



PARSHVANATH CHARITABLE TRUST'S

A. P. SHAH INSTITUTE OF TECHNOLOGY

Department of Information Technology

(NBA Accredited)



Semester: V
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Class / Branch: TE IT
Subject: Advanced Devops Lab (ADL)
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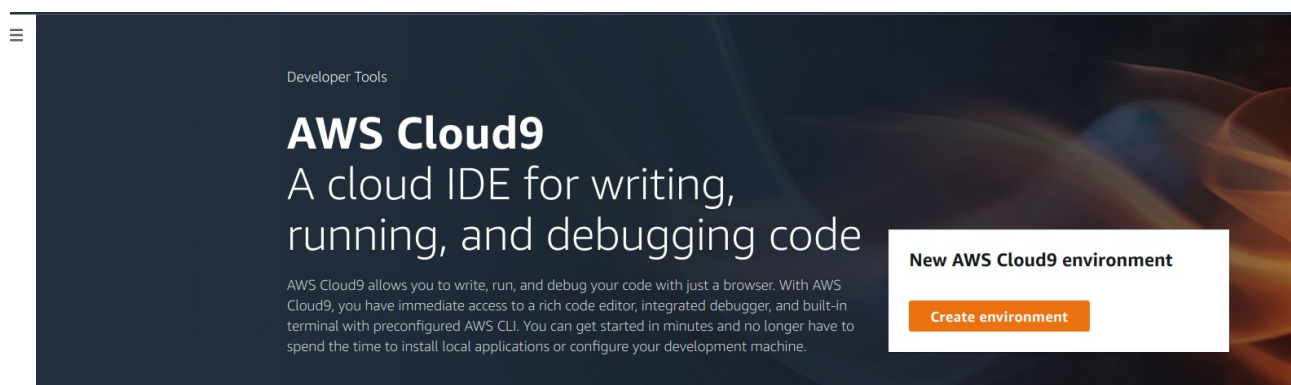
EXPERIMENT NO. 01

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

AWS Cloud9 is a cloud-based IDE that lets you write, run, and debug code directly in a browser without needing to install anything. It supports popular languages like JavaScript and Python and comes with built-in tools. We can work from anywhere with internet access. Cloud9 also makes developing serverless apps easy and lets you collaborate in real time by sharing your environment with teammates for pair programming.

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



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AWS Cloud9 > Environments > Create environment

Step 1
Name environment

Step 2
Configure settings

Step 3
Review

Name environment

Environment name and description

Name
The name needs to be unique per user. You can update it at any time in your environment settings.

Limit: 60 characters

Description - Optional
This will appear on your environment's card in your dashboard. You can update it at any time in your environment settings.

Limit: 200 characters

Cancel **Next step**

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



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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:



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AWS Cloud9 × AWS Cloud9 > Environments > Create environment

Your environments
Shared with you
Account environments
How-to guide

Step 1
[Name environment](#)
Step 2
[Configure settings](#)
Step 3
Review

Review

Environment name and settings

Name
WebAppIDE

Description
No description provided

Environment type
EC2

Instance type
t2.micro

Subnet

Platform
Amazon Linux 2 (recommended)

Cost-saving settings
After 30 minutes (default)

IAM role
AWSServiceRoleForAWSCloud9 (generated)

We recommend the following best practices for using your AWS Cloud9 environment

- Use **source control and backup** your environment frequently. AWS Cloud9 does not perform automatic backups.
- Perform regular **updates of software** on your environment. AWS Cloud9 does not perform automatic updates on your behalf.
- **Turn on AWS CloudTrail** in your AWS account to track activity in your environment. [Learn more](#)
- Only share your environment with **trusted users**. Sharing your environment may put your AWS access credentials at risk. [Learn more](#)

Cancel Previous step **Create environment**

It will take few minutes to create aws instance for your Cloud 9 Enviornment.

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

aws Services ▾ Search for services, features, marketplace

Identity and Access Management (IAM)

Dashboard

- Access management
 - User groups
 - Users**
 - Roles
 - Policies
 - Identity providers
 - Account settings
- Access reports
 - Access analyzer
 - Archive rules
 - Analyzers
 - Settings

Add user **Delete user**

Find users by username or access key

☐ User name ▾ Groups



8. Add user provide manual password if you want and click on Next permission tab.

Add user

12345

Set user details

You can add multiple users at once with the same access type and permissions. [Learn more](#)

User name*

apsit

+ Add another user

Select AWS access type

Select how these users will access AWS. Access keys and autogenerated passwords are provided in the last step. [Learn more](#)

Access type*

☐ Programmatic access
Enables an **access key ID** and **secret access key** for the AWS API, CLI, SDK, and other development tools.

