



Set Up a Web App Using AWS and VS Code

S

Shadrack Kalukwo

```
↳ index.jsp  ×  
  
src > main > webapp > ↳ index.jsp > ⚭ html > ⚭ body > ⚭ p  
1   <html>  
2   <body>  
3   <h2>Hello Kalukwo!!</h2>  
4   <p>This is my Nextwork web appliaction</p  
5   </body>  
6   </html>  
7
```

Introducing Today's Project!

I will be setting founds for the 7 day CI/CD project and how I will do this is by building a web app on AWS by using VSCode tool and connecting to my intance in AWS using SSH.

Key tools and concepts

Key concepts I learnt include; coneting vscode ide to my ec2 instance using remote ssh so that I can edit files in my ec2 directly from my vscode.

Project reflection

I did not expect to run is so many error that I would eventually help me grasp the concepts in a way in a way that is so unique that I wouldn't have otherwise have grasped if the process was errorless.

This project took me approximately 2 hours 15 minutes. The most challenging part was connecting my VSCode ide to my ec2 instance using remote-ssh. It was most rewarding to solve errors and come out of it with a broader understanding.

This project is 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 the next 5 days from April 11th - April 16th, 2025.



Launching an EC2 instance

started this project by launching an EC2 instance because, I am going to have my project fully in the cloud and the ec2 intance will be the server that will host my web app.

I also enabled SSH

SSH is a protocol otherwise known as Secure Shell used to make sure only authorized users can access a server. I enabled SSH so that I can use Vscode to remotely access my ec2 instance and build a my web app.

Key pairs

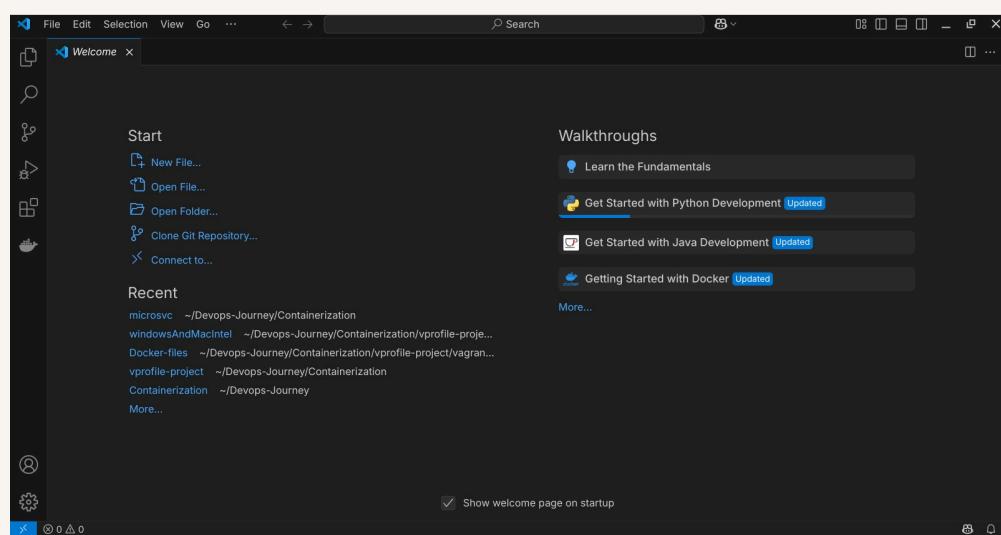
A key pair is a pair of related cryptographic keys: a public key and a private key, used in asymmetric encryption for secure communication and authentication. Used in mostly in AWS to allow ssh login of your instance.

Once I set up my key pair, AWS automatically downloaded the private key to my pc for me to keep which is a .pem file and it kept the public.

Set up VS Code

VS Code is a text editor that is well supported and extension that make code writing experience smooth. It also provides several command line terminals including bash

I installed VS Code to use it as the editor my webapp code connect remotely to my ec2 instance.



My first terminal commands

A terminal is also known as a command line is a text based interface for interacting with the computer using commands. The first command I ran for this project is 'cd ~/Repos/Nextwork-Devops'

I also updated my private key's permissions by using the 'chmod 400' command which only gives the read access to the owner, thus restricting any other person from reading the file apart from me.

```
● kalukwo@kalukwo-T480s:~/Repos/Nextwork-Devops/Key Pair$ chmod 400 Nextwork-keypair.pem
● kalukwo@kalukwo-T480s:~/Repos/Nextwork-Devops/Key Pair$ ls -l
total 4
-r----- 1 kalukwo kalukwo 1678 Mac 29 15:56 Nextwork-keypair.pem
○ kalukwo@kalukwo-T480s:~/Repos/Nextwork-Devops/Key Pair$ █
```

SSH connection to EC2 instance

To connect to my EC2 instance, I ran the command; 'ssh -i Nextwork-keypair.pem ec2-user@3.236.10.123'

This command required an IPv4 address

A server's IPV4 DNS is the public address for your EC2 server that the internet uses to find and connect to it.

```
○ kalukwo@kalukwo-T480s:~/Repos/Nextwork-Devops/Key Pair$ sudo ssh -i Nextwork-keypair.pem ec2-user@3.236.10.123
The authenticity of host '3.236.10.123 (3.236.10.123)' can't be established.
ED25519 key fingerprint is SHA256:hlhhTnxKSM0jDxsUpB9vMP/V7cs6jtLn2sezJaKso.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? y
Please type 'yes', 'no' or the fingerprint: yes
Warning: Permanently added '3.236.10.123' (ED25519) to the list of known hosts.

          #
          #####      Amazon Linux 2023
          \#####\
          \###|
          \#/
          V-->
          ~~.\
          / \
          /m/`'

[ec2-user@ip-172-31-66-150 ~]$
```

Maven & Java

Apache Maven is a powerful tool that automates the building of software.

