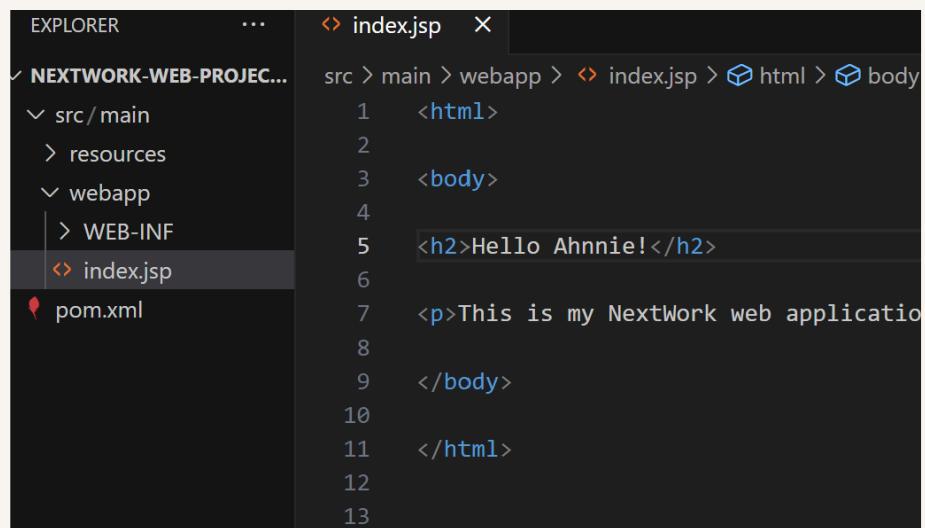


Set Up a Web App Using AWS and VSCode

EA

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```
EXPLORER      ...      index.jsp  X
NEXTWORK-WEB-PROJECT...
src/main/resources/webapp/WEB-INF/index.jsp
1 <html>
2
3 <body>
4
5 <h2>Hello Ahnnie!</h2>
6
7 <p>This is my NextWork web application</p>
8
9 </body>
10 </html>
11
12
13
```

Introducing Today's Project!

What is VSCode and why is it useful?

VSCode is a key part in this project as it was used to connect to the EC2 instance, run the commands for installing tools like Maven and Java and set up a Java web app.

How I'm using VSCode in this project

VSCode is a key part in this project as it was used to connect to the EC2 instance, run the commands for installing tools like Maven and Java and set up a Java web app.

One thing I didn't expect...

One thing i didn't expect was the ability to use VSCode like a local IDE for a remote server.

This project took me...

This project took 10hours as this is my very first project in AWS and I encountered errors in most steps.

Launching an EC2 instance

I started this project by launching an EC2 instance because it will be used to house my web app's files. Without launching an EC2 instance first, I would not have a location for setting up my web app for the rest of this project.

I also enabled SSH

SSH is Secure Shell, which is a protocol that makes sure communication between servers (connected remotely) is authorised and secure. I enabled SSH traffic from just my IP address so that I can connect to my EC2 instance in the next step.

Key pairs

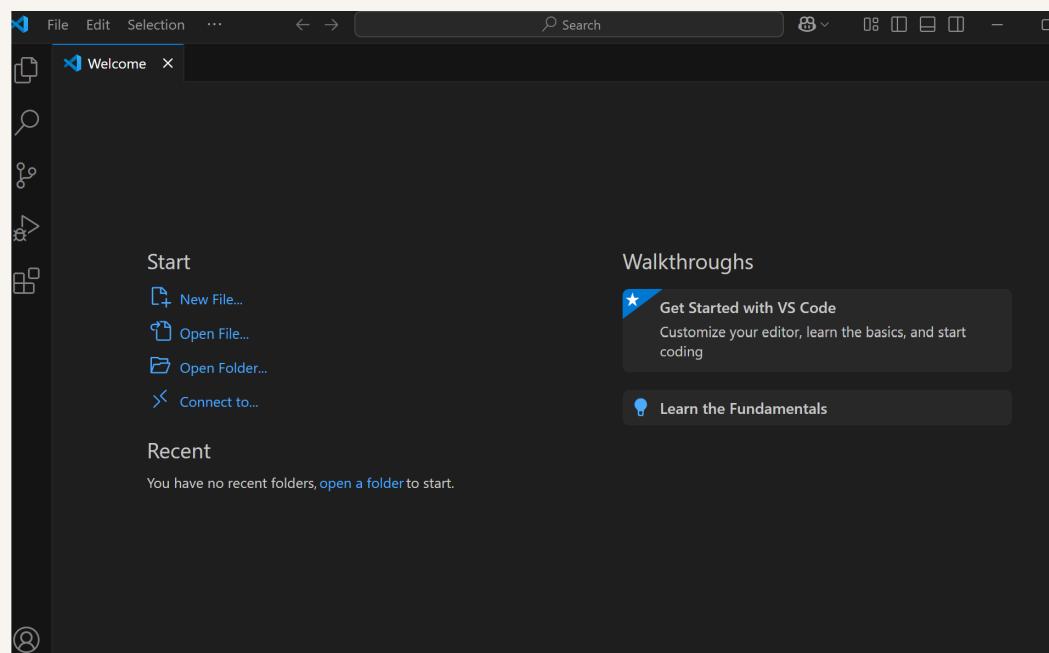
A key pair is like a lock and key for EC2 instance. It is used for authentication i.e for me to securely get access to my EC2 instance. It works by having two halves, a private and a public key that must match up to gain access.

Once I set up my key pair, AWS automatically downloaded a file called nextwork-keypair.pem. This file is my half of the key pair that I will need to gain access to my EC2 instance later in this project.

Set up VSCode

VSCode is an IDE (software for editing and creating code) and is also one of the most popular editors as it comes with a massive library of extensions and is compatible with different languages and use cases.

I installed VSCode to connect to our EC2 instance and then create and edit web app files on that EC2 instance.





My first terminal commands

A terminal is a space to send text based commands to control and create actions with a computer/server. The first command I ran for this project is 'cd ~/Desktop/DevOps' which changes the directory from the home directory into the DevOps folder.

I also updated my private key's permissions by running the icacls command. This command lets you decide who can open or change the files on your system.

