Experiment 01

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 programs 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

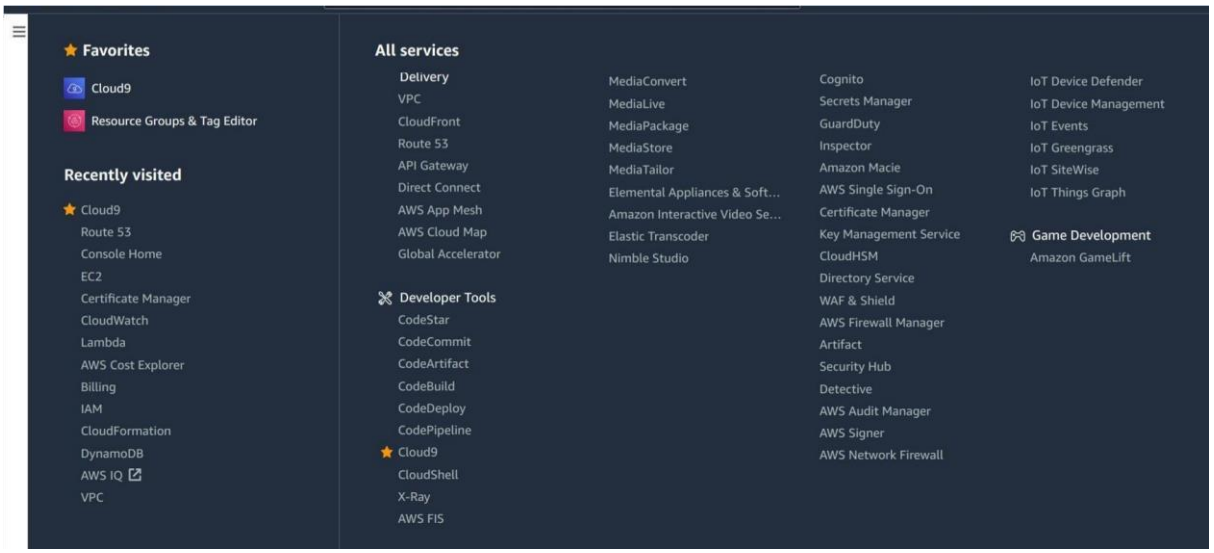
AWS Cloud9 comes with a terminal that includes sudo privileges to the managed Amazon EC2 instance that is hosting your development environment and a preauthenticated AWS Command Line Interface. This makes it easy for you to quickly run commands and directly access AWS services

START NEW PROJECTS QUICKLY

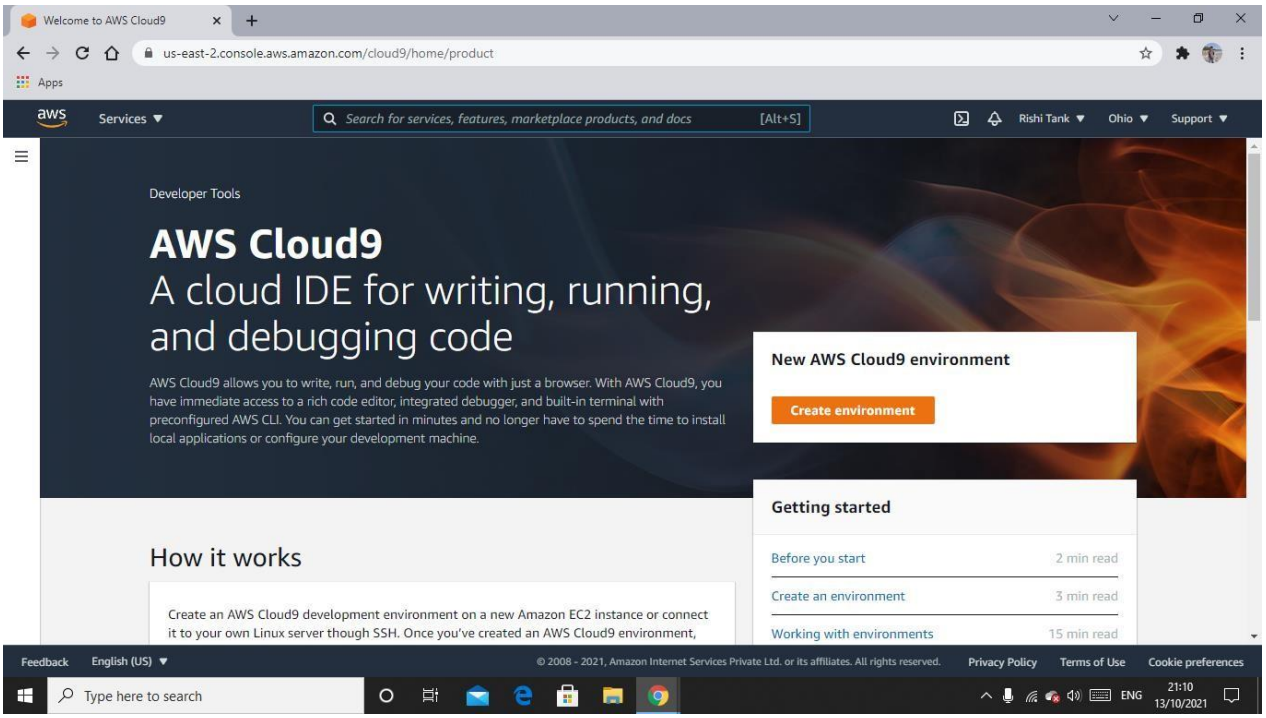
AWS Cloud9 makes it easy for you to start new projects. Cloud9's development environment comes prepackaged with tooling for over 40 programming languages, including Node.js, JavaScript, Python, PHP, Ruby, Go, and C++. This enables you to start writing code for popular application stacks within minutes 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:

