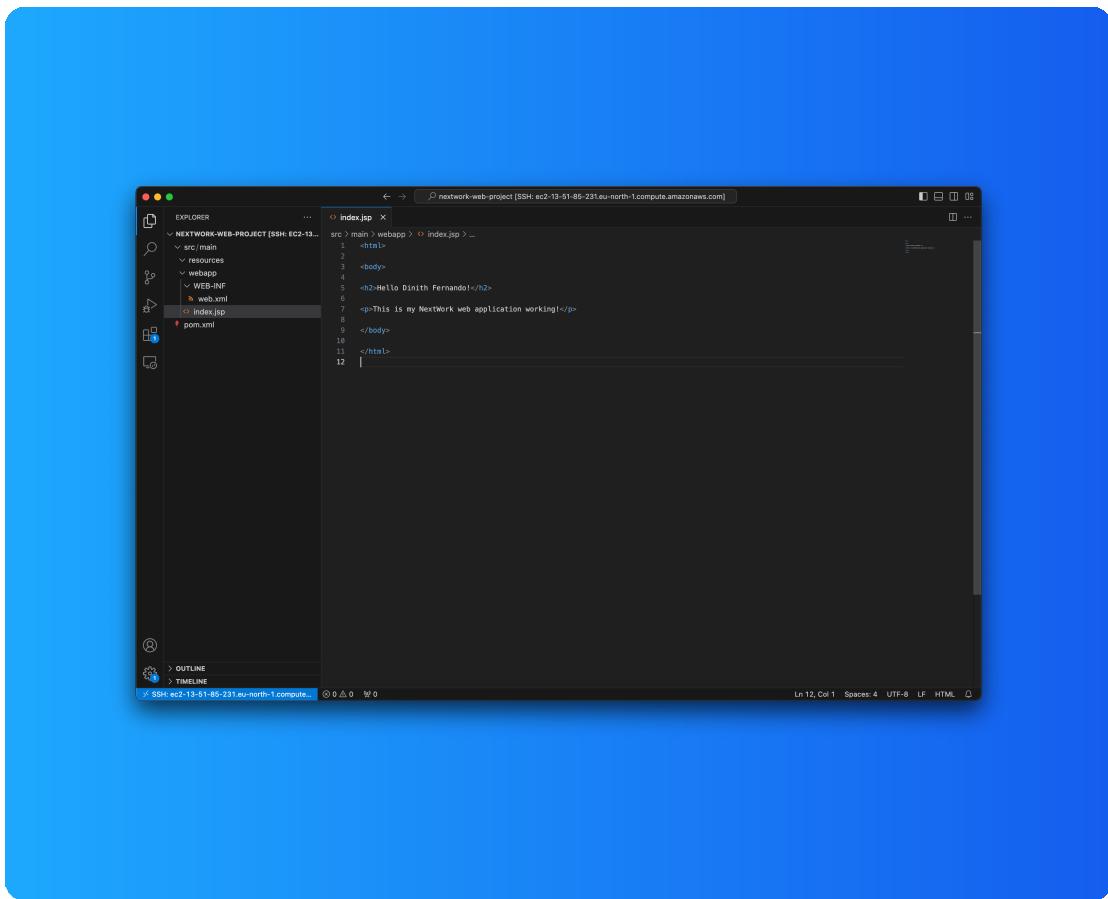




# Set Up a Web App in the Cloud

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# Introducing Today's Project!

## What is VSCode and why is it useful?

VSCode (Visual Studio Code) is a lightweight code editor by Microsoft. It supports multiple languages and features like syntax highlighting, IntelliSense, and extensions, making it a great tool for efficient coding and project development.

## How I'm using VSCode in this project

In today's project, I used VSCode to edit and manage files for my Java web app. I installed the Remote - SSH extension to connect to my EC2 instance, allowing me to access, modify, and save files like index.jsp and pom.xml directly from the editor.

## One thing I didn't expect...

One thing I didn't expect in this project was how easily VSCode integrated with my EC2 instance using the Remote - SSH extension. This made it simple to edit files directly on the server, significantly improving my workflow and productivity.

## This project took me...

This project took me about 2.5 hours to complete. During this time, I set up the EC2 instance, installed necessary tools, created the Java web app, and made edits to the files, ensuring everything worked correctly.



# Launching an EC2 instance

I started this project by launching an EC2 instance because it provides the necessary compute power and a reliable, isolated environment to run my application securely in the cloud.

