



Set Up a Web App in the Cloud



dineshrajdhanapathy@gmail.com

The screenshot shows a code editor interface with two panes. The left pane is the Explorer view, displaying the project structure:

- OPEN EDITORS
- Welcome
- index.jsp

NEXTWORK-WEB-PROJECT [SSH: EC2-65-1...]

- src / main
 - resources
 - webapp
 - WEB-INF
 - web.xml
 - index.jsp
- pom.xml

The right pane is the Editor view, showing the content of index.jsp:

```
1 <html>
2
3 <body>
4
5 <h2>Hello DDI!</h2>
6
7 <p>This is my NextWork web application working!</p>
8
9 </body>
10 </html>
11
12
13
```

Introducing Today's Project!

What is VSCode and why is it useful?

In today's project, I used VSCode to write and edit code, debug issues, and manage version control with Git. I also utilized extensions to enhance productivity, such as language support and linters, ensuring efficient and smooth development.

How I'm using VSCode in this project

In today's project, I used VSCode to write and edit code, debug issues, and manage version control with Git. I also utilized extensions to enhance productivity, such as language support and linters, ensuring efficient and smooth development.

One thing I didn't expect...

One unexpected aspect of this project was how VSCode integrates with EC2. Setting up remote development with VSCode allowed me to directly edit files on the EC2 instance, making the workflow smoother and eliminating the need for complex configuration.

This project took me...

The time taken for this project depends on the complexity of the setup. For setting up EC2 and integrating it with VSCode, it might take around 2–3 hours for initial configuration and testing. The project involves development, deployment and debug.

Launching an EC2 instance

I started this project by launching an EC2 instance because it will be used to host my web apps files. Without launching an EC2 instance first, I wouldn't have a location for setting up my web apps for the rest of this project.

I also enabled SSH

SSH is a protocol used for secure communication between systems over an unsecured network. It allows users to remotely access and manage servers, transfer files, and execute commands securely using encryption. I enabled SSH traffic on my IP address.

Key pairs

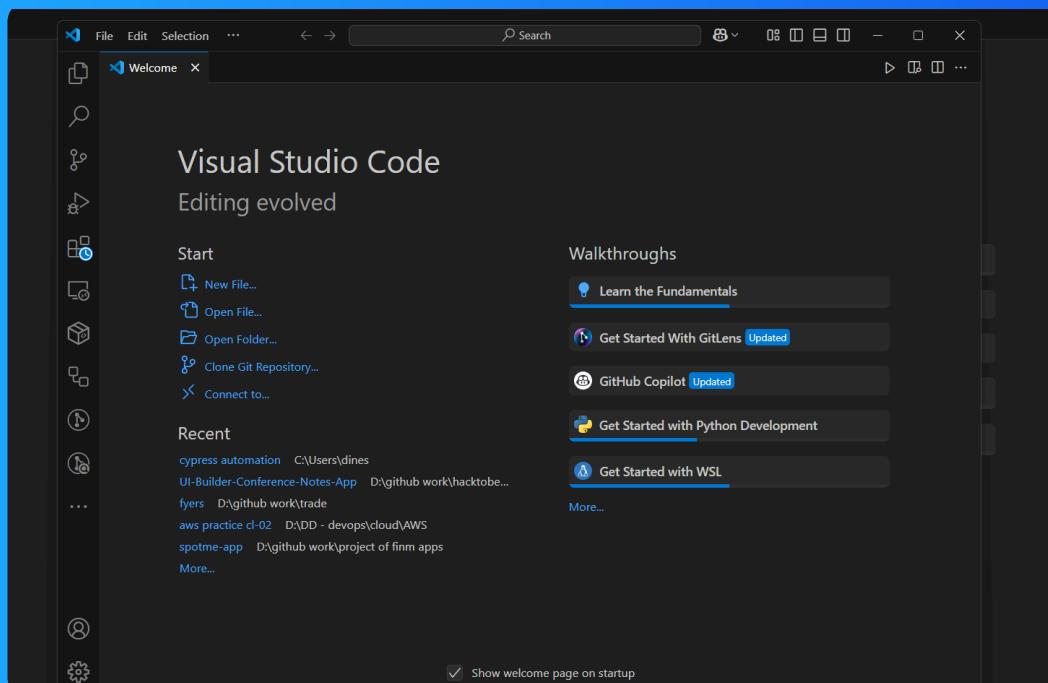
A key pair for EC2 consists of a public and private key used for secure login to instances. The public key is stored in AWS, while the private key is kept by the user. It ensures secure SSH access to the instance without requiring a password.

Once I set up my key pair, AWS automatically downloaded it's stored as a .pem file. If lost, you cannot retrieve it from AWS, risking SSH access to the instance. To recover, create a new key pair and update the instance's key manually via the AWS console.

