Advanced DevOps Lab
Experiment 1

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Class	D15-A
Subject	Advanced DevOps Lab

Aim: To understand the benefits of Cloud Infrastructure and Setup AWS Cloud9 IDE, Launch AWS Cloud9 IDE and Perform Collaboration Demonstration.

Theory:

AWS Cloud9 is a cloud-based integrated development environment (IDE) that lets you write, run, and debug your code with just a browser. It includes a code editor, debugger, and terminal. Cloud9 comes prepackaged with essential tools for popular programming languages, including JavaScript, Python, PHP, and more, so you don't need to install files or configure your development machine to start new projects. Since your Cloud9 IDE is cloud-based, you can work on your projects from your office, home, or anywhere using an internet-connected machine. Cloud9 also provides a seamless experience for developing serverless applications enabling you to easily define resources, debug, and switch between local and remote execution of serverless applications. With Cloud9, you can quickly share your development environment with your team, enabling you to pair-program and track each other's inputs in real time.

Benefits:

CODE WITH JUST A BROWSER

AWS Cloud9 gives you the flexibility to run your development environment on a managed Amazon EC2 instance or any existing Linux server that supports SSH. This means that you can write, run, and debug applications with just a browser, without needing to install or maintain a local IDE. The Cloud9 code editor and integrated debugger include helpful, time-saving features such as code hinting, code completion, and step-through debugging. The Cloud9 terminal provides a browser-based shell experience enabling you to install additional software, do a git push, or enter commands.

CODE TOGETHER IN REAL-TIME

AWS Cloud9 makes collaborating on code easy. You can share your development environment with your team in just a few clicks and pair programs together. While collaborating, your team members can see each other in real-time, and instantly chat with one another from within the IDE.

BUILD SERVERLESS APPLICATIONS WITH EASE

AWS Cloud9 makes it easy to write, run, and debug serverless applications. It preconfigures the development environment with all the SDKs, libraries, and plug-ins needed for serverless development. Cloud9 also provides an environment for locally testing and debugging AWS

Lambda functions. This allows you to iterate on your code directly, saving you time and improving the quality of your code.

DIRECT TERMINAL ACCESS TO AWS

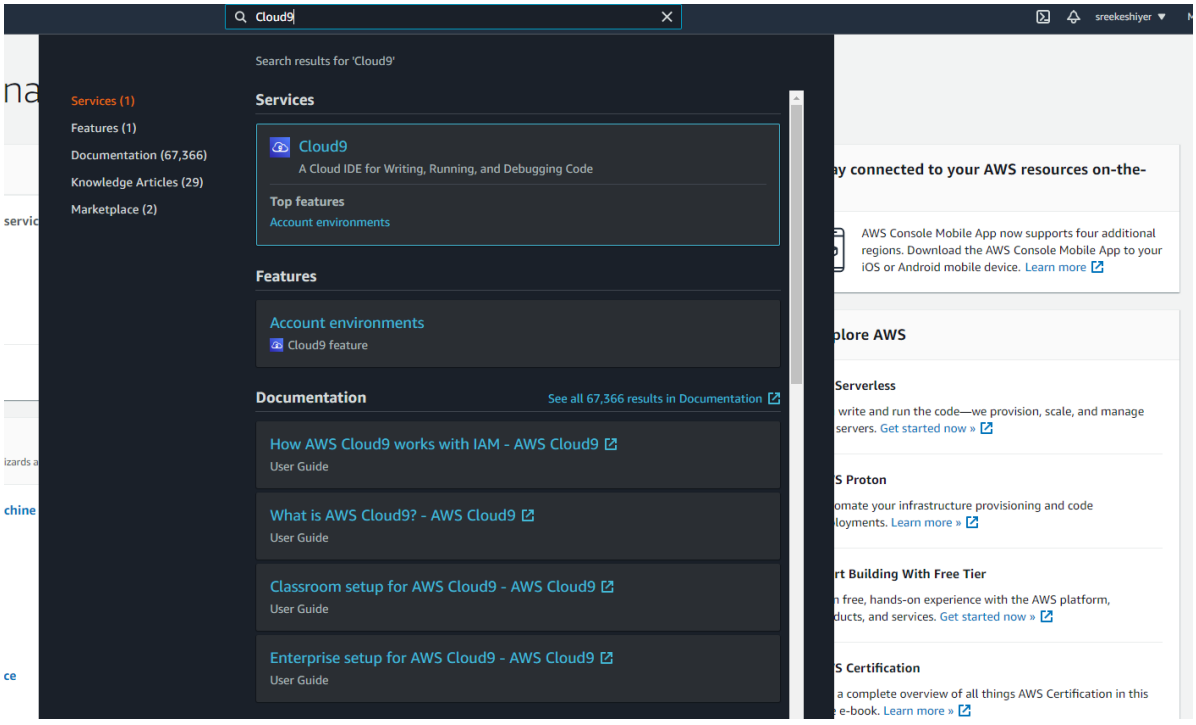
AWS Cloud9 comes with a terminal that includes sudo privileges to the managed Amazon EC2 instance that is hosting your development environment and a preauthenticated AWS Command Line Interface. This makes it easy for you to quickly run commands and directly access AWS services.

