



Set Up a Web App in the Cloud



tiubenedict@gmail.com

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

- NEXTWORK-WEB-PROJECT [SS...]
- src / main
 - resources
 - webapp
 - WEB-INF
 - web.xml
 - index.jsp
 - target
 - classes
 - test-classes- pom.xml

The right pane is the code editor, showing the content of the index.jsp file:

```
src > main > webapp > index.jsp > html > body > p
1  <html>
2  <body>
3  <h2>Hello World!</h2>
4
5  <p>This is my NextWork web application working!</p>
6
7
8
9  </body>
10 </html>
11
12
```



tiubenedict@gmail.com

NextWork Student

NextWork.org

Introducing Today's Project!

What is VSCode and why is it useful?

We used VSCode as an IDE that can save the ssh configuration, making connections next time easier, to view the folder structure, and to edit the files.

How I'm using VSCode in this project

We used VSCode as an IDE that can save the ssh configuration, making connections next time easier, to view the folder structure, and to edit the files.

One thing I didn't expect...

Connecting to and installing software on an EC2 instance is really just like ssh-ing to your own raspberry pi!

This project took me...

45-60 minutes



tiubenedict@gmail.com

NextWork Student

NextWork.org

Launching an EC2 instance

I started this project by launching an EC2 instance because this instance will later on be in charge of running the web app. A dynamic web app requires an active server on the backend to run things.

I also enabled SSH

SSH is a protocol where only authorized users can access the remote machine. I enabled SSH so that I can connect to the EC2 instance securely from my own computer.

A circular profile picture of a young man with short dark hair, wearing a light blue t-shirt and dark pants, standing outdoors in a grassy field under a clear blue sky.

tiubenedict@gmail.com

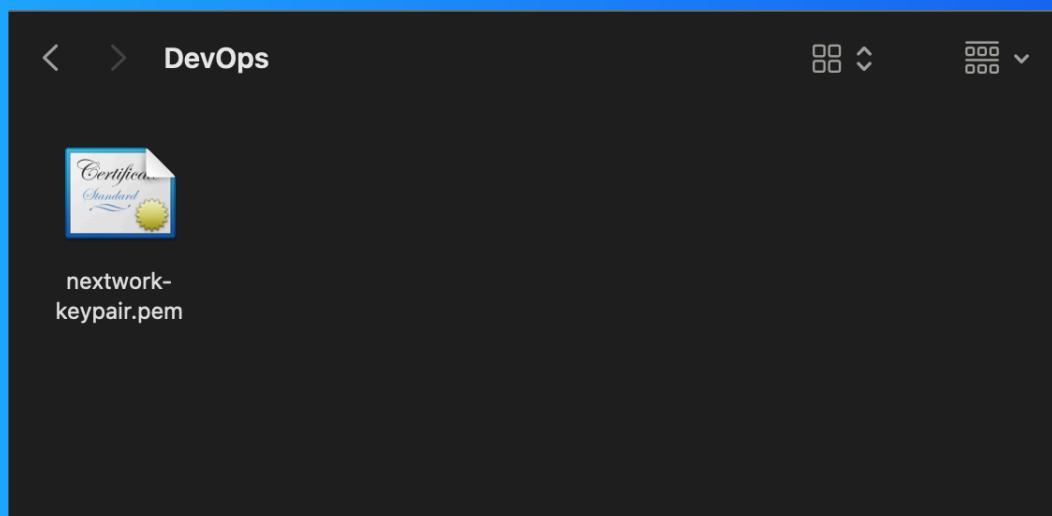
NextWork Student

NextWork.org

Setting up a key pair

A key pair is two halves of a cryptographic handshake. AWS holds the lock, we hold the key. By using our key upon log-in, the instance checks it with its half, then we can get authenticated access to the instance.

Once I set up my key pair, AWS automatically downloaded the .pem key file, which I will use when initiating an ssh connection to the instance.