☒ AWS Management Console access
Enables a **password** that allows users to sign-in to the AWS Management Console.

Console password*

☐ Autogenerated password

☒ Custom password

.....

☐ Show password

Require password reset

☐ User must create a new password at next sign-in
Users automatically get the [IAMUserChangePassword](#) policy to allow them to change their own password.

* Required

Cancel

Next: Permissions

9. Click on Create group

Add user

1

Set permissions

Add user to group

Copy permissions from existing user

Attach existing policies directly

Get started with groups

You haven't created any groups yet. Using groups is a best-practice way to manage users' permissions by job access, or your custom permissions. [Learn more](#)

Create group

Set permissions boundary

Create a group and select the policies to be attached to the group. Using groups is a best-practice way to manage users' permissions by job access, or your custom permissions. [Learn more](#)

Group name

WebAppsgitgroup

Create policy

Refresh

Filter policies

Search

Showing 669 results

	Policy name	Type	Used as	Description
<input type="checkbox"/>	AdministratorAccess	Job function	None	Provides full access to AWS services and resources.
<input type="checkbox"/>	AdministratorAccess-Amplify	AWS managed	None	Grants account administrative permissions while explicitly allowing direct access to resour...
<input type="checkbox"/>	AdministratorAccess-AWSElasticBeanst...	AWS managed	None	Grants account administrative permissions. Explicitly allows developers and administrators...
<input type="checkbox"/>	AlexaForBusinessDeviceSetup	AWS managed	None	Provide device setup access to AlexaForBusiness services
<input type="checkbox"/>	AlexaForBusinessFullAccess	AWS managed	None	Grants full access to AlexaForBusiness resources and access to related AWS Services
<input type="checkbox"/>	AlexaForBusinessGatewayExecution	AWS managed	None	Provide gateway execution access to AlexaForBusiness services
<input type="checkbox"/>	AlexaForBusinessLifesizeDelegatedAcc...	AWS managed	None	Provide access to Lifesize AVS devices

Cancel

Create group



11. After that group is created click on next if u want to provide tag else click on Review for user settings and click on create user as shown in fig.

Add user

1 2 3 4 5

Review

Review your choices. After you create the user, you can view and download the autogenerated password and access key.

User details

User name	apsit
AWS access type	AWS Management Console access - with a password
Console password type	Custom
Require password reset	No
Permissions boundary	Permissions boundary is not set

Permissions summary

The user shown above will be added to the following groups.

Type	Name
Group	WebAppapsitgroup

Tags

No tags were added.

Cancel

Previous

Create user

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

Identity and Access Management (IAM)

Dashboard

Access management

- User groups
- Users
- Roles
- Policies
- Identity providers
- Account settings

Access reports

- Access analyzer
- Archive rules
- Analyzers
- Settings
- Credential report
- Organization activity
- Service control policies (SCPs)

Introducing the new User groups experience

We've redesigned the User groups experience to make it easier to use. [Let us know what you think.](#)

IAM > User groups

User groups (1) Info

A user group is a collection of IAM users. Use groups to specify permissions for a collection of users.

☐

Group name

▼

☐

WebAppapsitgroup

☐

Users

▼

☐

1

☐

Permissions

▼

☐

Not defined

☐

Creation time

▼

☐

4 minutes ago

13. click on your group name which you have created and navigate to permission tab as shown:



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Identity and Access Management (IAM)

Dashboard

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Archive rules

Analzers

Settings

Credential report

Organization activity

Service control policies (SCPs)

IAM > User groups > WebAppapsitgroup

WebAppapsitgroup

Delete

Summary

Edit

User group name	Creation time	ARN
WebAppapsitgroup	July 07, 2021, 12:07 (UTC+05:30)	arn:aws:iam::229296960472:group/WebAppapsitgroup

Users Permissions Access advisor

Permissions policies (0)

You can attach up to 10 managed policies.

Refresh

Simulate

Remove

Add permissions

Filter policies by property or policy name and press enter

1

Policy Name	Type	Attached entities
-------------	------	-------------------

No resources to display

14. Now click on Add permission and select Attach Policy after that search for Cloud9 related policy and select Awscloud9EnvirnmentMember policy and add it.

Other permission policies (Selected 1/669)

You can attach up to 10 managed policies to this user group. All of the users in this group inherit the attached permissions.

