

# Set Up a Web App in the Cloud



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The screenshot shows a Java-based web application project named "NEXTWORK.WEB-PROJECT". The project structure in the Explorer view includes a src folder containing main, resources, and webapp. The webapp folder contains WEB-INF and webxml. Inside webxml, there is an index.jsp file. The code editor shows the content of index.jsp:

```
1 <html>
2   <body>
3     <h2>Hello ORVEN!</h2>
4     <p>This is my NEXTWORK web Application Working!</p>
5   </body>
6 </html>
```

The status bar at the bottom indicates "SSH: 13.236.137.159" and "Java Ready".

# Introducing Today's Project!

## What is VSCode and why is it useful?

I used VSCode to run SSH commands in its terminal, making it easier to connect to my EC2 instance. I also installed the Remote - SSH extension, which allows me to edit Java files directly on the instance.

## How I'm using VSCode in this project

I used VSCode to run SSH commands in its terminal, making it easier to connect to my EC2 instance. I also installed the Remote - SSH extension, which allows me to edit Java files directly on the instance.

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

I didn't expect that VSCode could directly communicate with my EC2 instance. I initially thought it was limited to terminal use. This feature makes coding easier, faster, and more organized, enhancing the development progress

## This project took me...

It took me almost an hour to finish this project. I spent some time debugging the SSH connection because I accidentally inserted the wrong characters in the syntax.

# Launching an EC2 instance

I started this project by launching an EC2 instance that allows you to rent virtual computers. These servers work like personal computers but exist online, providing a flexible space for development and enabling cloud-based DevOps operations.

## I also enabled SSH

SSH stands for Secure Shell. I enabled SSH to securely access and manage my EC2 instance remotely. This allows me to connect to the virtual server from my local machine, perform commands, and manage files for security.

## Key pairs

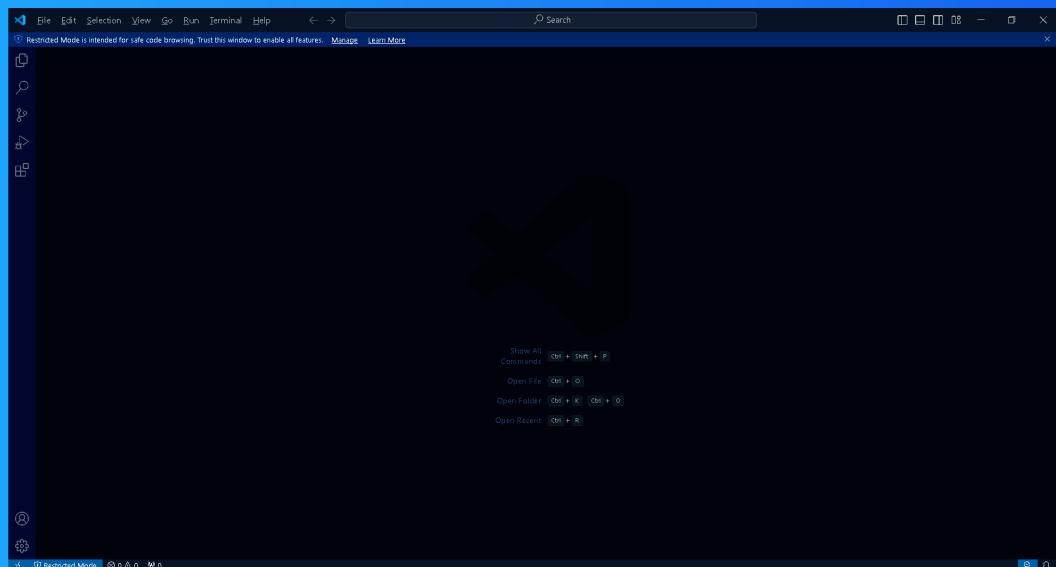
A key pair is like a key for your computer. Just as you need keys to unlock and access a car, you need a key pair to access your EC2 instances. This analogy emphasizes the importance of key pairs in securing access to your cloud resources.

Once I set up my key pair, AWS automatically downloaded the nextwork-keypair.pem

# Set up VSCode

VSCode is a lightweight, open-source code editor developed by Microsoft. It supports multiple programming languages and offers features like syntax highlighting, debugging, Git integration, and a rich extension marketplace.

