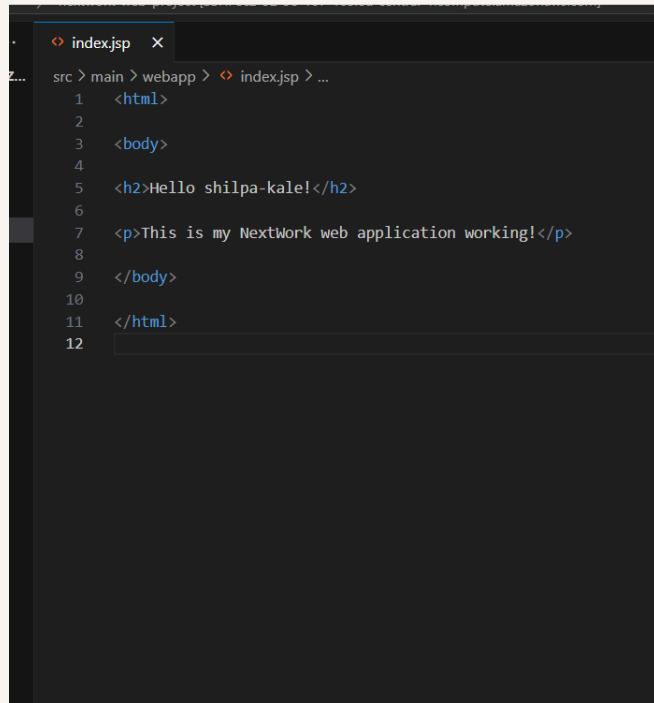




Set Up a Web App Using AWS and VS Code



shilpa kale



```
index.jsp
```

```
src > main > webapp > index.jsp > ...
1   <html>
2
3   <body>
4
5   <h2>Hello shilpa-kale!</h2>
6
7   <p>This is my NextWork web application working!</p>
8
9   </body>
10
11  </html>
12
```

Introducing Today's Project!

This project is Day ONE of seven day DevOps Challenge! In this project, we're going to set up the foundations of a CI/CD pipeline by creating a webapp from scratch. We'll need to launch an EC2 instance and connect to the instance using VSCode.

Key tools and concepts

Services we used were VS Code and Amazon EC2. Key concepts we learnt include SSH connections using an IDE. Editing index.jsp file and using key pairs.

Project reflection

One thing we didn't expect in this project was connecting VS Code with EC2 instance

This project took me approximately 2 hrs including demo. The most challenging part was troubleshooting the errors while connecting the EC2 instance. It was most rewarding to see a successful SSH connection to our EC2 instance over the VS Code.



shilpa kale
NextWork Student

nextwork.org

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 next two days.

Launching an EC2 instance

We started this project by launching an EC2 instance because EC2 instances are like virtual computers that live in the cloud. We want our webapp to live entirely on the cloud, so we are launching an EC2 instance to even develop our webaspps code.

I also enabled SSH

SSH is a protocol that authorizes users(like us) to access remote servers(like EC2 instance). It's also a type of traffic that lets us transfer data back and forth with our EC2 instance. We enabled SSH so that we can securely connect to our EC2 instn

Key pairs

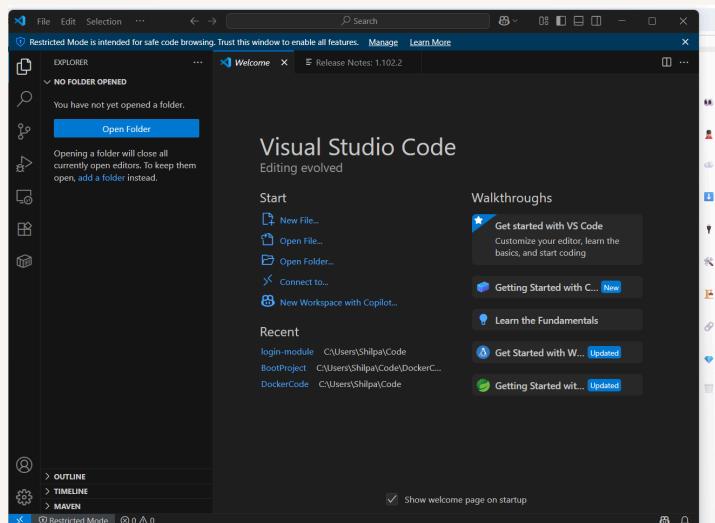
A key pair is a mechanism for us to connect and get access to EC2 instances we launch in AWS. We created a keypair for the EC2 instance that we launched. Keypair works by having two halves, a public key that AWS use and a private key that we have.

Once we set up my key pair, AWS automatically downloaded the private key file called ec2-default.pem.

Set up VS Code

VS Code is one of the most popular IDE in the world. As an IDE, developers use it to manage their coding projects. We are using it today to write/edit our web apps code.

We installed VS Code to write and edit our web apps code that will live inside the instance. It also has handy extensions that lets us connect to an EC2 instance.



My first terminal commands

A terminal is where you send instructions to your computer using text instead of clicks. The first command we ran for this project is cd .\Downloads\ which navigates to Downloads folder.