Maven is required in this project because, we are building a CI/CD pipeline and apache maven is a powerful tool for automating the building of software.

Java is a popular programming language used to build different types of applications, from mobile apps to large enterprise systems.

Java is required in this project because Amazon Corretto 8 is a version of Java that we're using for this project.



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

I installed Remote - SSH, which is an extension in VS Code lets you use VS Code to work on files or run programs on that server as if you were doing it on your own .I installed it to come in handy when we edit the web app in your EC2 instance!

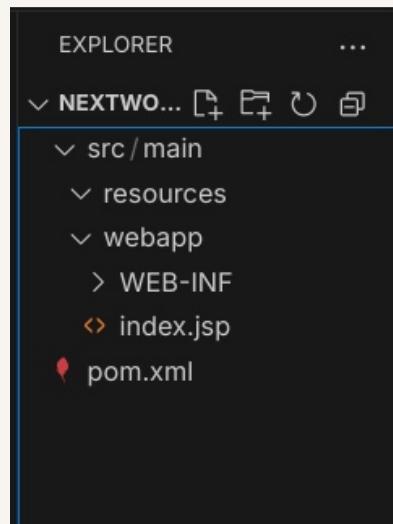
Configuration details required to set up a remote connection include; host, hostname, identityfile, user

```
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-webapp/1.0.10/old-1.x/maven-archetype-webapp-1.0.10-old-1.x.jar
[INFO] -----
[INFO] Using following parameters for creating project from Old (1.x) Archetype: maven-archetype-webapp:1.0
[INFO] -----
[INFO] Parameter: basedir, Value: /home/ec2-user
[INFO] Parameter: package, Value: com.nextwork.app
[INFO] Parameter: groupId, Value: com.nextwork.app
[INFO] Parameter: artifactId, Value: nextwork-web-project
[INFO] Parameter: packageName, Value: com.nextwork.app
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] project created from Old (1.x) Archetype in dir: /home/ec2-user/nextwork-web-project
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 9.274 s
[INFO] Finished at: 2025-04-10T14:38:25Z
[INFO] Final Memory: 17M/97M
[INFO] -----
[ec2-user@ip-172-31-27-210 ~]$
```

Create the Application

Using VS Code's file explorer, I could see the folders and files in the server

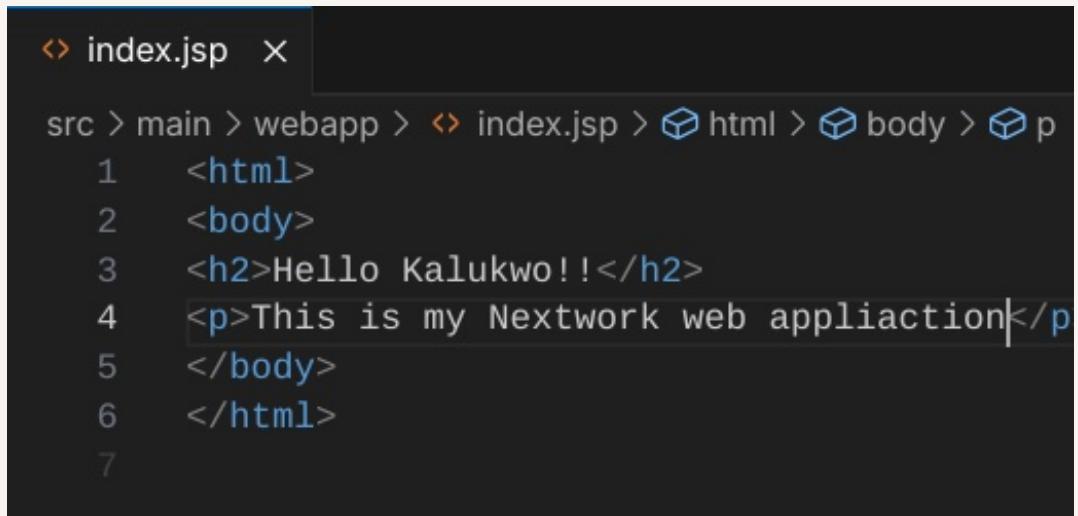
Two of the project folders created by Maven are src and webapp, which are the configuration files a web app might need e.g. connection settings to a database.



Using Remote - SSH

index.jsp is a file used in Java web apps. It's similar to an HTML file because it contains markup to display web pages.

'I edited index.jsp by customizing the place holder code to my custom code and saving the changes using the shortcut; ctrl + s



A screenshot of a code editor window titled "index.jsp". The code editor shows a file structure: src > main > webapp > index.jsp. The content of the file is as follows:

```
1 <html>
2 <body>
3 <h2>Hello Kalukwo!!</h2>
4 <p>This is my Nextwork web appliaction</p>
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6 </html>
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