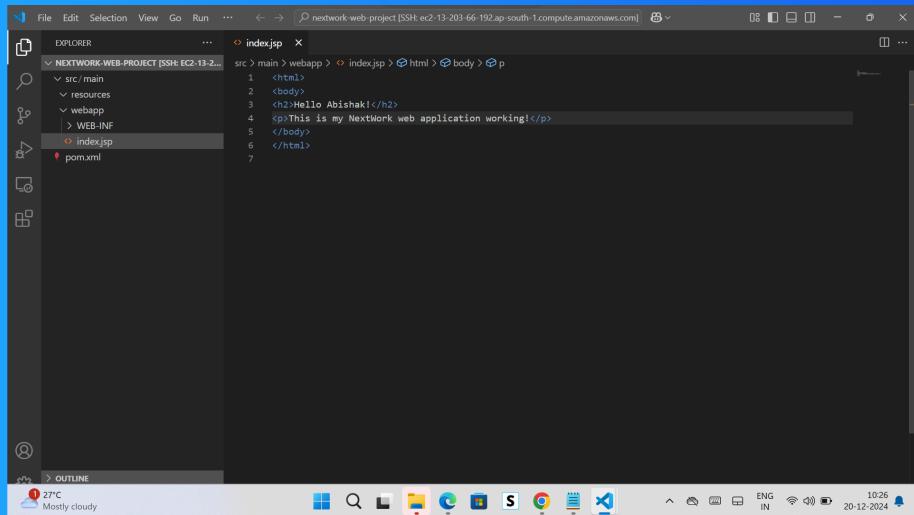




Set Up a Web App in the Cloud



abishakrajesh1@gmail.com



```
27°C Mostly cloudy
```

```
File Edit Selection View Go Run ... <- > / nextwork-web-project [SSH: EC2-13-203-66-192.ap-south-1.compute.amazonaws.com] D E F G H I J K L M N O P Q R S T U V W X Y Z
```

```
EXPLORER ... index.jsp
```

```
NEXTWORK-WEB-PROJECT [SSH: EC2-13-203-66-192.ap-south-1.compute.amazonaws.com]
```

```
src/main/resources
```

```
src/main/webapp/WEB-INF
```

```
index.jsp
```

```
pom.xml
```

```
index.jsp
```

```
src/main/webapp/index.jsp
```

```
1 <html>
```

```
2 <body>
```

```
3 <h2>Hello Abishak!</h2>
```

```
4 <p>This is my NextWork web application working!</p>
```

```
5 </body>
```

```
6 </html>
```

```
7
```

```
10:26 20-12-2024
```

Introducing Today's Project!

What is VSCode and why is it useful?

we used VS code in today's project to edit the index.jsp file of our webapp which is stored remotely in our EC2 instance by securing a remote ssh connection between our EC2 instance and the VS code.

How I'm using VSCode in this project

we used VS code in today's project to edit the index.jsp file of our webapp which is stored remotely in our EC2 instance by securing a remote ssh connection between our EC2 instance and the VS code.

One thing I didn't expect...

One thing that we didn't expect in this project was the ability top vs code as a local UDE for our EC2 instance by connecting the vs code with our EC2 instance using Remote-SSH.

This project took me...

It took approximately 2.5 hours of learning sesssion and 1 hour for the practical implementation(i.e launching our EC2 instance ,genrating keypair ,connecting vs code with the instance and so on).

Launching an EC2 instance

I am launching my EC2 instance because i need to build and run my webapp in a virtual server i.e an EC2 instance provided by the Amazon EC2 services.

I also enabled SSH

SSH i.e. Secure Shell is a protocol used to make sure only authorized users can access a remote server. I enabled SSH so that when I connect to my EC2 instance SSH verifies you have the correct private key that matches the public key on the server.

