



Set Up a Web App Using AWS and VS Code

SH

Shravani Gundaye

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

Introducing Today's Project!

In this project, I will demonstrate launching an EC2 instance, connecting via VS Code, installing Maven and Java, and generating a basic web app. I'm doing this project to learn foundational DevOps and web app setup skills.

Key tools and concepts

The services used were AWS EC2 and VS Code. Key concepts included launching a virtual server, creating a key pair for secure access, and using SSH for remote connectivity. This laid the groundwork for building a web app in the cloud.

Project reflection

One thing I didn't expect was the need to apply networking concepts, specifically using SSH for remote access. This highlighted the importance of understanding the underlying protocols required for connecting to and managing a cloud-based server.

This project took me approximately 2-3 hours. The most challenging part was connecting VS Code to the EC2 instance, but it was most rewarding to see the connection successful. It solidified the remote access concept.

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This project is part of a DevOps series where I'm building a CI/CD pipeline. I'll be working on the next project, focusing on the next stage of the pipeline, in the coming week.

Launching an EC2 instance

I'm launching an EC2 instance because we need a virtual server in the cloud to host our web app's files & run our development work. Instead of using a local machine, this allows us to build and deploy our web app entirely within a cloud environment.

I also enabled SSH

SSH is a secure protocol that lets authorized users access remote servers by verifying key pairs and encrypting all communication. I enabled SSH so that I can safely connect to my EC2 instance and manage it securely.

Key pairs

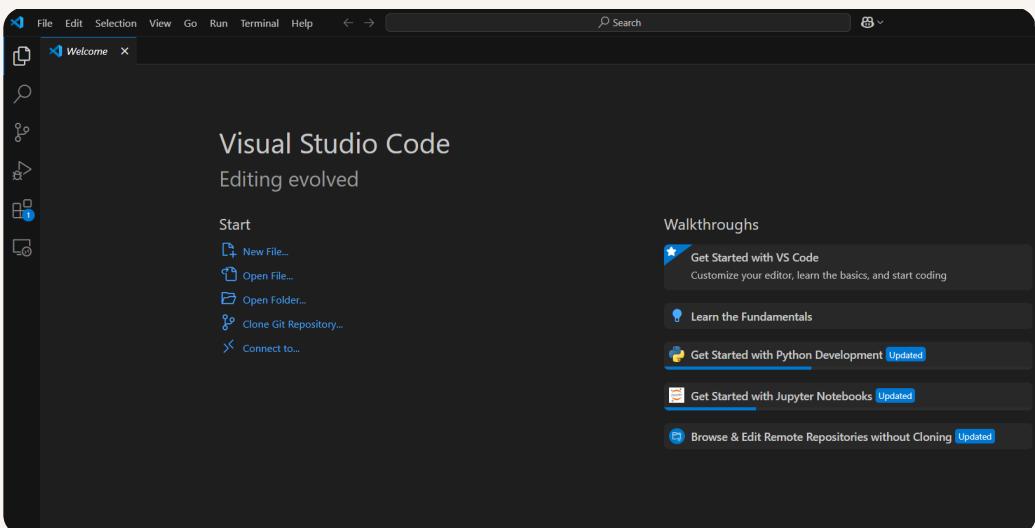
A key pair is a security credential for securely accessing an EC2 instance. It has a public key stored by AWS & a private key you download. When you connect, AWS uses the public key to verify the private key, ensuring only you can access your server.

Once I set up my key pair, AWS automatically downloaded a .pem file to my computer. This private key file is essential for securely connecting to my EC2 instance using SSH.

Set up VS Code

VS Code is a lightweight, open-source code editor by Microsoft that supports many programming languages. It includes features like debugging, extensions, and an integrated terminal, making it easy to write, edit, and run code in one place.

