

# DevOps x AWS

## Series I

# Set up a Web App + IDE with Cloud9



Dahri Hadri



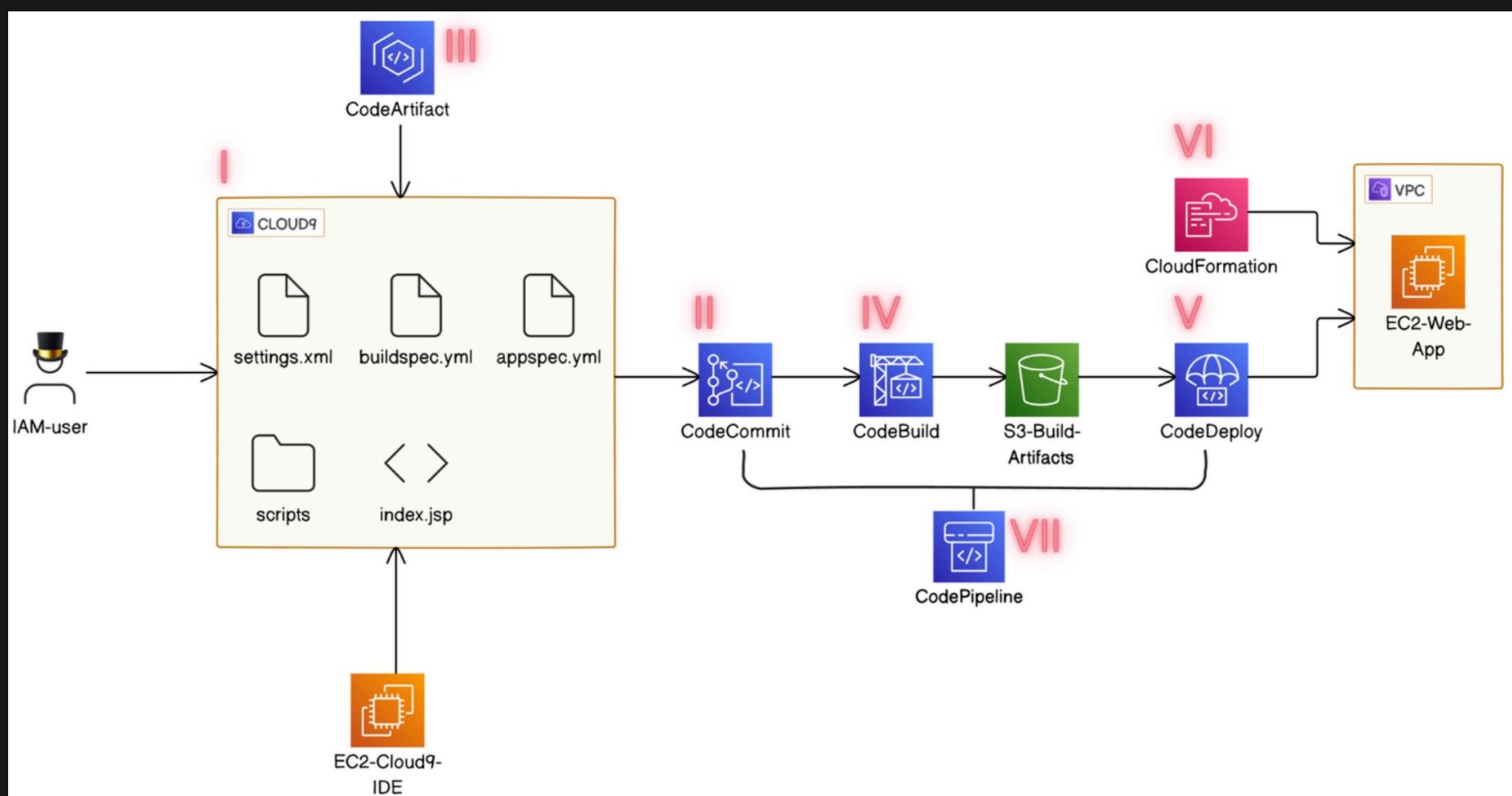


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# DevOps x AWS

For this DevOps x AWS series, I am sharing 7 projects. In this **SEVEN-project series**, I will create a CI/CD pipeline to build and deploy a simple web application using AWS Code services. Here's what I'll build at the end of ALL seven projects:

- I. Set up a Web App + IDE with Cloud9
- II. Set Up A Git Repository with AWS CodeCommit
- III. Secure Project Dependencies with AWS CodeArtifact
- IV. Package an App with AWS CodeBuild
- V. Deploy an App with AWS CodeDeploy
- VI. Automate with AWS CloudFormation
- VII. CI/CD Pipeline with AWS CodePipeline





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# Introducing AWS Cloud9!

## What it does & how it's useful

AWS Cloud9 is a cloud-based IDE that lets you write, run, and debug code with just a browser. Developers and teams use AWS Cloud9 because it includes essential tools, supports collaboration, and eliminates the need for local setups.

## How I'm using it in today's project

I'm using AWS Cloud9 to set up an IDE for developing a web application. It streamlines my workflow by providing a browser-based environment with all necessary tools pre-installed.

## This project took me...

This project took me about 30 minutes to complete. Documentation took me an additional 30 minutes. Keeping track of everything in detail was crucial for understanding and replicating the process.



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# Set up an IAM User

- An IAM user is an additional user that can access AWS resources with permissions specified by the account owner.
- It's important to create IAM users because the root user is vulnerable to security breaches, and IAM users allow for controlled access to resources.
- I created an IAM user with administrator access, allowing it to perform all actions on all resources in my account.

A new IAM user set up for my AWS Account

The screenshot shows a 'Retrieve password' page from the AWS Management Console. A blue arrow points from the text 'A new IAM user set up for my AWS Account' to the 'Console sign-in details' section. The section includes a 'Console sign-in URL' (https://nextnetwork-alias-dahrihadri.signin.aws.amazon.com/console), a 'User name' (dahrihadri-IAM-Admin), and a 'Console password' (represented by a series of asterisks). There are 'Show' and 'Email sign-in instructions' buttons. At the bottom are 'Cancel', 'Download .csv file', and 'Return to users list' buttons.

Retrieve password

You can view and download the user's password below or email users instructions for signing in to the AWS Management Console. This is the only time you can view and download this password.

