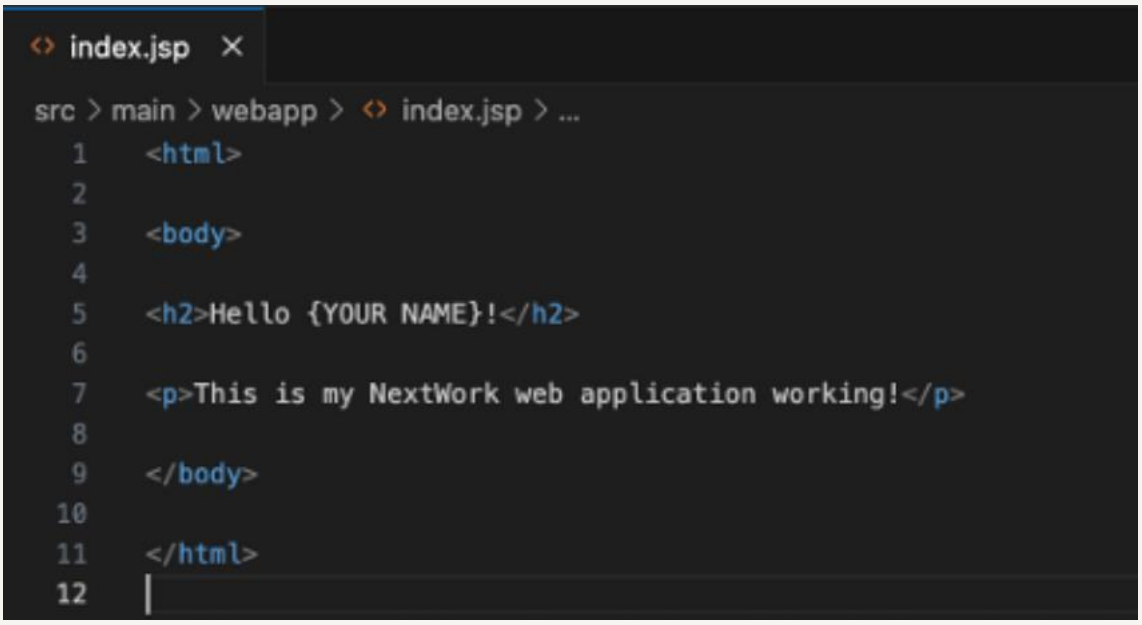
Set Up a Web App Using AWS and VS Code

Saish Nar



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NextWork Student

Introducing Today's Project!

This project is Day ONE of a seven day DevOps Challenge! In this project, I am going to set up the foundations of a CI/CD pipeline by creating a web app from scratch.

Key tools and concepts

Services I used in this project were VS Code and Amaron EC2. Key concepte I learnt include SSH connections, using an IDE, launching an instance, editing an index.jsp file and using key pairs!

Project reflection

One thing I did not expect, how easy and guided this project was. All actions are very quick as it works on cloud and it was very good experience hosting a webapp on cloud.

This project took me 1.5 hours including full demo time and some troubleshooting time! It was most rewarding to see a successful SSH connection to our EC2 instance, whether that's over the terminal or over the VS Code SSH connection.

This project was part one of a series of DevOps projects where I'm building a CI/CD pipeline! I'll be working on the next project in next 24 hours.

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Launching an EC2 instance

I started this project by launching an EC2 instance because EC2 instances are like virtual computers that live in the cloud! I want my web app to live entirely in the cloud, so I am launching an EC2 instance to even develop my web app's code.

I also enabled SSH

SSH is Secure Shell protocol. I enabled SSH so that I make sure only authorized users can access a remote server. SSH verifies you have the correct private key that matches the public key on the server.

Key pairs

A key pair is a mechanism for me to connect and get accees to EC2 instances I launch in AWS. I have created a key pair for the EC2 instance that I am launching.

Once I set up my key pair, AWS automatically downloaded the private key file, called nextwork keypair.pem. For safekeeping, I moved that private key file into a folder called 'DevOps' in my Desktop.

