1. **Setup Cloud9 IDE, Launch Cloud9 IDE and write and run a simple Python program**
2. **Setup Cloud9 IDE, Launch Cloud9 IDE and write and run a simple HTML script**

->Search EC2 and check if all instances are not running ->Services (top left) -> Developer tools -> Cloud9 -> Click on create environment -> Enter the name -> Keep all setting on default -> Create

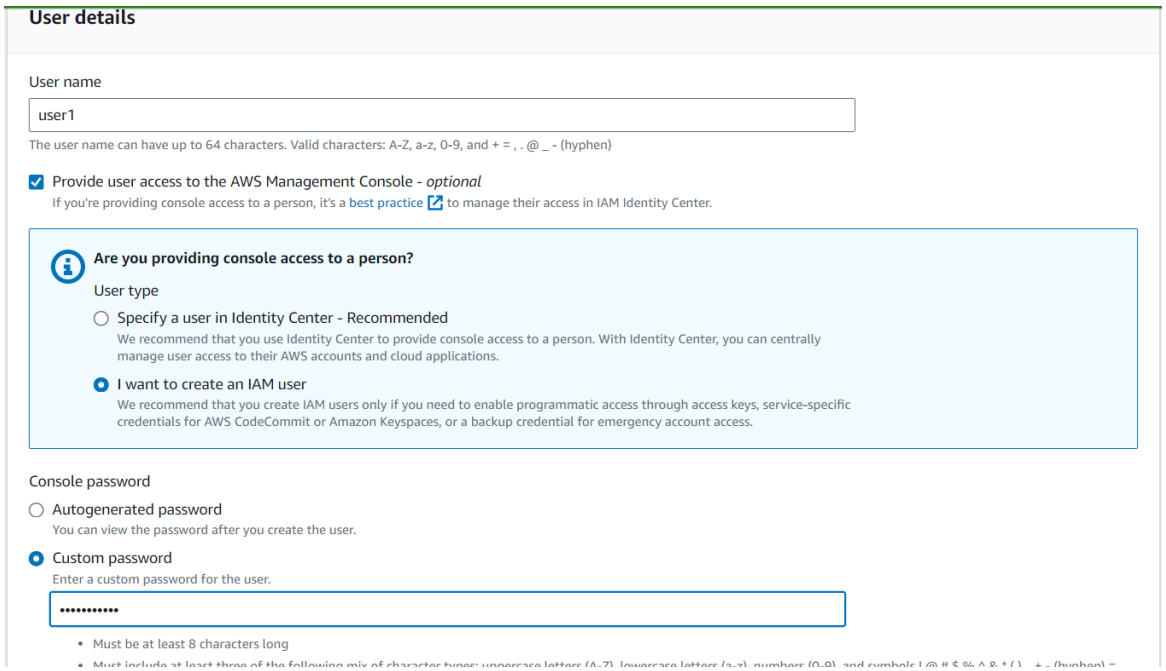
-> Search EC2 -> (There should be an Instance running) -> Search Cloud Formation ->Services (top left) -> Developer tools -> Cloud9 -> Click on open ->Create a new python file (hello.py) -> Print something ->Go to the previous page and delete environment

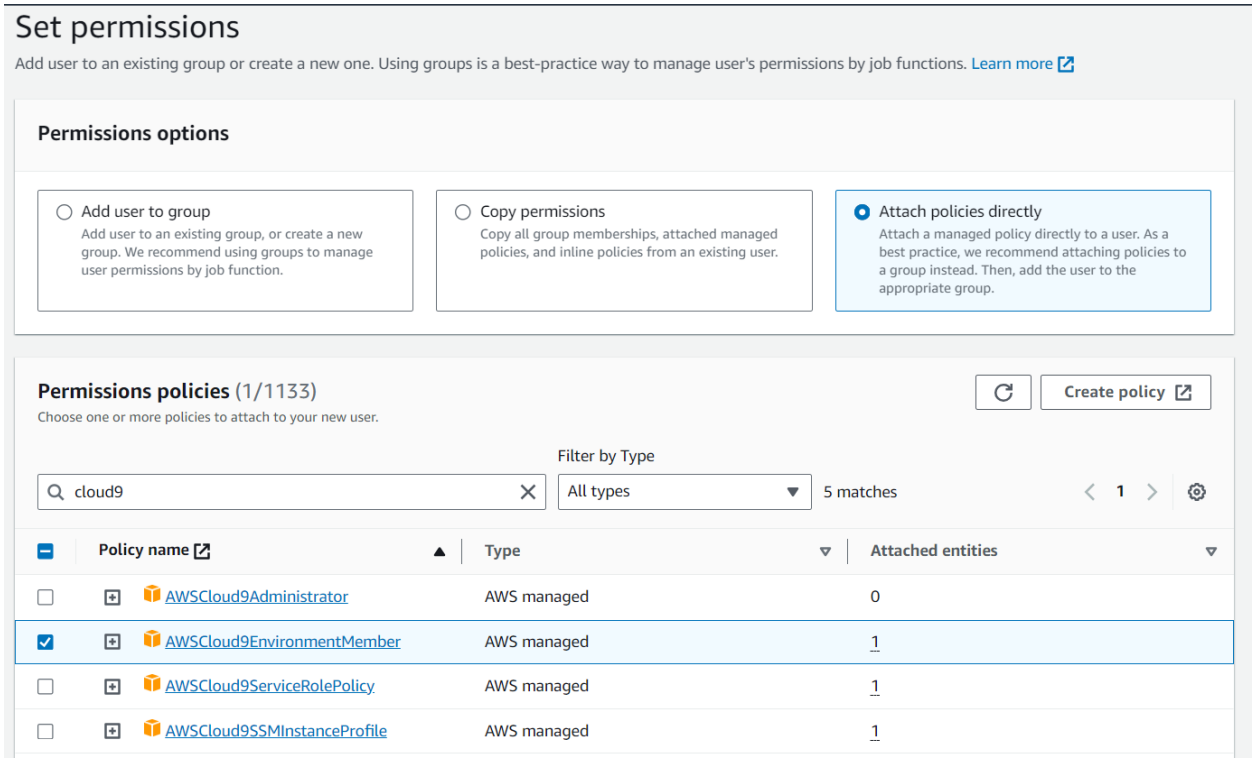
->Search Cloud9 -> Go to running instance -> Terminate instance