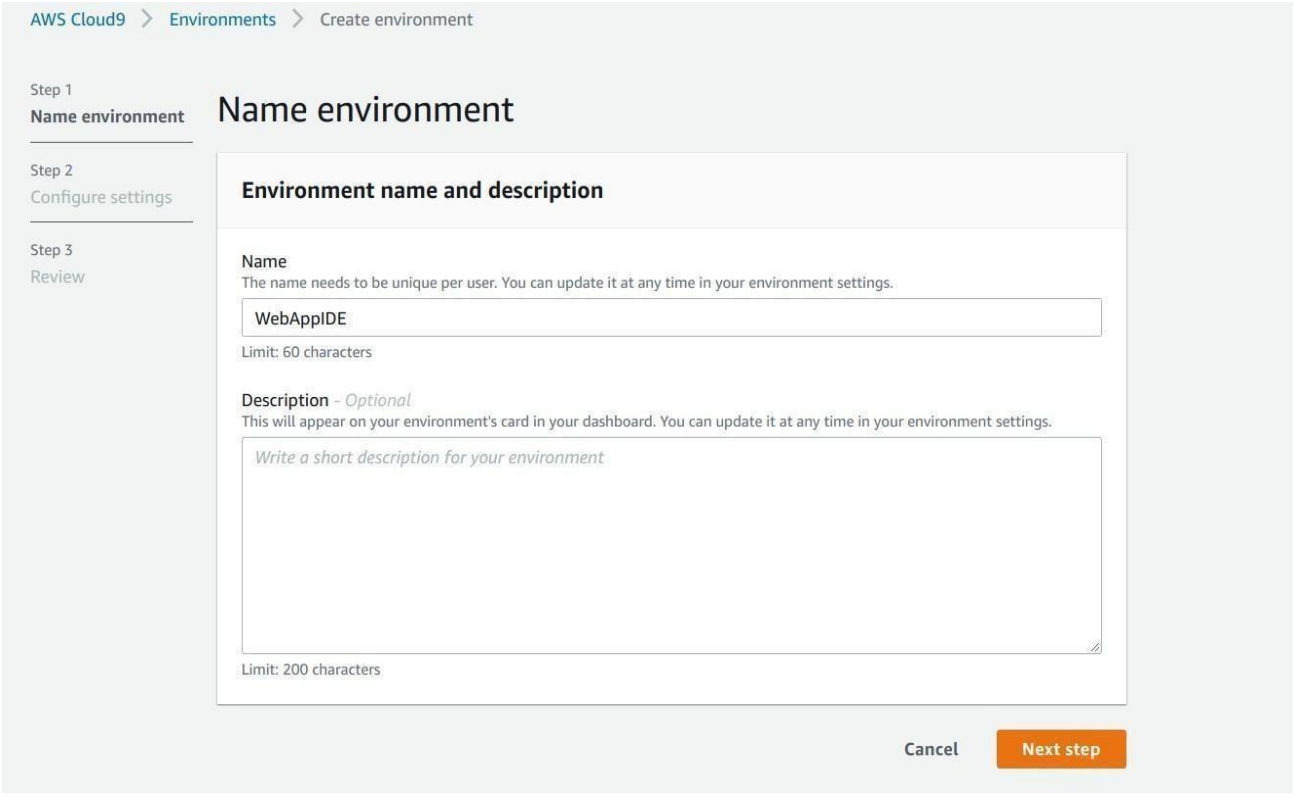
1. **Login with your AWS account.**
2. **Navigate to Cloud 9 service from Developer tools section as below:**



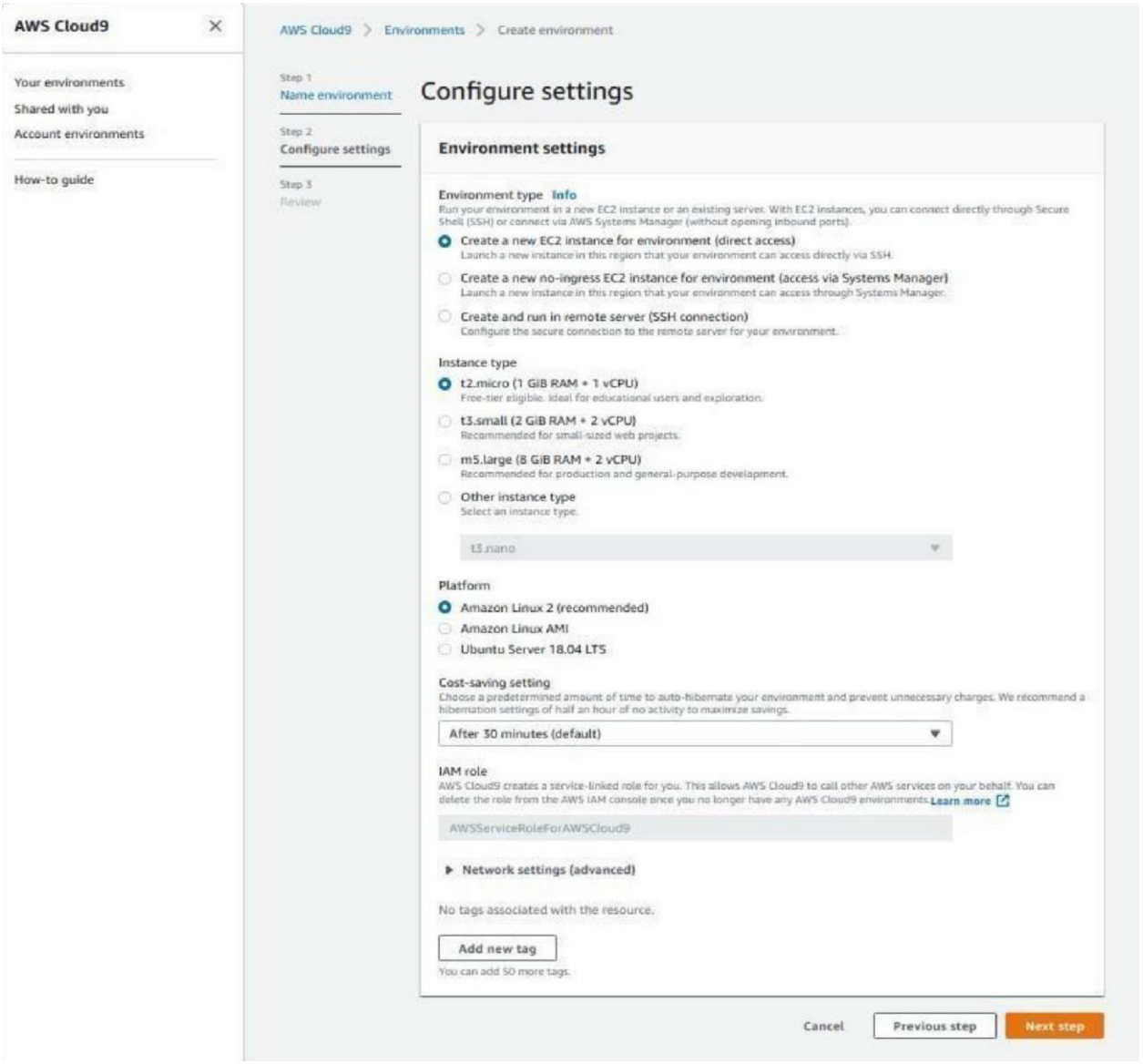
3. Click on Create Environment :