Set up VSCode

Visual Studio Code (VS Code) is a free, lightweight, and powerful code editor developed by Microsoft. It supports multiple programming languages, features built-in debugging, Git integration, extensions, and intelligent code completion.

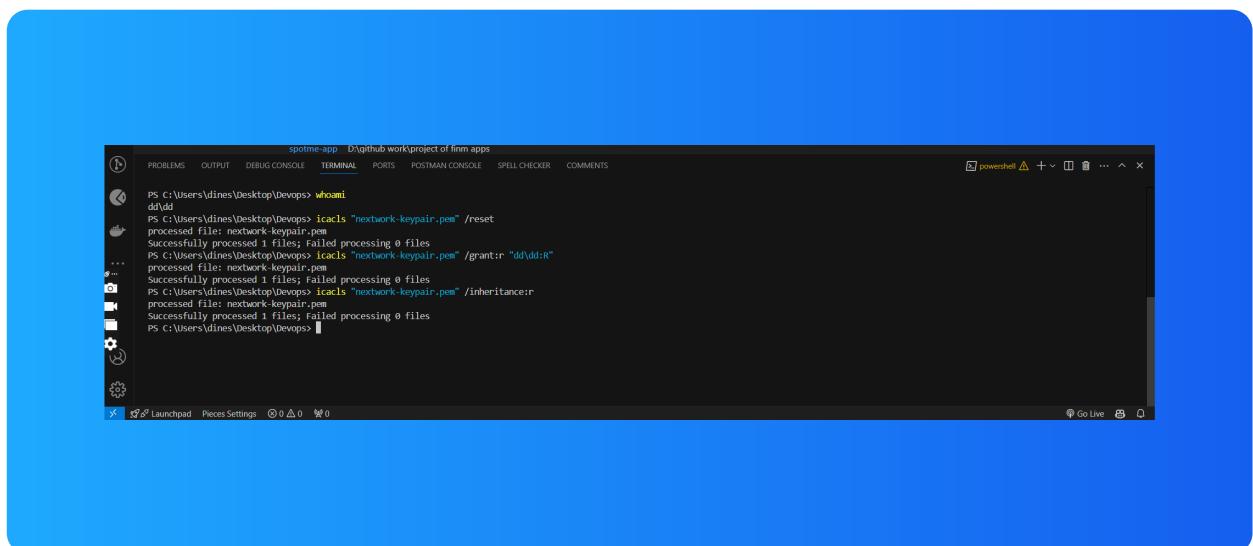
I installed VSCode to use for software development due to its versatility, writing code, debugging, version control, remote development, and user-friendly interface.



My first terminal commands

A terminal is often used to list files and directories. It's a simple yet essential command to explore the file system. The first command I ran for this project is cd (Change Directory): This command is used to move between folders in your file system

I also updated my private key's permissions by running the Icacls (which stands for Integrity Control Access Control Lists), a tool for Windows that lets you decide who can open or change the files on your system. use to reset, grant and inheritance.



SSH connection to EC2 instance

To connect to my EC2 instance, I ran the command "ssh -i [PATH TO YOUR .PEM FILE] ec2-user@[YOUR PUBLIC IPV4 DNS]". This command set up an SSH connection in that users the.pem file (our private key) and the public address of our EC2 instance.

This command required an IPv4 address

A server's IPV4 DNS is a public address. Computers or servers connected to the internet can use public IPV4 DNS to find and locate another server.



```
          #_#
  ~\  #####_      Amazon Linux 2023
  ~~ \#####\_
  ~~  '\##]
  ~~   \#/  _-->
  ~~   V~'-'>
  ~~   /`_
  ~~   /`_
  ~~   /`_
  ~~   /`_
[ec2-user@ip-172-31-14-3 ~]$
```

Maven & Java

Apache Maven is a Java-based build automation and project management tool. It simplifies dependency management, automates builds, and ensures a standardized project structure using a pom.xml file. It streamlines compiling, testing, and deployment.

Maven is required in this project because of app development to streamline and automate the build process. It handles dependency management, ensures consistent project structure, and automates tasks like compiling, testing, and packaging.

Java is a popular, high-level, object-oriented programming language designed for portability, scalability, and security. It used to build different types of applications, from mobile apps to large enterprise systems.

Java is required in this project because Amazon Corretto 8 is a version of Java. It's free, reliable, and provided by Amazon. If we don't install Java, we won't be able to use Maven to generate/build our web app today.

Create the Application

I generated a Java web app using the 'mvn archetype:generate' command, which specifically tells Maven to create a new project from a template. This command sets up a basic structure for your project

I installed Remote - SSH extensions to connect Vscode directly to our EC2 instances. By doing this, our EC2 instance's Java web app files can subsequently be used with Vs Code as an IDE. This makes editing our apps much simpler/more efficient.