Console sign-in details

Email sign-in instructions

Console sign-in URL

User name

Console password

Show

Cancel Download .csv file Return to users list

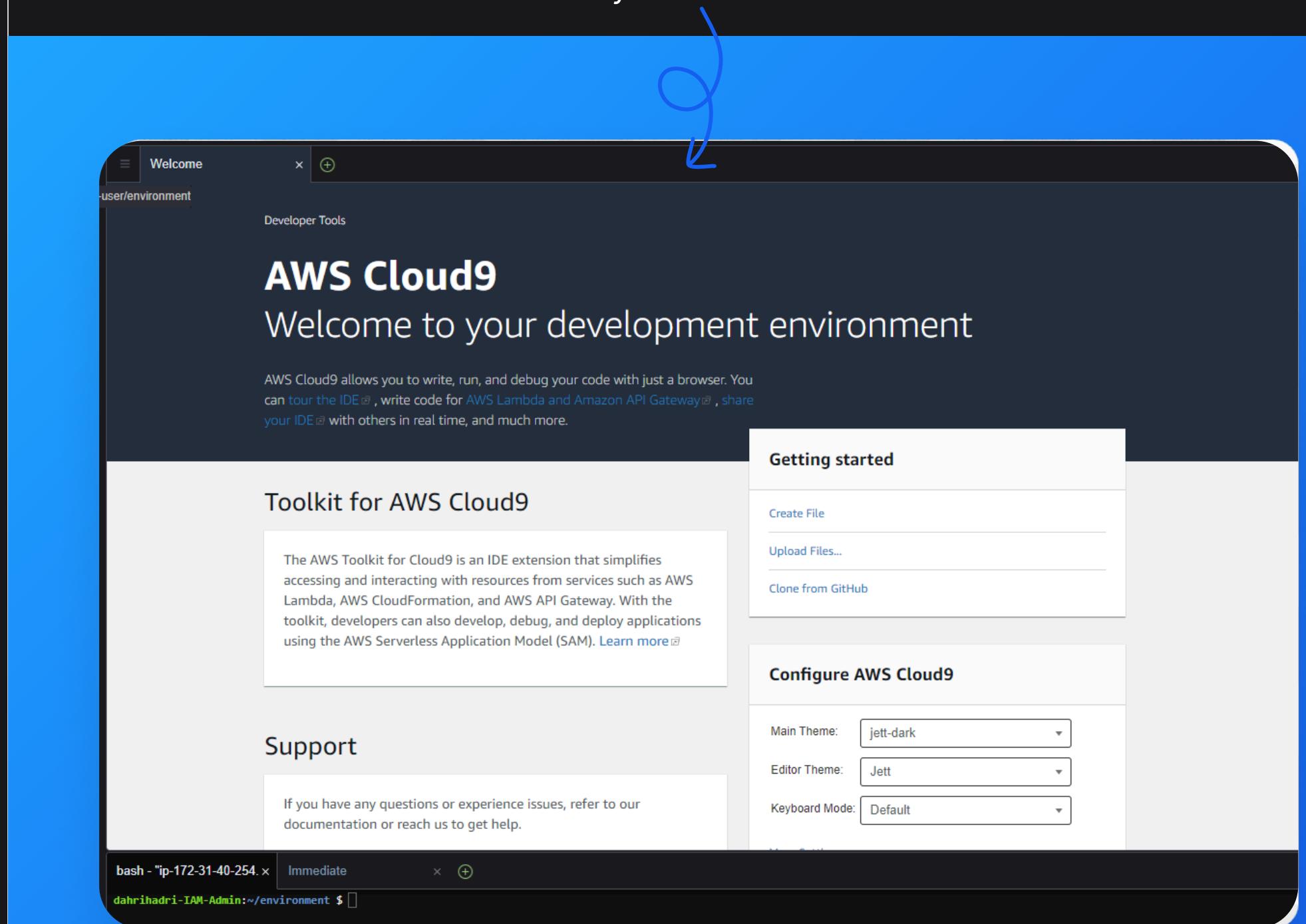


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# Launch a Cloud9 IDE

- An IDE is a software tool that helps developers write, test, and debug code efficiently in a single integrated environment.
- I used AWS Cloud9 to launch an environment. An environment means a configured setup that provides necessary tools and settings for software development.
- Using Cloud9 meant having a flexible and accessible IDE hosted on AWS, eliminating the need for local installations and ensuring consistent development environments.

My Cloud9 IDE!





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# Install Maven & Java

- Maven is a powerful build automation tool used primarily for **Java** projects to manage dependencies, build processes, and project lifecycles efficiently.
- Maven is required in this project because it automates tasks like compiling, testing, and packaging **Java** applications, ensuring smooth and standardized project builds.
- **Java** is a widely used programming language known for its portability, reliability, and scalability, making it suitable for various applications and environments.
- **Java** is required in this project because it serves as the foundational programming language for building and running the **Java-based** web application using AWS services.
- The **Java** version I'm using for this project is version 1.8.0



I used terminal commands to install Maven and Java

```
bash - "ip-172-31-40-254.x" Immediate x +  
dahrihadri-IAM-Admin:~/environment $ java -version  
openjdk version "1.8.0_412"  
OpenJDK Runtime Environment Corretto-8.412.08.1 (build 1.8.0_412-b08)  
OpenJDK 64-Bit Server VM Corretto-8.412.08.1 (build 25.412-b08, mixed mode)  
dahrihadri-IAM-Admin:~/environment $ mvn -v  
Apache Maven 3.5.2 (138edd61fd100ec658bfa2d307c43b76940a5d7d; 2017-10-18T07:58:13Z)  
Maven home: /usr/share/apache-maven  
Java version: 1.8.0_412, vendor: Amazon.com Inc.  
Java home: /usr/lib/jvm/java-1.8.0-amazon-corretto.x86_64/jre  
Default locale: en_US, platform encoding: UTF-8  
OS name: "linux", version: "5.10.219-208.866.amzn2.x86_64", arch: "amd64", family: "unix"  
dahrihadri-IAM-Admin:~/environment $ Nextwork  
The best AWS Community  
dahrihadri-IAM-Admin:~/environment $
```