We also updated our private key's permissions by running the command "chmod 400 ec2-default.pem"

```
Shilpa@DESKTOP-FP4OP26 MINGW64 ~
$ cd Downloads/
Shilpa@DESKTOP-FP4OP26 MINGW64 ~/Downloads
$ chmod 400 ec2-default.pem
chmod: cannot access 'ec2-default.pem': No such file or directory

Shilpa@DESKTOP-FP4OP26 MINGW64 ~/Downloads
$ chmod 400 ec2-default.pem

Shilpa@DESKTOP-FP4OP26 MINGW64 ~/Downloads
$ |
```

SSH connection to EC2 instance

To connect to our EC2 instance, we ran the command "ssh -i (path to private key) ec2-user@ipv4 address of the EC2 instance" . This command an ssh connection directly between our local computer and instance.

This command required an IPv4 address

A server's IPV4 DNS is a public address that identifies where the server lives in the cloud. In our case an EC2 instances ipv4 dns is usefull information to give our local computer. It tell our local computer where to find the EC2 instance.

```
Shilpa@DESKTOP-FP4OP26 MINGW64 ~/Downloads
$ ssh -i devops-keypair.pem ec2-user@ec2-52-58-167-165.eu-central-1.compute.amazonaws.com
,      #
~\ #####
~~ \#####\      Amazon Linux 2023
~~  \###|
~~   \|/ https://aws.amazon.com/linux/amazon-linux-2023
~~    V~'.'->
~~     /
~~..  /
~~ /_/
~~ /m/
[ec2-user@ip-172-31-21-46 ~]$
```

Maven & Java

Apache Maven is a tool that helps developers build and organize Java software projects. It's also a package manager, which means it automatically download any external pieces of code your project depends on to work.

We're also using Maven today because it's really useful for kick-starting web projects! It uses something called archetypes, which are like templates, to lay out the foundations for different types of projects e.g. web apps.

Java is a popular programming language used to build different types of applications, from mobile apps to large enterprise systems. Maven, which we just downloaded, is a tool that NEEDS Java to operate.

Amazon Corretto 8 is a version of Java that we're using for this project. It's free, reliable and provided by Amazon.

Create the Application

We generated a Java web app using the command 'mvn archetype:generate'. This command tells maven to generate a webapp using an existing template. It also names the webapp as 'nextwork-web-project'

We install Remote - SSH which is an extension in VS Code. This extension helps us to connect VS Code directly to a remote server like an EC2 instance.

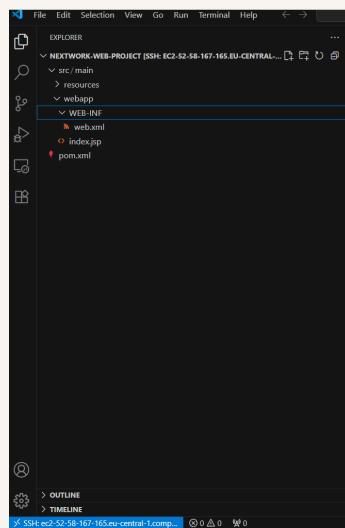
Configuration details required to set up a remote connection include the host which is the EC2 instance address, the identity file i.e. location of pem file and the user that we were login into for our instance.

```
[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: 11.548 s
[INFO] Finished at: 2025-07-25T11:53:41Z
[INFO] Final Memory: 18M/83M
[INFO] -----
[INFO] ec2-user@ip-172-31-21-46 ~]$
```

Create the Application

Using VS Code's file explorer, I could see a bunch of folder and subfolder that define a webapp.

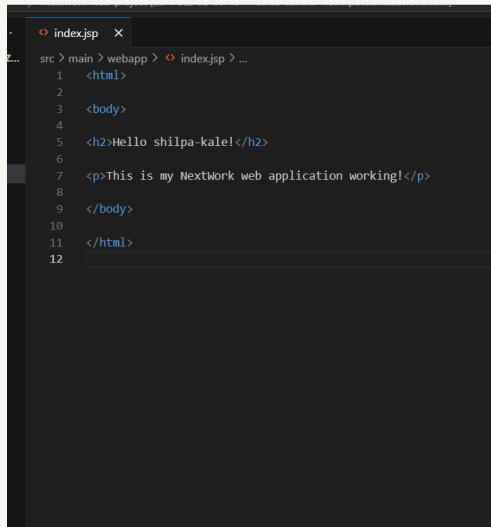
Two of the project folders created by Maven are src and webapp. src is the parent folder and webapp contains the index.jsp



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. However, index.jsp can also include Java code, which lets it generate dynamic content.

We edited index.jsp by updating the welcome message.



```
index.jsp  x
src > main > webapp > index.jsp > ...
1  <html>
2
3  <body>
4
5  <h2>Hello shilpa-kale!</h2>
6
7  <p>This is my NextWork web application working!</p>
8
9  </body>
10
11 </html>
12
```



nextwork.org

The place to learn & showcase your skills

Check out nextwork.org for more projects

