

Module 9: Lambda Assignment

Problem Statement:

You work for XYZ Corporation. Your corporation wants to launch a new web-based application and they do not want their servers to be running all the time. It should also be managed by AWS. Implement suitable solutions.

Tasks To Be Performed:

1. Create a sample Python Lambda function.
2. Set the Lambda Trigger as SQS and send a message to test invocations.

Creating a lambda function

The screenshot shows the AWS Lambda console in the 'ap-south-1' region. The 'Create function' page is displayed, with the 'Author from scratch' option selected. The 'Basic information' section is visible, showing the function name 'demo-function-17-08-2024', the runtime 'Python 3.10', and the architecture 'x86_64'. The page includes a navigation bar with various AWS services and a footer with copyright information and links to Privacy, Terms, and Cookie preferences.

Browser tabs: Create function | Function: x, Create queue | Simple: x, Start Course | Intellipaat: x, ChatGPT: x, Gemini: x, +, -, , , x

Address bar: ap-south-1.console.aws.amazon.com/lambda/home?region=ap-south-1#/create/function?firstrun=true

Navigation bar: AWS Services, sqs, Mumbai, prakash24

Services: EC2, EC2 Image Builder, S3, IAM, VPC

Breadcrumbs: Lambda > Functions > Create function

Create function [Info](#)

Choose one of the following options to create your function.

- ☒ **Author from scratch**
Start with a simple Hello World example.
- ☐ **Use a blueprint**
Build a Lambda application from sample code and configuration presets for common use cases.
- ☐ **Container image**
Select a container image to deploy for your function.

Basic information

Function name
Enter a name that describes the purpose of your function.

demo-function-17-08-2024

Use only letters, numbers, hyphens, or underscores with no spaces.

Runtime [Info](#)
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.

Python 3.10

Architecture [Info](#)
Choose the instruction set architecture you want for your function code.

- ☒ x86_64
- ☐ arm64

Permissions [Info](#)

CloudShell Feedback

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lambda function created successfully

The screenshot shows the AWS Lambda console in the ap-south-1 region. A green notification banner at the top states: "Successfully created the function demo-function-17-08-2024. You can now change its code and configuration. To invoke your function with a test event, choose 'Test'." The main content area displays the function details for "demo-function-17-08-2024".

Function overview [Info](#)

Diagram **Template**

demo-function-17-08-2024

Layers (0)

+ Add trigger

+ Add destination

Export to Application Composer **Download**

Description

-

Last modified

5 seconds ago

Function ARN

[am:aws:lambda:ap-south-1:654654393526:function:demo-function-17-08-2024](#)

Function URL [Info](#)

-

Code **Test** **Monitor** **Configuration** **Aliases** **Versions**

CloudShell Feedback

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Deploying code in lambda function

The screenshot displays the AWS Lambda console interface. At the top, a green notification bar states: "Successfully created the function **demo-function-17-08-2024**. You can now change its code and configuration. To invoke your function with a test event, choose "Test".

The main content area is divided into tabs: **Code**, **Test**, **Monitor**, **Configuration**, **Aliases**, and **Versions**. The **Code** tab is active, showing the **Code source** section. A file explorer on the left shows the directory structure for **demo-function-17-0**, including a file named **lambda_function.py**.

The code editor displays the following Python code:

```
1 import json
2
3 def lambda_handler(event, context):
4     # TODO implement
5
6     for record in event['Records']:
7         # Get the message body from the SQS event
8         message_body = record['body']
9
10        # Process the message
11        print(f"Received message: {message_body}")
12
13    return {
14        'statusCode': 200,
15        'body': json.dumps('Hello from Lambda!')}
16
```

Below the code editor, the **Code properties** section is visible, showing fields for **Package size**, **SHA256 hash**, and **Last modified**.

The bottom of the screen shows the AWS footer with links for **CloudShell**, **Feedback**, and copyright information for Amazon Web Services, Inc. or its affiliates.