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# Create the application

- To create a simple Java web app, I ran the command `mvn archetype:generate -DgroupId=com.nextwork.app -DartifactId=nextwork-web-project -DarchetypeArtifactId=maven-archetype-webapp -DinteractiveMode=false.`
- Once the web app was created, my IDE's file explorer showed a new directory named `nextwork-web-project`, containing the initial structure of the Maven-based web application.
- To customize this web app's display, I will edit the `index.jsp` file in my project, which contains the markup for the web page.

Writing a basic web app in my Cloud9 IDE!

The screenshot shows the Cloud9 IDE interface. On the left, the file explorer displays the project structure:

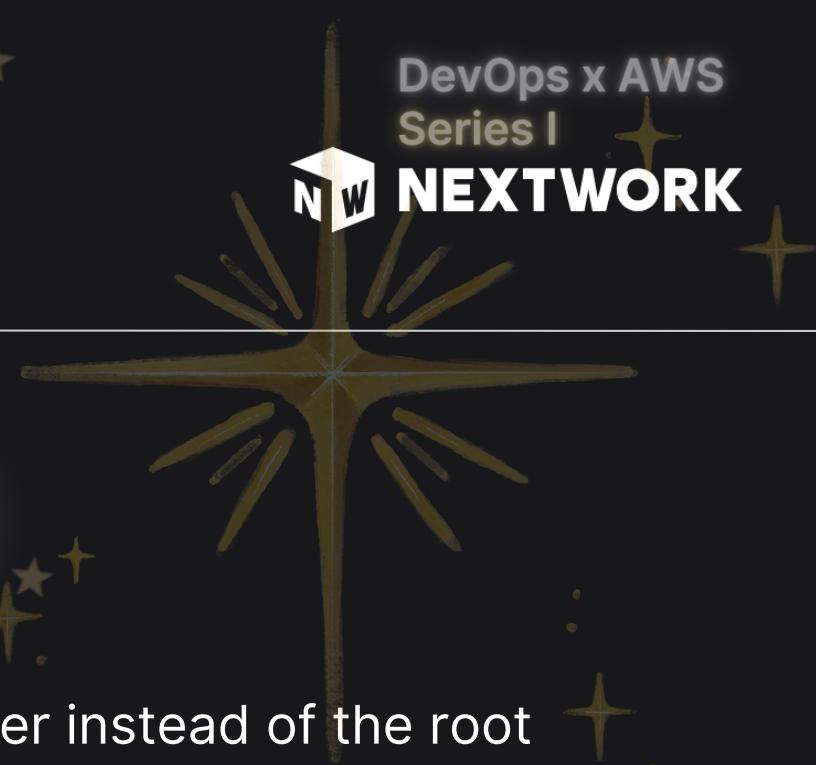
- NextWorkIDE - /h
- nextwork-web-project
- src
- main
- resources
- webapp
- WEB-INF
- index.jsp
- pom.xml
- README.md

The right pane shows the content of the `index.jsp` file:

```
1 <html>
2 <body>
3 <h2>Hello <YOUR DAHRI HADRI>!</h2>
4
5 <p>This is my NextWork web application working!</p>
6
7 </body>
8
9 </html>
```