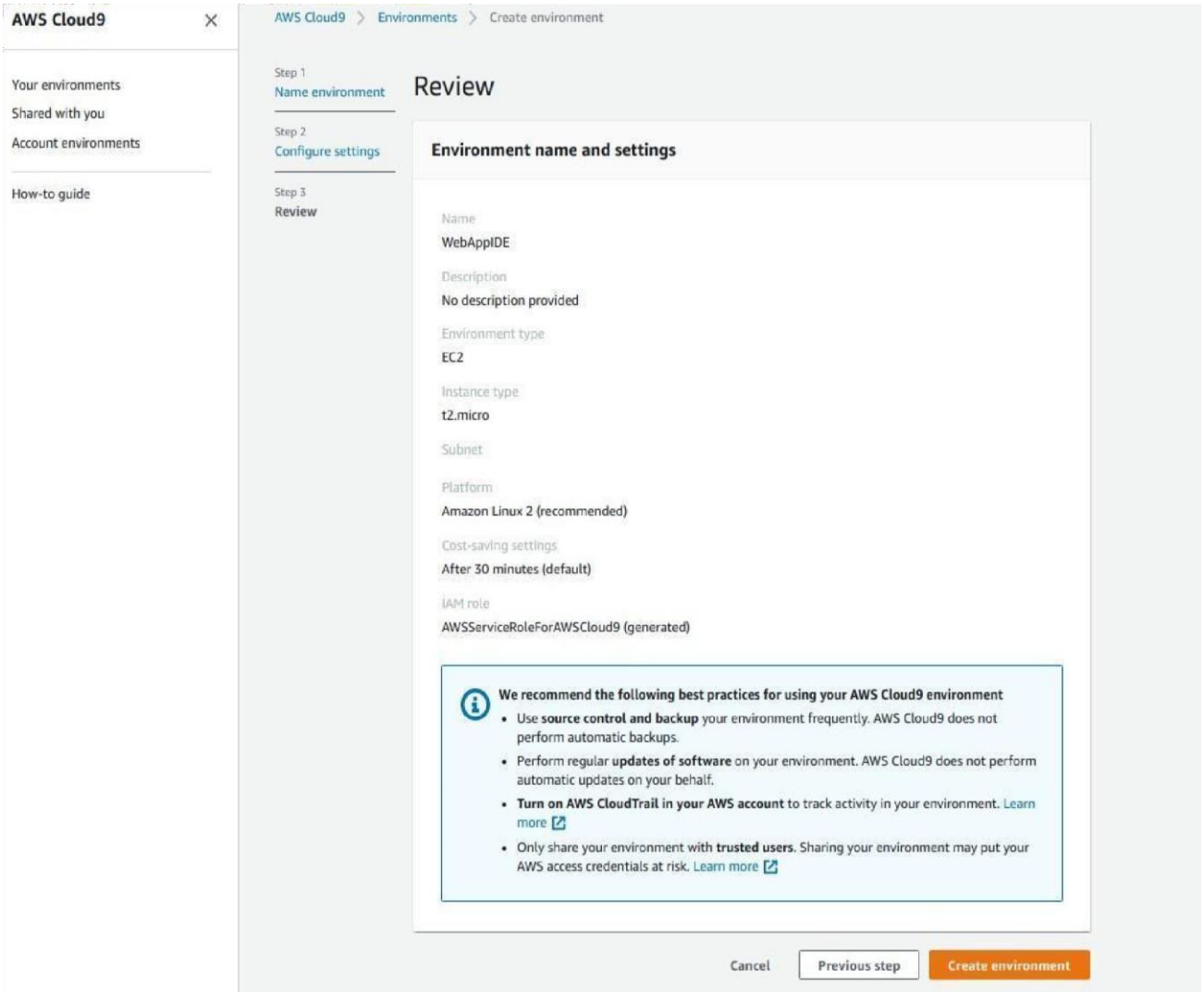
4. **Provide the name for the Environment (WebAppIDE) and click on next.**