tiubenedict@gmail.com

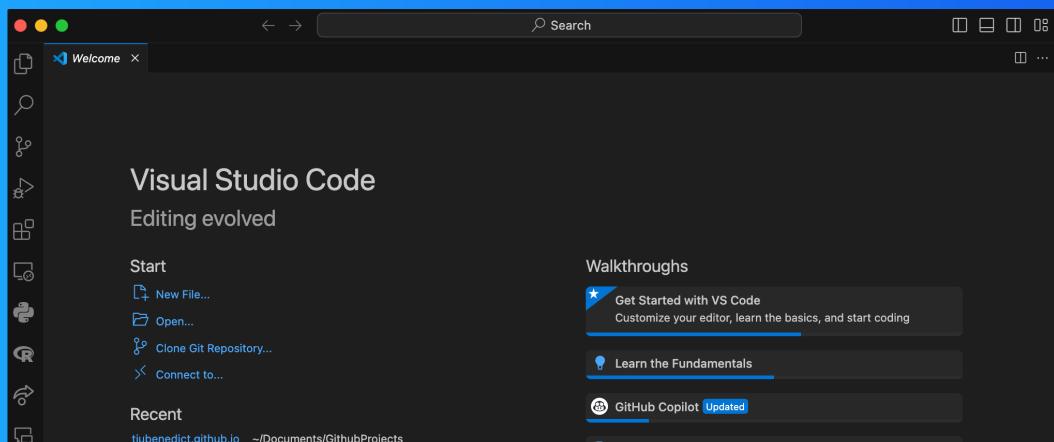
NextWork Student

NextWork.org

Set up VSCode

VSCode is a text editor, but comes with various extensions to make it a capable IDE.

I installed VSCode to have an IDE for connecting via ssh to the instance, have a terminal ready, and to edit the code for the web app.





tiubenedict@gmail.com

NextWork Student

NextWork.org

My first terminal commands

A terminal is a program where you can execute instructions through a command line interface, via text commands instead of clicks through a graphical user interface.

The first command I ran for this project is `cd` which means to change directory.

I updated my private key's permissions by using the chmod 400 command, which prevents users other than the owner from being able to read the key file.

A screenshot of a terminal window with a dark background and light-colored text. The terminal is part of a larger interface with tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is underlined to indicate it is active), PORTS, and COMMENTS. The terminal window displays the following command history:

```
benedict-t@ws21is114 DevOps % ls  
nextwork-keypair.pem  
● benedict-t@ws21is114 DevOps % ls -l  
total 8  
-rw-r--r--@ 1 benedict-t staff 1678 Oct 11 18:11 nextwork-keypair.pem  
● benedict-t@ws21is114 DevOps % chmod 400 nextwork-keypair.pem  
● benedict-t@ws21is114 DevOps % ls -l  
total 8  
-r-----@ 1 benedict-t staff 1678 Oct 11 18:11 nextwork-keypair.pem  
○ benedict-t@ws21is114 DevOps % █
```



SSH connection to EC2 instance

To connect to my EC2 instance, I ran the command `ssh -i [.pem file] ec2-user@[ec2-server-dns]`, which used the .pem file for the identify flag.

This command required an IPv4 address

A server's IPV4 DNS is the public address on the internet that we can use to locate the server and connect to from our local computer.

```
benedict-t@ws21lis114 DevOps % ssh -i nextwork-keypair.pem ec2-user@ec2-13-208-242-235.ap-northeast-3.compute.amazonaws.com
# Amazon Linux 2023
# https://aws.amazon.com/linux/amazon-linux-2023
```



tiubenedict@gmail.com

NextWork Student

NextWork.org

Maven & Java

Apache Maven is a build automation tool, mainly for Java apps but also apps written in other languages. It helps speed up the process of compiling, linking, packaging, and testing the apps.

Maven is required in this project because it helps in speeding up the process of shipping out apps to production.

Java is a programming language that is used for creating different applications, from mobile, desktop, and web apps to enterprise systems.

Java is required in this project because we are going to use it to build a simple web app.



tiubenedict@gmail.com
NextWork Student

NextWork.org

Create the Application

I generated a Java web app using the command `mvn archetype:generate` , which tells maven to create a new project from a template (archetype).

```
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-bu
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-bu
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetype/maven-archetype-par
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetype/maven-archetype-par
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetype/maven-archetype-par
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-parent/4/maven-parent-4
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-parent/4/maven-parent-4
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/apache/apache/3/apache-3.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/apache/3/apache-3.pom (3.4 kB at 686
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-we
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-we
[INFO] -----
[INFO] Using following parameters for creating project from Old (1.x) Archetype: maven-archetype-webapp:1.0
[INFO] -----
[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: 7.815 s
[INFO] Finished at: 2024-10-11T15:21:25Z
[INFO] Final Memory: 19M/89M
[INFO] -----
```



tiubenedict@gmail.com
NextWork Student

NextWork.org

Connecting VSCode with EC2

I installed Remote - SSH, which is a VSCode extension that can connect VSCode to the instance via SSH for me.

