

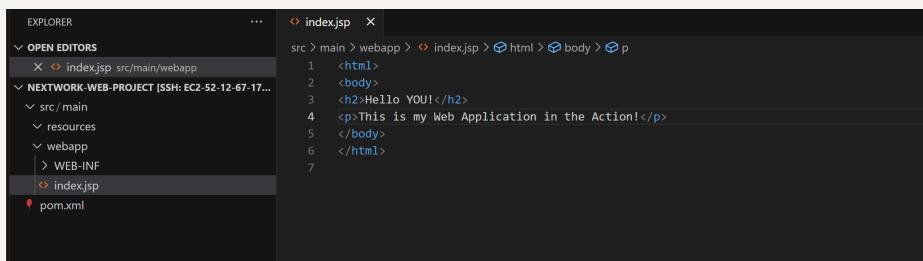


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Set Up a Web App Using AWS and VS Code



Kayira Bertrand



```
src > main > webapp > index.jsp > html > body > p
1 <html>
2 <body>
3 <h2>Hello YOU!</h2>
4 <p>This is my Web Application in the Action!</p>
5 </body>
6 </html>
```



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Introducing Today's Project!

This project is day 1 of the 7-Days DevOps Challenge. In this project we will be setting up the foundations of CI/CD Pipeline by creating a Web App. We will need to launch an EC2 instance and connect to the instance using VS Code to generate a Web

Key tools and concepts

I learnt more about setting up an EC2 Instance, establishing a web application in the Instance and how I can access the web app in the instance using SSH Protocol.

Project reflection

I already heard about more of the things I interacted with in this project but never had I change to know more deeply how the work.

It took me almost 6 hours to complete.

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 tomorrow



Launching an EC2 instance

We started this project by launching an EC2 Instance which are Virtual Computers that live in the cloud. We want our Web App to live entirely in the cloud. We are launching an EC2 Instance to even develop our Web App's code.

I also enabled SSH

SSH is a protocol that authorizes users (like ourselves) to access remote servers like EC2 instances. It's also a type of traffic that let's us transfer data back and forth with our EC2 Instance once we are connected to it. We enabled SSH so that we

Key pairs

A key pair is a mechanism for us to get access to EC2 Instance we launch in AWS. We have created a key pair for the EC2 Instance that we are launching. Key pairs work by having two halves - a public key that AWS keeps and a private key that we download.

Once I set up a key pair, AWS automatically downloaded the private key file called `kayira-keypair.pem` and for safekeeping, we moved the key file into a folder called "DevOps" in our Desktop.

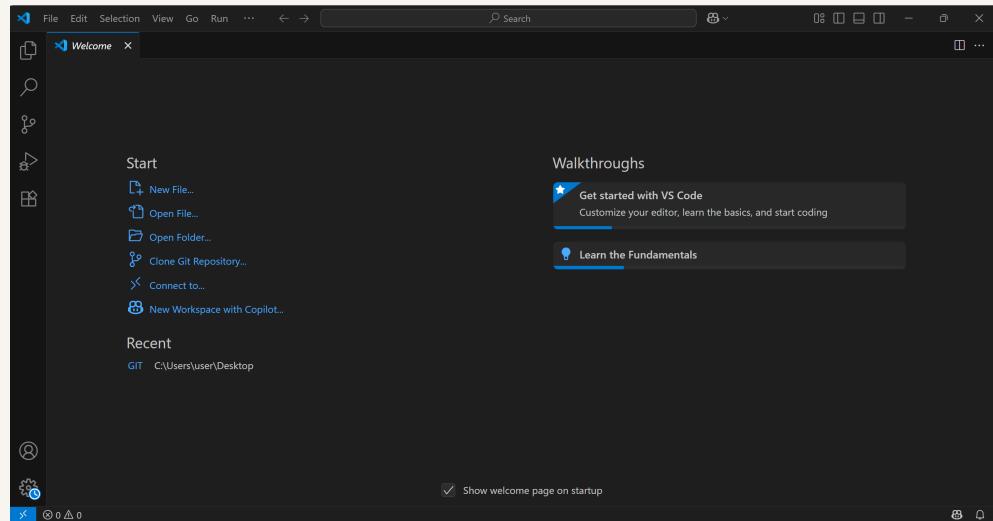
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Set up VS Code

VS Code is an IDE that we are using today write and edit our Web App's Code. It also has handy extensions that let's us directly connect to an EC2 Instance, so that we can write and edit code that will live inside the instance

I installed VS Code to write and edit our Web App's code. We are also going to make the most out of the ability to connect directly with an EC2 Instance.