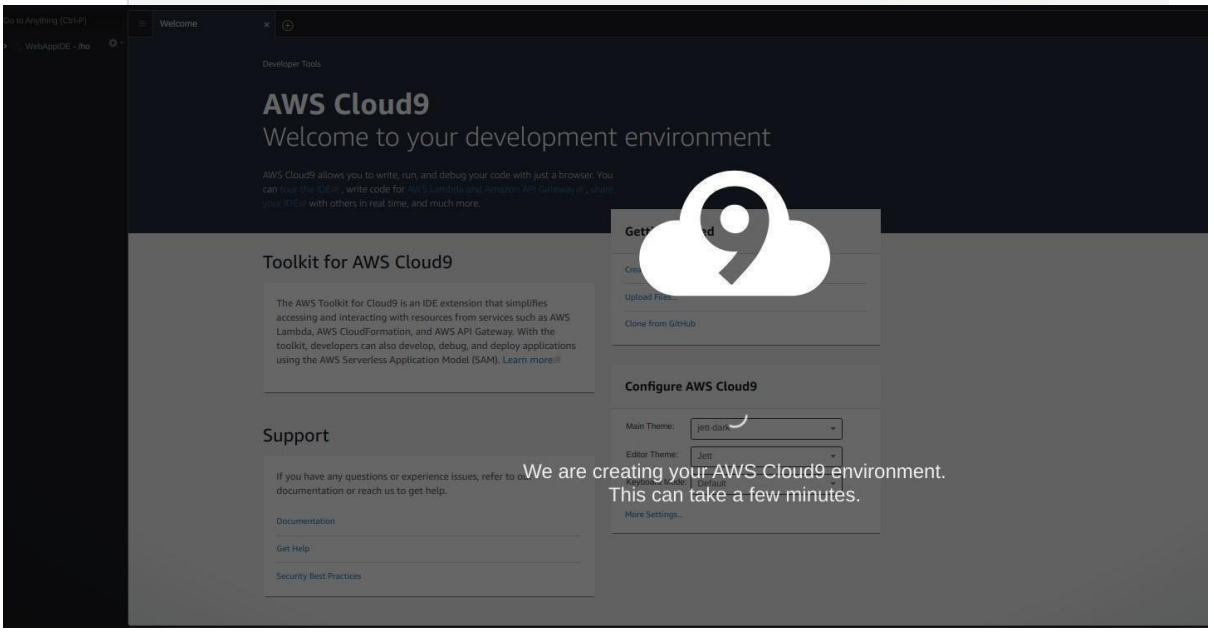


5. **Keep all the Default settings as shown in below:**


AWS Cloud9
Your environments
Shared with you
Account environments
How-to guide
AWS Cloud9 > Environments > Create environment
Step 1
Name environment
Step 2
Configure settings
Step 3
Review
Configure settings
Environment settings
Environment type Info
Run your environment in a new EC2 instance or an existing server. With EC2 instances, you can connect directly through Secure Shell (SSH) or connect via AWS Systems Manager (without opening inbound ports).
Create a new EC2 instance for environment (direct access)
Launch a new instance in this region that your environment can access directly via SSH.
Create a new no-ingress EC2 instance for environment (access via Systems Manager)
Launch a new instance in this region that your environment can access through Systems Manager.
Create and run in remote server (SSH connection)
Configure the secure connection to the remote server for your environment.
Instance type
t2.micro (1 GiB RAM + 1 vCPU)
Free-tier eligible. Ideal for educational users and exploration.
t3.small (2 GiB RAM + 2 vCPU)
Recommended for small-sized web projects.
m5.large (8 GiB RAM + 2 vCPU)
Recommended for production and general-purpose development.
Other instance type
Select an instance type.
t3.nano
Platform
Amazon Linux 2 (recommended)
Amazon Linux AMI
Ubuntu Server 18.04 LTS
Cost-saving setting
Choose a predetermined amount of time to auto-hibernate your environment and prevent unnecessary charges. We recommend a hibernation settings of half an hour of no activity to maximize savings.
After 30 minutes (default)
IAM role
AWS Cloud9 creates a service-linked role for you. This allows AWS Cloud9 to call other AWS services on your behalf. You can delete the role from the AWS IAM console once you no longer have any AWS Cloud9 environments. Learn more
AWSServiceRoleForAWSCloud9
Network settings (advanced)
No tags associated with the resource.
Add new tag
You can add 50 more tags.
Cancel
Previous step
Next step

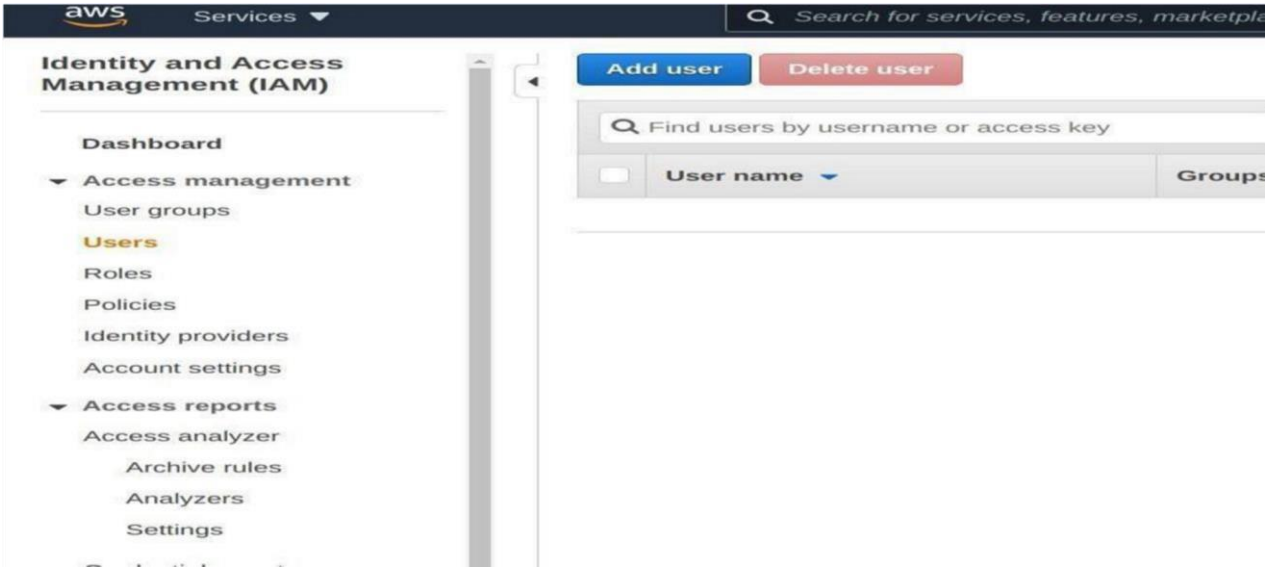
6. **Review the Environment name and Settings and click on Create Environment**



