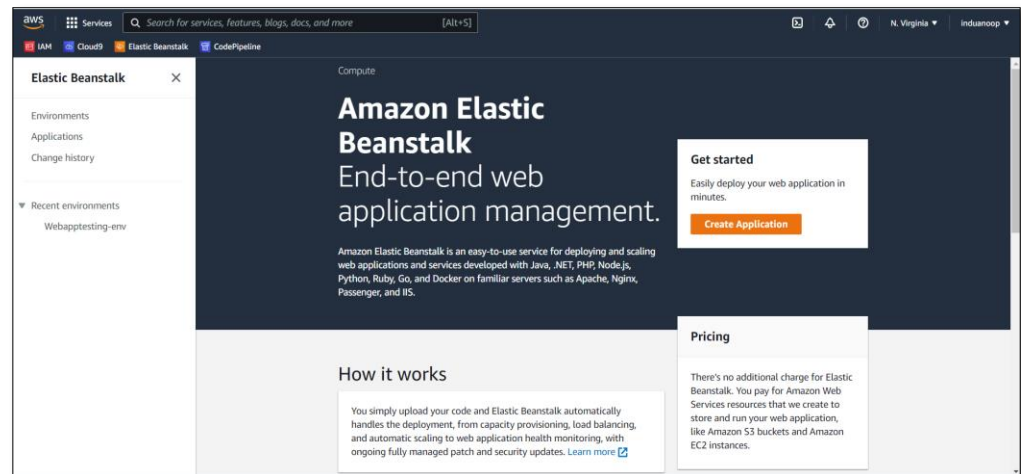


Semester	T.E. Semester V – Information Technology
Subject	Advance DevOps Lab
Subject Professor In-charge	Prof. Indu Anoop
Laboratory	(Leave blank for now)

Student Name		
Roll Number		
Grade and Subject Teacher's Signature		

Experiment	2	
Problem Statement	To Build Your Application using AWS CodeBuild and Deploy on S3 / SEBS using AWS CodePipeline, deploy Sample Application on EC2 instance using AWS CodeDeploy.	
Resources / Apparatus Required	Hardware: Computer System	Software: Web Browser
Details	<p>Theory: Continuous deployment allows you to deploy revisions to a production environment automatically without explicit approval from a developer, making the entire software release process automated. You will create the pipeline using AWS CodePipeline, a service that builds, tests, and deploys your code every time there is a code change. You will use your GitHub account, an Amazon Simple Storage Service (S3) bucket, or an AWS CodeCommit repository as the source location for the sample app's code. You will also use AWS Elastic Beanstalk as the deployment target for the sample app. Your completed pipeline will be able to detect changes made to the source repository containing the sample app and then automatically update your live sample app</p>	
Code	<p>Steps:</p> <p>Step1: Create a deployment environment</p> <p>Your continuous deployment pipeline will need a target environment containing virtual servers, or Amazon EC2 instances, where it will deploy sample code. You will prepare this environment before creating the pipeline. To simplify the process of setting up and configuring EC2</p>	

instances for this experiment, you will spin up a sample environment using AWS Elastic Beanstalk. Elastic Beanstalk lets you easily host web applications without needing to launch, configure, or operate virtual servers on your own. It automatically provisions and operates the infrastructure (e.g., virtual servers, load balancers, etc.) and provides the application stack (e.g., OS, language and framework, web, and application server, etc.) for you.



Elastic Beanstalk

Environments

Applications

Change history

Recent environments

Webapptesting-env

Elastic Beanstalk

Getting started

Create a web app

Create a new application and environment with a sample application or your own code. By creating an environment, you allow Amazon Elastic Beanstalk to manage Amazon Web Services resources and permissions on your behalf. [Learn more](#)

Application information

Application name

MyEBSWebApp

Up to 100 Unicode characters, not including forward slash (/).

Application tags

Apply up to 50 tags. You can use tags to group and filter your resources. A tag is a key-value pair. The key must be unique within the resource and is case-sensitive. [Learn more](#)

Key

Value

EBS

CICD

Remove tag

Add tag

49 remaining

Platform

Platform

Tomcat

Platform branch

Tomcat 8.5 with Corretto 11 running on 64bit Amazon Linux 2

Platform version

4.2.17 (Recommended)

Application code

☒ Sample application

Get started right away with sample code.

☐ Upload your code

Upload a source bundle from your computer or copy one from Amazon S3.

Cancel

Configure more options

Create application

Elastic Beanstalk will begin creating a sample environment for you to deploy your application to. It will create an Amazon EC2 instance, a security group, an Auto Scaling group, an Amazon S3 bucket, Amazon CloudWatch alarms, and a domain name for your application. Note: This will take several minutes to complete.