My first terminal commands

A terminal is a place for us to send commands to our computer i.e tell it what we want it to do. The difference between a terminal and our usual click/drag interface is that we send TEXT commands in the terminal. My first command for this project was

I also updated my private key's permissions by running the commands: icacls "kayira-keypair.pem" /reset icacls "kayira-keypair.pem" /grant:r "USERNAME:R" icacls "kayira-keypair.pem" /inheritance:r These commands give me access to use this file connec

```
PS C:\Users\user\Downloads\DevOps> icacls "kayira-keypair.pem" /reset
processed file: kayira-keypair.pem
Successfully processed 1 files; Failed processing 0 files
PS C:\Users\user\Downloads\DevOps> whoami
desktop-shlc164\user
PS C:\Users\user\Downloads\DevOps> icacls "kayira-keypair.pem" /grant:r "desktop-shlc164\user:R"
processed file: kayira-keypair.pem
Successfully processed 1 files; Failed processing 0 files
PS C:\Users\user\Downloads\DevOps> icacls "kayira-keypair.pem" /inheritance:r
processed file: kayira-keypair.pem
Successfully processed 1 files; Failed processing 0 files
PS C:\Users\user\Downloads\DevOps> 
```

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SSH connection to EC2 instance

To connect to my EC2 Instance, I ran the command "ssh -i [PATH TO MY .PEM FILE] ec2-user@[MY PUBLIC IPV4 DNS]" This commands sets up an SSH connection directly between our local computer and the Instance

This command required an IPv4 address

A server's IPv4 DNS is like a public address that identifies where the server lives in the cloud. In our case, an EC2 Instance's IPv4 DNS is useful information to give to our computer. It tells our local computer where to find the EC2 Instance.

```
PS C:\Users\user\Downloads\DevOps> ssh -i C:\Users\user\Downloads\DevOps\kayira-keypair.pem ec2-user@ec2-52-12-67-177.us-west-2.compute.amazonaws.com
,   #
~\ ####          Amazon Linux 2023
~~ \####\
~~  \###|
~~   \#/  https://aws.amazon.com/linux/amazon-linux-2023
~~    \v'-->
~~     /
~~    /`/
~~   /`/
~~  /`/
Last login: Tue Jul 1 09:41:25 2025 from 102.22.187.201
[ec2-user@ip-172-31-24-185 ~]$
```



Maven & Java

Apache Maven is a tool that helps with creating and organizing Java projects (like this Web App) with a lot of use cases like being a package manager (downloading external pieces of code) and the tool used in archetypes for spinning up projects.

Maven is required in this project because we want to use its ability to spin up my Web App using Archetypes I am about to set up my Java Web App using the Web App Archetype

Java is a programming language that we are using to develop our Web App. Java is popularly used to build different types of applications, from mobile apps to large enterprise systems.

Java is required in this project because it lays the foundation of the writing of our Web App Code. It's like needing to know a language in order to speak it. Maven also needs Java in order to work.

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Create the Application

We generated a Java Web App using the command "mvn archetype:generate" This command tell maven to generate a Web App using existing template that it has. It also tells maven to call the generated web app project "nextwork-webapp-project"

We installed Remote-SSH, which is an extension within VS Code. This extension lets us connect VS Code directly to a remote server like an EC2 Instance.

Configuration details required to set up a remote connection include the host name (i.e the EC2 Instance's address), the identity file (i.e the location of our private key) and the user (i.e the user that we are logging into for our Instance).

```
[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: 11.964 s
[INFO] Finished at: 2025-07-01T10:57:00Z
[INFO] Final Memory: 19M/88M
[INFO] -----
```

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Create the Application

Using VS Code's file explorer, I could see a bunch of folders and sub-folders that define our web app. Folders can expanded by clicking on all the angled brackets.

These folders organise different parts of the web app. For Example, the resources sub-folder store connection details while the webapp sub-folder store Web App files for the look and feel of the Web App. src is the parent folder that contains code.

The screenshot shows the VS Code interface with the Explorer and Editor panes. The Explorer pane on the left displays the project structure:

- OPEN EDITORS: index.jsp (src/main/webapp)
- NEXTWORK-WEB-PROJECT [SS...]:
 - src / main
 - resources
 - webapp
 - WEB-INF
 - index.jsp
 - pom.xml

The Editor pane on the right shows the content of the index.jsp file:

```
src > main > webapp > index.jsp > html
1 <html>
2 <body>
3 <h2>Hello World!</h2>
4 </body>
5 </html>
6
```

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Using Remote - SSH

index.jsp is the file in our web app that defines both HTML content (i.e the static elements that go into our Web App's page), as well as any code for generating dynamic content (i.e content that's always changing)

I edited index.jsp by updating the HTML code to also say "Hello Bertrand" We also added a paragraph i.e some texts that says "This is my Web Application in the Action!"

The screenshot shows a code editor interface with two main sections: an Explorer sidebar on the left and an editor pane on the right.

EXPLORER (Left Side):

- OPEN EDITORS
- NEXTWORK-WEB-PROJECT [SSH: EC2-52-12-67-17...]
- src / main
- resources
- webapp
- WEB-INF
- index.jsp
- pom.xml

index.jsp (Right Side):

```
src > main > webapp > index.jsp > html > body > p
1 <html>
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