



Set Up a Web App Using AWS and VS Code



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The screenshot shows the VS Code interface with the following details:

- EXPLORER:** Shows the project structure:
 - NEXTWORK-WEB-PROJECT [SSH]
 - src/main
 - resources
 - webapp
 - WEB-INF
 - web.xml
 - index.jsp
 - pom.xml
- EDITOR:** The index.jsp file is open, displaying the following code:

```
<html>
<body>
<h2>Hello Shadab Sayeed!</h2>
<p>This is my NextWork web application working!</p>
</body>
</html>
```
- TERMINAL:** Shows an SSH session on an AWS EC2 instance with the following logs:

```
[ec2-user@ip-172-31-9-134 nextwork-web-project]$ 
[ec2-user@ip-172-31-9-134 nextwork-web-project]$ 
[ec2-user@ip-172-31-9-134 nextwork-web-project]$ 
```



Introducing Today's Project!

In this project, I will demonstrate my understanding on devops and understand the concepts

Key tools and concepts

Services I used were AWS compute , VS code Maven and SSH keys

Project reflection

One thing I didn't expect in this project was...

This project took me approximately took me 3 hours . Challenging part was the free tier AWS EC2 would sometime stop connecting

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...



Launching an EC2 instance

I started this project by launching an EC2 instance because I am going to host my application web server on it

I also enabled SSH

SSH is a secure shell protocol to connect to a remote server

Key pairs

A key pair is method using which you can authenticate to a remote server

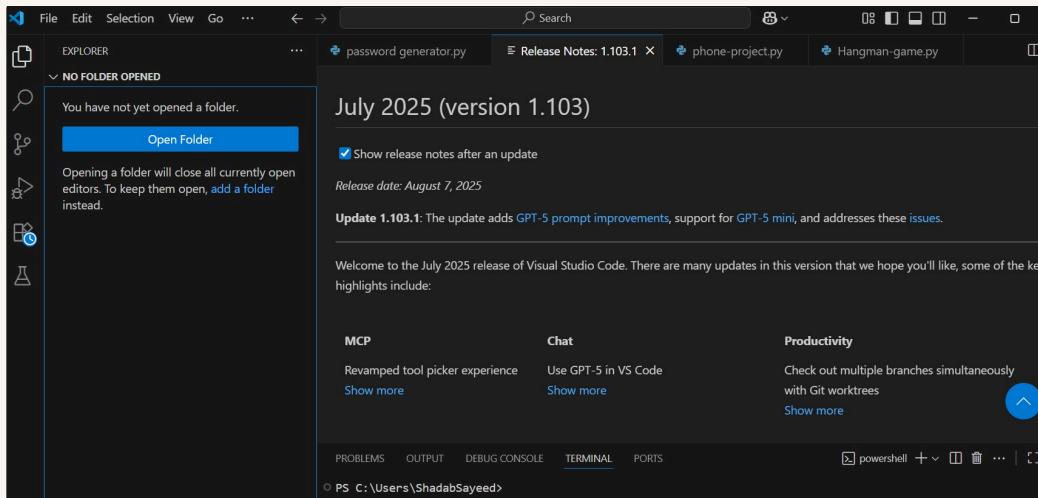
Once I set up my key pair, AWS automatically downloaded private key



Set up VS Code

VS Code is a code editor

I installed VS Code to edit my codes





My first terminal commands

A terminal is whoami

I also updated my private key's permissions by. using icalcs command

The screenshot shows a Microsoft Visual Studio Code interface. The terminal tab is active, displaying a command-line session. The session starts with a login message from an Amazon Linux 2023 instance:

```
Last login: Thu Aug 21 14:52:52 2025 From 138.41.181.65
[ec2-user@ip-172-31-9-134 ~]$
```

Following this, the user logs out:

```
logout
Connection to ec2-43-204-231-73.ap-south-1.compute.amazonaws.com closed.
```

The user then runs a command to update their private key's permissions:

```
PS C:\Users\ShadabSayeed\Downloads> ssh -i "my-webapp-project01.pem" ec2-user@ec2-43-204-231-73.ap-south-1.compute.amazonaws.com
```

