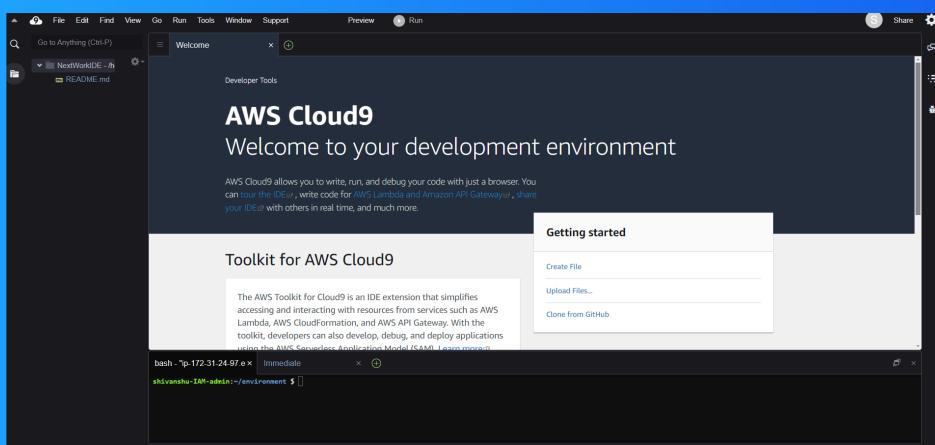




Build a Web App and IDE in AWS



Shivanshu Tyagi





Introducing Today's Project!

What is AWS Cloud9 and why is it useful?

AWS Cloud9 is a specific type of IDE that's hosted on AWS. You can access it through a web browser from anywhere, without needing to install heavy software on your computer whereas most IDEs have to be downloaded.

How I'm using Cloud9 in this project

In this project I used AWS Cloud9 to create the JAWA web-application and build it using Maven.

One thing I didn't expect...

I was not expecting the project to be that much easy as i didn't have to create it from scratch (maven helped in structuring), and neither i have to install any IDE on my computer.

This project took me...

It took me around 60 min to complete the whole project along with documentation.



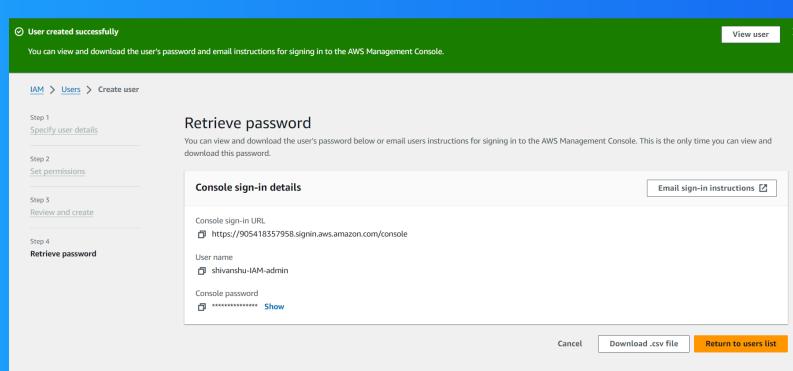
Set up an IAM User

An IAM User is an entity created in AWS that provides a way to interact with AWS resources. The main purpose of IAM Users is that they can sign in to the AWS Management Console and can make requests to the AWS services.

The importance of IAM users

It's important to use IAM users as it also provides various features that help in development while keeping other services safe and secure like : Aid in Maintaining Regulatory Compliances, Confidentiality of Data, Creates unique Identity for each user.

I created an IAM user with Administrator access for this project, which allows the user to operate AWS freely and can access various services. For security reasons, some AWS services cannot be accessed with the root user.





Environments & IDEs

What is an environment?

An environment is a set of requirements/resources required to run and build the software application. Every app could have its own unique requirements to operate, which is why we need to create a different environment for every app we build.

What is an IDE?

An IDE is a general term for software that help developers write, debug, and manage code efficiently. It's like a toolkit that includes everything we need to build software, such as a text editor, tools for running and testing your code, and more.



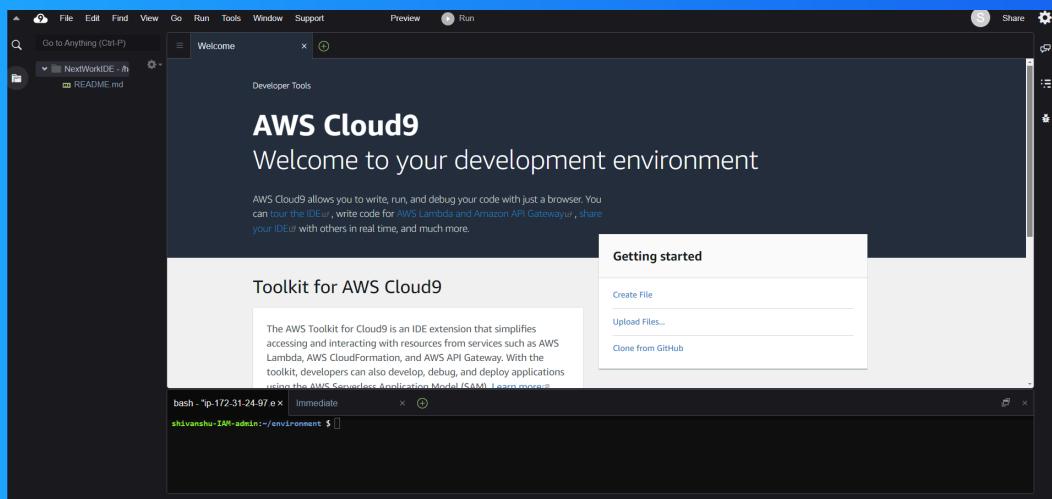
Shivanshu Tyagi
NextWork Student

NextWork.org

Launch a Cloud9 IDE

The benefit of using Cloud9

AWS Cloud9 is a specific type of IDE that's hosted on AWS. We can access it through a web browser from anywhere, without needing to install heavy software on our computer (most IDEs have to be downloaded).