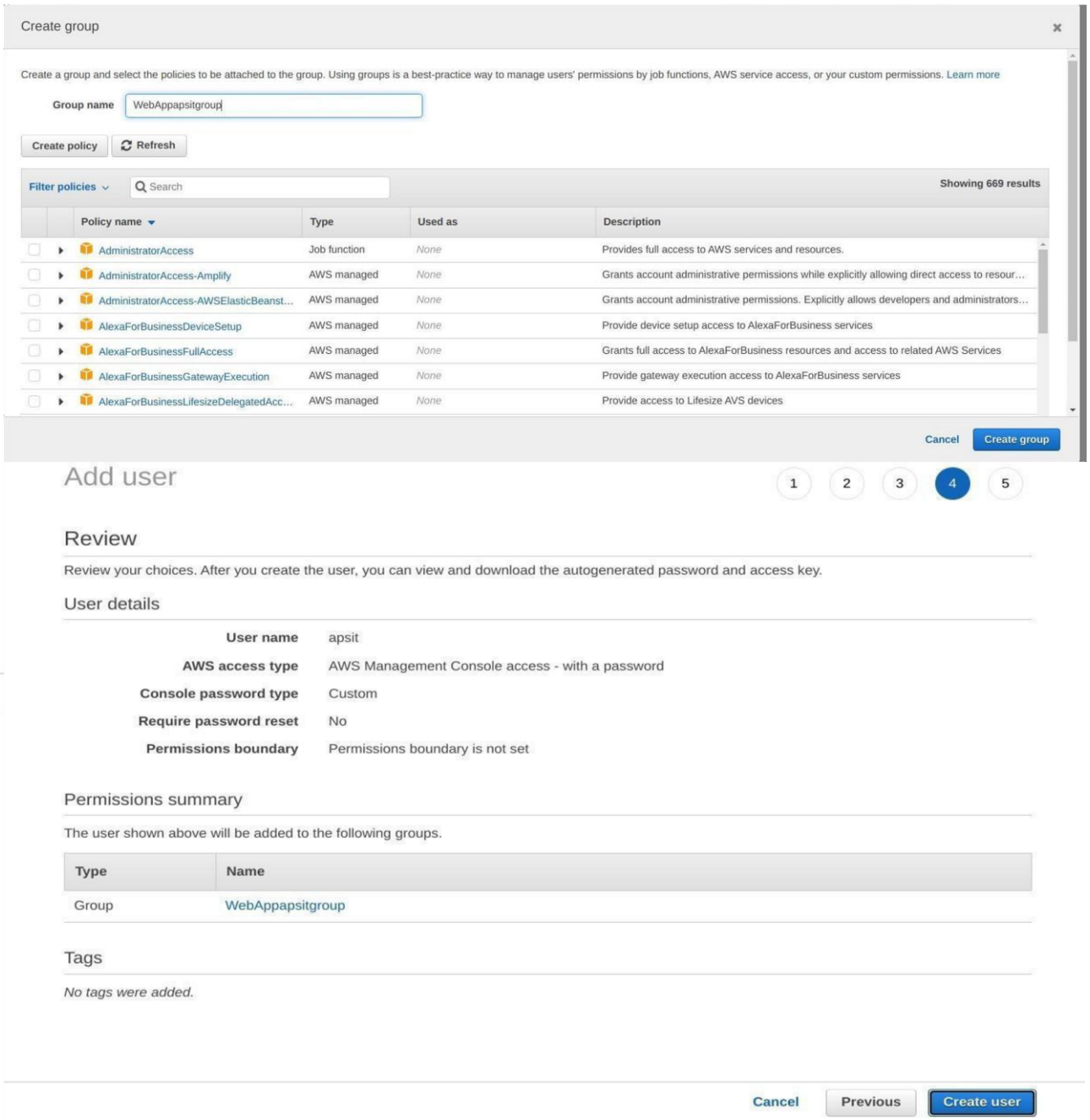


It will take a few minutes to create an aws instance for your Cloud 9 Environment.

7. **Till that time open IAM Identity and Access Management in order to Add user In another tab.**



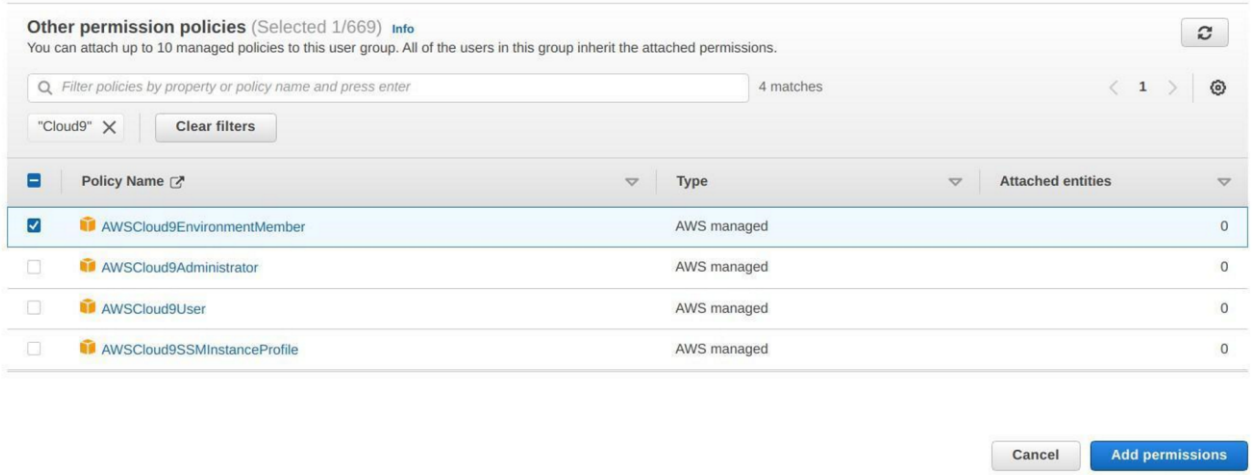
8. Add the user **provided manual password if you want and click on Next permission tab.**