Filter policies by property or policy name and press enter

4 matches

"Cloud9"

Clear filters

	Policy Name	Type	Attached entities
<input checked="" type="checkbox"/>	AWSCloud9EnvironmentMember	AWS managed	0
<input type="checkbox"/>	AWSCloud9Administrator	AWS managed	0
<input type="checkbox"/>	AWSCloud9User	AWS managed	0
<input type="checkbox"/>	AWSCloud9SSMInstanceProfile	AWS managed	0

Cancel

Add permissions

The screenshot shows the AWS Explorer interface. On the left, the 'AWS Explorer' sidebar is visible, showing a tree view of resources. The main area displays a Lambda function configuration for 'cloud9-test-test-1EYRK'. The code editor shows the function code, which is a JavaScript lambda handler. An orange arrow points to the 'Add Debug Configuration' section in the code editor, labeled 'Inline Action'. Another orange arrow points to the 'AWS Explorer' sidebar, labeled 'AWS Explorer'. At the bottom, the status bar shows '23:40 JavaScript Spaces: 4' and 'Current Credentials'.



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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 and so on...

```
bash - "ip-172-31-10-50.a x Immediate (Javascript (br x +)
```

```
ec2-user:~/environment $ git --version
ec2-user:~/environment $ git --version
git version 2.23.4
ec2-user:~/environment $ aws iam get-user
{
  "User": {
    "PasswordLastUsed": "2021-07-07T05:34:24Z",
    "CreateDate": "2021-06-03T18:03:54Z",
    "UserId": "229296960472",
    "Arn": "arn:aws:iam::229296960472:root"
  }
}
```

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

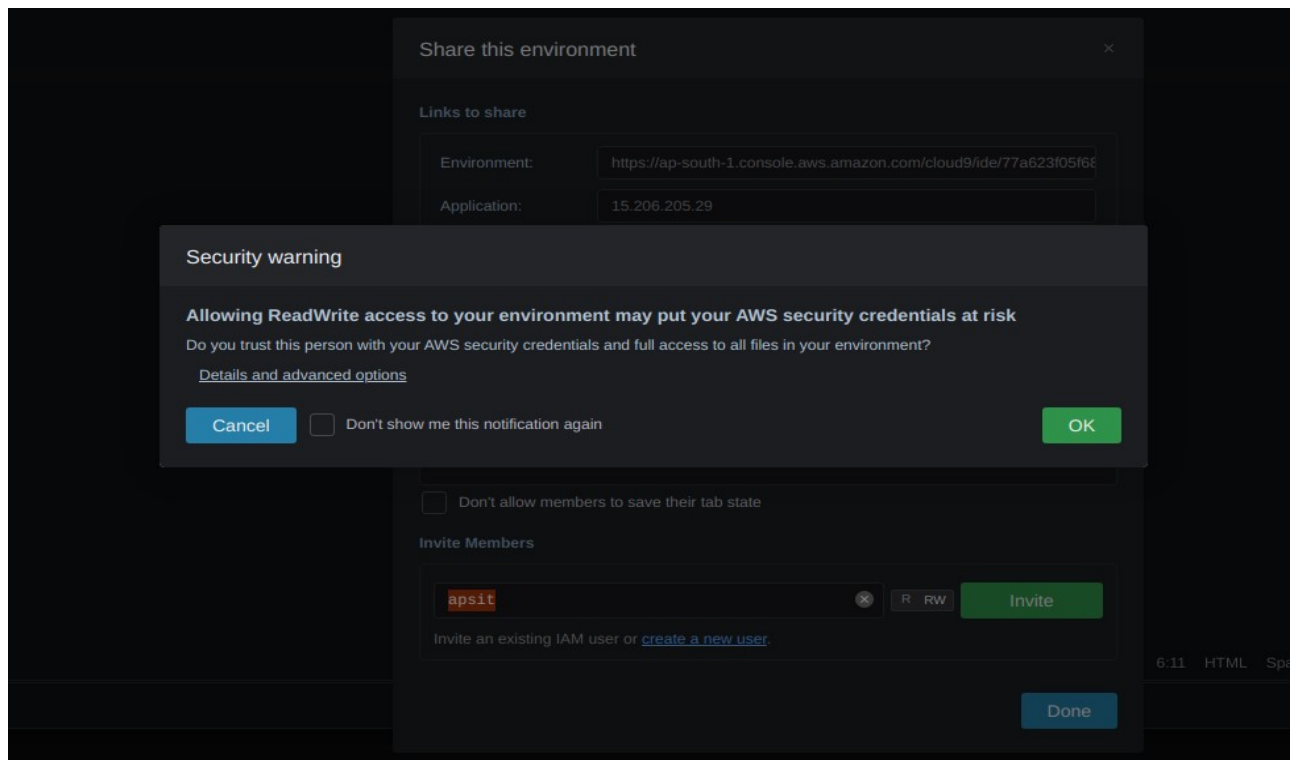
```
<!DOCTYPE html>
<html>
  <head>
    <title> Welcome to A.P.Shah Institute of Technology </title>
  </head>
  <body>
  </body>
</html>
```




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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 Incognito login with which you before.