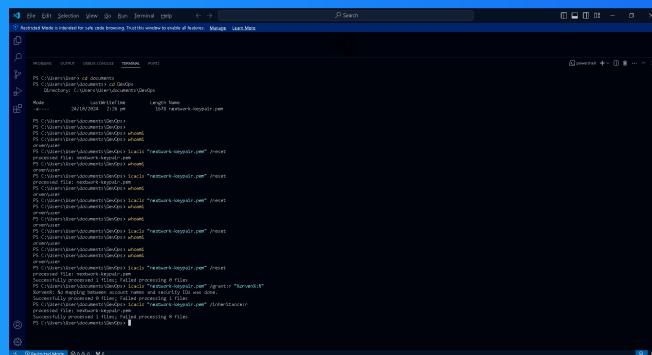
I installed VSCode to edit code using an IDE and utilize its terminal for SSH connections. This setup organized my workflow, allowing for efficient code editing and direct access to remote servers, making development more convenient and organized.



# My first terminal commands

A terminal is a tool where you send instructions to your computer using text instead of clicks. The first command I ran for this project was `cd documents/DevOps`, which allowed me to navigate to the directory where I'm managing my DevOps files

I also updated my private key's permissions by using the windows commands. icacls "nextwork-keypair.pem" /reset. Then, icacls "nextwork-keypair.pem" /grant:r "orven\user:R". Lastly, icacls "nextwork-keypair.pem" /inheritance:r

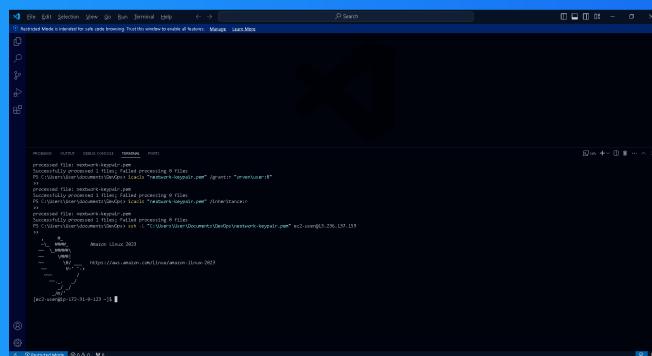


# SSH connection to EC2 instance

To connect to my EC2 instance, I ran the command ssh -i "C:\Users\User\Documents\DevOps\nextwork-keypair.pem" ec2-user@13.236.137.159

## This command required an IPv4 address

A server's IPv4 DNS is the public address for the EC2 instance that the internet uses to locate and connect to it. The local computer uses the IPv4 DNS to find and establish a connection with the EC2 instance.



The screenshot shows a terminal window with the following text output:

```
ssh -i "C:\Users\User\Documents\DevOps\nextwork-keypair.pem" ec2-user@13.236.137.159
The authenticity of host '13.236.137.159 (13.236.137.159)' can't be established.
EC2-Optimized SSH key fingerprint is SHA256:JGzvZLjXWQDfPqkVwOOGHgKUuRyMmB.
Are you sure you want to continue connecting (yes/no)?
```

# Maven & Java

Apache Maven is a build automation tool primarily used for Java projects. It simplifies the process of managing project dependencies, building, and packaging applications.

Maven is required for this project because it enables dependency management, automates the build process, and facilitates project structure.

Java is a high-level, object-oriented programming language designed for portability across platforms. It follows the "write once, run anywhere" philosophy, enabling applications to run on any device with a Java Virtual Machine (JVM).

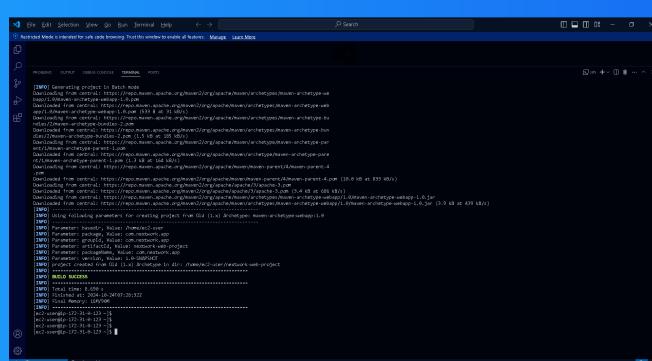
Java is required in this project because it provides a robust and platform-independent environment for building scalable applications. Its rich ecosystem of libraries and frameworks makes it ideal for developing web applications.

# 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, a VSCode extension for secure remote development over SSH. It is enabling to have a direct connection to my EC2 instance, allowing me to edit files and manage my web app efficiently in a familiar environment.