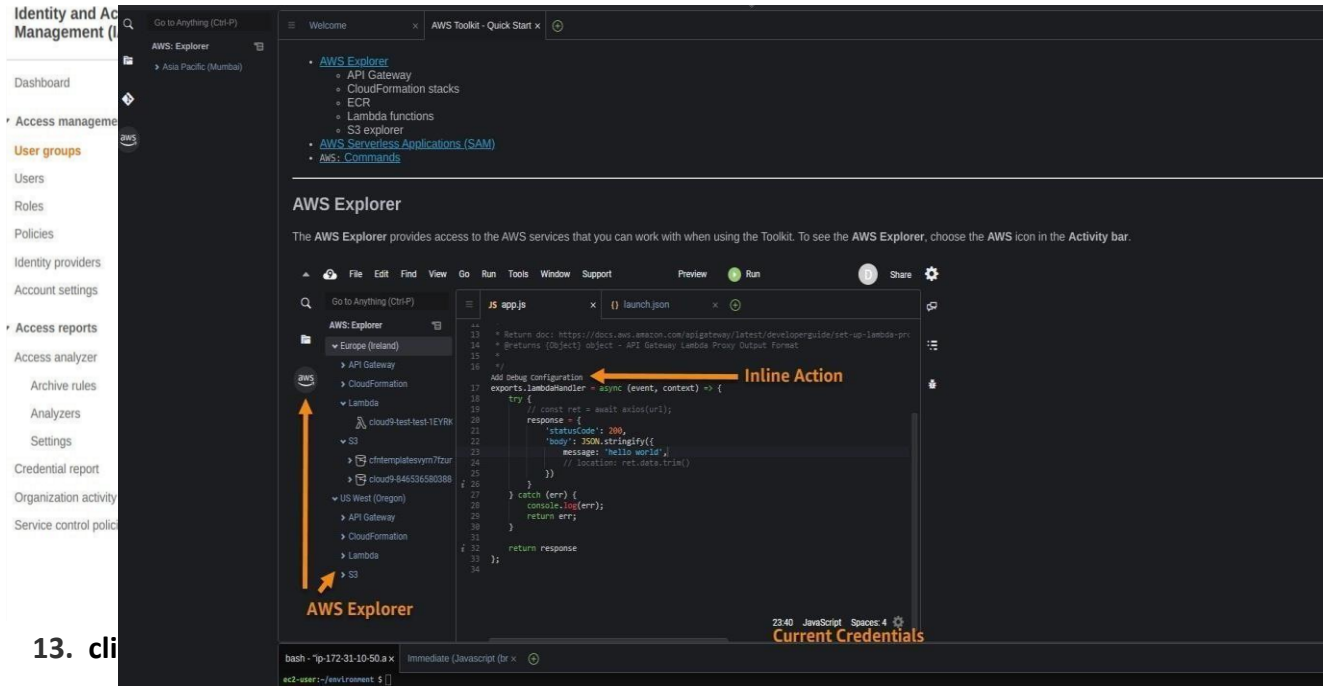


11. After that group is created click on next if u want to provide tag else click on Review for

10. Provide group name and click on create group. user settings and click on create user as shown in fig.

12. Now close that window and Navigate to user Groups from the left pane in IAM.





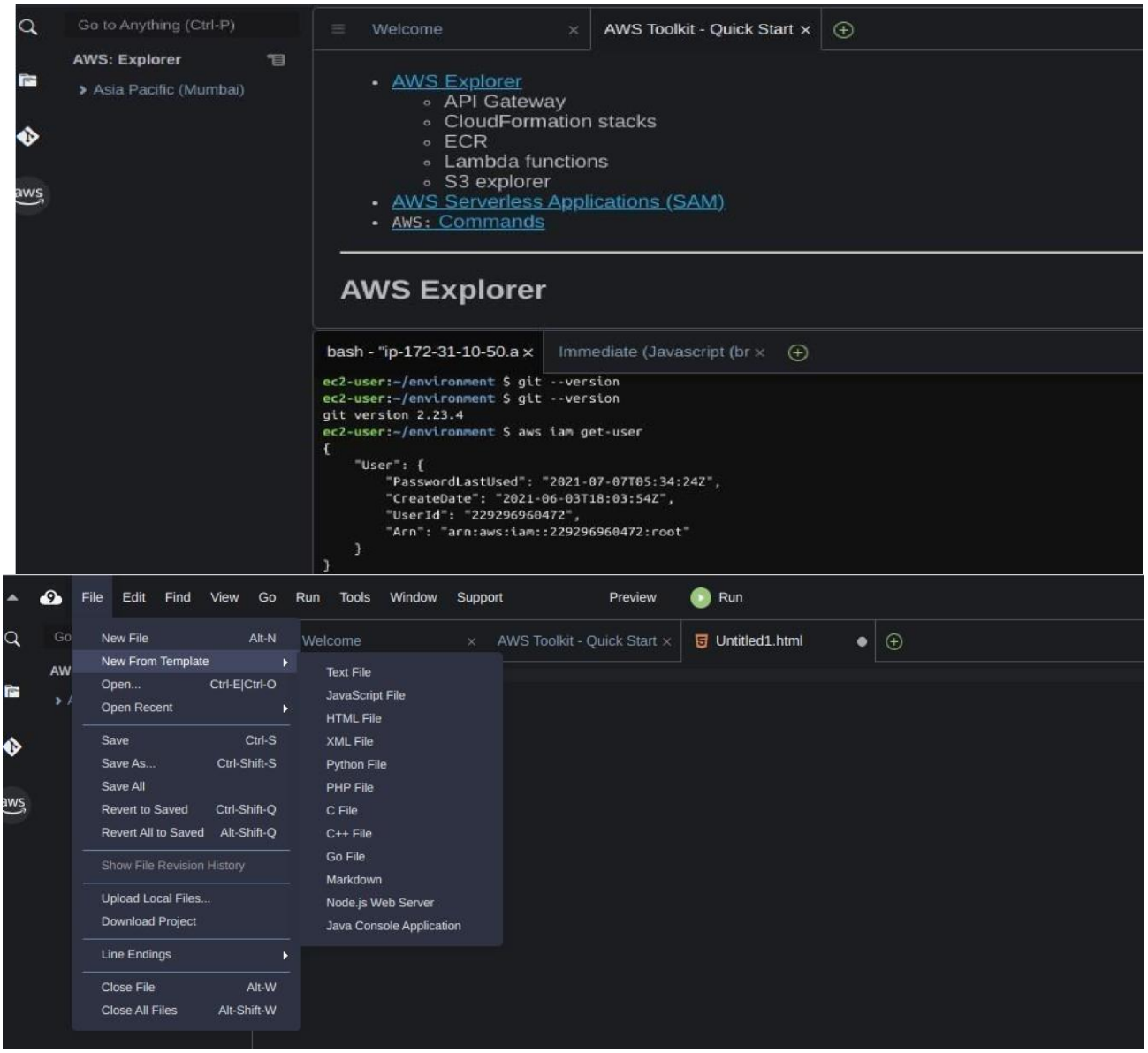
13. cli

15. **Now we move towards our cloud9 IDE Environment tab it shows as shown**

14. **Now click on Add permission and select Attach Policy after that search for Cloud9 related policy and select Aws cloud9 Environment Member policy**