Creating SQS to trigger lambda function

The screenshot shows the AWS Management Console interface for creating a new Amazon SQS queue. The browser tabs at the top include 'demo-function-17-08-20', 'Create queue | Simple Q...', 'Start Course | Intellipaat', 'ChatGPT', and 'Gemini'. The address bar shows the URL 'ap-south-1.console.aws.amazon.com/sqs/v3/home?region=ap-south-1#/create-queue'. The console header features the AWS logo, a 'Services' menu, a search bar, and navigation links for EC2, EC2 Image Builder, S3, IAM, and VPC. The user's location is set to 'Mumbai' and their name is 'prakash24'. The breadcrumb trail indicates the path: 'Amazon SQS > Queues > Create queue'. The main heading is 'Create queue'. Under the 'Details' section, the 'Type' is being selected. The 'Standard' option is chosen, with a description: 'At-least-once delivery, message ordering isn't preserved'. It lists 'At-least once delivery' and 'Best-effort ordering' as characteristics. The 'FIFO' option is also visible, with a description: 'First-in-first-out delivery, message ordering is preserved'. It lists 'First-in-first-out delivery' and 'Exactly-once processing' as characteristics. A warning message states: 'You can't change the queue type after you create a queue.' Below this, the 'Name' field is filled with 'my-demo-sqs-for-lambda'. A note explains: 'A queue name is case-sensitive and can have up to 80 characters. You can use alphanumeric characters, hyphens (-), and underscores (_).' The 'Configuration' section is partially visible at the bottom, with the instruction: 'Set the maximum message size, visibility to other consumers, and message retention.'

demo-function-17-08-20 x Create queue | Simple Q... x Start Course | Intellipaat x ChatGPT x Gemini x + -

ap-south-1.console.aws.amazon.com/sqs/v3/home?region=ap-south-1#/create-queue

aws Services Search [Alt+S]

EC2 EC2 Image Builder S3 IAM VPC

Mumbai prakash24

Amazon SQS > Queues > Create queue

Create queue

Details

Type

Choose the queue type for your application or cloud infrastructure.

☒ **Standard** [Info](#)
At-least-once delivery, message ordering isn't preserved

- At-least once delivery
- Best-effort ordering

☐ **FIFO** [Info](#)
First-in-first-out delivery, message ordering is preserved

- First-in-first-out delivery
- Exactly-once processing

i You can't change the queue type after you create a queue.

Name

my-demo-sqs-for-lambda

A queue name is case-sensitive and can have up to 80 characters. You can use alphanumeric characters, hyphens (-), and underscores (_).

Configuration

[Info](#)

Set the maximum message size, visibility to other consumers, and message retention.

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Adding a trigger in lambda function on SQS

The screenshot shows the AWS Lambda console in the 'Add triggers' section. The browser tabs include 'Add triggers | Lambda', 'Queue details | Simple C...', 'Start Course | Intellipaat', 'ChatGPT', and 'Gemini'. The URL is 'ap-south-1.console.aws.amazon.com/lambda/home?region=ap-south-1#/add/relation?focus=aws%2Flambda&target=arn%3Aaws%3AAlam...'. The AWS navigation bar shows 'Services' with a search for 'sqs' and icons for EC2, EC2 Image Builder, S3, IAM, and VPC. The user is logged in as 'prakash24' in the 'Mumbai' region.

Add trigger

Trigger configuration [Info](#)

SQS
aws event-source-mapping polling queue

SQS queue
Choose or enter the ARN of an SQS queue.

☒ **Activate trigger**
Select to activate the trigger now. Keep unchecked to create the trigger in a deactivated state for testing (recommended).

Batch size - optional
The number of records in each batch to send to the function.

The maximum is 10,000 for standard queues and 10 for FIFO queues.

Batch window - optional
The maximum amount of time to gather records before invoking the function, in seconds.

When the batch size is greater than 10, set the batch window to at least 1 second.

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trigger added in lambda function

demo-function-17 x demo-function-17 x Queue details | Sin x Start Course | Inte x ChatGPT x Gemini x + -

ap-south-1.console.aws.amazon.com/lambda/home?region=ap-south-1#/functions/demo-function-17-08-2024?tab=configure

aws Services sqs

EC2 EC2 Image Builder S3 IAM VPC

Mumbai prakash24

Lambda > Functions > demo-function-17-08-2024

demo-function-17-08-2024

Throttle Copy ARN Actions

✓ The trigger my-demo-sqs-for-lambda was successfully added to function demo-function-17-08-2024. The trigger is in a disabled state.