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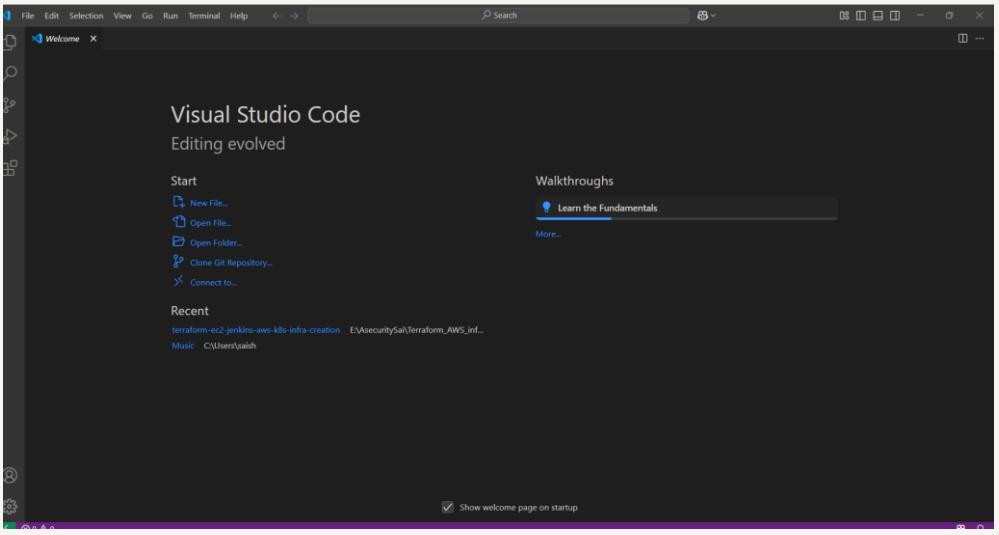
Set up VS Code

VS Code is one of the most popular IDEs in the world; as an IDE, engineers use it to write code and manage their coding projects. it also has handy extensions that let me directly connect to an EC2 instance.

I installed VS Code to write and edit my web app's code. I am also going to make the most out of the ability to connect directly with an EC2 instance.



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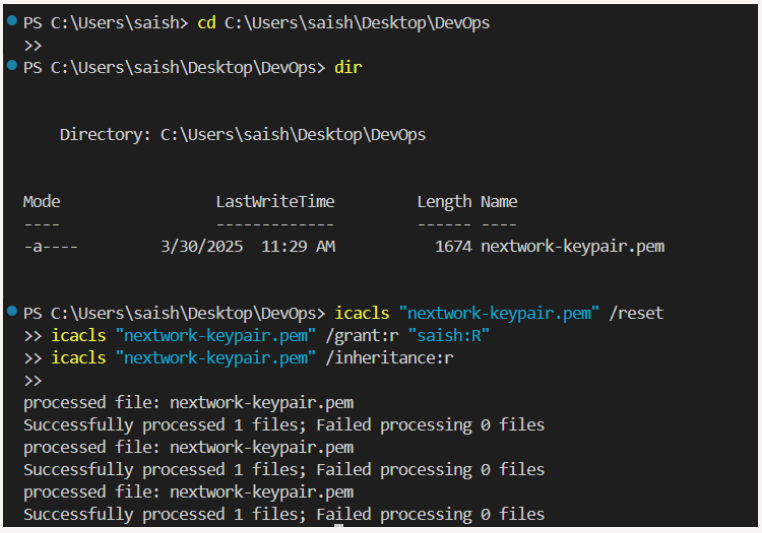
My first terminal commands

A terminal is where you send instructions to your computer using text instead of clicks. The first command I ran for this project is cd C:\Users\YourUserName\Desktop\DevOps which navigates the terminal to the DevOps folder.

I also updated our private key's permissions by running the command 'icacls "nextwork-keypair.pem" /reset icacls "nextwork-keypair.pem" /grant:r "USERNAME:R" icacls "nextwork-keypair.pem" /inheritance:r'. This command gives access to use this file



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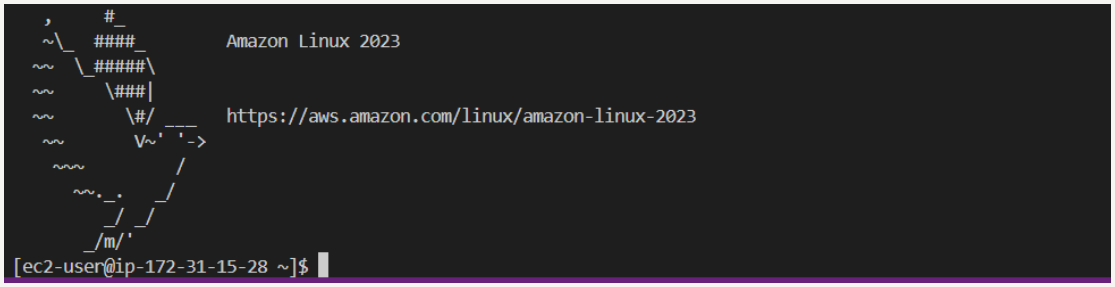
SSH connection to EC2 instance

To connect to my EC2 instance, I ran the command "ssh -i [path to private key] ec2-user@[ipv4 address of EC2 instance]'. This command sets up an SSH connection directy between my local computer and the instance.

This command required an IPv4 address

A server IPV DNS is like its public address that identifies where the server lives in the cloud. In my case, an EC2 instance's iPv4 DNS is useful information to give to my local computer - it tells my local computer where to find the EC2 Instance.