RWS

Services

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Elastic Beanstalk

Environments

MyEBSWebApp

Change history

MyEBSWebApp

Application versions

Saved configurations

MyEBSWebApp-env

Go to environment

Configuration

Logs

Elastic Beanstalk

Environments

MyEBSWebApp-env

MyEBSWebApp-env-eba-pgacepu-ur-east-1.elasticbeanstalk.com (e-2kpk8hd4v)

Application name: MyEBSWebApp

Refresh

Actions

Health

Ok

Causes

Running version

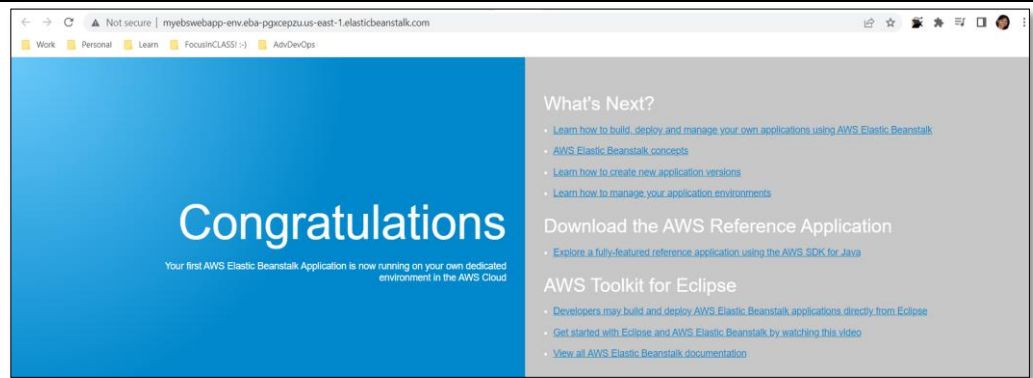
Sample Application

Upload and deploy

Platform

Tomcat 8.5 with Corretto 11 running on 64bit Amazon Linux 2/4.2.17

Change



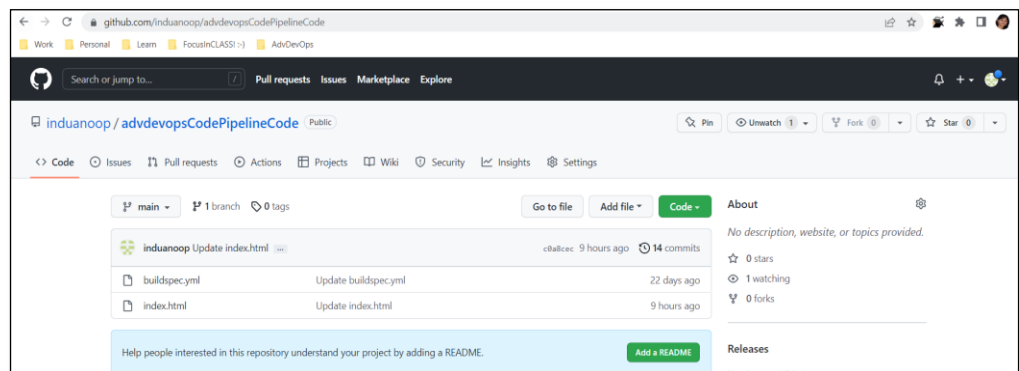
Step2: Get a copy of the sample code

In this step, you will retrieve a copy of the sample app's code and choose a source to host the code. The pipeline takes code from the source and then performs actions on it. You can use one of three options as your source:

- a **GitHub repository**,
- an Amazon S3 bucket, or
- an AWS CodeCommit repository.

A sample project's GitHub repository can be created in your GitHub account, or you can fork(clone) the following GitHub repository. (Ensure there is a buildspec.yml file in your repository for the Build Phase)