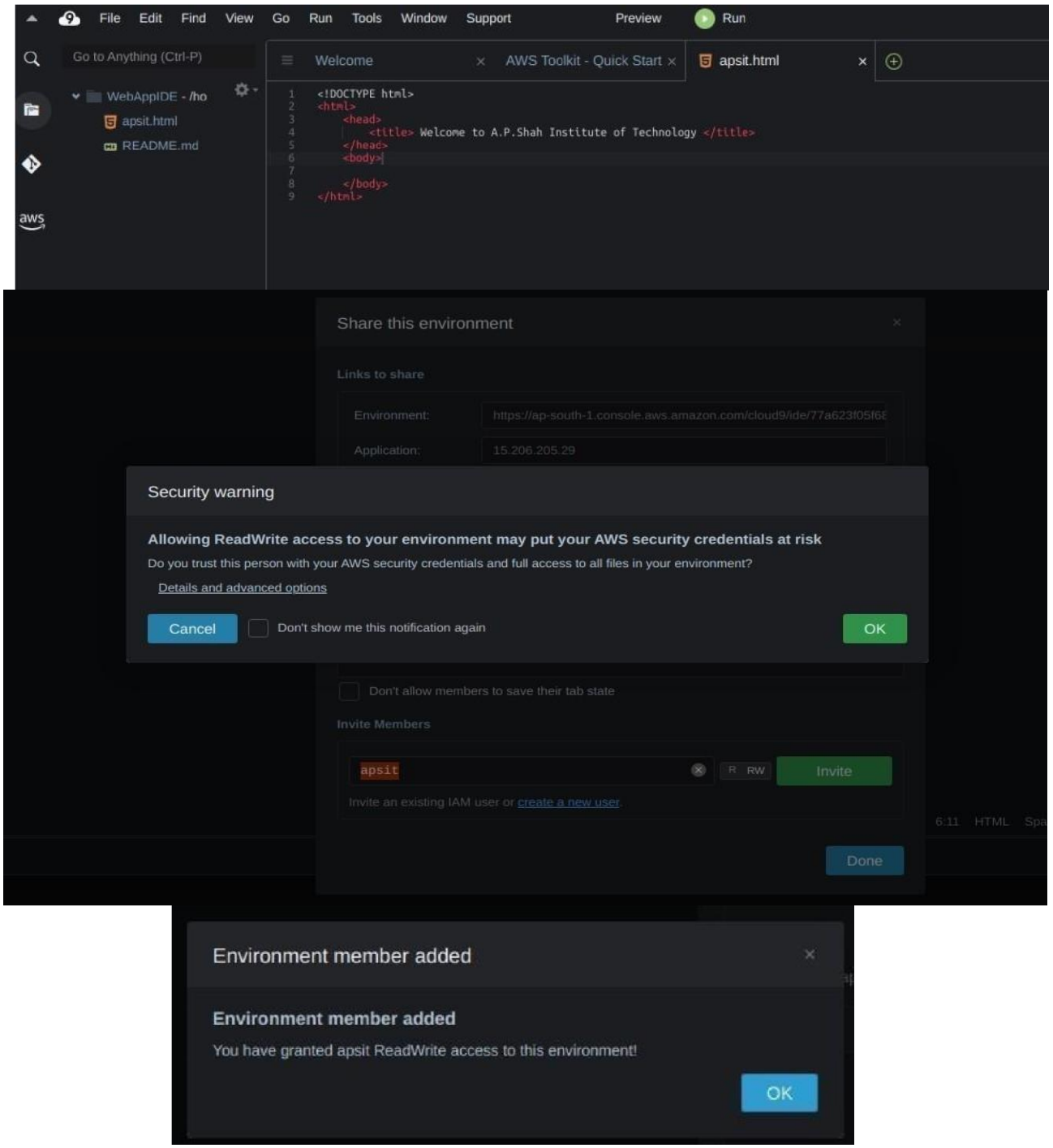
16. **If you check at bottom side Cloud9 IDE also giving you and aws CLI for command operations:**

as we here checked git version, iam user details



17. **Now we will setup collaborative environment Click on File you can create new file or choose from template, here m opting html file to collaborate.**

18. **Edit html file and save it**

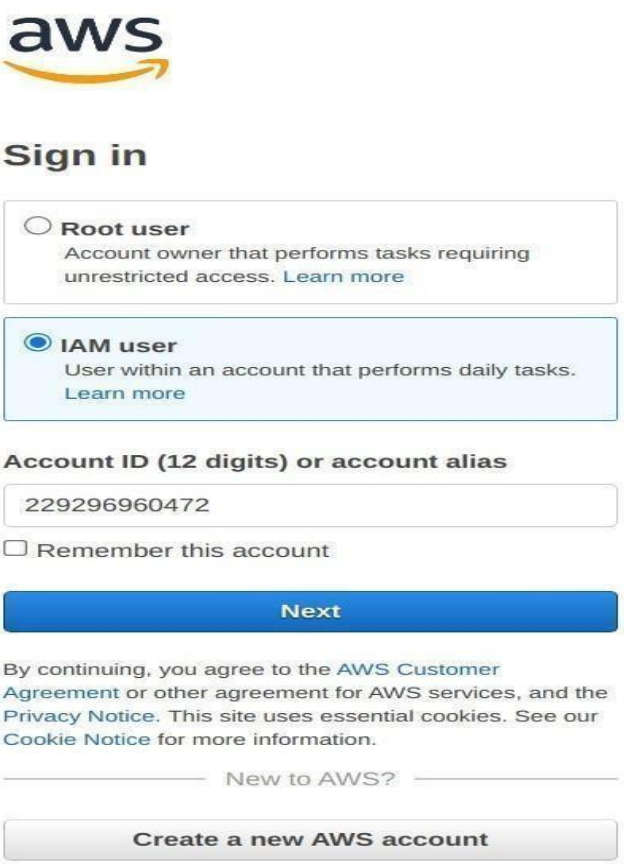


19. **Now in order to share this file to collaborate with other members of your team click on Share option on Right Pane and username which you created in IAM before into**

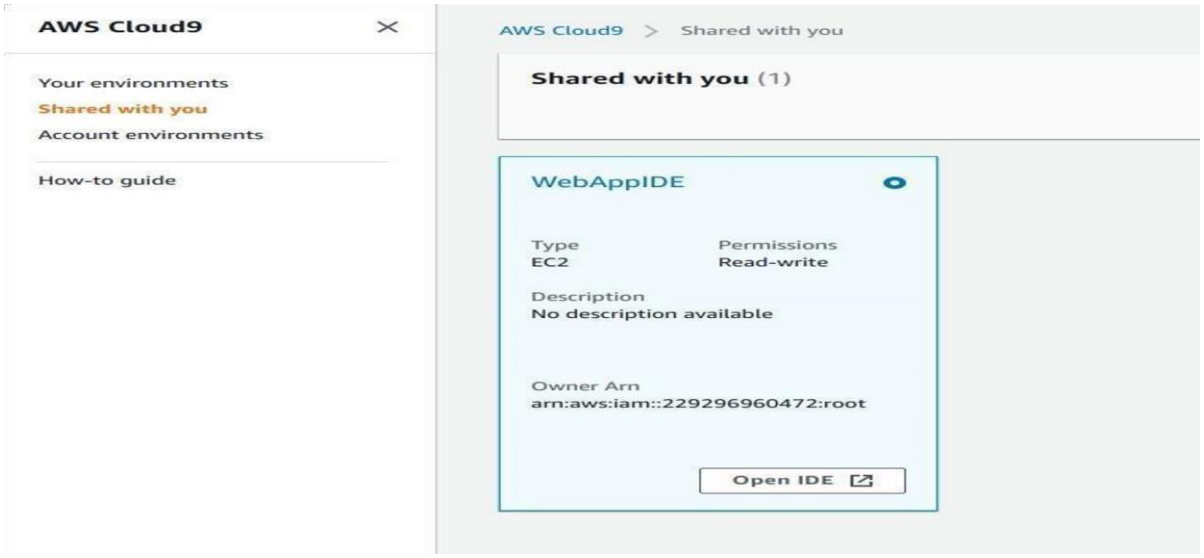
Invite members and enable permission as RW (Read and Write) and click on Done.

