St. Francis Institute of Technology, Mumbai-400 103
Department of Information Technology

A.Y. 2023-2024
Class: TE-ITA/B, Semester: V

Subject: **Advanced DevOps Lab**

Experiment – 3: A lambda function using cloud9 IDE and collaborate with other users over cloud9 IDE.

1. **Aim:** To create, deploy and invoke a lambda function using cloud9 IDE and collaborate with other users over cloud9 IDE.
2. **Objectives:** After study of this experiment, the student will be able to
   - Create lambda function and use s3 bucket to deploy code and invoke lambda function through terminal.
   - Use existing lambda function and make changes, upload and invoke it.
   - Debug lambda function in the IDE
   - Collaborate with other users.
3. **Lab objective mapped : ITL504.1:** To understand the fundamentals of Cloud Computing and be fully proficient with Cloud based DevOps solution deployment options to meet your business requirements.
4. **Prerequisite:** Fundamentals of IDE
5. **Requirements:** Computer, Windows operating system, Internet Connection, web browser, AWS cloud account.

6. **Pre-Experiment Exercise:**

Brief Theory:(write in hand)

Cloud9 IDE

AWS Lambda

IAM

7. **Laboratory Exercise**
   Create, deploy and invoke a lambda function
   1. AWS lambda console, check if no function present in youir account.

   2. Go to aws explorer of cloud9 IDE
   3. create lambda SAM application
   4. select python 3.7 version
   5. select SAM hello world basic app
   6. select work env folder
   7. give name to your application
   8. from folder open to app.py lambda python file

9. make changes to this file
10. save and deploy

11. select s3 bucket to deploy code
12. create and name your own bucket

13. create cloud formation stack

14. terminal window will show stack updated status.
15. from IDE

16. right click o lambda function
17. select invoke on AWS
18. check s3 for new bucket.

Creating IAM user for collaboration
1. In other tab -Open IAM Identity and Access Management to Add User.
2. Give user console access , Provide user with custom password.
3. **Create group from IAM**
4. **Provide group name and click on create group.**
5. **Navigate to user Groups from left pane in IAM.**
6. click on your group name which you have created and nevigate to permission tab
7. Add permission and select Attach Policy after that search for Cloud9 related policy and select **Awscloud9EnviornmentMember** policy and add it.
8. Move towards cloud9 IDE Enviornment tab
9. Coud9 IDE has 1. file organiser, 2. coding window and 3. aws integrated CLI with some preinstalled softwares like git, node, python.
10. for command operations: check git, node and python version, iam user details etc.
11. Lets setup collaborative enviornment
12. Click on File - choose from template, select html file to collaborate.
13. Edit html file and save it
14. Share this file to collaborate with other members of the team. Click on Share option on Top Right Pane, write username which you created in IAM , check the accesses given (RW) and send Invite. Click on Done. Click OK for Security warning.
15. Now Open your Browsers Incognito Window and login with IAM user which you configured before.
16. After Successful login with IAM user open Cloud9 service from dashboard services and click on *shared with you enviornment* to collaborate.
17. Click on Open IDE you will see same interface as your other member have to collaborate in real time, also you all within team can do group chats
18. You can also explore settings where you can update permissions of your teammates as from RW to R only or you can remove user too.

8. **Post-Experiments Exercise**
   A. **Extended Theory:** (attach SS)
      ● Download existing lambda function, make changes and save changes.

● Change IDE font size

B. Questions:(write in hand)

Q.1What is the pricing for AWS Cloud9 free tier?

Q. 2 Match the following (after print wiith black pen)

Sr No	Item 1		Item 2
1	command line tools		amazon chime sdk android
2	communication & collaboration SDK		WebStorm
3	AWS devops & automation		power shell
4	IDE & IDE Toolkits		AWS Code Pipeline

C. Conclusion:(Write in Hand)

1. Write what was performed in the experiment
2. Mention few applications of what was studied.
3. Write the significance of the studied topic

D. References:

a. https://docs.aws.amazon.com/cloud9/latest/user-guide/aws-cloud9-ug.pdf
b. https://aws.amazon.com/cloud9/faqs/
c. https://aws.amazon.com/developer/tools/

Step 1
Specify user details

Step 2
Set permissions

Step 3
Review and create

Step 4
Retrieve password

Set permissions

Add user to an existing group or create a new one. Using groups is a best-practice way to manage user's permissions by job functions. Learn more ↗

Permissions options

○ **Add user to group**
Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.

○ **Copy permissions**
Copy all group memberships, attached managed policies, and inline policies from an existing user.

● **Attach policies directly**
Attach a managed policy directly to a user. As a best practice, we recommend attaching policies to a group instead. Then, add the user to the appropriate group.

Permissions policies (1/1112)
Choose one or more policies to attach to your new user.

[↻]   [Create policy ↗]

Filter by Type

[🔍 awscloud9environment ✕]   [All types ▾]   1 match   ‹ 1 ›   ⚙

☑	Policy name ↗ ▲	Type ▽	Attached entities ▽
☑ ⊞ 🟧 AWSCloud9EnvironmentMember	AWS managed	0

▶ **Set permissions boundary - optional**

Cancel   Previous   Next

Review and create

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

User details

User name	Console password type	Require password reset
exp3user1	Custom password	No

Permissions summary

‹ 1 ›

Name ↗ ▲	Type ▽	Used as ▽
AWSCloud9EnvironmentMember	AWS managed	Permissions policy

Tags - optional

Tags are key-value pairs you can add to AWS resources to help identify, organize, or search for resources. Choose any tags you want to associate with this user.

No tags associated with the resource.

[Add new tag]

You can add up to 50 more tags.

Cancel   Previous   Create user

User name	Password	Console sign-in URL				
r1	Darish@1	https://236065583350.signin.aws.amazon.com/console				

✓ **User created successfully**
You can view and download the user's password and email instructions for signing in to the AWS Management Console.

View user

IAM > Users > Create user

Step 1
Specify user details

Step 2
Set permissions

Step 3
Review and create

Step 4
Retrieve password

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
⧉ https://236065583350.signin.aws.amazon.com/console

User name
⧉ exp3user1

Console password
⧉ ************** Show

Download .csv file   Return to users list

Share this environment

×

Links to share

Environment: https://us-east-1.console.aws.amazon.com/cloud9/ide/0e0f2d8a40f64

Security warning

Allowing ReadWrite access to your environment may put your AWS security credentials at risk

Do you trust this person with your AWS security credentials and full access to all files in your environment?

Details and advanced options

Cancel   ☐ Don't show me this notification again   OK

☐ Don't allow members to save their tab state

Python   Spaces: 4

on 3   CWD   E

Invite Members

| exp3user1 | ✕ | R RW | Invite |

Invite an existing IAM user or create a new user.

Done

Environment member added   ×

Environment member added

You have granted exp3user1 ReadWrite access to this environment!

OK

E R **Share** ⚙

▾ ENVIRONMENT MEMBERS

▾ **ReadWrite**

● You (online)   RW

● exp3user1 (online)   R RW 🗑

▾ GROUP CHAT

Chat history is stored on the environment and can be both read and modified by ReadWrite members.

exp3user1 hello
🕐 3 minutes ago

You hi
🕐 2 minutes ago

Incognito

R E ⚙

▾ ENVIRONMENT MEMBERS

▾ **ReadWrite**

▸ ● arn:aws:iam::2360655...   RW

● You (online)   RW 🗑

▾ GROUP CHAT

Chat history is stored on the environment and can be both read and modified by ReadWrite members.

You hello
🕐 3 minutes ago

root hi
🕐 3 minutes ago