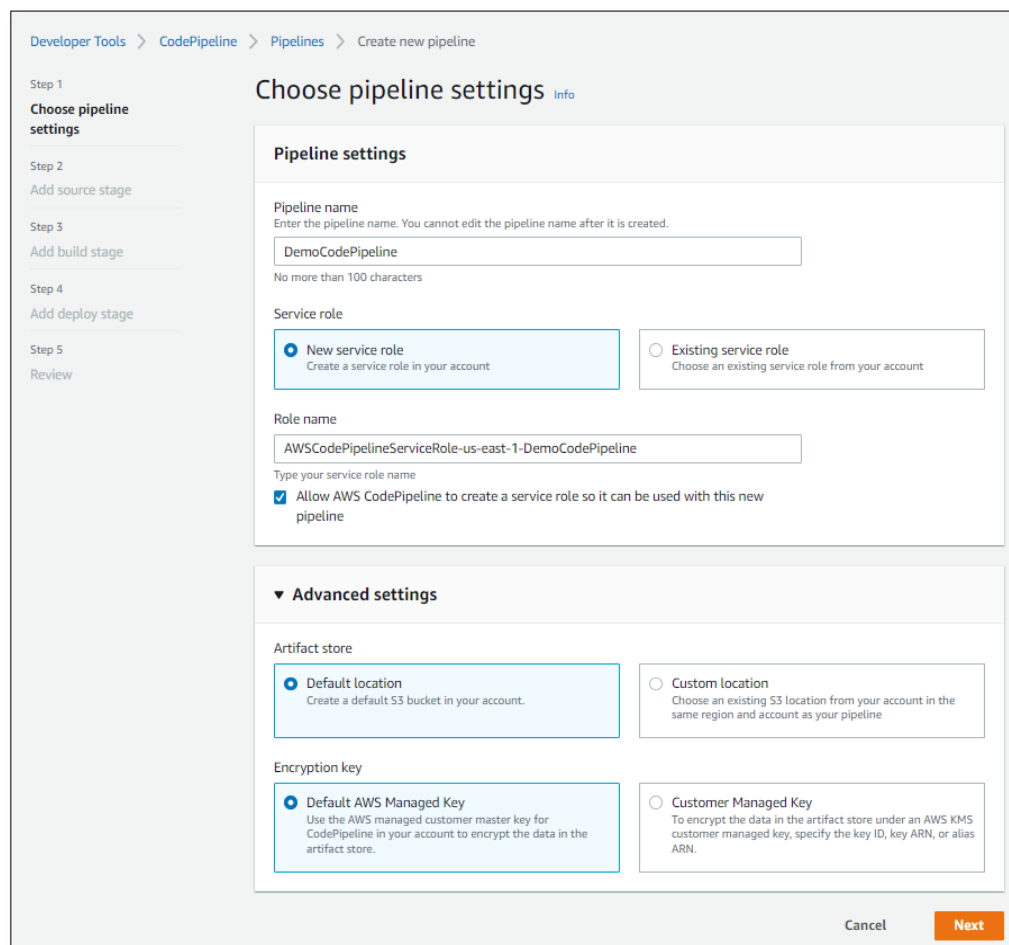
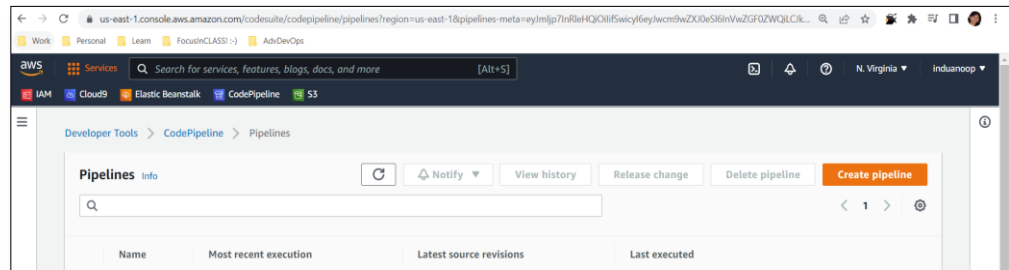
<https://github.com/induanoop/advdevopsCodePipelineCode.git>



Step3: Create your Pipeline

In this step, you will create and configure a CI/CD pipeline. You will provide CodePipeline with the locations of your source repository [In this case GitHub repository] and deployment environment [AWS Elastic Beanstalk environment created in Step 1]. A true continuous deployment pipeline

requires a build stage before deployment, where code is compiled, and unit tested. CodePipeline lets you plug your preferred build provider [although optional, we will be using AWS CodeDeploy] into your pipeline



Step 1
Choose pipeline settings

Step 2
Add source stage

Step 3
Add build stage

Step 4
Add deploy stage

Step 5
Review

Add source stage Info

Source

Source provider

This is where you stored your input artifacts for your pipeline. Choose the provider and then provide the connection details.

GitHub (Version 2) ▼



New GitHub version 2 (app-based) action

To add a GitHub version 2 action in CodePipeline, you create a connection, which uses GitHub Apps to access your repository. Use the options below to choose an existing connection or create a new one. [Learn more](#)

Connection

Choose an existing connection that you have already configured, or create a new one and then return to this task.

arn:aws:codestar-connections:us-east-1:011995079218:connection/69a8e23 X or [Connect to GitHub](#)



Ready to connect

Your GitHub connection is ready for use.