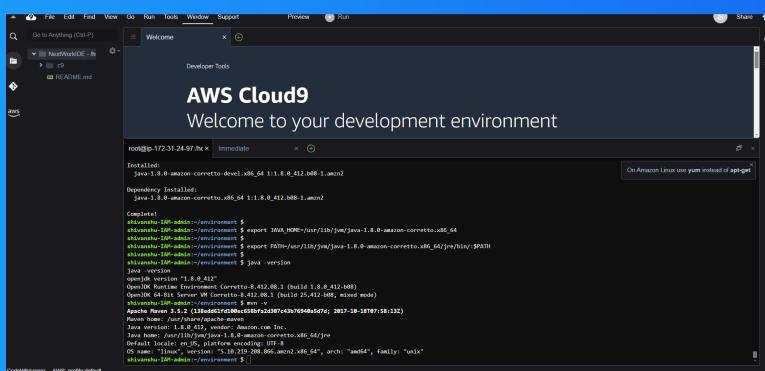
Maven & Java

Apache Maven is a powerful tool that automates the building of software. Building is an important multi-step process that transforms code written by developers into a product that is ready for computers to run.
Compiling, Linking, Packaging, Testing

Maven is required in this project because I am building a web-app in specific programming language which will not be able to build application on its own without the help of Maven.

Java is an object-oriented, network-centric programming language used to build different types of applications, from mobile apps to large enterprise systems. JAVA stands for Just Another Virtual Accelerator.

Java is required in this project because it is a versatile tool for creating different applications including web-apps.



```

root@ip-172-31-24-87:~# java -version
java 1.8.0-amazon-corretto-devel.x86_64 1.1.8.0-412.b6b-1.amzn2
Dependency Installed:
  java 1.8.0-amazon-corretto.x86_64 1.1.8.0-412.b6b-1.amzn2
OpenJDK Java Development Kit 8 (JDK) 1.8.0-412.b6b-1.amzn2
Installed:
  java 1.8.0-amazon-corretto-devel.x86_64 1.1.8.0-412.b6b-1.amzn2
Dependency Installed:
  java 1.8.0-amazon-corretto.x86_64 1.1.8.0-412.b6b-1.amzn2
On Amazon Linux use yum instead of apt-get
altsimone:IP-Address:/environment$ export JAVA_HOME=/usr/lib/jvm/java-1.8.0-amazon-corretto.x86_64/jre/bin/
PATH
altsimone:IP-Address:/environment$ export PATH=/usr/lib/jvm/java-1.8.0-amazon-corretto.x86_64/jre/bin:$PATH
altsimone:IP-Address:/environment$ java -version
java version "1.8.0_412"
OpenJDK Runtime Environment Corretto-8.412.48.1 (build 1.8.0_412-b6b)
OpenJDK 64-Bit Server VM Corretto-8.412.48.1 (build 25.41-b6b, mixed mode)
altsimone:IP-Address:/environment$ mvn -v
Apache Maven 3.6.3 (33dad14032c11f372cd7994d6767207-20-1879718-132)
Maven home: /opt/amazon-corretto-8.412.48.1/maven
Java version: 1.8.0_412, vendor: Amazon.com Inc.
Default locale: en_US, platform encoding: UTF-8
OS name: "Linux", version: "5.18.39-200.66.amzn2.x86_64", arch: "x86_64", family: "unix"
altsimone:IP-Address:/environment$ 

```



Create the Application

To create a simple Java web app, I ran the command mvn archetype:generate

Once the web app was created, my IDEâ's file explorer was populated with a JAVA web-app structure - so that i did't have to create it from scratch.

To customise this web appâ's display, I updated index.jsp. the difference between index.jsp and index.html is that, index.jsp can contain JAVA code which could support the creation of web-application and not just a static website.

The screenshot shows the IntelliJ IDEA interface. The left sidebar displays the project structure under 'NewWorkIDE - h'. The 'src' folder contains 'main' and 'resources' subfolders. The 'resources' folder has a 'WEB-INF' subfolder containing 'web.xml' and 'index.jsp'. The 'index.jsp' file is open in the main editor window, showing the following JavaServer Pages (JSP) code:

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<html>
    <head>
        <title>Hello Shivanshu</title>
    </head>
    <body>
        <p>This is my Nextwork web application working!</p>
    </body>
</html>
```

Below the editor, the 'Run' tool window shows the output of a Maven build:

```
[INFO] Scanning for projects...
[INFO] 
[INFO] BUILD SUCCESS
[INFO] Total time: 19.439 s
[INFO] Final Memory: 47M/108.2M
[INFO] 
[INFO] --- maven-war-plugin:2.6:war (default-war) @ NewWorkIDE ---
[INFO] 
[INFO] Publishing war at /var/lib/jenkins/workspace/NewWorkIDE/target/NewWorkIDE.war
[INFO] 
[INFO] BUILD SUCCESS
```



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