## I also enabled SSH

SSH is a secure protocol for remote server access. I enabled SSH so that I can connect to my EC2 instances safely, allowing me to execute commands and manage configurations directly from my local computer without compromising security.

## Key pairs

Key pairs are a general security concept, not unique to AWS. They are commonly used in other cloud platforms (like Google Cloud, Azure) and can also secure connections to local or on-premise servers.

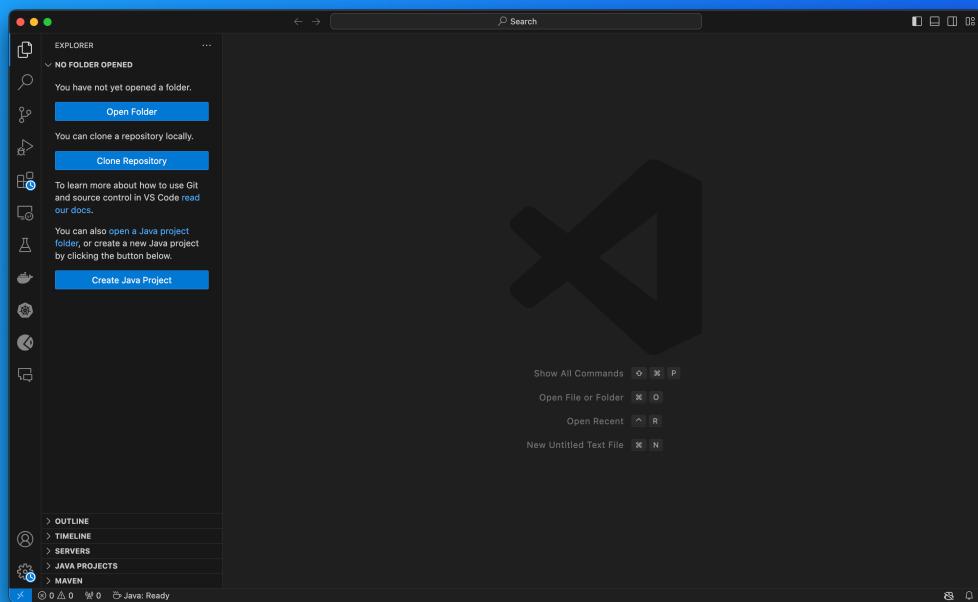
Once I set up my key pair, AWS automatically downloaded the private key file (.pem) to my local computer. This file is essential for securely connecting to my EC2 instance via SSH, as it allows me to authenticate as an authorized user.



# Set up VSCode

VSCode is a popular tool for managing coding projects and is often called an IDE (Integrated Development Environment) that helps users write and edit code efficiently. It also includes tools for connecting to virtual servers like EC2 instances.

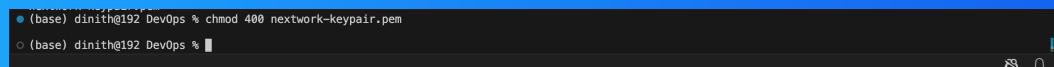
I installed VSCode to write, edit, and manage my code for the project efficiently. It will help me connect to my EC2 instance, allowing me to access and modify files directly on the server, streamlining my development workflow.



# My first terminal commands

A terminal is a text-based interface that allows users to interact with the operating system. The first commands I ran for this project are pwd to display the current directory, ls to list files, and cd to change to the desired directory.

I also updated my private key's permissions by running the command chmod 400 network-keypair.pem. This ensures that only I have read access to the key file, which is essential for secure SSH connections to my EC2 instance.



```
(base) dinith@192 DevOps % chmod 400 nextwork-keypair.pem
(base) dinith@192 DevOps %
```



d [REDACTED] @yahoo.com  
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# SSH connection to EC2 instance

To connect to my EC2 instance, I ran the command `ssh -i <pair name>.pem ec2-user@<EC2_PUBLIC_IP_ADDRESS>`. This command uses my private key to authenticate and establish a secure SSH connection to the instance using its public IP address.

# This command required an IPv4 address

A server's IPV4 DNS is a service that converts a domain name into an IPV4 address. This allows users and applications to find and connect to the server online, making it easier to access web services without having to recall numerical addresses.



# Maven & Java

Apache Maven is a build automation tool for Java projects. It simplifies managing project dependencies and building applications.