Repository name

Choose a repository in your GitHub account.

induanoop/advdevopsCodePipelineCode X

<account>/<repository-name>

Branch name

Choose a branch of the repository.

main X

Change detection options

☒ Start the pipeline on source code change

Automatically starts your pipeline when a change occurs in the source code. If turned off, your pipeline only runs if you start it manually or on a schedule.

Output artifact format

Choose the output artifact format.



CodePipeline default

AWS CodePipeline uses the default zip format for artifacts in the pipeline. Does not include git metadata about the repository.



Full clone

AWS CodePipeline passes metadata about the repository that allows subsequent actions to do a full git clone. Only supported for AWS CodeBuild actions.

Cancel

Previous

Next



Continue to CodePipeline

Create a new CodeBuild build project and return to CodePipeline to finish configuring your pipeline.

Create build project

Project configuration

Project name

A project name must be 2 to 255 characters. It can include the letters A-Z and a-z, the numbers 0-9, and the special characters - and _.

Description - optional

Enable concurrent build limit - optional

Limit the number of allowed concurrent builds for this project.

☐ Restrict number of concurrent builds this project can start

► Additional configuration

tags

Environment

Environment image

☒ Managed image

Use an image managed by AWS CodeBuild

☐ Custom image

Specify a Docker image

Operating system

Ubuntu ▼



The programming language runtimes are now included in the standard image of Ubuntu 18.04, which is recommended for new CodeBuild projects created in the console. See [Docker Images Provided by CodeBuild for details](#).

Runtime(s)

Standard ▼

Image

aws/codebuild/standard:4.0 ▼

Image version

Always use the latest image for this runtime version ▼

Environment type

Linux ▼

Privileged

☐ Enable this flag if you want to build Docker images or want your builds to get elevated privileges

Service role

☒ New service role

Create a service role in your account

☐ Existing service role

Choose an existing service role from your account

Developer Tools > CodePipeline > Pipelines > Create new pipeline

Step 1
Choose pipeline settings

Step 2
Add source stage

Step 3
Add build stage

Step 4
Add deploy stage

Step 5
Review

Add build stage Info

Build - optional

Build provider
This is the tool of your build project. Provide build artifact details like operating system, build spec file, and output file names.

AWS CodeBuild

Region

US East (N. Virginia)

Project name
Choose a build project that you have already created in the AWS CodeBuild console. Or create a build project in the AWS CodeBuild console and then return to this task.

Q DemoCodeBuild

or

Create project

Successfully created DemoCodeBuild in CodeBuild.

Environment variables - optional
Choose the key, value, and type for your CodeBuild environment variables. In the value field, you can reference variables generated by CodePipeline. [Learn more](#)

Add environment variable

Build type

☒ Single build
Triggers a single build.

☐ Batch build
Triggers multiple builds as a single execution.

Cancel

Previous

Skip build stage

Next

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CodePipeline 53

Developer Tools > CodePipeline > Pipelines > Create new pipeline

Step 1
Choose pipeline settings

Step 2
Add source stage

Step 3
Add build stage

Step 4
Add deploy stage

Step 5
Review

Add deploy stage Info

Deploy - optional

Deploy provider
Choose how you deploy to instances. Choose the provider, and then provide the configuration details for that provider.

AWS Elastic Beanstalk

Region

US East (N. Virginia)

Application name
Choose an application that you have already created in the AWS Elastic Beanstalk console. Or create an application in the AWS Elastic Beanstalk console and then return to this task.

Q MyEBSWebApp

Environment name
Choose an environment that you have already created in the AWS Elastic Beanstalk console. Or create an environment in the AWS Elastic Beanstalk console and then return to this task.

Q MyEBSWebApp-env

Cancel

Previous

Skip deploy stage

Next

us-east-1.console.aws.amazon.com/codesuite/codepip

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IAM Cloud9 Elastic Beanstalk CodePipeline S3

Developer Tools CodePipeline

- Source • CodeCommit
- Artifacts • CodeArtifact
- Build • CodeBuild
- Deploy • CodeDeploy
- Pipeline • CodePipeline
 - Getting started
 - Pipelines
 - Pipeline**
 - History
 - Settings
- Settings

Go to resource Feedback

DemoCodePipeline

Source Succeeded
Pipeline execution ID: 944f549f-69c1-4a22-aec9-332873bbfd04

Source
GitHub (Version 2) [Details](#)
Succeeded - 20 minutes ago
c0a8cec3 [Source: Update index.html](#) [...](#)