Function overview Info

Export to Application Composer Download

Diagram Template

demo-function-17-08-2024

Layers (0)

SQS

+ Add trigger

+ Add destination

Description

-

Last modified

9 minutes ago

Function ARN

am:aws:lambda:ap-south-1:654654393526:function:demo-function-17-08-2024

Function URL Info

-

Code Test Monitor Configuration Aliases Versions

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Testing lambda function sending message using SQS

The screenshot shows the AWS Management Console interface for an Amazon SQS queue named 'my-demo-sqs-for-lambda'. The browser's address bar shows the URL: `ap-south-1.console.aws.amazon.com/sqs/v3/home?region=ap-south-1#/queues/https%3A%2F%2Fsqs.ap-south-1.amazonaws.com%2F654...`. The console header includes the AWS logo, a search bar, and navigation links for EC2, EC2 Image Builder, S3, IAM, and VPC. The main content area is titled 'Send and receive messages' with a subtitle 'Send messages to and receive messages from a queue.'.

Send message [Info](#)

[Clear content](#) [Send message](#)

Your message has been sent and is ready to be received. [View details](#) [X](#)

Message body
Enter the message to send to the queue.

Delivery delay [Info](#)
 Seconds
Should be between 0 seconds and 15 minutes.

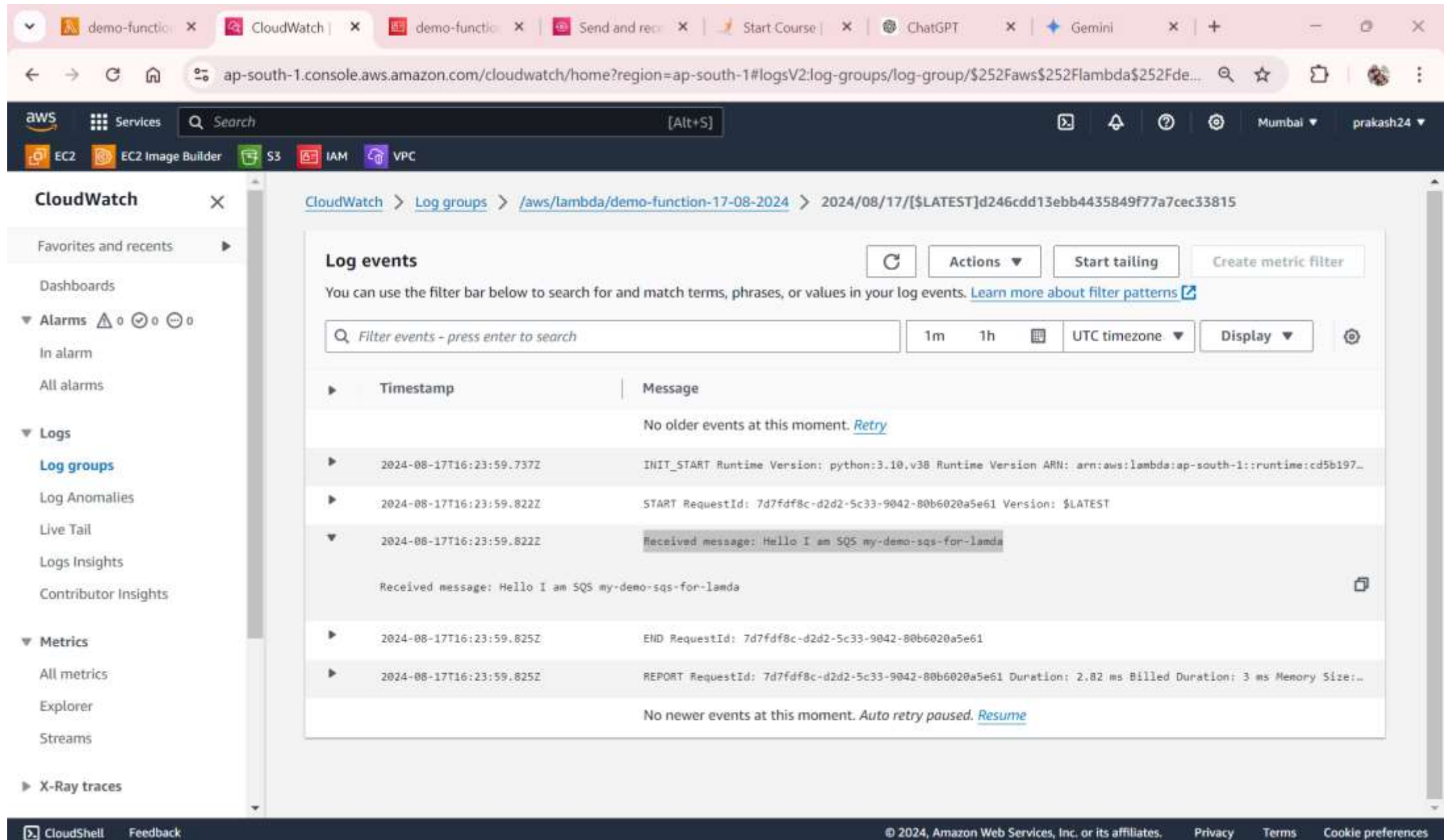
[Message attributes - Optional](#) [Info](#)