Key pairs

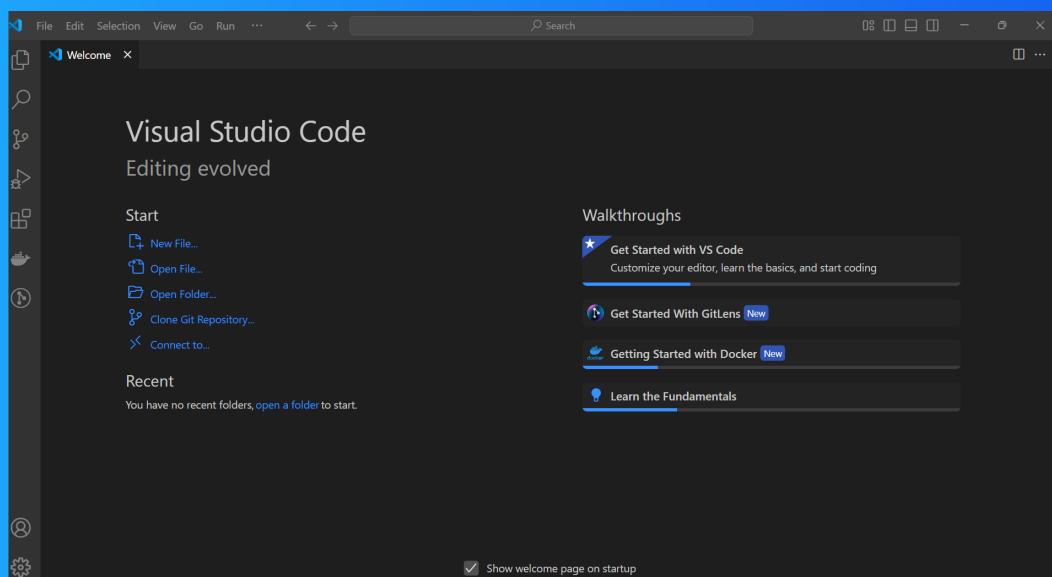
A key pair is a authentication that allows us to securely connect to our EC2 instance. It's made of two halves: a public key that AWS keeps, and a private key that we download. To access an EC2 instance the public and private key pair should match .

A downloadable file(.pem file) is the one which is generated by AWS when we create a key-pair for our EC2 instance . This is my private key pair and I need this to access the EC2 instance and this key should match with the public key provided by AWS.

Set up VSCode

Visual Studio Code (VSCode) is one of the most popular tools for creating and managing coding projects. It is an Integrated Development environment .VSCode also comes with extra tools that we'll use to connect to virtual servers like EC2 instances.

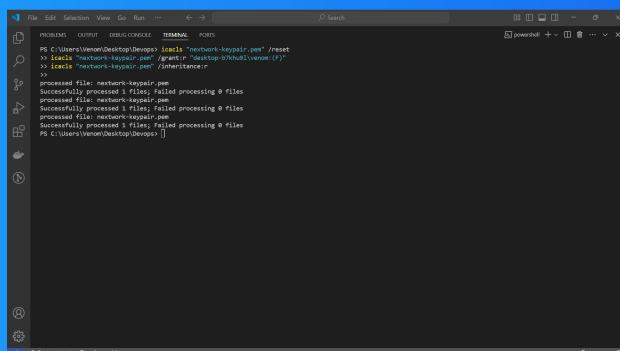
I installed VS Code so that I can use terminal to connect to virtual servers like EC2 instances and also create and edit my webapp.



My first terminal commands

cd ~/Desktop/DevOps This Command helps us to navigate to the desktop folder from the home directory.

I updated my private key's permissions by using the command
icacls "nextwork-keypair.pem" /reset
icacls "nextwork-keypair.pem" /grant:r "%USERNAME%:R"
icacls "nextwork-keypair.pem" /inheritance:r
replace "%USERNAME%:R" with your Windows username.