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Maven & Java

Apache Maven is a tool that helps me with creating and organizing Java projects (like this wab app). use cases, like being a package manager (downloading external pieces of code) and the tool that uses archetypes (templates) for projects like web app

Maven is required in this project, because I want to use its ability to spin web apps using archetypes! I am about to set up my Jeva web app using the web app archetype.

Java is the programming language that I am using to develop my/ web app. It's a very popular and versatile choice, as you can use it to devalop all different kinds of applications, including web apps and enterprise systems.

Java is required in this project because it lays the foundation of the writing my web app code. It's like needing to know a language in order to speak it. Maven also needs Java in order to work!

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Create the Application

I generated a Java web app using the command 'mvn archetype:generate'. Command specifically tells Maven to create a new project from a template (which Maven calls an archetype). This command sets up a basic structure for your project.

I installed Remote-SSH, which is an extension within VS Code. This extension lets me help to connect VS Code directly to a remote server, like an EC2 instance!

Configuration details required to set up a remote connection include the host (i.e. the EC2 instance's address), the identity file (i.e. the location of our private key) and the user (i.e. the user that I am logging into for my instance).

```
[INFO] project created from Old (1.x) Archetype in dir: /home/ec2-user/nextwork-web-project
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 9.185 s
[INFO] Finished at: 2025-03-30T08:09:46Z
[INFO] Final Memory: 17M/93M
[INFO] ------------------------------------------------------------------------
```

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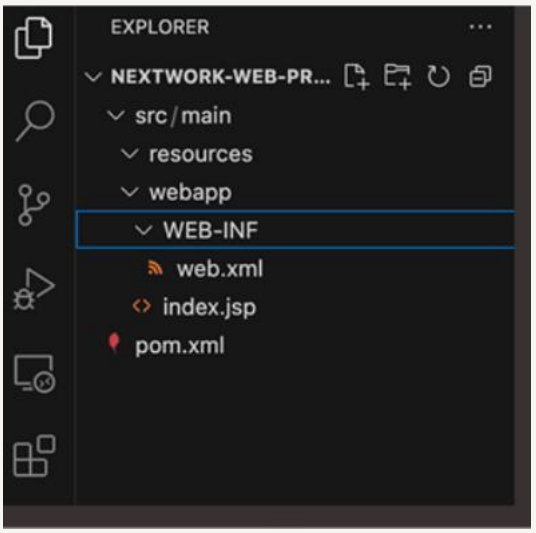
Create the Application

Using VS Code's file explorer, I could see all the files and folders of my WebApp which I will now edit the code as per requirements.

Two of the project folders created by Maven are src and webapp, which The src holds all the source code files that define how your web app looks and works. In webapp, which are web app's files, which are the configuration files a web app might need.



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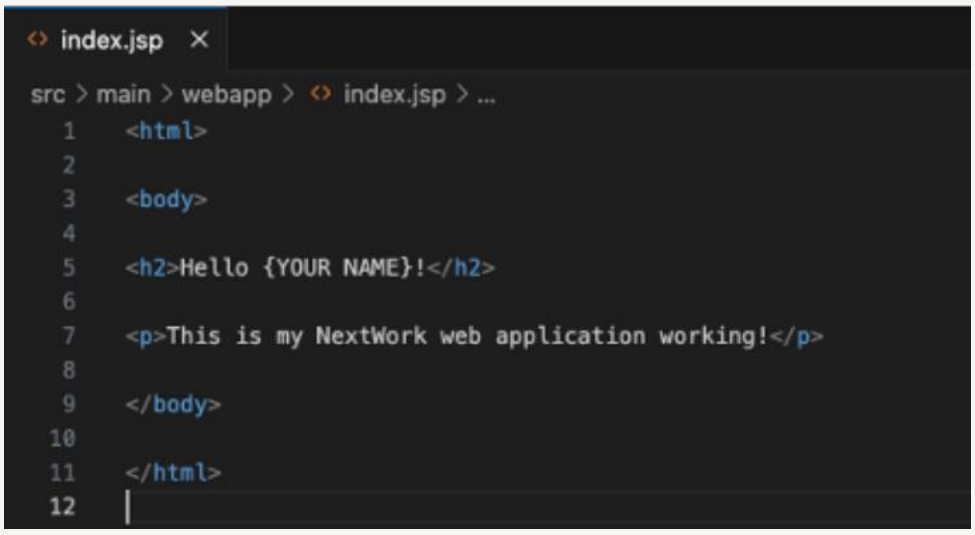
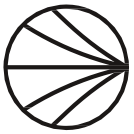
Using Remote - SSH

index.jsp is the file in my web app thatdefines both HTML content (i.e. the static elements that go into my web app's page), as well as any code for generating dynamic content (i.e. content that's always changing).

I edited index.jsp by updating the HTML code to also say Hello {YOUR NAMEH}! I also added a paragraph i.e. some text that says "this is my web app working!"





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