START NEW PROJECTS QUICKLY

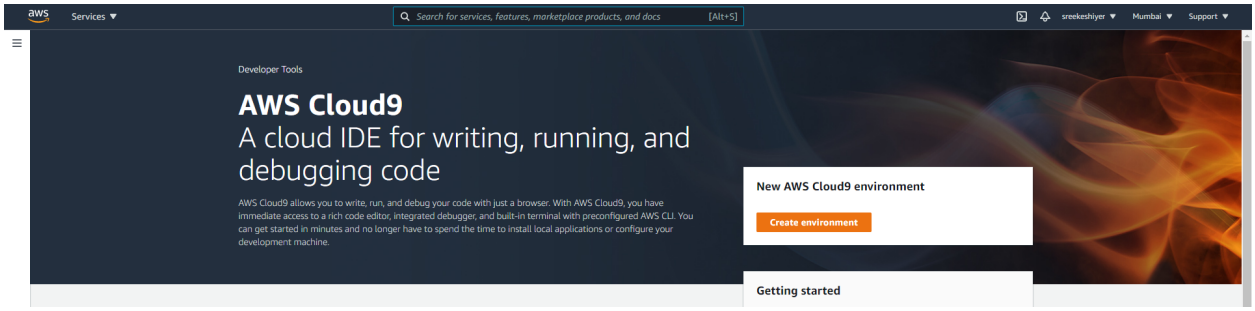
AWS Cloud9 makes it easy for you to start new projects. Cloud9's development environment comes prepackaged with tooling for over 40 programming languages, including Node.js, JavaScript, Python, PHP, Ruby, Go, and C++. This enables you to start writing code for popular application stacks within minutes by eliminating the need to install or configure files, SDKs, and plug-ins for your development machine. Because Cloud9 is cloud-based, you can easily maintain multiple development environments to isolate your project's resources.

Steps:

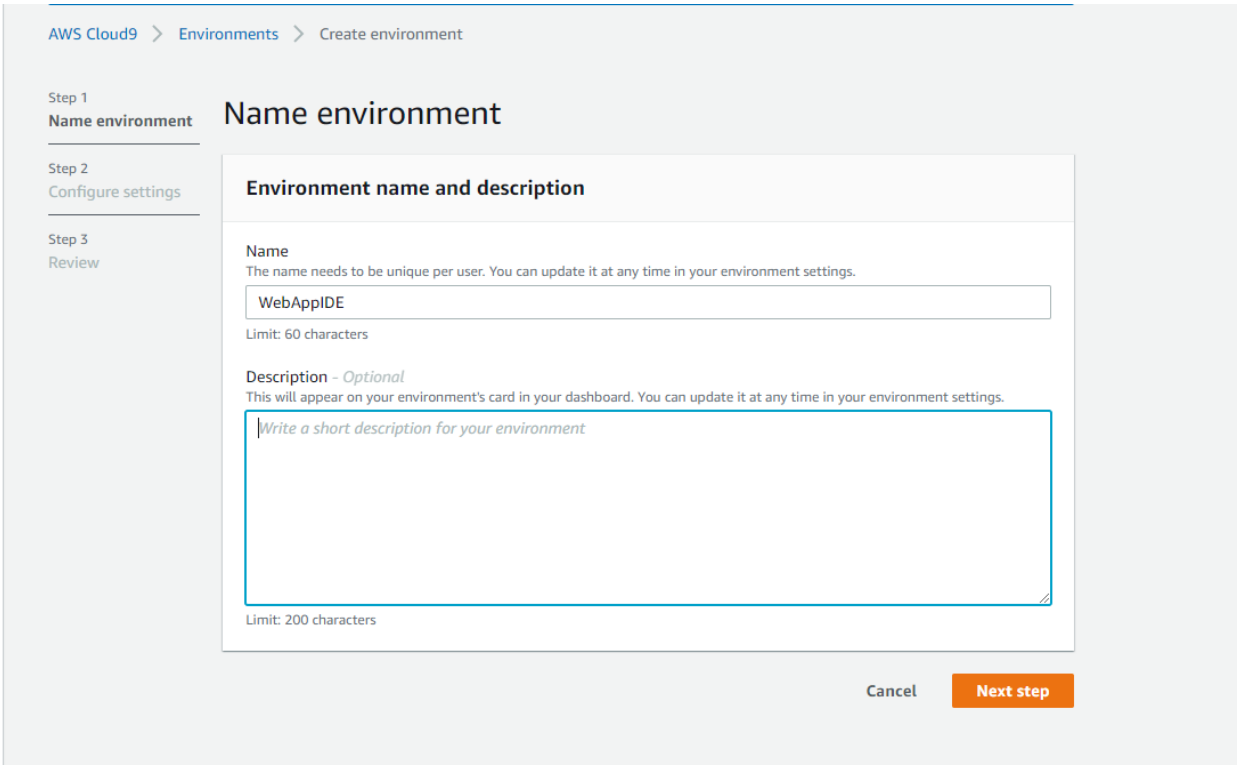
1. Login with your AWS account.
2. Search for *Cloud9* under the list of services in the search menu.