☒ **IAM user**
User within an account that performs daily tasks.
[Learn more](#)

Account ID (12 digits) or account alias

229296960472

☐ Remember this account

Next

By continuing, you agree to the [AWS Customer Agreement](#) or other agreement for AWS services, and the [Privacy Notice](#). This site uses essential cookies. See our [Cookie Notice](#) for more information.

New to AWS?

Create a new AWS account

your Browsers Window and IAM user configured



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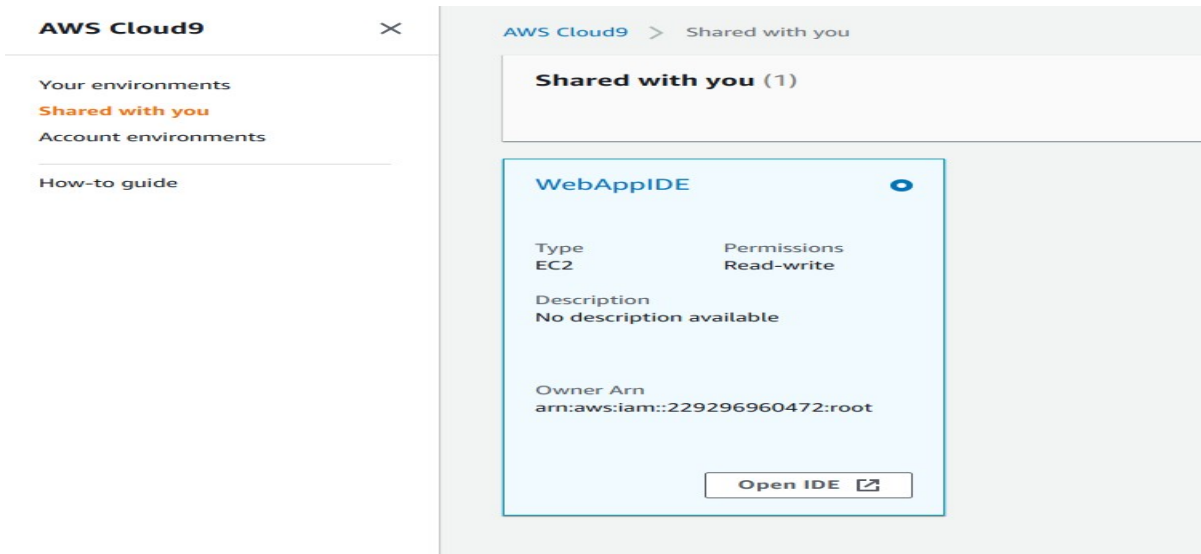
(NBA Accredited)