3. **Collaborate with other users from within cloud9 IDE.**
4. **Collaborate with other users and change access level for each user from within cloud9 IDE.**

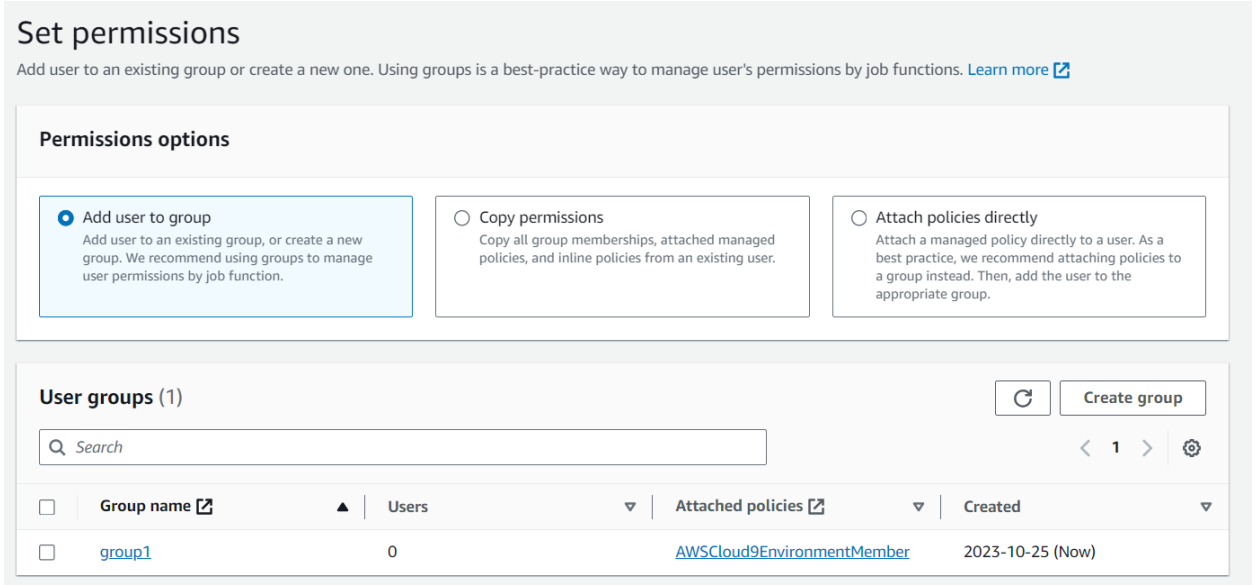
<u>Add Collaborators</u>

-> Search IAM -> Left col (user) -> Create User -> Create Group (make sure don't recreate the password)





Create group



->Create user -> Return to users list ->Cloud 9 -> open

```
nec2-user:~/environment $ npm --v
10.2.0
nec2-user:~/environment $ npm --v
10.2.0
ec2-user:~/environment $ git --version
git version 2.40.1
ec2-user:~/environment $ node --version
v18.17.1
ec2-user:~/environment $ python --version
Python 3.8.16
ec2-user:~/environment $
```

How to colab?