Receive messages [Info](#)

[Edit poll settings](#) [Stop polling](#) [Poll for messages](#)

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We can see the same message in log receive by lambda function



The screenshot displays the AWS CloudWatch console interface. The browser's address bar shows the URL: `ap-south-1.console.aws.amazon.com/cloudwatch/home?region=ap-south-1#logsV2:log-groups/log-group/$252Faws$252Flambda$252Fde...`. The AWS navigation bar at the top includes the AWS logo, a search bar, and service icons for EC2, EC2 Image Builder, S3, IAM, and VPC. The user's profile is identified as 'prakash24' in Mumbai.

The left-hand navigation pane is titled 'CloudWatch' and contains sections for 'Favorites and recents', 'Dashboards', 'Alarms' (with 0 active), 'Logs' (selected), 'Metrics', and 'X-Ray traces'. Under the 'Logs' section, 'Log groups' is highlighted.

The main content area shows the log group path: `CloudWatch > Log groups > /aws/lambda/demo-function-17-08-2024 > 2024/08/17/[$LATEST]d246cdd13ebb4435849f77a7cec33815`. The 'Log events' section includes a filter bar with the text 'Filter events - press enter to search', a time range selector set to '1m', a 'UTC timezone' dropdown, and a 'Display' dropdown. There are also buttons for 'Actions', 'Start tailing', and 'Create metric filter'.

The log events are displayed in a table with two columns: 'Timestamp' and 'Message'. The messages are as follows:

Timestamp	Message
2024-08-17T16:23:59.737Z	INIT_START Runtime Version: python:3.10.v38 Runtime Version ARN: arn:aws:lambda:ap-south-1::runtime:cd5b197...
2024-08-17T16:23:59.822Z	START RequestId: 7d7fdf8c-d2d2-5c33-9042-80b6020a5e61 Version: \$LATEST
2024-08-17T16:23:59.822Z	Received message: Hello I am SQS my-demo-sqs-for-lambda
2024-08-17T16:23:59.825Z	END RequestId: 7d7fdf8c-d2d2-5c33-9042-80b6020a5e61
2024-08-17T16:23:59.825Z	REPORT RequestId: 7d7fdf8c-d2d2-5c33-9042-80b6020a5e61 Duration: 2.82 ms Billed Duration: 3 ms Memory Size:...

The interface also includes a 'No older events at this moment. [Retry](#)' message at the top and a 'No newer events at this moment. Auto retry paused. [Resume](#)' message at the bottom.

The footer of the console shows 'CloudShell', 'Feedback', and copyright information: '© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences'.

Module 9: Elastic Beanstalk Assignment

Problem Statement:

You work for XYZ Corporation. Your corporation wants to launch a new web-based application and they do not want their servers to be running all the time. It should also be managed by AWS. Implement suitable solutions.

Tasks To Be Performed:

1. Create an Elastic Beanstalk environment with the runtime as PHP.
2. Upload a simple PHP file to the environment once created.

Creating web server environment for PHP

The screenshot shows the AWS Elastic Beanstalk console in the 'Configure environment' step. The browser address bar shows the URL: `ap-south-1.console.aws.amazon.com/elasticbeanstalk/home?region=ap-south-1#/create-environment`. The AWS navigation bar at the top includes the 'Services' menu, a search bar, and the user's profile 'prakash24'.