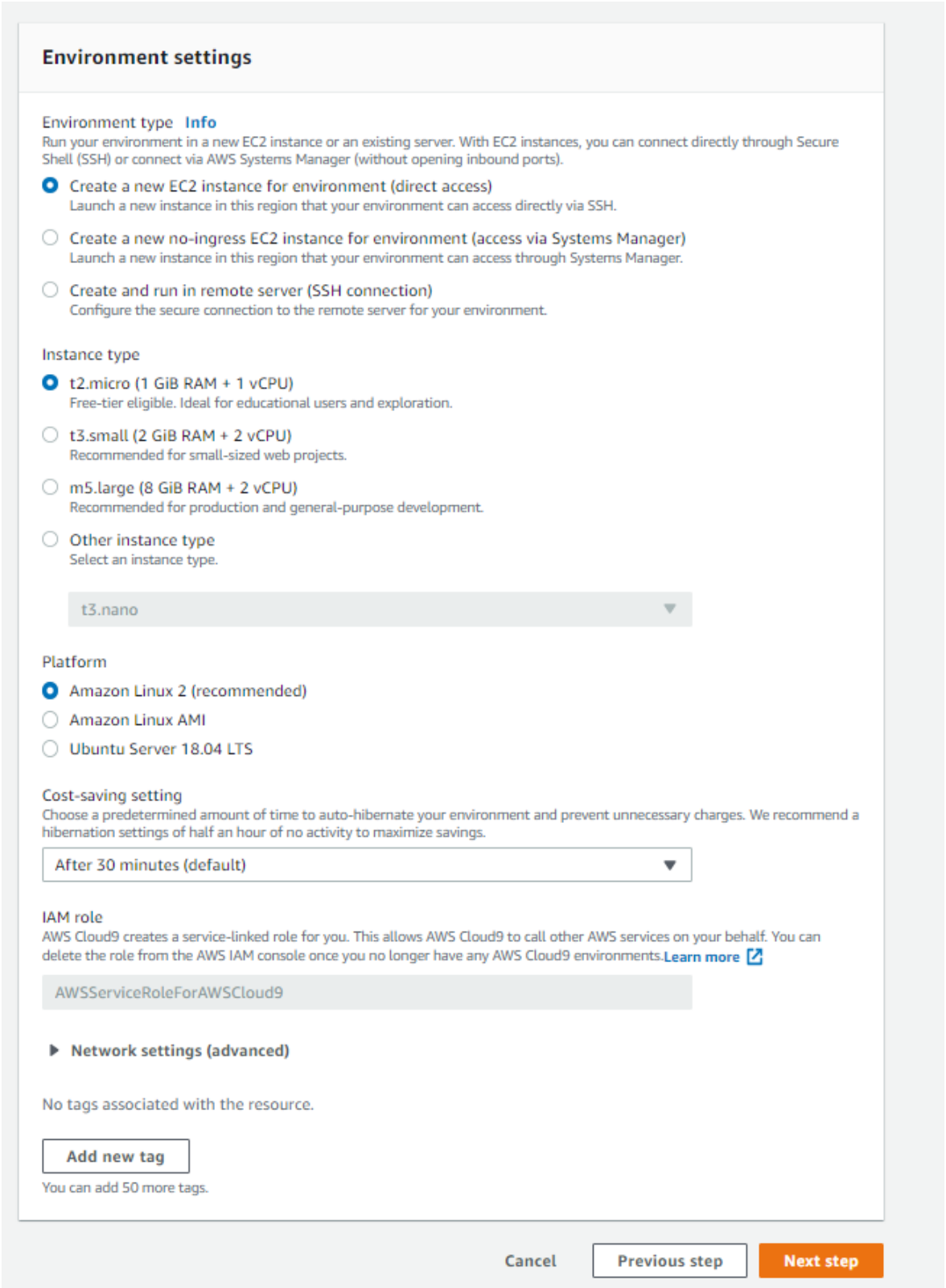
3. In the Cloud9 Console, click on ***Create Environment***.



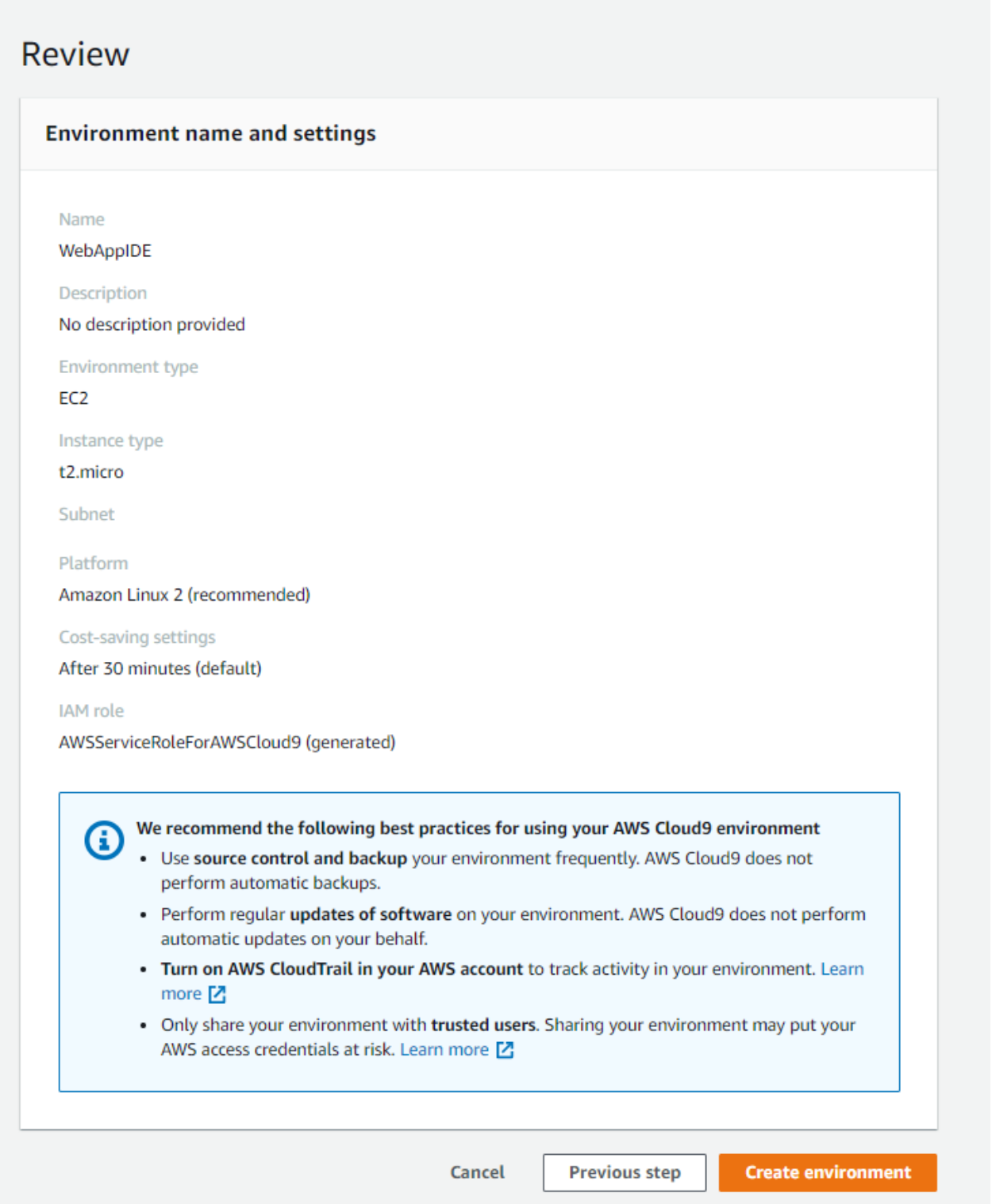
4. Proceed after entering a name for your environment.