Click OK for Security warning.

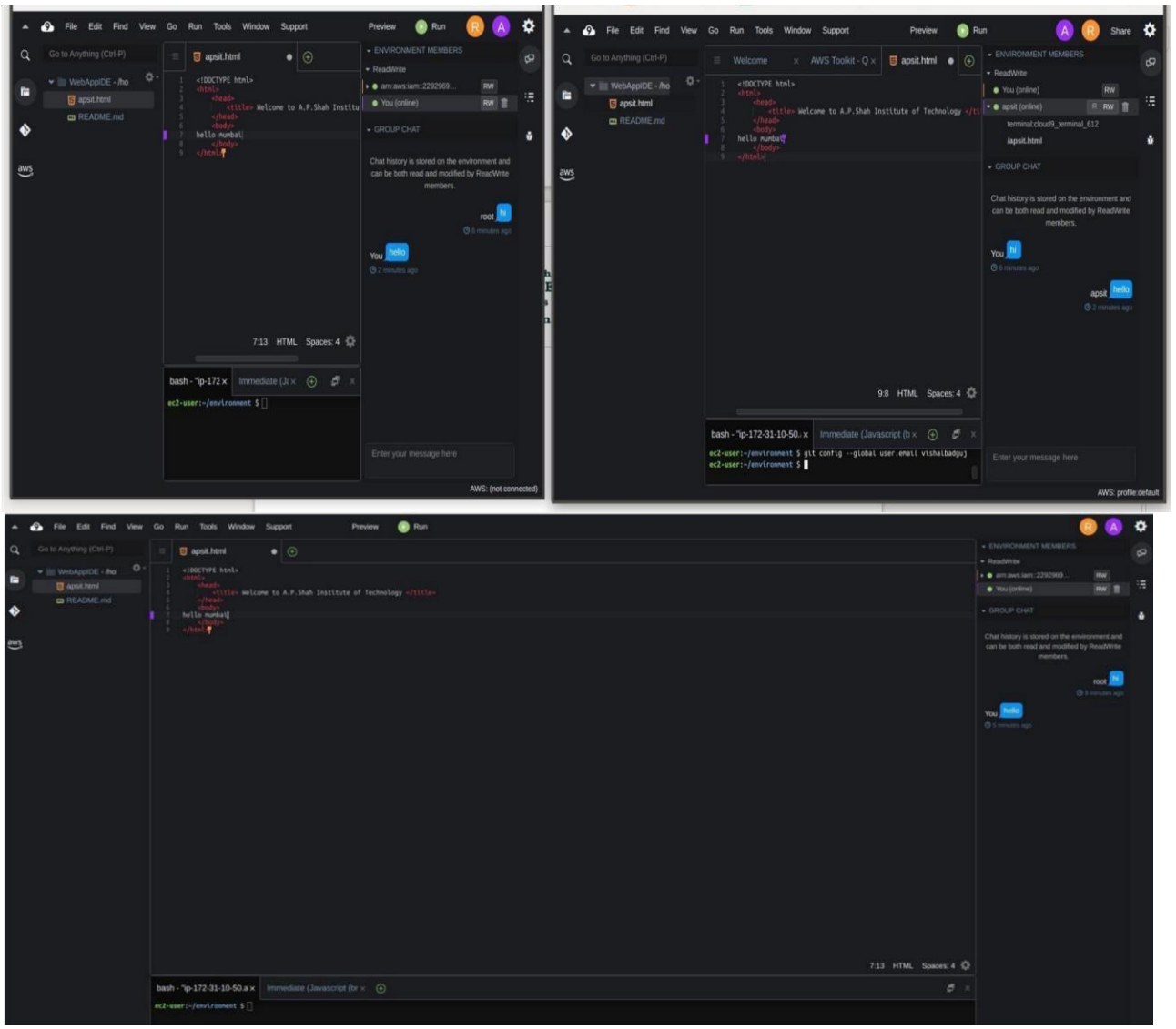
20. **Now Open your Browsers Incognito Window and login with IAM user which you configured before.**



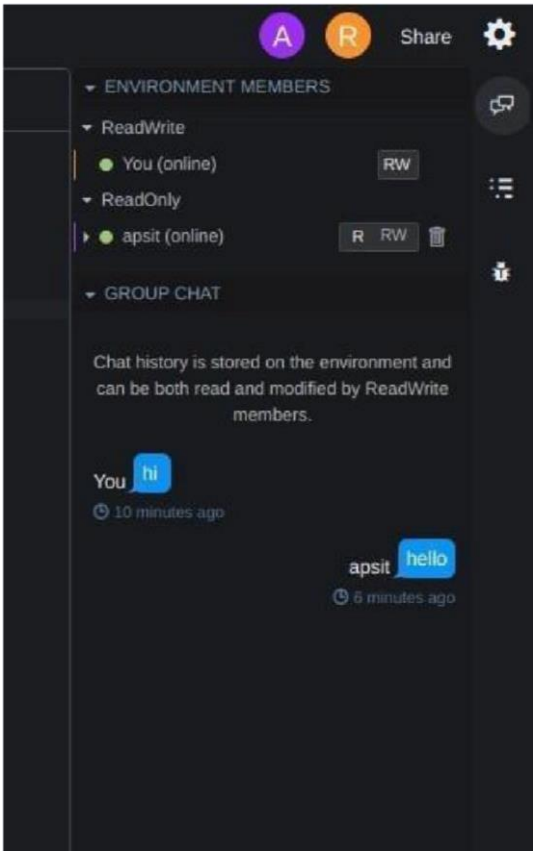
21. After Successful login with IAM user open Cloud9 service from dashboard services and click on shared with you environment to collaborate.



22.Click on Open IDE you will same interface as your other member have to collaborate in real time, also you all within team can do group chats as shown below:



23.you can also explore settings where you can update permissions of your teammates as from RW to R only or you can remove users too.



Conclusion

Hence, we understood the benefits of Cloud Infrastructure and Setup AWS Cloud9 IDE, Launch AWS Cloud9 IDE and Performed Collaboration Demonstration.