```
PS C:\Users\USER> cd ~/Desktop/DevOps
PS C:\Users\USER\Desktop\DevOps> ls

Directory: C:\Users\USER\Desktop\DevOps

Mode                LastWriteTime         Length Name
----                -----              ----- 
-a---        2/20/2025 9:29 AM           1678 nextwork-keypair.pem

PS C:\Users\USER\Desktop\DevOps> whoami
desktop-ub0g3gl\user
PS C:\Users\USER\Desktop\DevOps> icacls "nextwork-keypair.pem" /reset
>> icacls "nextwork-keypair.pem" /grant:r "desktop-ub0g3gl\user:R"
>> icacls "nextwork-keypair.pem" /inheritance:r
```

SSH connection to EC2 instance

To connect to my EC2 instance, I ran the command `ssh -i [Path to .PEM file] ec2-user@[IPv4 DNS of the EC2 instance]`. This command set up an SSH connection that uses the .pem file (our private key) and the public address of our EC2 instance.

This command required an IPv4 address

A server's IPv4 DNS is its public address. Computers/servers connected to the internet can use IPv4 DNS to find and locate another server.

```
,      #
~\_ #####_      Amazon Linux 2023
~~ \#####\
~~ \###|
~~  #/ ____   https://aws.amazon.com/linux/amazon-linux-2023
~~   \~' '-'>
~~~   /
~~.~.  /'
~/\~' /'
[ec2-user@ip-172-31-83-123 ~]$ []
```

Maven & Java

Apache Maven is a tool/package manager for the building process of software. The building process involves compiling and packaging code so that it can be hosted on a server etc.

Maven is required in this project because it's extremely helpful for bringing in packages into an application (i.e any external software) and for packaging up the web app once developed.

Java is a programming language used to develop all kinds of applications. I downloaded Amazon Corretto 8, which is a specific version of Java that's managed by Amazon (AWS).

Java is required in this project because we want to build a Java web app and it needs to be installed first in order to run any Java commands.

Create the Application

I generated a Java web app using the command 'mvn archetype:generate' which is a Maven command that sets up a basic web app using Maven's archetype template.

I installed Remote - SSH extension to connect VSCode directly to the EC2 instance. This means VSCode can be used as an IDE for the Java web app file in the EC2 instance and also makes editing simpler and efficient.