A screenshot of a terminal window titled "powershell". The window shows the following command being run and its output:

```
PS C:\Users\Venon\Desktop\DevOps> icacls "nextwork-keypair.pem" /reset
>> icacls "nextwork-keypair.pem" /grant:r "%USERNAME%:R"
>> icacls "nextwork-keypair.pem" /inheritance:r
processed file: nextwork-keypair.pem
Successfully processed 1 files; failed processing 0 files
processed file: nextwork-keypair.pem
Successfully processed 1 files; failed processing 0 files
processed file: nextwork-keypair.pem
Successfully processed 1 files; failed processing 0 files
PS C:\Users\Venon\Desktop\DevOps> ]
```

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 required an IPv4 address

A Public IPv4 DNS (which stands for Domain Name System) is the public address for your EC2 server that the internet uses to find and connect to it. The local computer you're using to do this project will find and connect to your EC2 instance through

The screenshot shows a terminal window with the following text:

```
PS C:\Users\Venon\Desktop\DevOps> ls -lC *.pem
total 12
-rw-r--r-- 1 Venon Venon 1224 Jan 13 13:28 desktop-keypair.pem
-rw-r--r-- 1 Venon Venon 1224 Jan 13 13:28 desktop-keypair.pvt
-rw-r--r-- 1 Venon Venon 1224 Jan 13 13:28 desktop-keypair.pem
-rw-r--r-- 1 Venon Venon 1224 Jan 13 13:28 desktop-keypair.pvt
-rw-r--r-- 1 Venon Venon 1224 Jan 13 13:28 desktop-keypair.pem
-rw-r--r-- 1 Venon Venon 1224 Jan 13 13:28 desktop-keypair.pvt
-rw-r--r-- 1 Venon Venon 1224 Jan 13 13:28 desktop-keypair.pem
-rw-r--r-- 1 Venon Venon 1224 Jan 13 13:28 desktop-keypair.pvt
PS C:\Users\Venon\Desktop> ssh -i C:\Users\Venon\Desktop\DevOps\desktop-keypair.pem ec2-user@ec2-13-281-184-136.ap-south-1.compute.amazonaws.com
The authenticity of host 'ec2-13-281-184-136.ap-south-1.compute.amazonaws.com (13.281.184.136)' can't be established.
ECDSA key fingerprint is SHA256:R8bWnYngqSfGvUvW0oI.
This key is not known by any other name.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-13-281-184-136.ap-south-1.compute.amazonaws.com' (ED25519) to the list of known hosts.
[ec2-user@ip-172-31-2-211 ~]$
```

Maven & Java

Apache Maven is a tool that helps developers build and organize Java software projects. It's also a package manager, which means it automatically download any external pieces of code your project depends on to work.

Maven uses something called archetypes, which are like templates, to lay out the foundations for different types of projects e.g. web apps. This help us set up all the necessary web files to create a web app structure, so we can jump

Java is a popular programming language used to build different types of applications, from mobile apps to large enterprise systems.

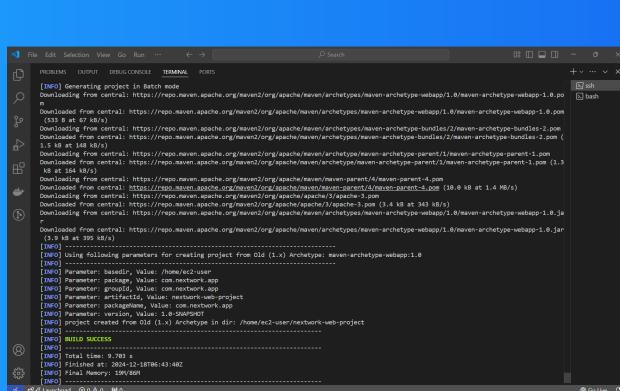
We are using java in this project to create a webapp which we are going to host in the EC2 instance.

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

The Remote - SSH extension in VSCode lets us connect directly via SSH to another computer securely over the internet. This lets us use VSCode to work on files or run programs on that server as if we were doing it on our own computer.