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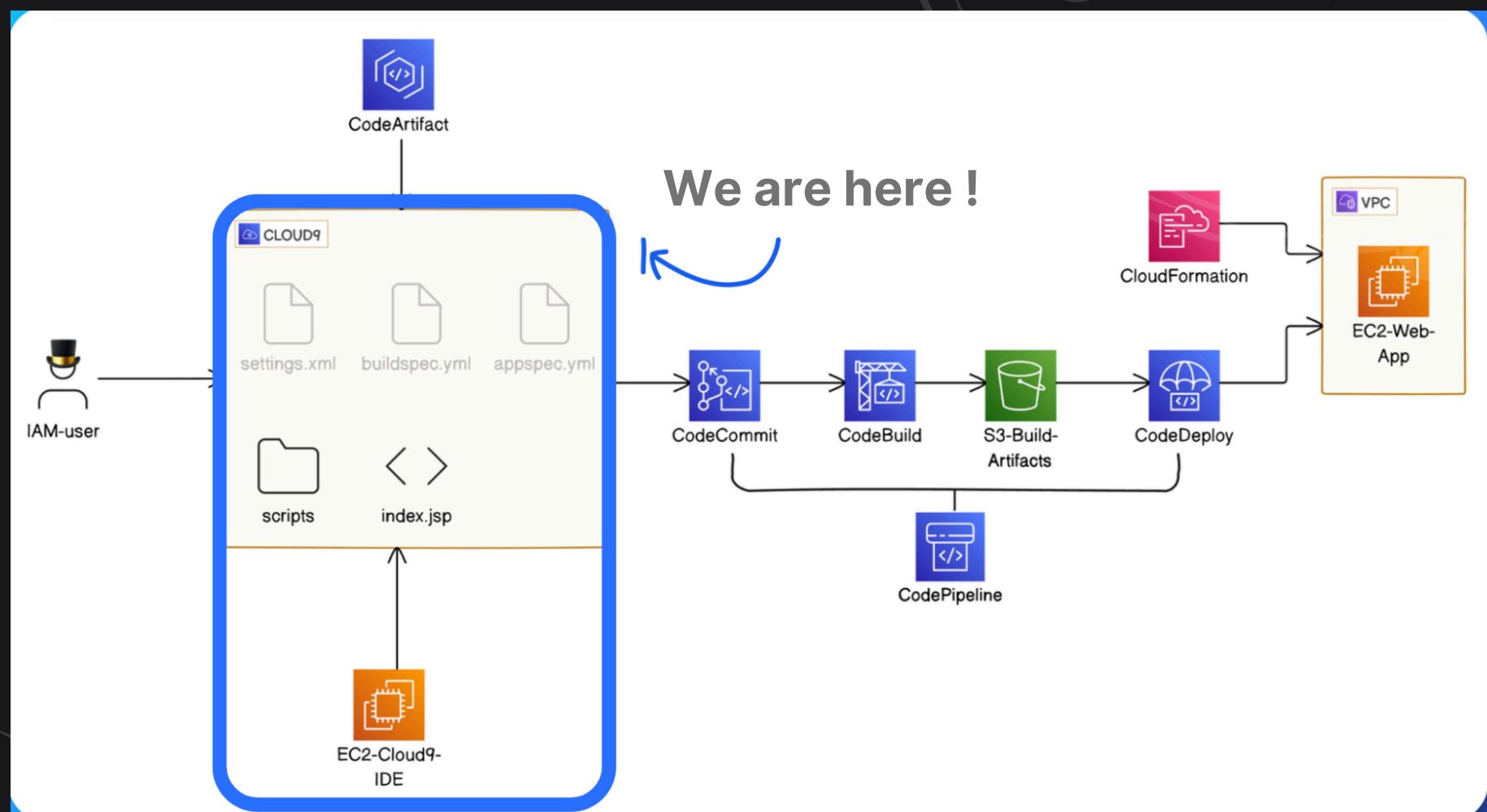
# My key learnings

- 1 It's recommended to use an IAM user instead of the root user for projects because IAM users offer scoped permissions, reducing the risk of unauthorized access and potential security breaches to critical AWS resources.
- 2 IDEs are useful for developers as they provide integrated tools for coding, debugging, and managing software projects efficiently in a unified environment, enhancing productivity and collaboration.
- 3 Apache Maven is used in my project to automate the build process, manage dependencies, and streamline project management tasks, ensuring efficient development and deployment of Java-based applications.
- 4 One thing I didn't expect was the depth of customization and automation capabilities that AWS Cloud9 offers, enhancing my development workflow significantly.



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# Great! we are done with series I





NEXTWORK

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~



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Ask me about it

