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Set Up a Web App Using AWS and VS Code



Courage Dei

```
<html>
  <body>
    <h2>Hello {YOUR NAME}!</h2>
    <p>This is my NextWork web application working!</p>
  </body>
</html>
```



Introducing Today's Project!

deploy a web app on ec2 with the help of automation

Key tools and concepts

Services I used were Amazon EC2 and VS Code. Key concepts I learnt include connecting to a remote server via SSH, installing Java, and deploying a web app on a cloud server.

Project reflection

One thing I didn't expect in this project was how important security group settings were—without the right rules, I couldn't access the app, even though everything else was set up correctly.

This project took me approximately some time to complete. The most challenging part was configuring the EC2 instance and setting up the correct security rules. It was most rewarding to see the web app successfully running live from the cloud.



Courage Dei
NextWork Student

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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 the coming days as I dive into automating deployments and integrating version control with tools like GitHub Actions



Launching an EC2 instance

I started this project by launching an EC2 instance because we need to configure the environment where our web app will be hosted

I also enabled SSH

I enabled SSH so that i can securely connect to my ec2 instance

Key pairs

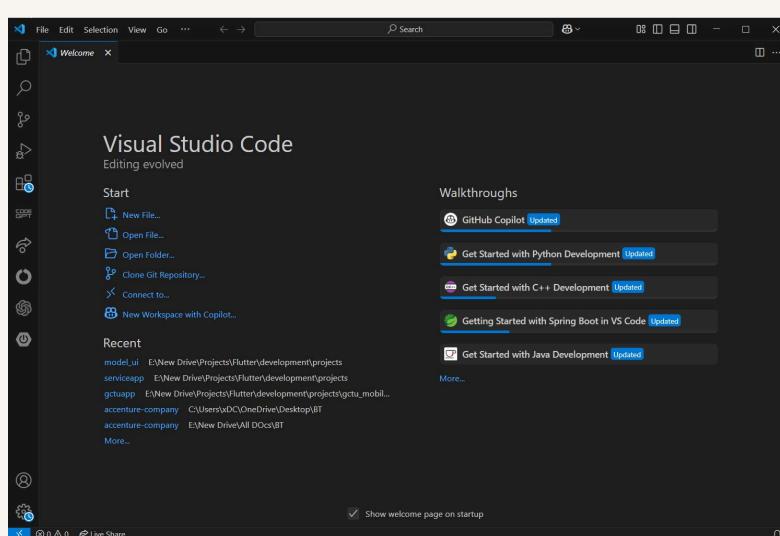
A key pair is a secure key use to ssh into an ec2 instance via the console

Once I set up my key pair, AWS automatically downloaded the .pem file to my machine, which i stored securely so i can use it later in the project

Set up VS Code

VS Code is an IDE.

I installed VS Code to write code



My first terminal commands

dir to ls all the files and directories in the selected folder

I also updated my private key's permissions by making sure any changes made to the folder permissions does not affect the file

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
● PS C:\Users\xDC\OneDrive\Desktop\A DevOps files> whoami
    xdc\xdc
● PS C:\Users\xDC\OneDrive\Desktop\A DevOps files> icacls "nextwork-keypair-courage.pem" /reset
    processed file: nextwork-keypair-courage.pem
    Successfully processed 1 files; Failed processing 0 files
● PS C:\Users\xDC\OneDrive\Desktop\A DevOps files> icacls "nextwork-keypair-courage.pem" /grant:r "%fdc%:R"
    %fdc%: No mapping between account names and security IDs was done.
    Successfully processed 0 files; Failed processing 1 files
● PS C:\Users\xDC\OneDrive\Desktop\A DevOps files> icacls "nextwork-keypair-courage.pem" /grant:r "%xDC%:R"
    %xDC%: No mapping between account names and security IDs was done.
    Successfully processed 0 files; Failed processing 1 files
○ PS C:\Users\xDC\OneDrive\Desktop\A DevOps files> ^
● PS C:\Users\xDC\OneDrive\Desktop\A DevOps files> icacls "nextwork-keypair-courage.pem" /grant:r "fdc:R"
    processed file: nextwork-keypair-courage.pem
    Successfully processed 1 files; Failed processing 0 files
● PS C:\Users\xDC\OneDrive\Desktop\A DevOps files> icacls "nextwork-keypair-courage.pem" /inheritance:r
    processed file: nextwork-keypair-courage.pem
    Successfully processed 1 files; Failed processing 0 files
○ PS C:\Users\xDC\OneDrive\Desktop\A DevOps files> █
```

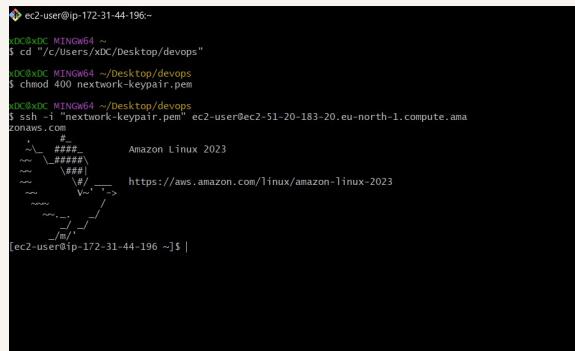


SSH connection to EC2 instance

To connect to my EC2 instance, I ran the command `ssh -i "nextwork-keypair.pem"`
`ec2-user@ec2-51-20-183-20.eu-north-1.compute.amazonaws.com`

This command required an IPv4 address

A server's IPV4 DNS is a human-readable address that AWS assigns to your server. It resolves to the instance's public IP address and helps you connect to it over the internet.