Click on File-> Create new template file -> Create a python file -> Edit and save

Click on share on top right -> share -> type username and add user -> Copy the epnvironment link and paste it in incognito

5. **Build an Application using AWS CodePipeline, deploy Sample Application on EC2 instance.**
6. **Build an Application using AWS CodePipeline, deploy Sample Application on EC2 instance, make changes to application code and deploy.**

   in S3 bucket ->create bucket
   give name and create

   go to iam user
   create role -> ec2 -> permission
   awselasticbeanstalkwebtier

   next give role name
   and create role

   open beanstalk-> environment
   create envirnoment
   give name
   platform -> php
   next
   use existing service role
   ec2 instance select role

next-next-create
after environment created

now go to code pipeline
create pipeline
github(version2)
connect to github

select repository
branch name-> master

skip build stage
deploy provider->elastic beanstalk

give environment name
next....
create pipeline

now in deploy->domain->done

7. **Install Terraform on Windows machine. Build, apply and destroy AWS EC2 using Terraform.**

8. **Test TypeScript code using SonarQube.**
9. **Test java code using SonarQube.**
10. **Test python code using SonarQube.**

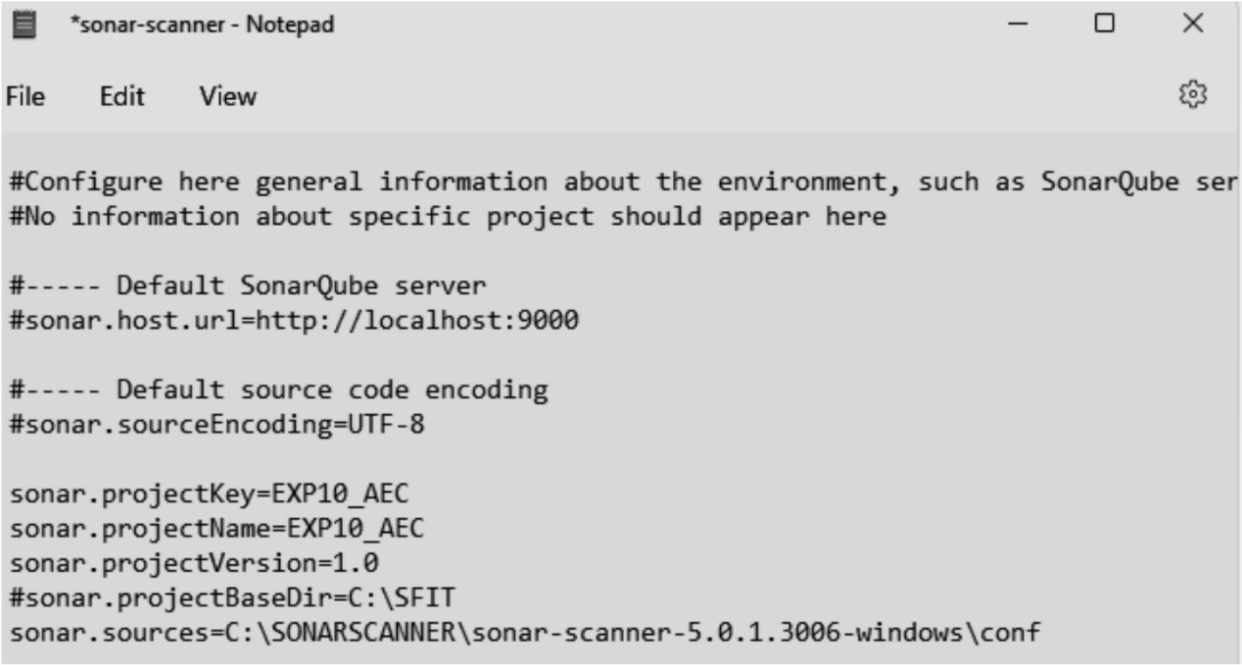
-> Go to https://www.sonarsource.com/products/sonarqube/downloads/ -> Download community edition -> Extract -> Go to bin -> Copy path -> Set the environment variable

->Go inside windows x64 dir, right click on start sonar -> Run as administrator -> Enter Project display name and project key -> branch main -> Next

-> Set up project for Clean as you Code -> Use the global setting (Radio) ->

->1Provide a token -> Generate project token -> (Token name) Analyze “Exp10_AEC” -> 30days -> Continue ->

-> Run analysis on your project ->



11. **Create Hello world Lambda function using Python.**
12. **Create Hello world Lambda function using Java.**
13. **Create Hello world Lambda function using Nodejs.**

-> Search Lambda -> Create Function -> Use a blueprint -> (Blueprint name) Hello world Python 3.7

(Execution role) -> Create a new role from AWS policy templates -> role name -> Create function

