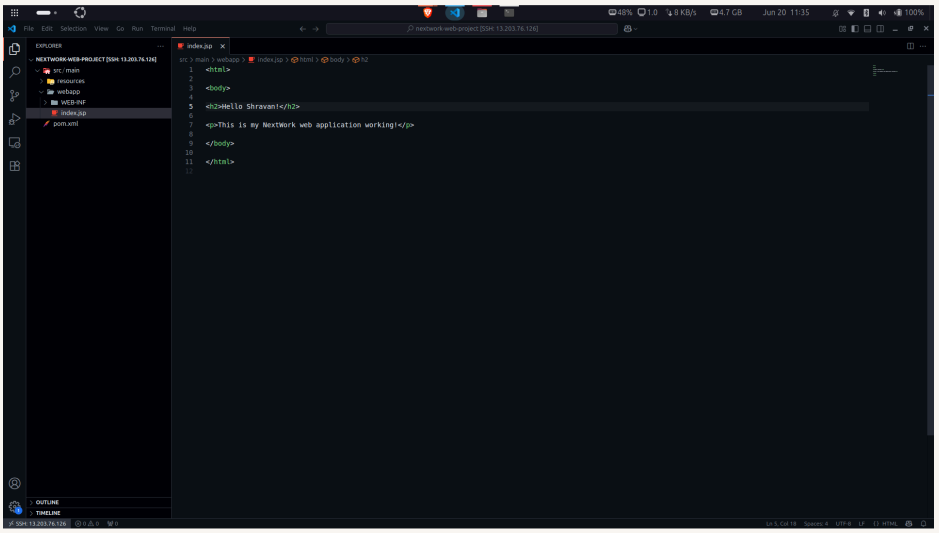
Using Remote - SSH

index.jsp is a file used in Java web apps, similar to HTML for displaying web pages. Unlike static HTML, it can include Java code to generate dynamic content, making web pages interactive and personalized.

I edited index.jsp by clicking on it in the file explorer, modifying the placeholder code to include my name, and then saving the changes by pressing Command/Ctrl + S on my keyboard.



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