```
ec2-user@ip-172-31-44-196:~$ cd "/c/users/XDC/Desktop/devops"
XDC@XDC MINGW64 ~
XDC@XDC MINGW64 ~/Desktop/devops
$ chmod 400 nextwork-keypair.pem
XDC@XDC MINGW64 ~/Desktop/devops
$ ssh -i "nextwork-keypair.pem" ec2-user@ec2-51-20-183-20.eu-north-1.compute.amazonaws.com
[ec2-user@ip-172-31-44-196 ~]$ |
```

The terminal window shows the user's command history and the resulting error message. The error message is displayed in red text, indicating that the command requires an IPv4 address.



Maven & Java

Apache Maven is a tool that aids developers build and organize Java software projects.

Maven is required in this project because it's really useful for kick-starting web projects!

Java a programming language used to build various types of applications

Java is required in this project because to know the location so we don't state it everytime



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 an extension in vscode, I installed it to ssh into the instance

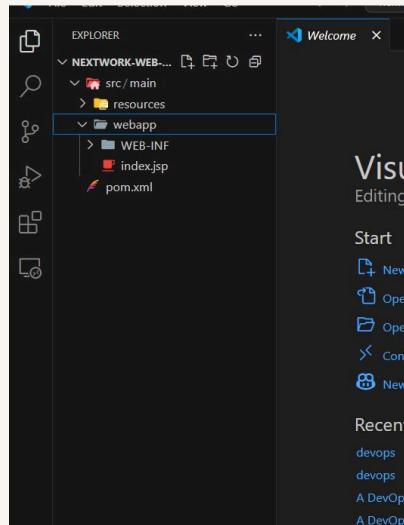
Configuration details required to set up a remote connection include: Host ec2-51-20-183-20.eu-north-1.compute.amazonaws.com HostName ec2-51-20-183-20.eu-north-1.compute.amazonaws.com IdentityFile nextwork-keypair.pem User ec2-user

```
Downloaded From central: https://repo.maven.apache.org/maven2/org/apache/nexus/nexus-archetype-webapp/1.0/nexus-archetype-webapp-1.0.jar (13 kB at 3.4 kB/s)
Downloaded From central: https://repo.maven.apache.org/maven2/org/bouncycastle/bcprov-jdk15on-1.60.jar (20 kB at 2.0 kB/s)
Downloaded From central: https://repo.maven.apache.org/maven2/org/apache/ant/ant-1.8.1/ant-1.8.1.jar (1.8 kB at 1.8 kB/s)
Downloaded From central: https://repo.maven.apache.org/maven2/org/apache/ant/ant-launcher-1.8.1/ant-launcher-1.8.1.jar (2.0 kB at 2.0 kB/s)
Downloaded From central: https://repo.maven.apache.org/maven2/org/apache/ant/ant-tasks-1.8.1/ant-tasks-1.8.1.jar (4.0 kB at 4.0 kB/s)
Downloaded From central: https://repo.maven.apache.org/maven2/org/apache/nexus/nexus-archetype-webapp/1.0/nexus-archetype-webapp-1.0.jar (13 kB at 3.4 kB/s)
Downloaded From central: https://repo.maven.apache.org/maven2/org/apache/nexus/nexus-archetype-webapp-hd/1.0/nexus-archetype-webapp-hd-1.0.jar (13 kB at 3.4 kB/s)
Downloaded From central: https://repo.maven.apache.org/maven2/org/apache/nexus/nexus-archetype-parent/1.0/nexus-archetype-parent-1.0.jar (10.0 kB at 10.0 kB/s)
Downloaded From central: https://repo.maven.apache.org/maven2/org/apache/nexus/nexus-archetype-parent-hd/1.0/nexus-archetype-parent-hd-1.0.jar (10.0 kB at 10.0 kB/s)
Downloaded From central: https://repo.maven.apache.org/maven2/org/apache/nexus/nexus-archetype-webapp-hd/1.0/nexus-archetype-webapp-hd-1.0.jar (13 kB at 3.4 kB/s)
Downloaded From central: https://repo.maven.apache.org/maven2/org/apache/nexus/nexus-archetype-webapp/1.0/nexus-archetype-webapp-1.0.jar (13 kB at 3.4 kB/s)
INFO Generating project in batch mode
INFO Using following parameters for creating project from old (1.x) Archetype: nexus-archetype-webapp/1.0
INFO Using following parameters for creating project from old (1.x) Archetype: nexus-archetype-webapp-hd/1.0
INFO Parameter: basedir, value: /home/ec2-user
INFO Parameter: package, value: com.nextwork.web
INFO Parameter: artifactId, value: nextwork-web-project
INFO Parameter: packaging, value: com.nextwork.web-project
INFO project created from old (1.x) Archetype in dir: /home/ec2-user/nextwork-web-project
BUILD SUCCESS
INFO Total time: 7.705 s
INFO Finished at: 2022-06-07T21:55:39Z
INFO Final Memory: 180/83M
[ec2-user@ip-172-31-44-196 ~]$
```

Create the Application

Using VS Code's file explorer, I could see my folder structure where I can add and configure my web app

Two of the project folders created by Maven are src and webapp, which the webapp contains an index.jsp file



Using Remote - SSH

index.jsp is' like an html file for java used to write web apps

I edited index.jsp by updating the paragraph tag

```
<html>  
  
<body>  
  
<h2>Hello {YOUR NAME}!</h2>  
  
<p>This is my NextWork web application working!</p>  
  
</body>  
|  
</html>
```



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