Step 1: Configure environment

Environment tier [Info](#)

Amazon Elastic Beanstalk has two types of environment tiers to support different types of web applications:

- ☒ **Web server environment**
Run a website, web application, or web API that serves HTTP requests. [Learn more](#)
- ☐ **Worker environment**
Run a worker application that processes long-running workloads on demand or performs tasks on a schedule. [Learn more](#)

Application information [Info](#)

Application name

Maximum length of 100 characters.

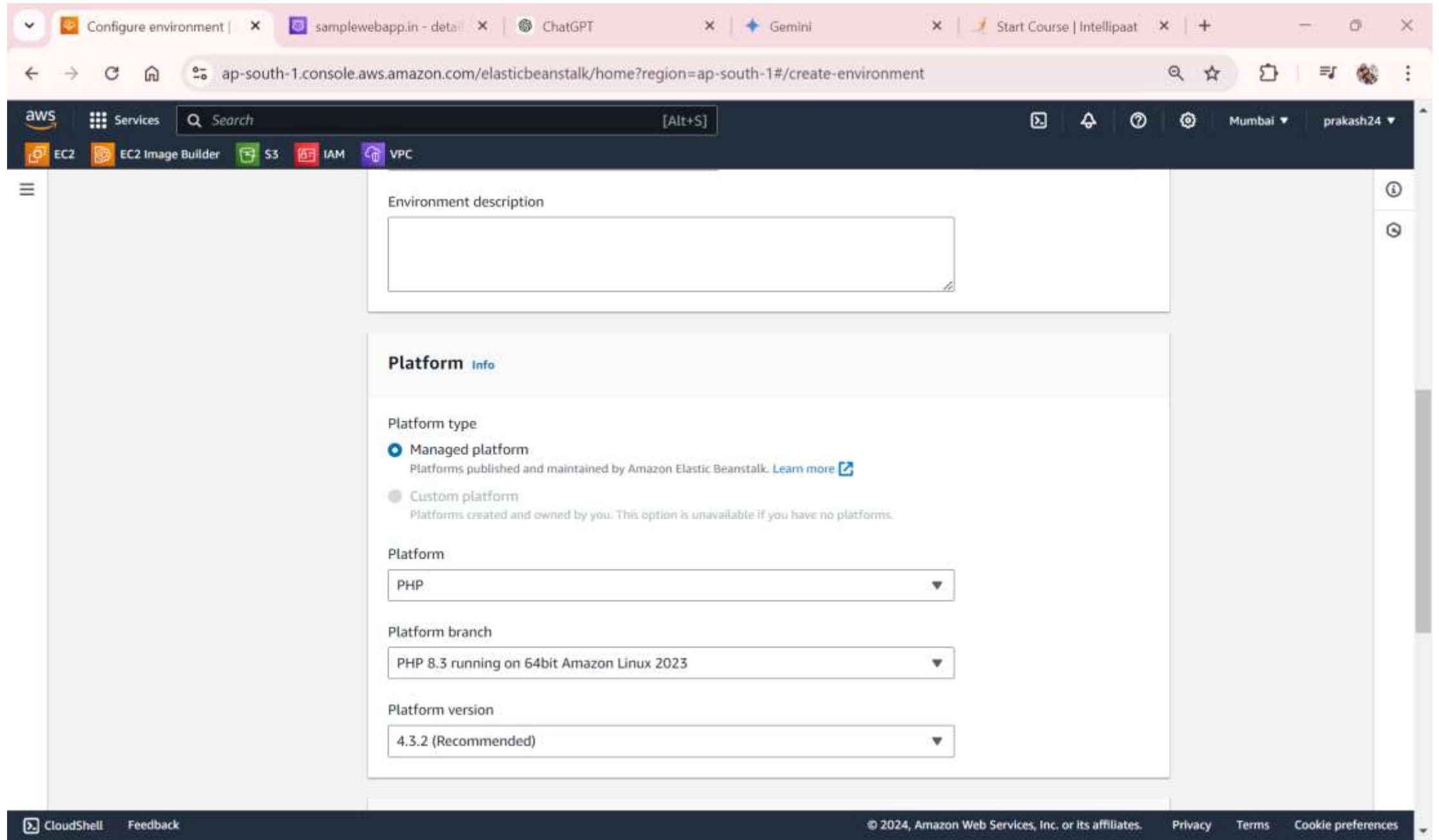
► **Application tags (optional)**

Environment information [Info](#)

Choose the name, subdomain and description for your environment. These cannot be changed later.