Maven is required in this project because it simplifies dependency management and the build process for Java applications. It allows for easy library integration, ensures a consistent project structure, and improves collaboration among team members.

Java is a high-level, object-oriented programming language known for its portability and flexibility. It allows developers to write code that runs on any device with a Java Virtual Machine (JVM) and is commonly used for web and mobile applications.

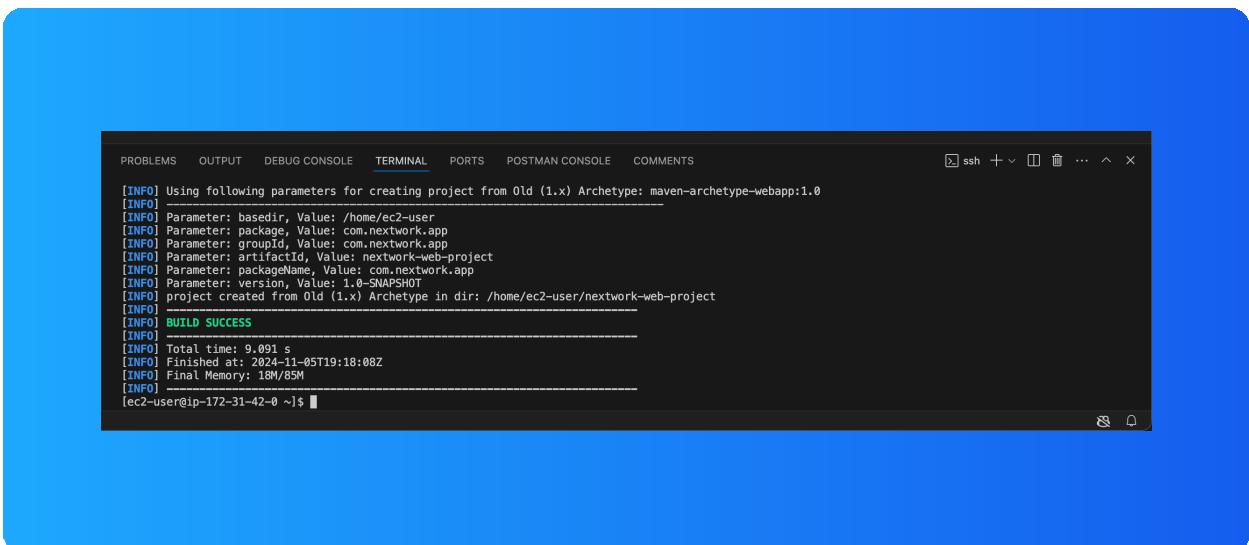
Java is required in this project because it is a versatile programming language that supports cross-platform development. It provides robust libraries and frameworks essential for building scalable, maintainable web applications efficiently.

# Create the Application

I created a Java web app using the command mvn archetype:generate -DgroupId=com.nextwork.app -DartifactId=nextwork-web-project -DarchetypeArtifactId=maven-archetype-webapp -DinteractiveMode=false. This command sets up the project structure.

I installed Remote - SSH, a VSCode extension for connecting to remote servers, to access and edit files on my EC2 instance in VSCode. This setup makes development easier by allowing direct access to remote files without needing repeated logins.

Configuration details required to set up a remote connection include the hostname or IP address of the EC2 instance, the SSH key path, and user credentials. These details allow secure access to the instance directly from VSCode.