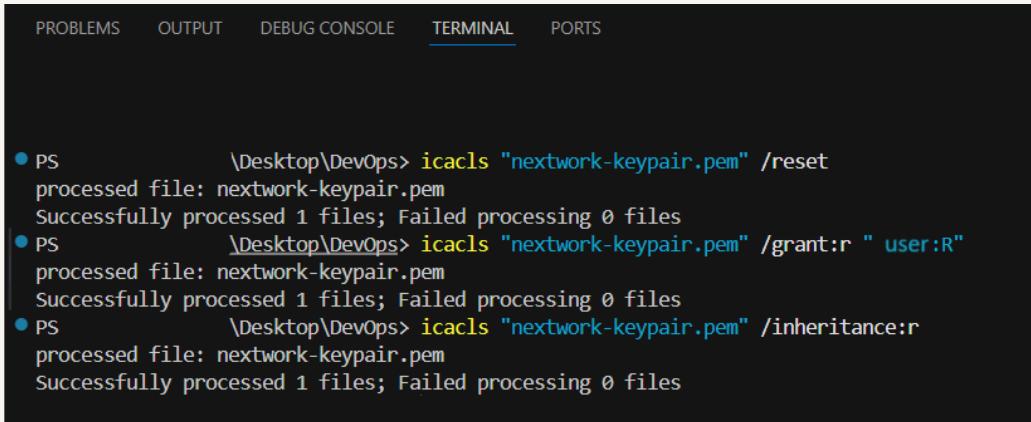
I installed VS Code to use its integrated terminal for connecting to my EC2 instance with SSH, manage files easily, and run commands directly, making it a convenient tool for interacting with my server.



My first terminal commands

A terminal is a text-based interface used to interact with your computer and run commands. The first command I ran for this project is cd ~/Desktop/DevOps, which navigates to the DevOps folder on my desktop.

I also updated my private key's permissions by using the icacls command in Windows. I reset default permissions, granted myself read-only access, and removed inheritance so only I can securely use the key to connect to my EC2 instance.



The screenshot shows a terminal window with several tabs at the top: PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is underlined), and PORTS. The terminal itself displays the following text:

```
● PS          \Desktop\DevOps> icacls "nextwork-keypair.pem" /reset
processed file: nextwork-keypair.pem
Successfully processed 1 files; Failed processing 0 files
● PS          \Desktop\DevOps> icacls "nextwork-keypair.pem" /grant:r " user:R"
processed file: nextwork-keypair.pem
Successfully processed 1 files; Failed processing 0 files
● PS          \Desktop\DevOps> icacls "nextwork-keypair.pem" /inheritance:r
processed file: nextwork-keypair.pem
Successfully processed 1 files; Failed processing 0 files
```

SSH connection to EC2 instance

To connect to my EC2 instance, I ran the command: ssh -i <Path-to-Key> ec2-user@<Public-IPv4-DNS> This used my private key to authenticate and establish a secure SSH session with the server.