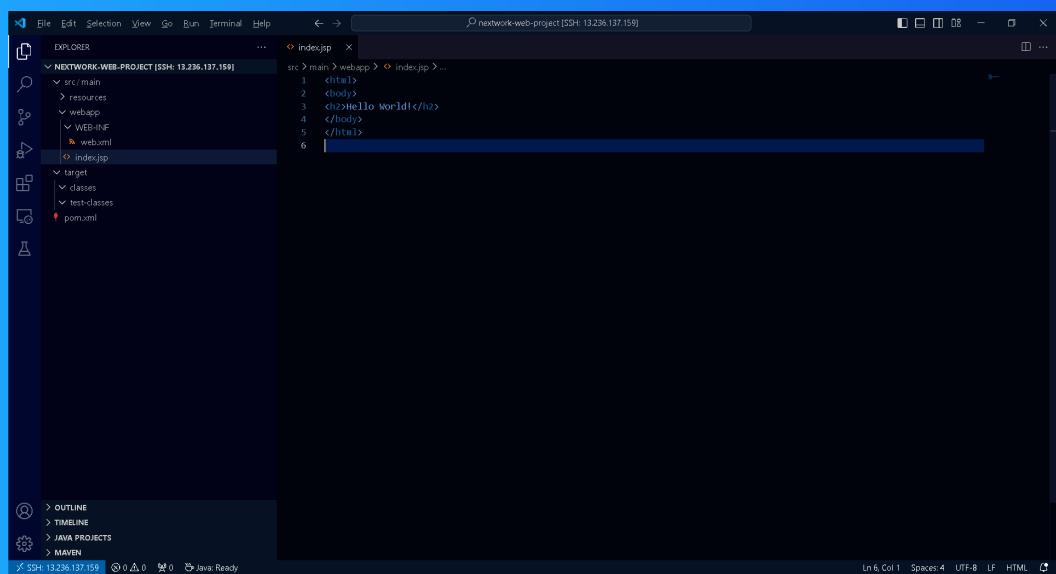
Configuration details required to set up a remote connection include essential information about the project. It includes details like the project's name, version, dependencies, build settings, and plugins.



# Create the Application

Using VSCode's file explorer, I could see the file explorer, I can see the entire project directory structure, including folders and files related to my Java web app. It displays source code files, configuration files, etc.

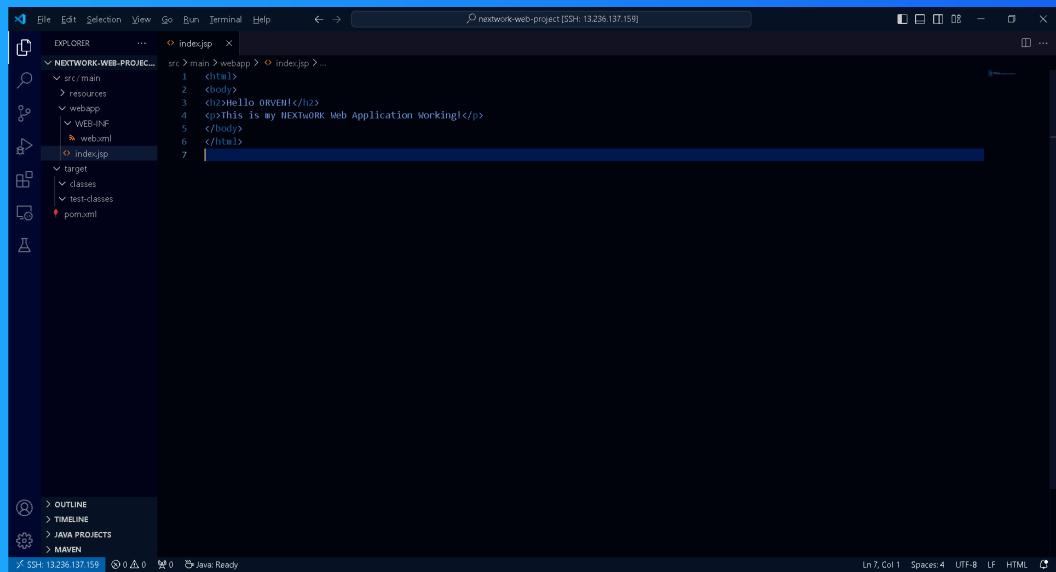
Two of the project folders created by Maven are src and webapp, which the src folder contains the source code, including Java files organized into packages for application logic. The webapp folder holds web-related resources, such as HTML, CSS, JS.



# Using Remote - SSH

index.jsp is file commonly used as the entry point for a web application. It typically contains HTML, CSS, and Java code embedded within the JSP tags

I edited index.jsp by using VSCode, which allows for editing of JSP files. I opened the file through the VSCode file explorer, edited the HTML, CSS, or Java code, and then saved the file.



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