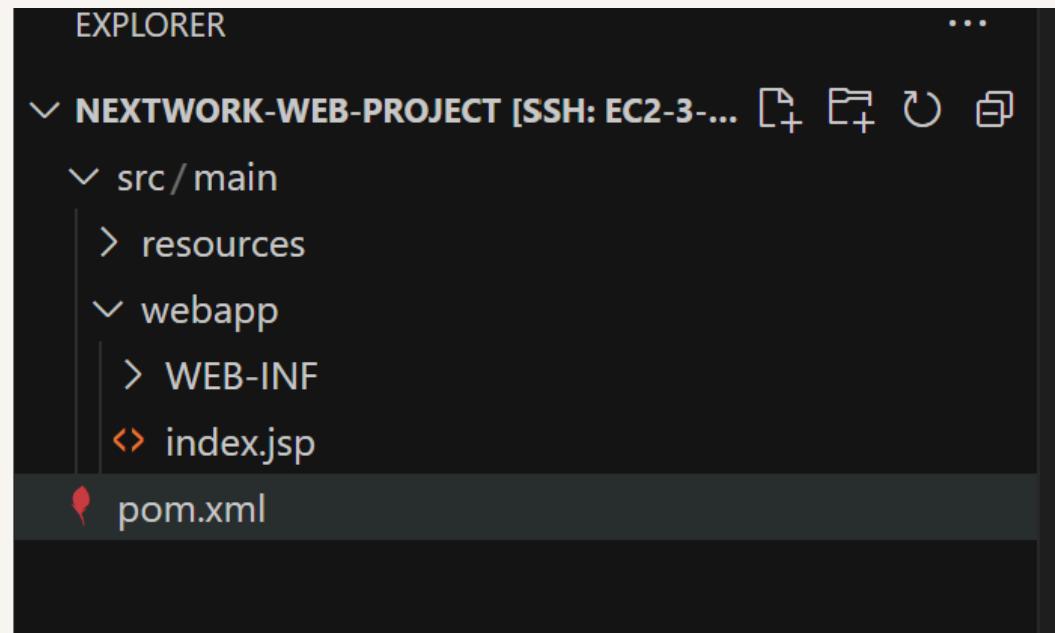
Configuration details required to set up a remote connection include the SSH Host's name (i.e the IPv4 DNS of our EC2 instance), the location of our private key in our local computer and the SSH Hosts' user.

```
[INFO] 
-----
[INFO] BUILD SUCCESS
[INFO] -----
-----
[INFO] Total time: 9.924 s
[INFO] Finished at: 2025-02-20T20:50:24Z
[INFO] Final Memory: 18M/82M
[INFO] -----
```

Create the Application

Using VSCode's file explorer, I could see at a glance a file tree of all the subfolders and files that make up the nextwork web project folder for the Java web app.

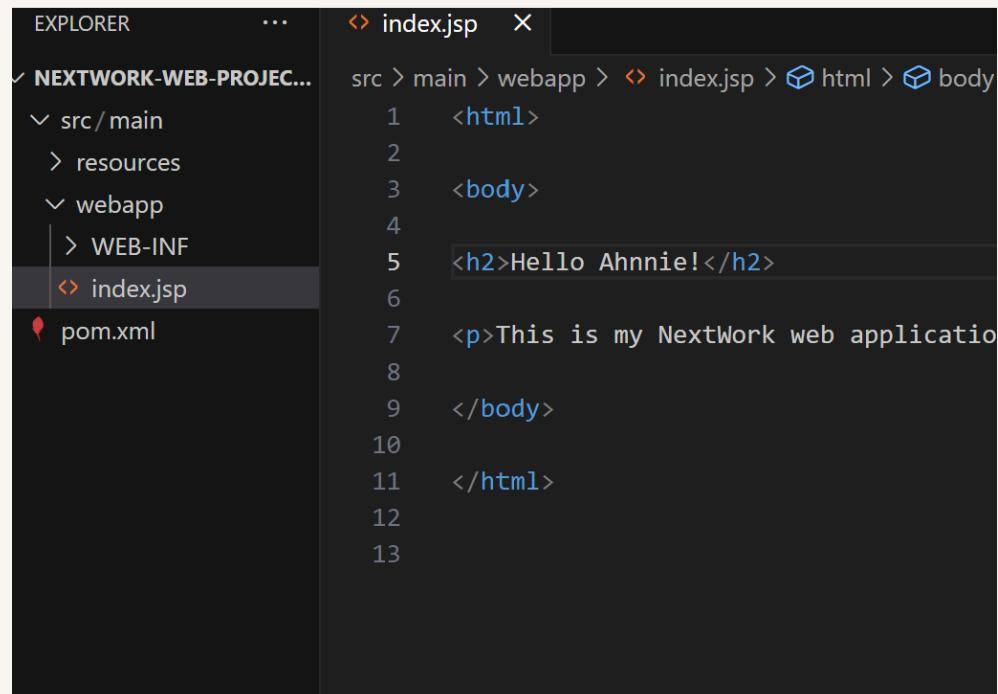
Two of the project folders created by Maven are src and webapp, src contains all the web app source code (i.e. the code that defines the web app's look and feel), whereas webapp is a subfolder of src that focuses on what users will see.



Using Remote - SSH

index.jsp is a file within the webapp folder, and it defines the look of the java web app.

I edited index.jsp by using VSCode even though it is stored remotely in the EC2 instance, which is possible because I've set up a Remote - SSH connection between VSCode and the EC2 instance.



```
EXPLORER      ...
NEXTWORK-WEB-PROJECT...
src / main
  > resources
  webapp
    > WEB-INF
      > index.jsp
pom.xml

index.jsp  X
src > main > webapp > > index.jsp > html > body
1   <html>
2
3   <body>
4
5   <h2>Hello Ahnnie!</h2>
6
7   <p>This is my NextWork web application</p>
8
9   </body>
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11  </html>
12
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```



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