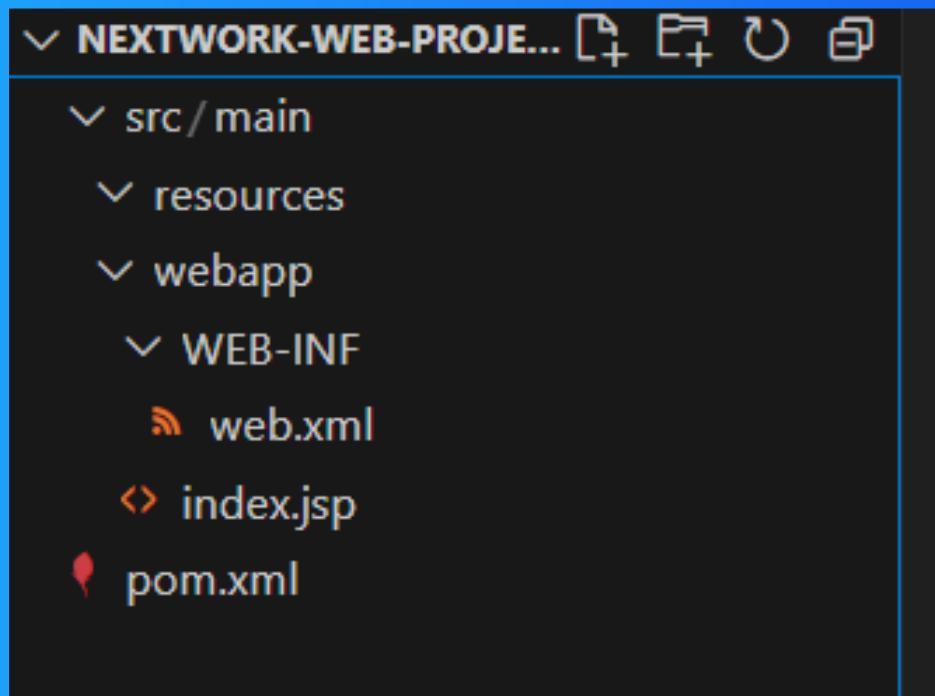
Configuration details required to set up a remote connection include that the host should match up with your EC2 instance's IPv4 DNS. IdentityFile should match up to nextwork-keypair.pem's location in your local computer. User should say EC2-user.

```
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 11.068 s
[INFO] Finished at: 2024-12-31T11:36:13Z
[INFO] Final Memory: 19M/85M
[INFO] -----
[ec2-user@ip-172-31-14-3 ~]$
```

Create the Application

Using VSCode's file explorer, I could see at a glance a file tree of all the subfolders and files that make up the nextwork-web-project folder for our Java web apps.

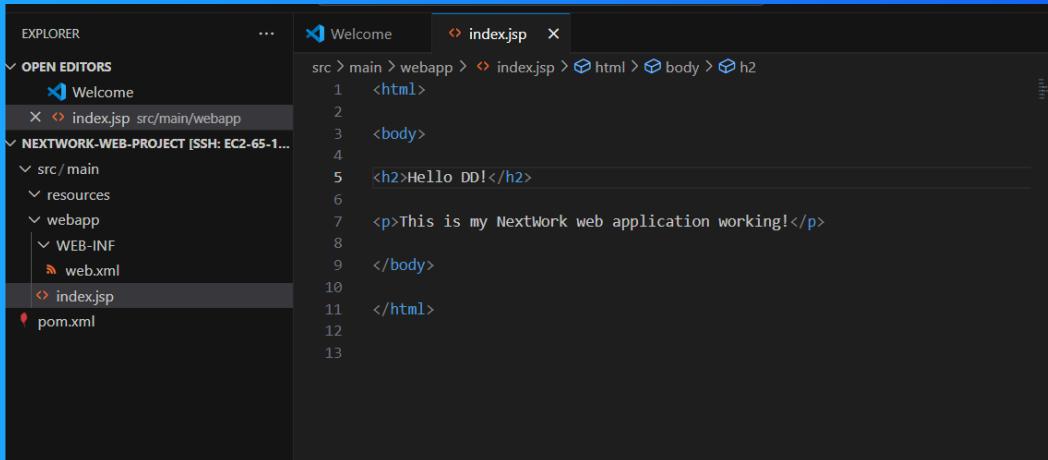
Two of the project folders created by Maven are src and WebApp, which the src folder contains the source code, including Java classes, packages, and other resources for the app. The webapp folder stores the web-related files, such as HTML, JS and .xml



Using Remote - SSH

index.jsp is the main entry page of a web application, often displayed when accessing the root URL. It combines HTML and Java code to generate dynamic content on the server side and is commonly used as the landing or home page.

I edited index.jsp by using VScode even though index.jsp is stored remotely in my EC2 instances because I have set up a remote-ssh connection between VScode and EC2 instance. we can use VS code like a local IDE for our instance.



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



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