Test -> Configure test event -> Event name -> Edit event JSON

14. **Create AWS Lambda function to log "an object has been added" on adding the object to s3 bucket.**

```
import json
import boto3
s3=boto3.client('s3')
def lambda_handler(event,context):
    bucket="q14bucket"
    dataToUpload = {}
    dataToUpload['PID'] = '211121'
    dataToUpload['DEPT'] = 'INFT'
    dataToUpload['NAME'] = 'Brijraaj'
    dataToUpload['FILE'] = 'brij'
    fileName = 'brij' + '.json'
    uploadByteStream= bytes(json.dumps(dataToUpload).encode('UTF-8'))
    s3.put_object(Bucket=bucket,Key=fileName,Body=uploadByteStream)
print('an object has been added')
```

Search IAM -> Roles -> Create role -> (Usecase) Lambda -> Next

Permissions policies

CloudWatchFullAccess

AWSLambdaBasicExecutionRole

AmazonS3FullAccess

->Enter Role Name -> Create Role

->Search S3 -> Create Bucket -> Enter Bucket name -> Create

->Search Lambda -> Create function -> Enter name -> Python 3.7 -> Change default execution role -> Use an existing role -> role1->Create function

->After creating paste the code

Click on Deploy -> click test -> Invoke

15.Create AWS Lambda function to visualise invocations.

Search Lambda -> Create Function -> Use a blueprint -> (Blueprint name) Hello world Python 3.7

(Execution role) -> Create a new role from AWS policy templates -> role name -> Create function

Test -> Configure test event -> Event name -> Edit event JSON

Use invoke instead of run/save. Next go to monitor for visualization

16.Create AWS Lambda function to log "I got output".

Search Lambda -> Create new function Python 3.7 -> test it

17. **Create EC2 instance with following configurations- OS- Ubuntu (free tier)**

instance type-t2.micro

key pair-.ppk

1. connect to the created instance

2. display present working directory

-> Pwd

-> for superuser

sudo adduser <new-username>

sudo usermod -aG sudo <new-username>

sudo su - <new-username>

22. Deploy AWS Beanstalk environment

Go to AWS console -> Search IAM user -> Create role -> (Usecase (EC2) -> Next

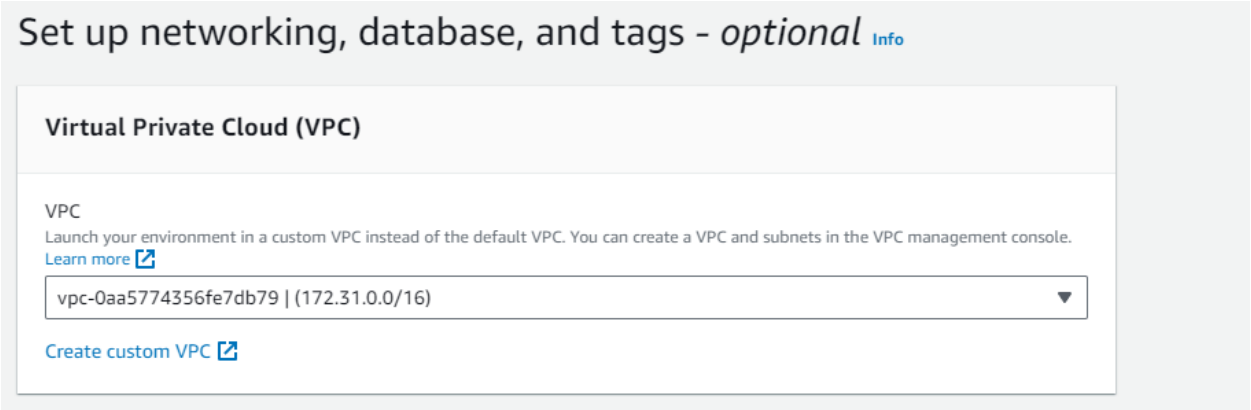
In policies select the following

AWSElasticBeanstalkWebTier

-> Click on next -> Enter role name -> Create Role

Search ElasticBeanStalk -> Create Application -> In Configure Environment -> Enter nameof application -> Scroll down to Choose platform -> Select PHP -> NExt

IN service -> Select Existing Role -> Select Role 4 -> In EC2 instance profile select Role4->Next



Select VPC -> Scroll down -> Select US-east-1-a (Instance Subnet) -> Next

Scroll down -> EC security groups -> Select Default -> Next

Next -> Submit

Open AWS in new tab -> Search Code PIpeline -> Create Pipeline -> Name pipeline -> V1

-> New Service Role -> Next

Add source stage

-Github (version 2) -> Connect to github -> -> Give connection some name -> connect to GitHub -> Authorize AWS connector for GitHub -> -> Install a new app -> Only select Repositories -> Select the repository -> Install -> Connect -Ready to connect Notification -> Select GitHub repository you want to use as the source location -> Branch name: master -> CodePipeline default -> Next

-> Skip build stage

Skip

-> Deploy provider -> Elastic Beanstalk -> Default Region -> appname -> env name -> next

Activate pipeline -> Review and create pipeline