The terminal then shows another login message from the same instance:

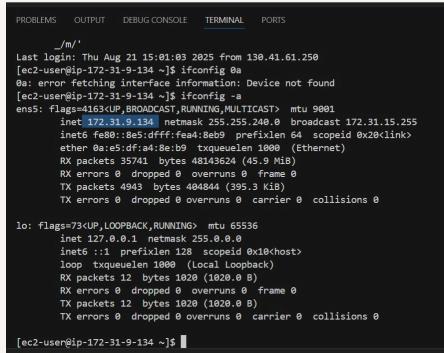
```
[ec2-user@ip-172-31-9-134 ~]$
```

SSH connection to EC2 instance

To connect to my EC2 instance, I ran the command `ssh -i "my-webapp-project01.pem" ec2-user@ec2-15-206-88-105.ap-south-1.compute.amazonaws.com`

This command required an IPv4 address

A server's IPV4 DNS is the canonical name using which you can connect to your ec2 without using IP



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

>Last login: Thu Aug 21 15:01:03 2025 from 130.41.61.290
[ec2-user@ip-172-31-9-134 ~]$ ifconfig
0: error fetching interface information: Device not found
[ec2-user@ip-172-31-9-134 ~]$ ifconfig -a
ens5: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 9001
        inet 172.31.9.134 netmask 255.255.240.0 broadcast 172.31.15.255
                inet6 fe80::8e8:dffffea:8e:b9 prefixlen 64 scopeid 0x20<link>
                    ether 0a:8e:0d:a:8e:b9 txqueuelen 1000 (Ethernet)
                    RX packets 35741 bytes 48143624 (45.9 MiB)
                    RX errors 0 dropped 0 overruns 0 frame 0
                    TX packets 4943 bytes 404844 (395.3 KiB)
                    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
        inet 127.0.0.1 netmask 255.0.0.0
                inet6 ::1 prefixlen 128 scopeid 0x10<host>
                    loop txqueuelen 1000 (Local Loopback)
                    RX packets 12 bytes 1020 (1020.0 B)
                    RX errors 0 dropped 0 overruns 0 frame 0
                    TX packets 12 bytes 1020 (1020.0 B)
                    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
[ec2-user@ip-172-31-9-134 ~]$
```



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.

Maven is required in this project because I want to build web app

Java is programming language used to build apps from mobile apps to enterprise apps

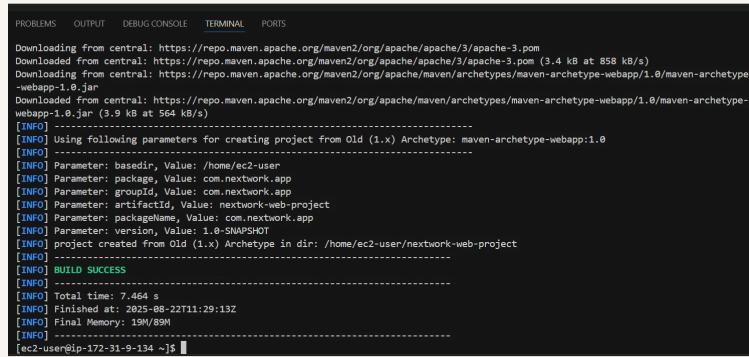
Java is required in this project because Maven needs java to operate

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 a protocol used for remote connection to your server. I installed it to integrate it with VScode so that i can connect with VScode and can push my codes directly from vs code

Configuration details required to set up a remote connection included host hostname and the username and the key detail



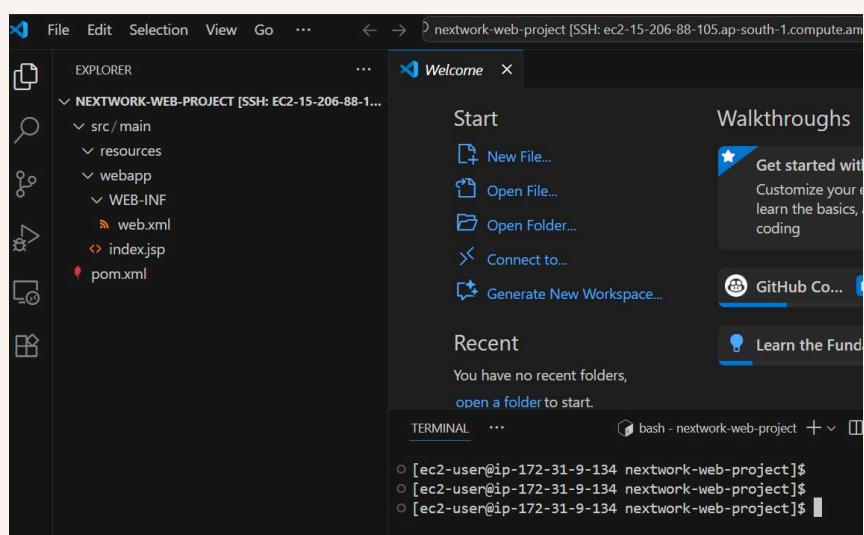
```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