Configuration details required to set up a remote connection include a Host which should match up with your EC2 instance's IPv4 DNS.IdentityFile which should match up to nextwork-keypair.pem's location in your local computer. User should say ec2-user

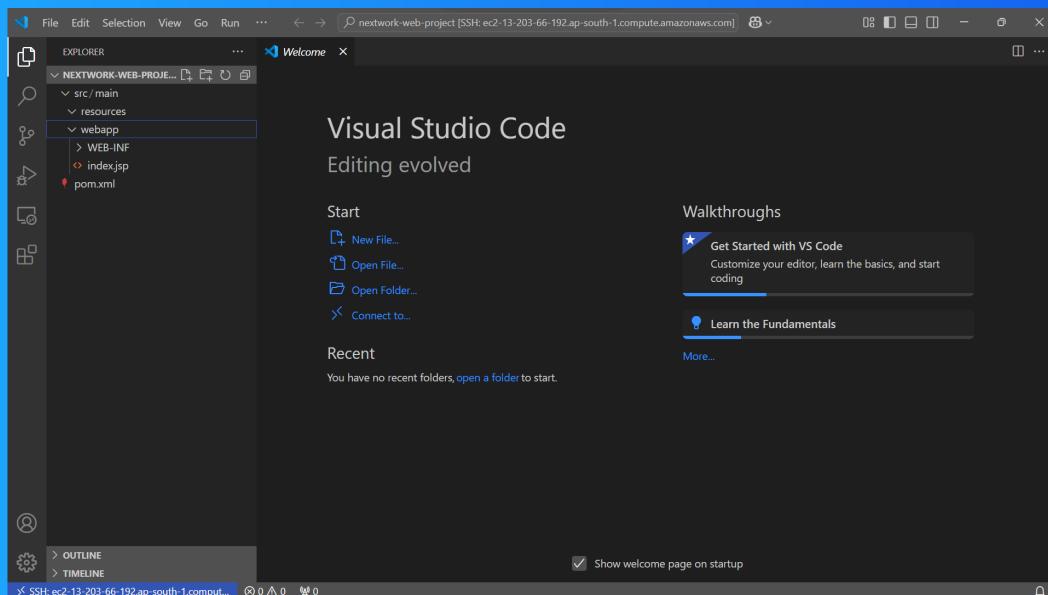


```
[INFO] Generating project in Batch mode
[INFO] Downloading from central: https://repo.maven.apache.org/repo/org/apache/maven/archetypes/maven-archetype-webapp/1.0/maven-archetype-webapp-1.0.pom
[INFO] Downloading from central: https://repo.maven.apache.org/repo/org/apache/maven/archetypes/maven-archetype-bundle/2/maven-archetype-bundle/2-2.pom
[INFO] Downloading from central: https://repo.maven.apache.org/repo/org/apache/maven/archetypes/maven-archetype-bundle/2/maven-archetype-bundle/2.pom
[INFO] Total: 1.5 MB at 148 kB/s
[INFO] Downloading from central: https://repo.maven.apache.org/repo/org/apache/maven/archetypes/maven-archetype-parent/1/maven-archetype-parent-1.pom
[INFO] Downloading from central: https://repo.maven.apache.org/repo/org/apache/maven/archetypes/maven-archetype-parent/3/maven-archetype-parent-3.pom
[INFO] Total: 1.3 MB at 164 kB/s
[INFO] Downloading from central: https://repo.maven.apache.org/repo/org/apache/maven/archetypes/maven-archetype-parent/4/maven-archetype-parent-4.pom
[INFO] Downloading from central: https://repo.maven.apache.org/repo/org/apache/maven/archetypes/maven-archetype-parent/5/maven-archetype-parent-5.pom
[INFO] Total: 1.4 MB at 1.4 kB/s
[INFO] Downloading from central: https://repo.maven.apache.org/repo/org/apache/maven/archetypes/maven-archetype-parent/6/maven-archetype-parent-6.pom
[INFO] Total: 1.4 MB at 243 kB/s
[INFO] Downloading from central: https://repo.maven.apache.org/repo/org/apache/maven/archetypes/maven-archetype-webapp/2.0/maven-archetype-webapp-2.0.pom
[INFO] Total: 1.9 MB at 395 kB/s
[INFO] Using following parameters for creating project from Old (1.x) Archetype: maven-archetype-webapp-1.0
[INFO] Parameter: basedir, Value: /home/ec2-user
[INFO] Parameter: package, Value: com.nextwork.app
[INFO] Parameter: artifactId, Value: nextwork-web-project
[INFO] Parameter: packaging, Value: war
[INFO] Parameter: groupId, 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] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 9.793 s
[INFO] Finished at: 2024-12-28T08:43:48Z
[INFO] Final Memory: 10M/80M
```