This command required an IPv4 address

A server's IPv4 DNS is its public web address that translates the server's IP into a readable format. It allows computers on the internet, including mine, to find and connect to the EC2 instance easily.

```
,      #
~\_ ####_      Amazon Linux 2023
~~ \####\|
~~ \###|
~~ \#/ ___ https://aws.amazon.com/linux/amazon-linux-2023
~~ V~' .->
~~~ /
~~* . / /
~/m/
[ec2-user@ip- ~]$
```

Maven & Java

Apache Maven is a build automation and project management tool for Java. It helps organize projects, manage dependencies, and use templates (archetypes) to quickly set up structures like web apps.

Maven is required because it automates building Java projects, manages dependencies, and provides archetypes—templates that quickly set up web app structures—so we can start developing the app without manually creating all files and folders.

Java is a widely used programming language for building applications ranging from web apps to enterprise systems. It's platform-independent, secure, and essential for many developer tools.

Java is required in this project because Maven depends on it to run. Without Java, Maven can't generate or build the web app structure we need for developing and deploying our application.

Create the Application

I generated a Java web app using the command 'mvn archetype:generate'

I installed Remote - SSH, a VS Code extension that securely connects to another computer via SSH. I installed it to access my EC2 instance directly from VS Code, so I can view, edit, and run files on the server as if it were my own system.

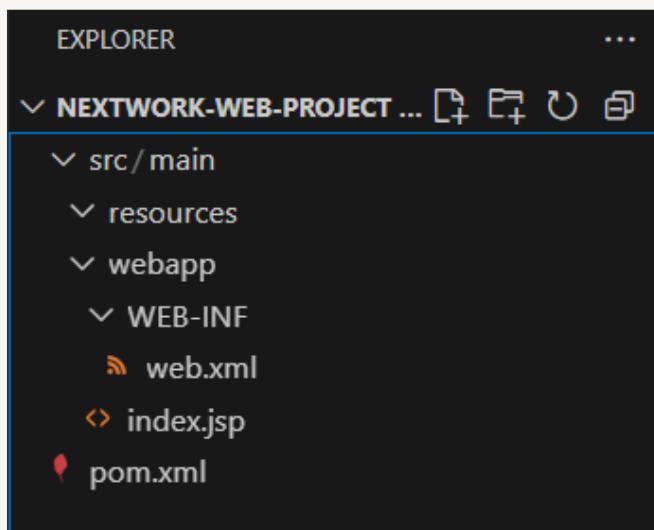
Configuration details required to set up a remote connection include: Host, HostName (EC2 IPv4 DNS), User (ec2-user), and IdentityFile (path to nextwork-keypair.pem)—all required for SSH access to the EC2 instance.

```
[INFO] -----  
[INFO] BUILD SUCCESS  
[INFO] -----  
[INFO] Total time: 10.810 s  
[INFO] Finished at: 2025-08-22T12:45:38Z  
[INFO] Final Memory: 17M/80M  
[INFO] -----
```

Create the Application

Using VS Code's file explorer, I could see the nextwork-web-project folder with all its subfolders and files, representing the web app's structure ready for development.

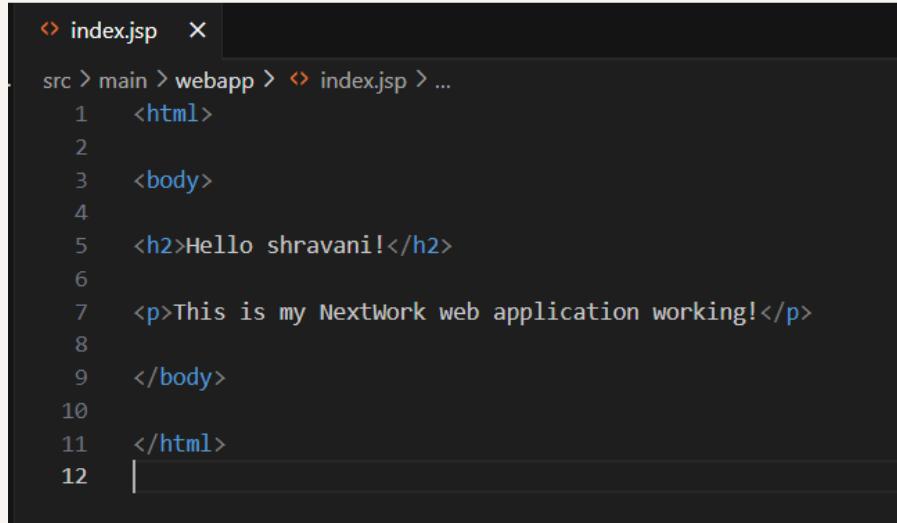
Two of the project folders created by Maven are src and webapp, which hold the source code and web app files (XML, JSP) plus any configuration resources needed.



Using Remote - SSH

The index.jsp is a Java web app file similar to HTML but can include Java code, allowing dynamic content that changes based on user input or database data.

I edited index.jsp in VS Code by replacing the placeholder code with a custom HTML snippet and saving the changes.



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