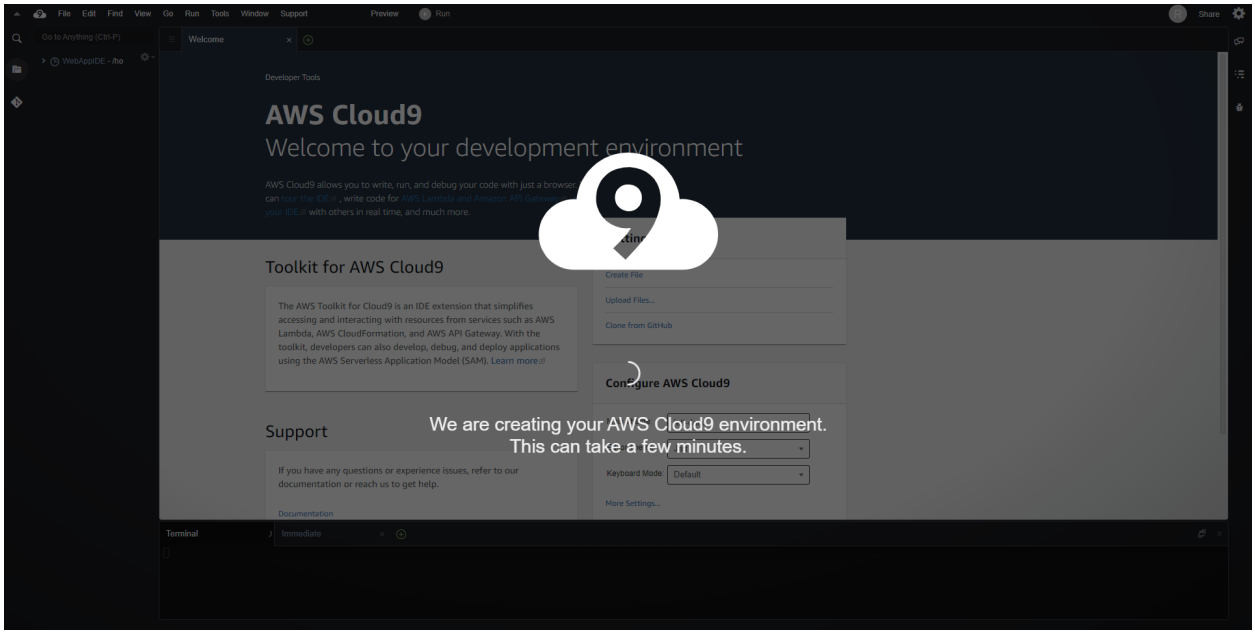
5. Proceed with default settings.



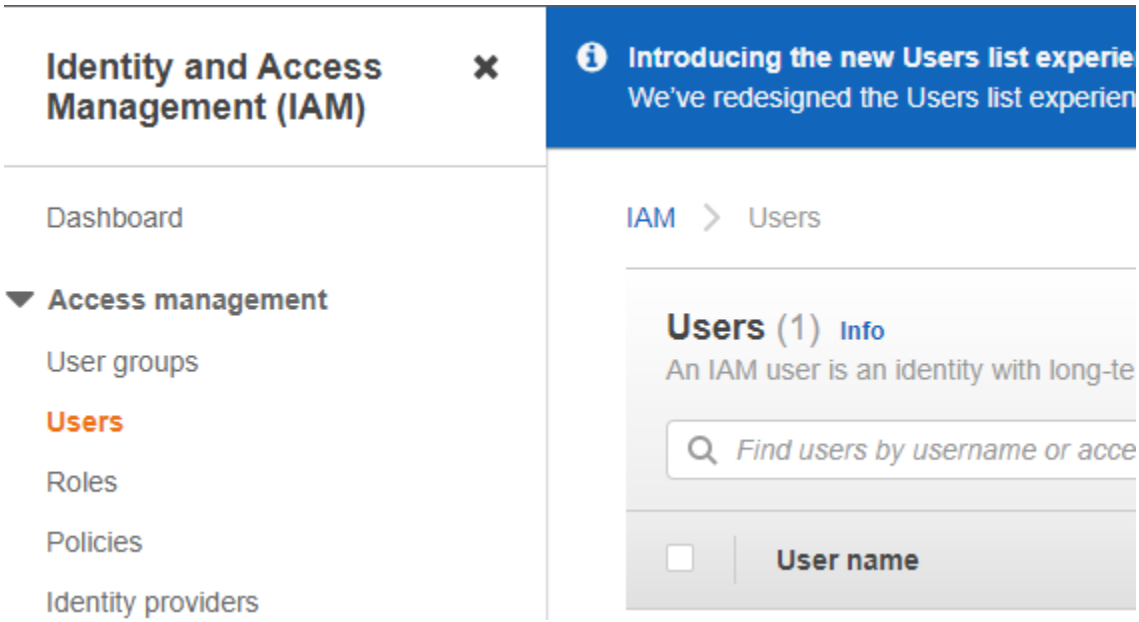
6. Review the settings and create the environment.