Create the Application

Using VSCode's file explorer, I could see a view of the directory structure and files within your workspace or project. It displays files and folders in a tree-like structure, allowing you to easily navigate, open, and manage files.

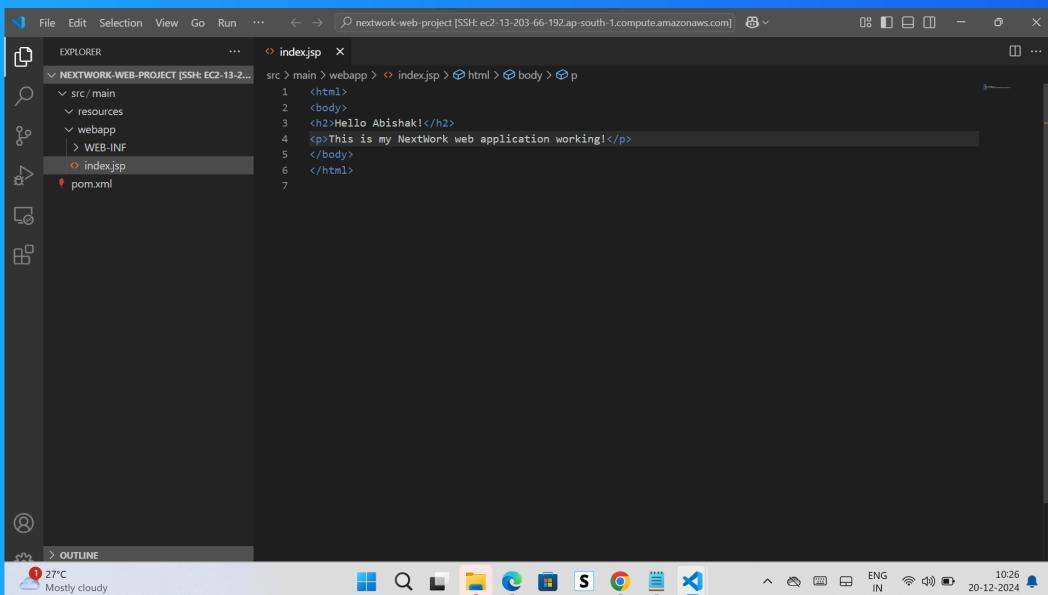
Two of the project folders created by Maven are src and webapp, which are commonly found in web application projects, particularly those following Java-based frameworks like Maven or Spring. These folders serve important organizational purposes .



Using Remote - SSH

index.jsp is a file used in Java web apps. It's similar to an HTML file because it contains markup to display web pages. However, index.jsp can also include Java code, which lets it generate dynamic content. This means content can change dynamically.

I edited index.jsp by using VS code even though my index.jsp is stored remotely in my EC2 instance because I have set the remote ssh connection between VS code and my EC2 instance.



```
<html>
<body>
<h2>Hello Abishak!</h2>
<p>This is my NextWork web application working!</p>
</body>
</html>
```



NextWork.org

Everyone should be in a job they love.

Check out nextwork.org for
more projects