Downloading from central: https://repo.maven.apache.org/maven2/org/apache/apache/3/apache-3.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/apache/3/apache-3.pom (3.4 kB at 858 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-webapp/1.0/maven-archetype-webapp-1.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-webapp/1.0/maven-archetype-webapp-1.0.jar (3.9 kB at 564 kB/s)
[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: 7.464 s
[INFO] Finished at: 2025-08-22T11:29:13Z
[INFO] Final Memory: 19M/89M
[INFO] -----
[ec2-user@ip-172-31-9-134 ~]$
```

Create the Application

Using VS Code's file explorer, I could see the FS structure / Directory structure of the project.

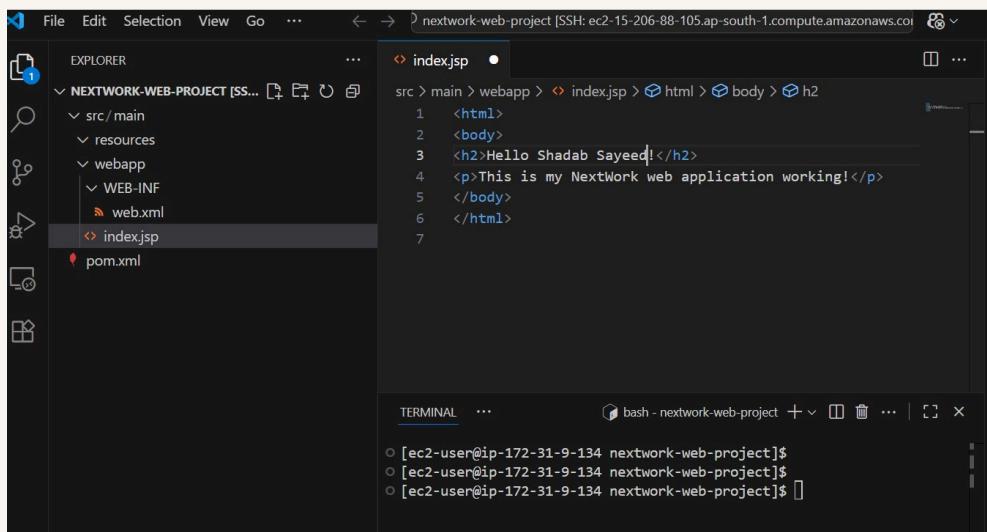
Two of the project folders created by Maven are src and webapp, src is the source code which tell how the webapp will look and work , webapp is the web app's file like html, css , javascript etc



Using Remote - SSH

The index.jsp is a Java script that helps run your code, It can also help run Java code dynamically and hence it can be used to host dynamic contents

I edited index.jsp by clicking on the file and in vscode and entered the value that I desired in the body



```
<html>
<body>
<h2>Hello Shadab Sayeed!</h2>
<p>This is my NextWork web application working!</p>
</body>
</html>
```



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