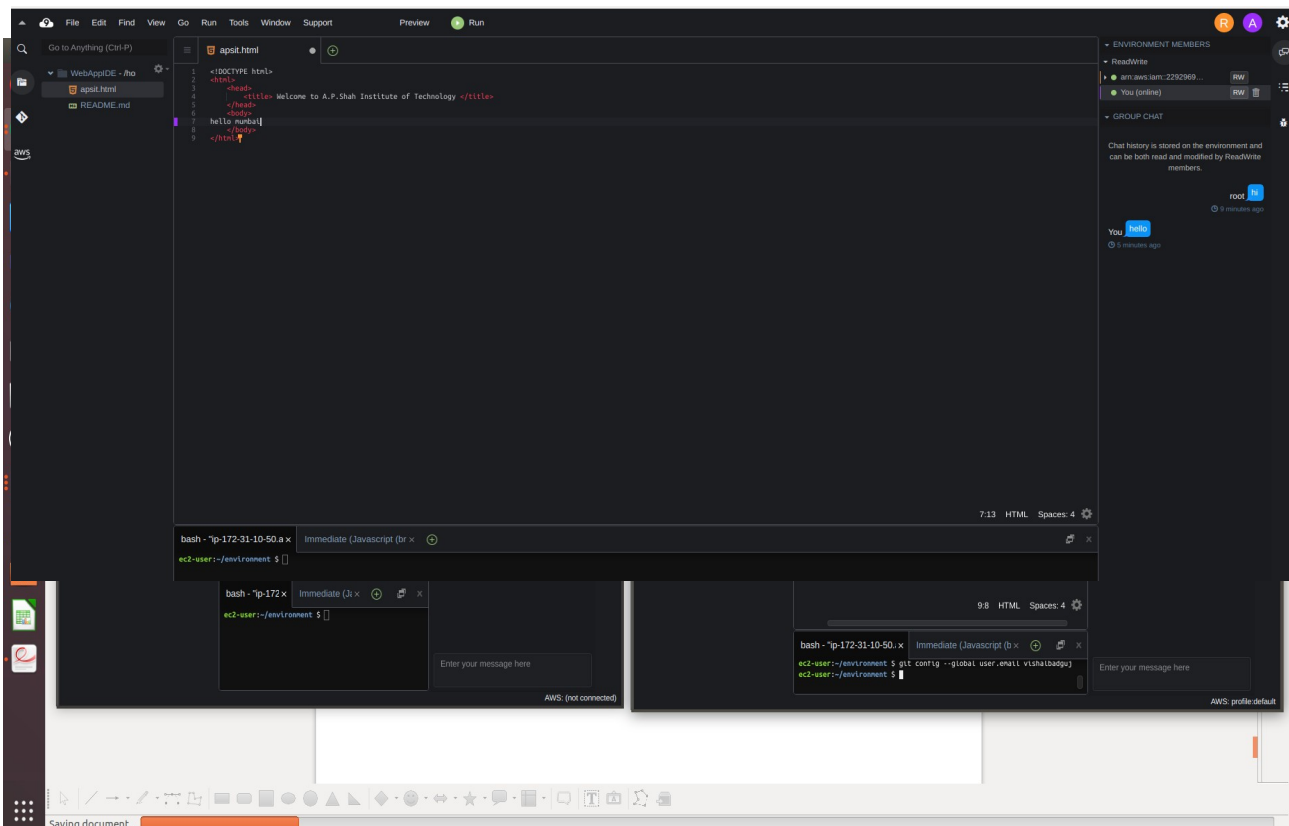
21. After Successful login with IAM user open Cloud9 service from dashboard services and click on shared with you environment to collaborate.



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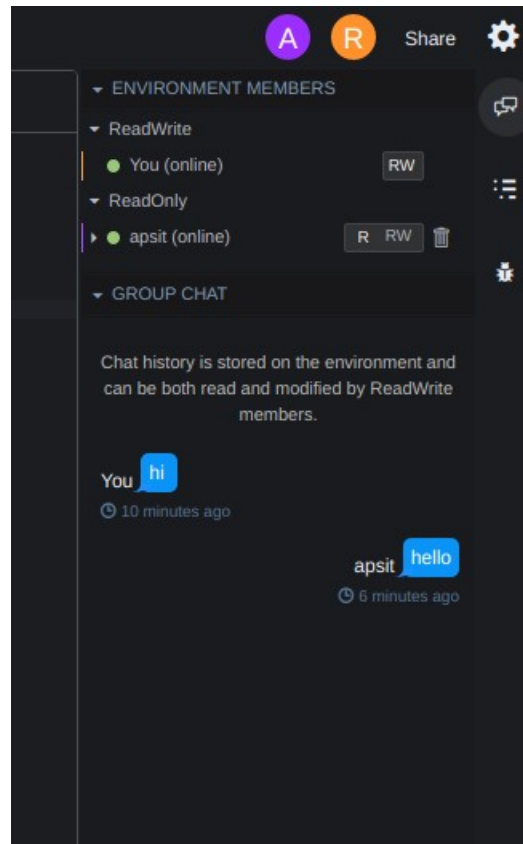
22. Click on Open IDE you will same interface as your other member have to collaborate in real time, also you all within team can do group chats as shown below:



24. you can also explore settings where you can update permissions of your temmates as from RW to R only or you can remove user too.



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For more info related to AWS-Cloud 9 you all can refer following Docs.

<https://docs.aws.amazon.com/cloud9/latest/user-guide/aws-cloud9-ug.pdf>

Conclusion:In this experiment, we understood about cloud infrastructure which have benefits like flexibility,scalability,cost-efficiency and easy to access . AWS cloud9 is a cloud based IDE that makes coding more easier. Also it supports real-time collaboration,so that multiple developers can work on the same code together from different place. By doing setting and using AWS cloud9 , we can code, run and debug the applications in the cloud easily .