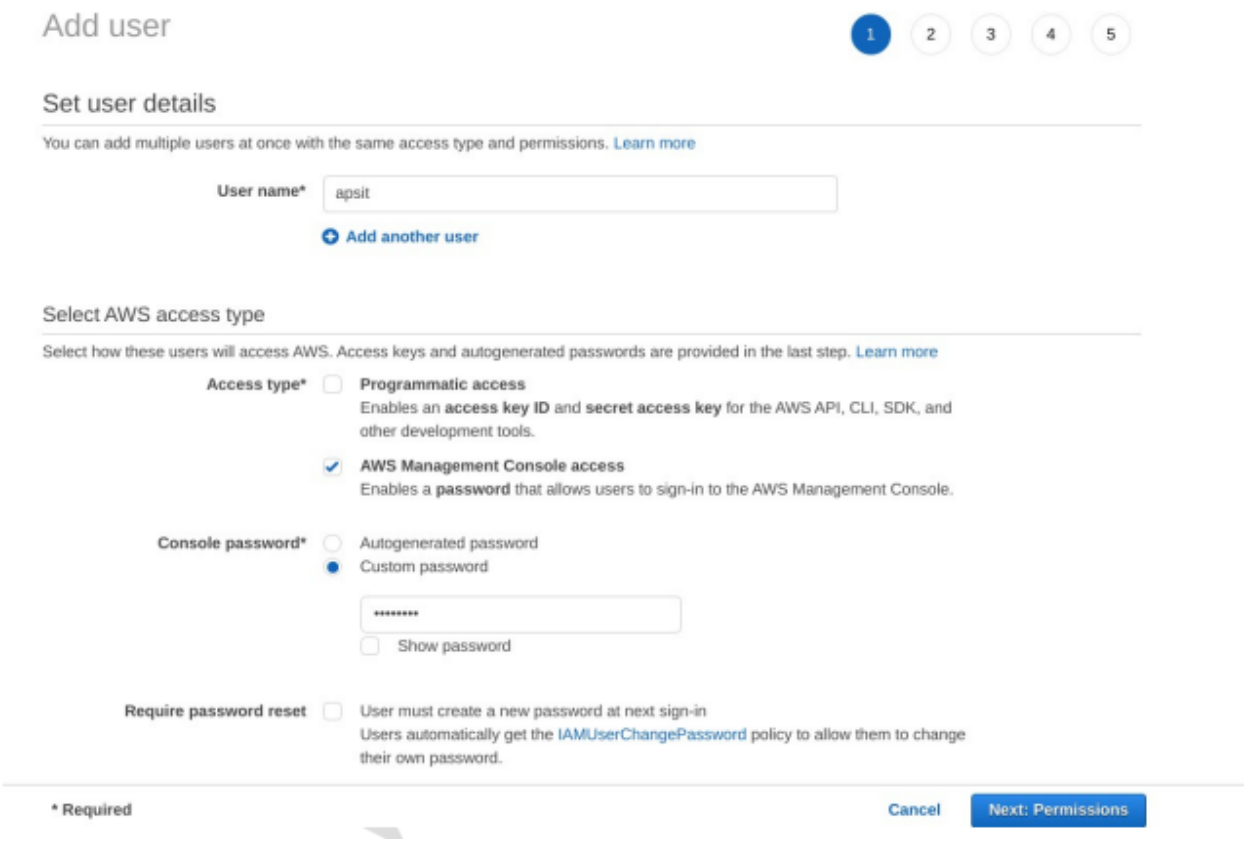
7. The process of creating your IDE has started. It will take some time and while that happens, we can create our IAM user for sharing our code.



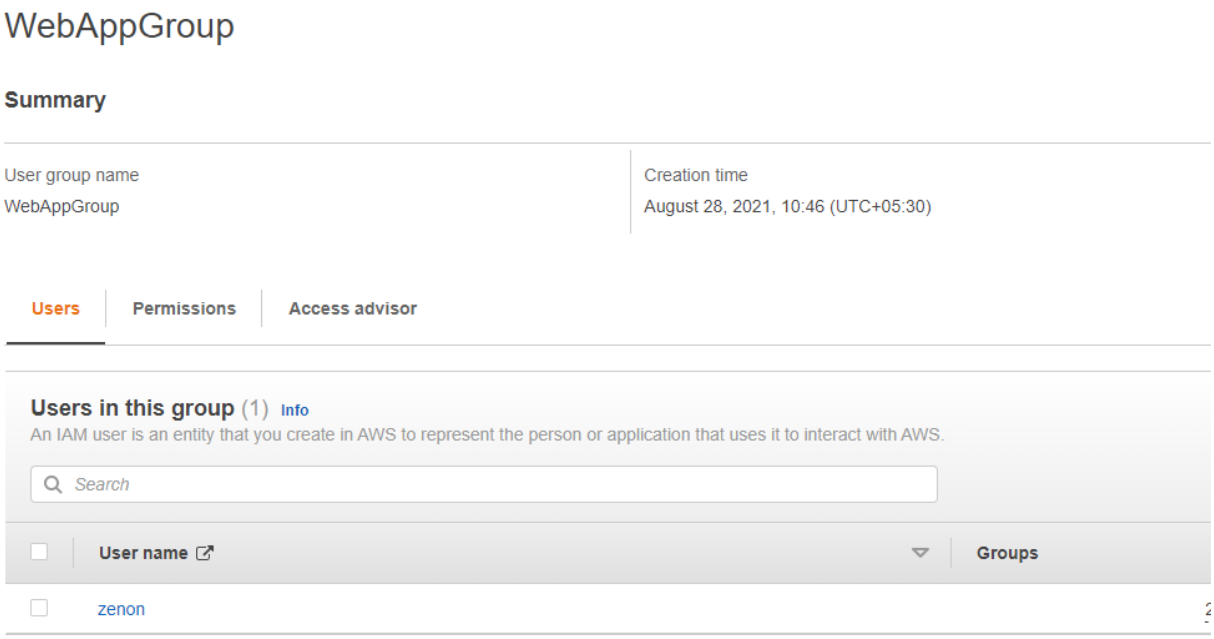
8. Click on the AWS nav logo or open up the AWS console in a new tab and search for IAM. The IAM console opens up.