Disable transition

Build Succeeded
Pipeline execution ID: 944f549f-69c1-4a22-aec9-332873bbfd04

Build
AWS CodeBuild [Details](#)
Succeeded - 10 minutes ago
c0a8cec3 [Source: Update index.html](#) [...](#)

Disable transition

Deploy Succeeded
Pipeline execution ID: 944f549f-69c1-4a22-aec9-332873bbfd04

Deploy
AWS Elastic Beanstalk [Details](#)
Succeeded - 8 minutes ago
c0a8cec3 [Source: Update index.html](#) [...](#)

Services, features, blogs, docs, and more [Alt+S]

CodePipeline S3

Elastic Beanstalk Applications MyEBSWebApp

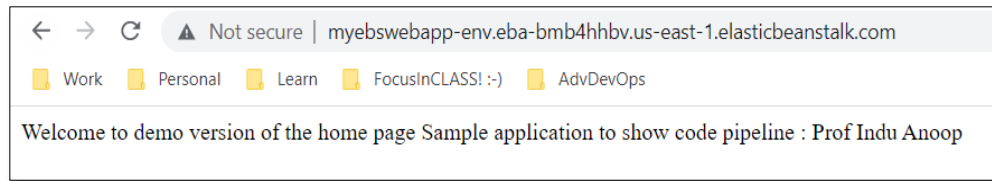
Actions

Application 'MyEBSWebApp' environments [Create a new environment](#)

Filter results matching the display values

Environment name	Health	Date created	Last modified	URL	Running versions	Platform	Platform state	Tier name
MyEBSWebApp-env	OK	2022-08-18 23:01:08 UTC-05:50	2022-08-19 01:42:50 UTC-05:30	MyEBSWebApp-env.eba-bmb4hhbw-us-east-1.elasticbeanstalk.com	code-pipeline-1660853500240-BuildArtifact-0d0da4ac-99fc-4337-8f27-222730695686	Tomcat 8.5 with Corretto 11 running on 64bit Amazon Linux 2	-	WebServer

You have successfully created an automated software release pipeline using AWS CodePipeline! Using CodePipeline, you created a pipeline that uses GitHub as the source location for application code and then deploys the code to an Amazon EC2 instance managed by AWS Elastic Beanstalk. Click on the Environment URL to view application.



Step 5: Commit a change to repository and view update of webpage

In this step, you will revise the sample code and commit the change to your GitHub repository. CodePipeline will detect your updated sample code and then automatically initiate deploying it to your EC2 instance via Elastic Beanstalk

CodePipeline
S3

Developer Tools > CodePipeline > Pipelines > DemoCodePipeline

DemoCodePipeline

Source
Succeeded
Pipeline execution ID: 35b1f491-08d4-45e8-8e3b-11004ea4cb42

Source
GitHub (Version 2)
Succeeded - 3 minutes ago
15e810b1

15e810b1 Source: Update index.html

Disable transition

Build
Succeeded
Pipeline execution ID: 35b1f491-08d4-45e8-8e3b-11004ea4cb42

Build
AWS CodeBuild
Succeeded - 1 minute ago
Details

15e810b1 Source: Update index.html

Disable transition

Deploy
Succeeded
Pipeline execution ID: 35b1f491-08d4-45e8-8e3b-11004ea4cb42

Deploy
AWS Elastic Beanstalk
Succeeded - Just now

15e810b1 Source: Update index.html

← → ↻ ⚠ Not secure | myebwebapp-env.eba-bmb4hhbv.us-east-1.elasticbeanstalk.com

Work Personal Learn FocusInCLASS! :) AdvDevOps

Welcome to demo version of the home page Sample application to show code pipeline : Prof Indu Anoop

	<p>Step 6: Clean up your resources</p> <p>To avoid future charges, you will delete all the resources you launched throughout this tutorial, which includes the pipeline, the Elastic Beanstalk application, and the source you set up to host the code.</p> <ol style="list-style-type: none">a. First, you will delete your pipeline:<ul style="list-style-type: none">• In the pipeline view, click Edit.• Click Delete.• Type in the name of your pipeline and click Delete.b. Second, delete your Elastic Beanstalk application:<ul style="list-style-type: none">• Visit the Elastic Beanstalk console.• Click Actions.• Then click Terminate Environment
Conclusion	<p>Successfully created an automated software release pipeline using AWS CodePipeline. Using CodePipeline, you created a pipeline that uses GitHub as the source location for application code and then deployed the code to an Amazon EC2 instance managed by AWS Elastic Beanstalk. The pipeline will automatically deploy the code every time there is a code change that is committed to the repository.</p>