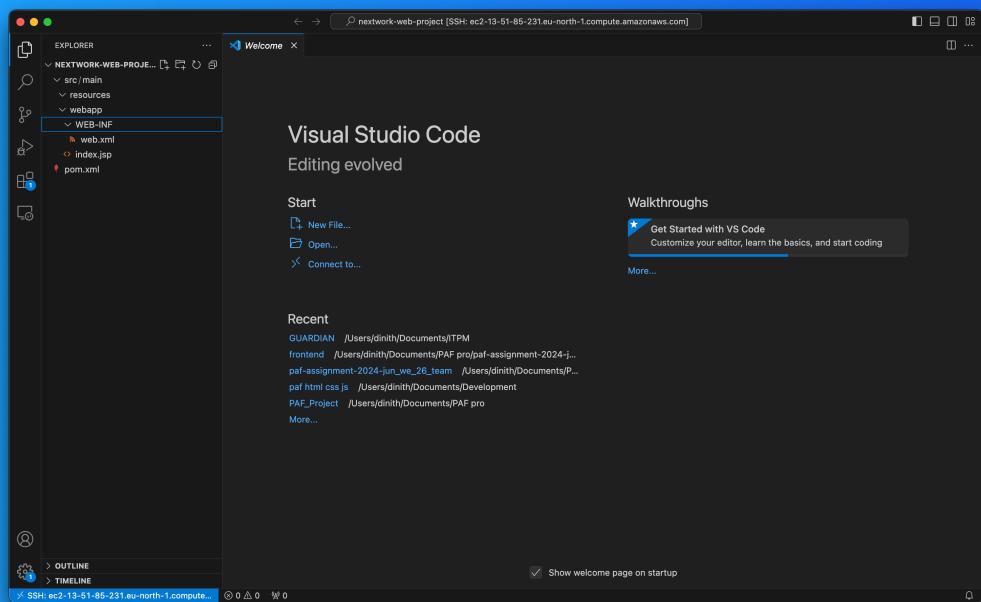


```
[INFO] Using following parameters for creating project from Old (1.x) Archetype: maven-archetype-webapp:1.0
[INFO] Parameter: basedir, Value: /home/ec2-user
[INFO] Parameter: package, Value: com.nextwork.app
[INFO] Parameter: groupId, Value: com.nextwork.app
[INFO] Parameter: artifactId, Value: nextwork-web-project
[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: 9.091 s
[INFO] Finished at: 2024-11-05T19:18:08Z
[INFO] Final Memory: 18M/85M
[INFO]
```

# Create the Application

Using VSCode's file explorer, I could see the project structure, including directories like src, main, resources, webapp, and files such as web.xml, index.jsp, and pom.xml, which are essential for the Java web app setup.

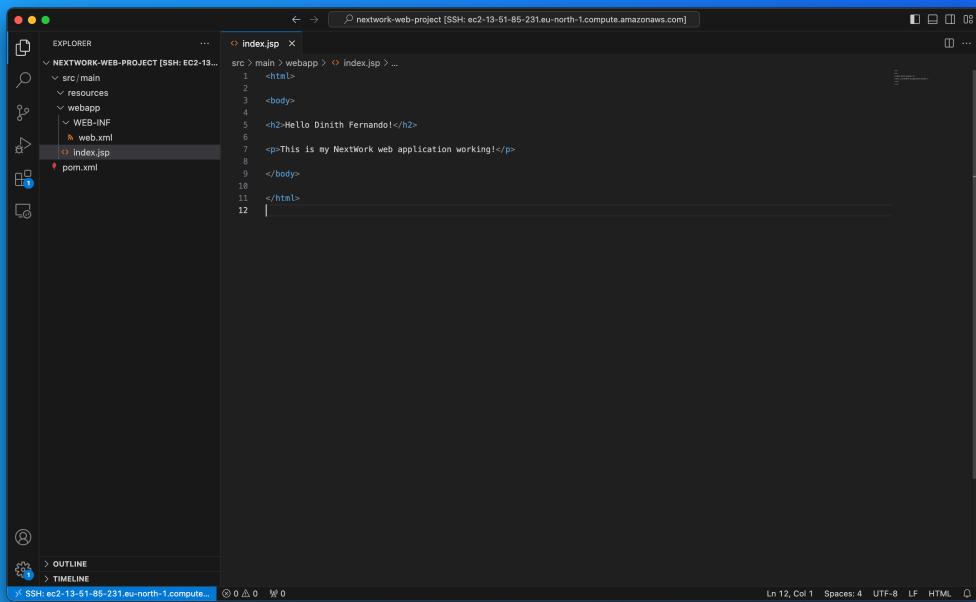
Two of the project folders created by Maven are src and webapp, which serve different purposes. The src folder contains the source code, while the webapp folder holds the web-related files, like HTML, JSP, and other resources for the web application.



# Using Remote - SSH

index.jsp is the default entry point for a Java web application. It's a JavaServer Pages (JSP) file that combines HTML and Java code, typically used to display the initial content of the web app when accessed through a browser.

I edited index.jsp by opening the file in VSCode and modifying its content directly. I made changes to the HTML structure and embedded Java code as needed, then saved the file to update the web application with the new content.



```
<%@ page language="java" %>
<html>
<head>
<title>Hello JSP</title>
</head>
<body>
<h2>Hello Dinit Fernando!</h2>
<p>This is my NextWork web application working!</p>
</body>
</html>
```



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