9. Create a new user.



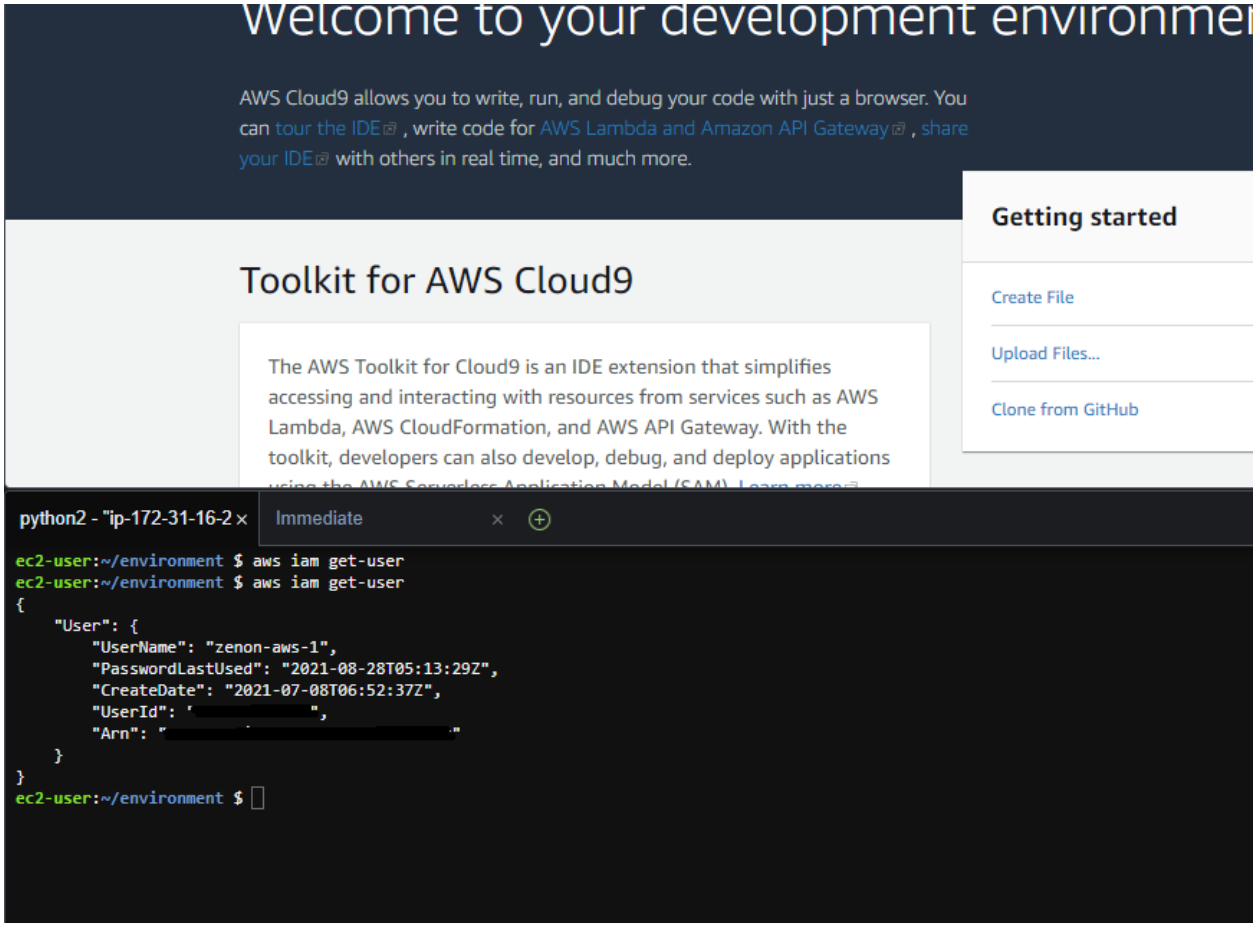
10. Go to User Groups and create a new User Group



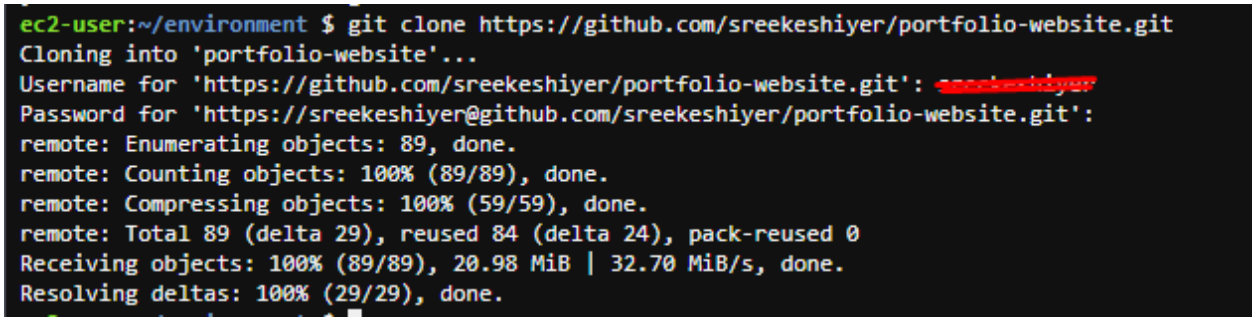
11. Under Permissions, add the ***AWSCloud9EnvironmentMember*** Permission.

12. Now, once that's done, come back to the Cloud9IDE

13. You can use the command-line here, it also has the AWS CLI built in. You can use the *aws get-user* command and see your IAM users.