Configuration details required to set up a remote connection include the host name, identity file, and user name.



tiubenedict@gmail.com

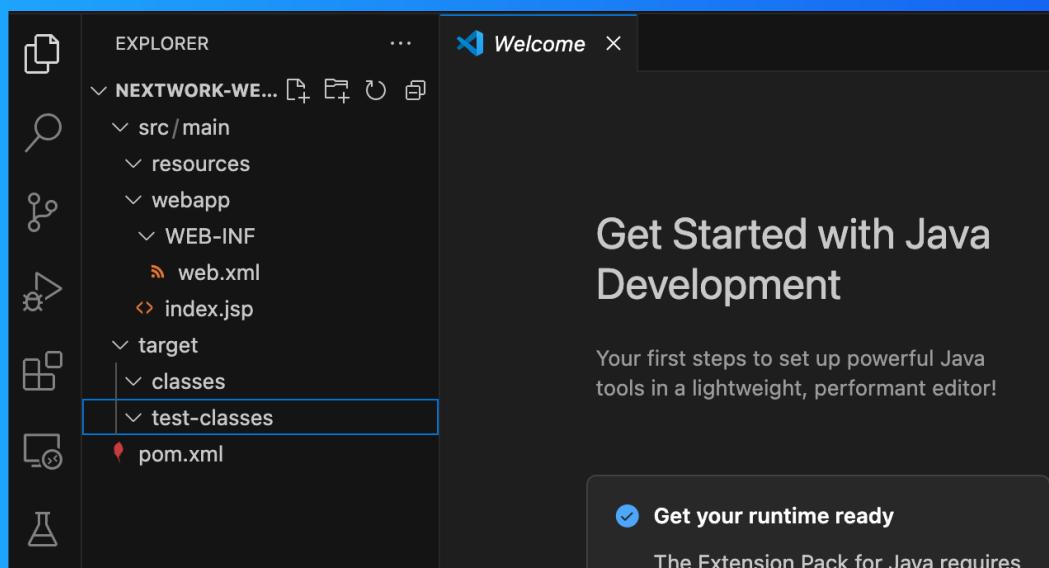
NextWork Student

NextWork.org

Create the Application

Using VSCode's file explorer, I could see the whole project folder that was generated by maven.

Two of the project folders created by Maven are src and webapp, the first of which contain all the project resources including configuration details, while the webapp folder contains the website files (html, css, jsp) specifically.





tiubenedict@gmail.com

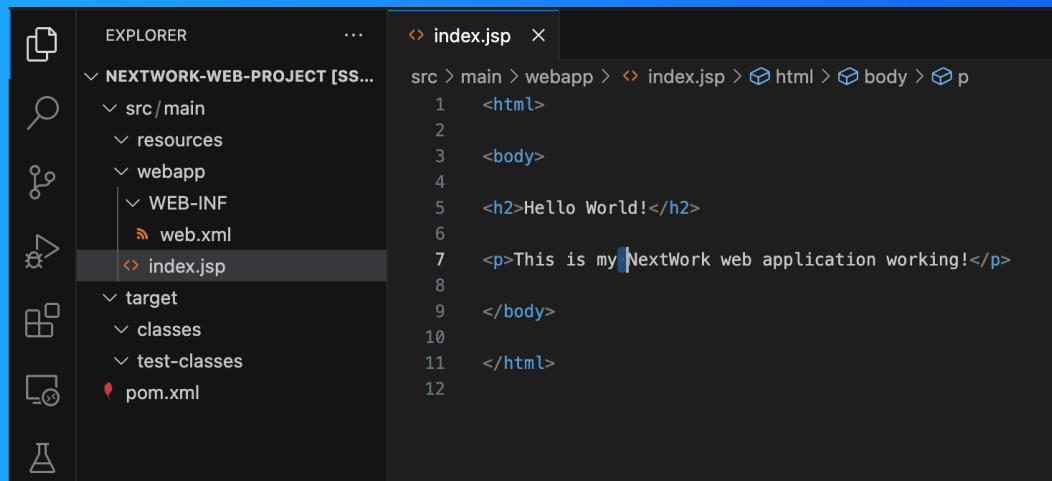
NextWork Student

NextWork.org

Create the Application

index.jsp is like index.html, but specifically allows for Java code to run.

I edited index.jsp by clicking on the file inside vscode and editing the text inside it.



```
src > main > webapp > index.jsp > html > body > p
1   <html>
2
3   <body>
4
5   <h2>Hello World!</h2>
6
7   <p>This is my NextWork web application working!</p>
8
9   </body>
10
11  </html>
12
```



NextWork.org

Everyone should be in a job they love.

Check out nextwork.org for
more projects