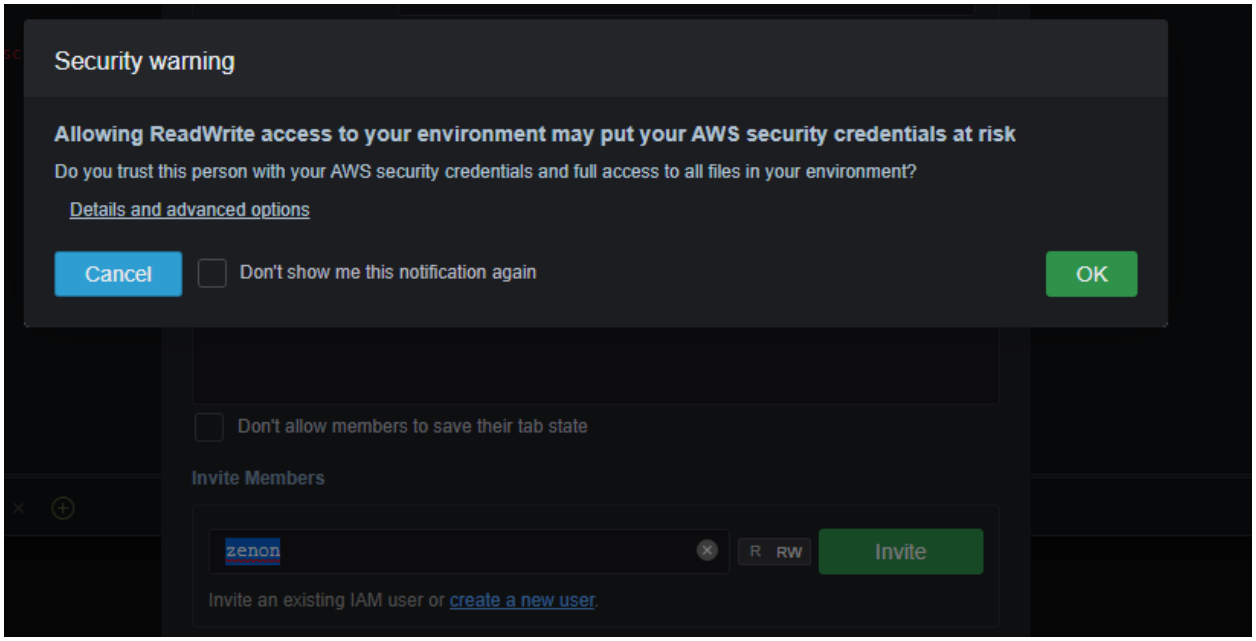


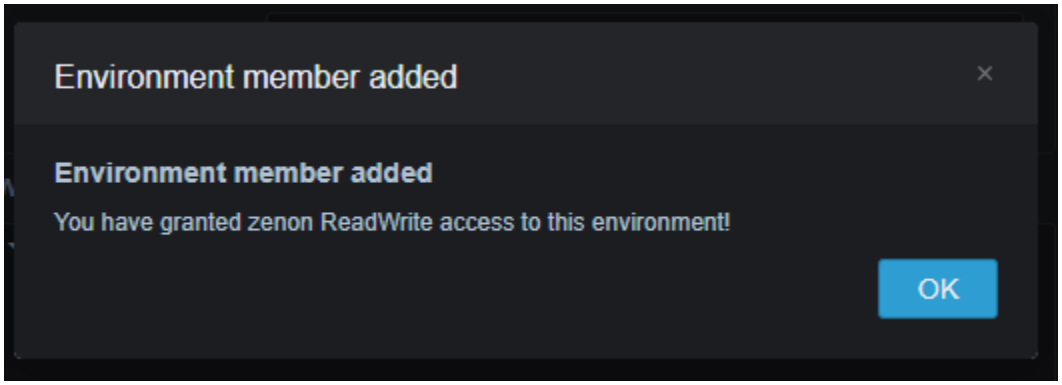
14. We can now create a new file and start working on it. Instead, I'm going to clone my portfolio GitHub Repository.



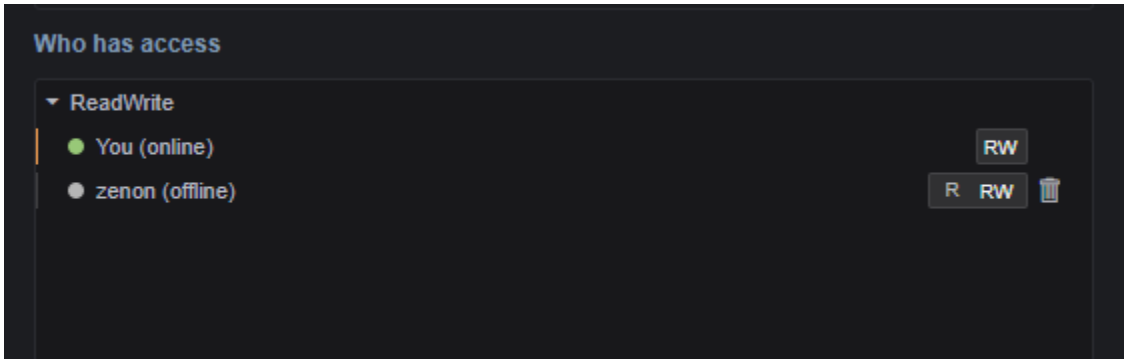
15. Double click on any of the files and you should see them open up. Congrats, this is now your IDE on the web, inside a web-browser with absolutely no software installed.

16. To share this IDE with your IAM user, click on ***Share*** on the top right and add your IAM username there. You can choose if you want to give the IAM user Read Only permissions or Read/Write permissions in the little boxes on the right.

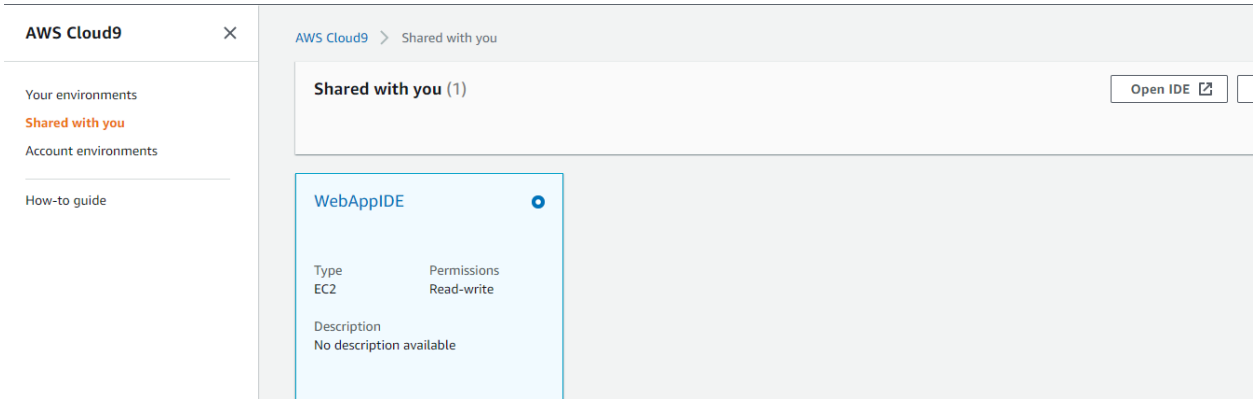




17. You can see the status of collaborators here too.

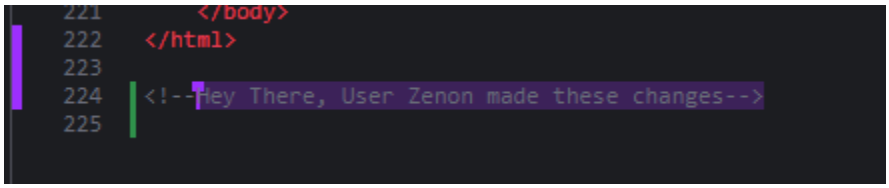


18. Now, open up an incognito window or any browser in private mode and login to AWS from your IAM user account. Go ahead, open Cloud9 and switch to the “Shared with you” panel.

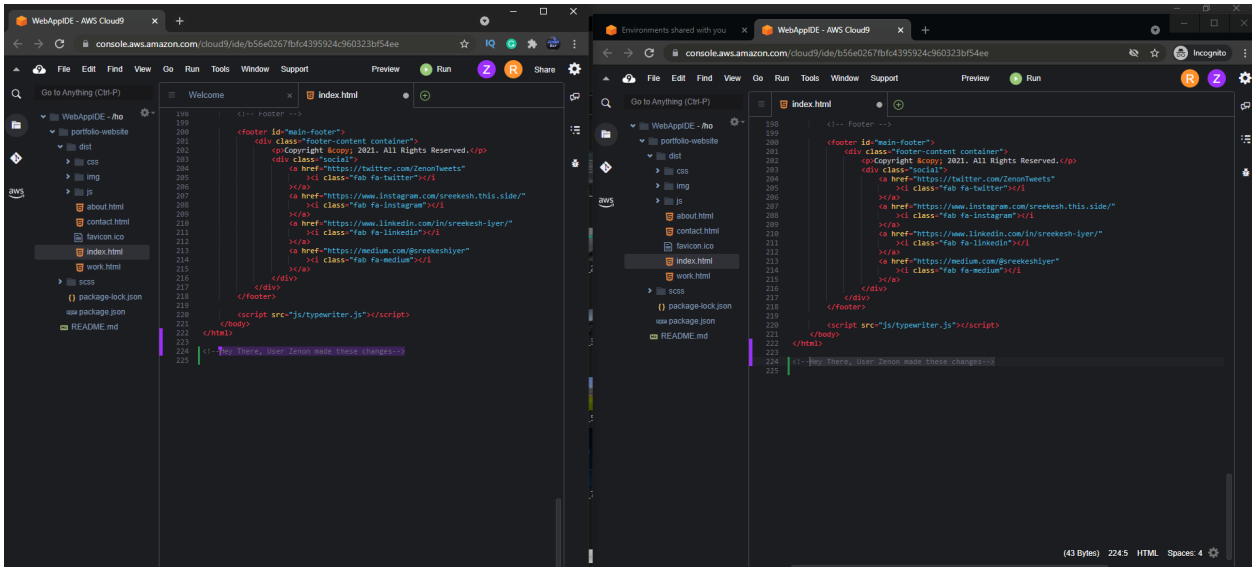


19. You should be able to see your environment. Click on Open IDE and you’ll have almost the same UI as the root user, depending on your permissions and access options.

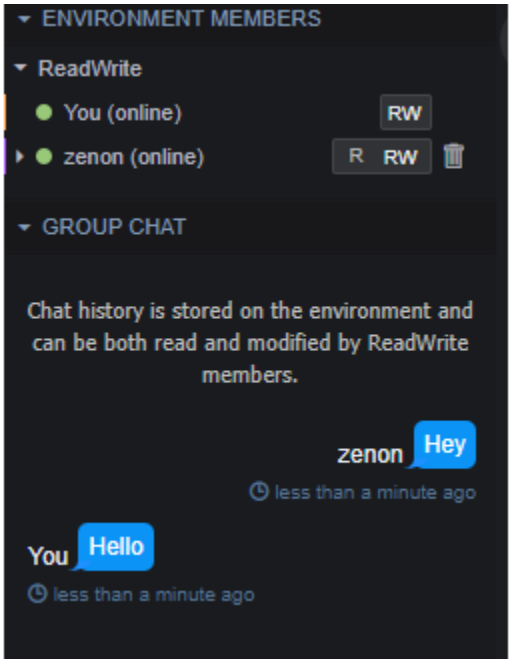
20. Go ahead and make a change to any of your files.



21. Both users now should be able to see real-time changes.



22. You can also open up the chat window on the right to communicate!



For more info related to AWS-Cloud 9 you all can refer to the following documentation - https://docs.aws.amazon.com/cloud9/latest/user-guide/aws-cloud9-ug.pdf

Conclusion:

In this experiment, we learned how to use AWS Cloud9 to create an IDE and code in a collaborative environment, creating and managing IAM users, creating user groups, setting permissions, etc.