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Choosing Platform PHP for creating environment



Setting service access to provide access to elasticbeanstalk

The screenshot shows the AWS Management Console interface for configuring an Elastic Beanstalk environment. The browser address bar indicates the URL: `ap-south-1.console.aws.amazon.com/elasticbeanstalk/home?region=ap-south-1#/create-environment`. The console header includes the AWS logo, a search bar, and navigation links for various services like EC2, EC2 Image Builder, S3, IAM, and VPC. The user's location is set to Mumbai, and the account name is prakash24.

The main content area is titled "Configure service access" and is part of a multi-step process. The steps listed on the left are:

- Step 2: **Configure service access** (current step)
- Step 3 - optional: [Set up networking, database, and tags](#)
- Step 4 - optional: [Configure instance traffic and scaling](#)
- Step 5 - optional: [Configure updates, monitoring, and logging](#)
- Step 6: [Review](#)

The "Service access" section contains the following configuration options:

- Service role:** Two radio buttons are present: "Create and use new service role" (unselected) and "Use an existing service role" (selected).
- Existing service roles:** A text box displays "aws-elasticbeanstalk-service-role" with a refresh icon to its right.
- EC2 key pair:** A text box displays "Choose a key pair" with a refresh icon to its right.
- EC2 instance profile:** A text box displays "aws-elasticbeanstalk-ec2-roles" with a refresh icon to its right.

A "View permission details" button is located below the instance profile selection.

At the bottom of the configuration panel, there are four buttons: "Cancel", "Skip to review", "Previous", and "Next" (highlighted in orange).

The footer of the console includes links for "CloudShell", "Feedback", and copyright information: "© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences".

Web Application in ready to test

The screenshot displays the AWS Elastic Beanstalk console interface. At the top, a green banner indicates "Environment successfully launched." The main content area shows the details for the environment "Web-application-demo-env".

Environment overview

Health ✔ Ok	Environment ID e-htnsbckxwt
Domain Web-application-demo-env.eba-2bvkq4th.ap-south-1.elasticbeanstalk.com	Application name web-application-demo

Platform

Platform PHP 8.3 running on 64bit Amazon Linux 2023/4.3.2
Running version -
Platform state ✔ Supported

Events (12)

Filter events by text, property or value

The footer of the console shows the copyright notice: © 2024, Amazon Web Services, Inc. or its affiliates. Links for Privacy, Terms, and Cookie preferences are also present.

We can see the home page of application

Environment x PHP Application x Roles | IAM x samplewebap x ChatGPT x Gemini x Start Course x +

← → ↻ 🏠 ⚠ Not secure web-application-demo-env.eba-2bvkq4th.ap-south-1.elasticbeanstalk.com ☆ 📦 📄 👤 ⋮

Congratulations!

Your AWS Elastic Beanstalk *PHP* application is now running on your own dedicated environment in the AWS Cloud

You are running PHP version 8.3.7

This environment is launched with Elastic Beanstalk PHP Platform

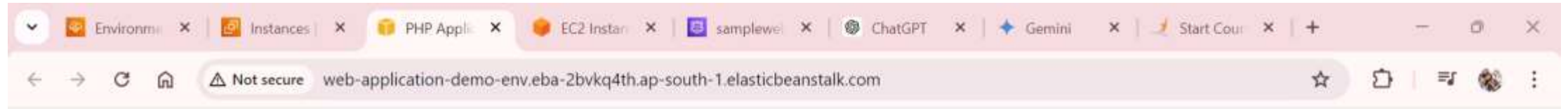
What's Next?

- [AWS Elastic Beanstalk overview](#)
- [Deploying AWS Elastic Beanstalk Applications in PHP Using Eb and Git](#)
- [Using Amazon RDS with PHP](#)
- [Customizing the Software on EC2 Instances](#)
- [Customizing Environment Resources](#)

AWS SDK for PHP

- [AWS SDK for PHP home](#)
- [PHP developer center](#)
- [AWS SDK for PHP on GitHub](#)

We can see the home page of application where we have did some changes



Welcome to PHP Web Application

Module 9: OpsWorks Assignment

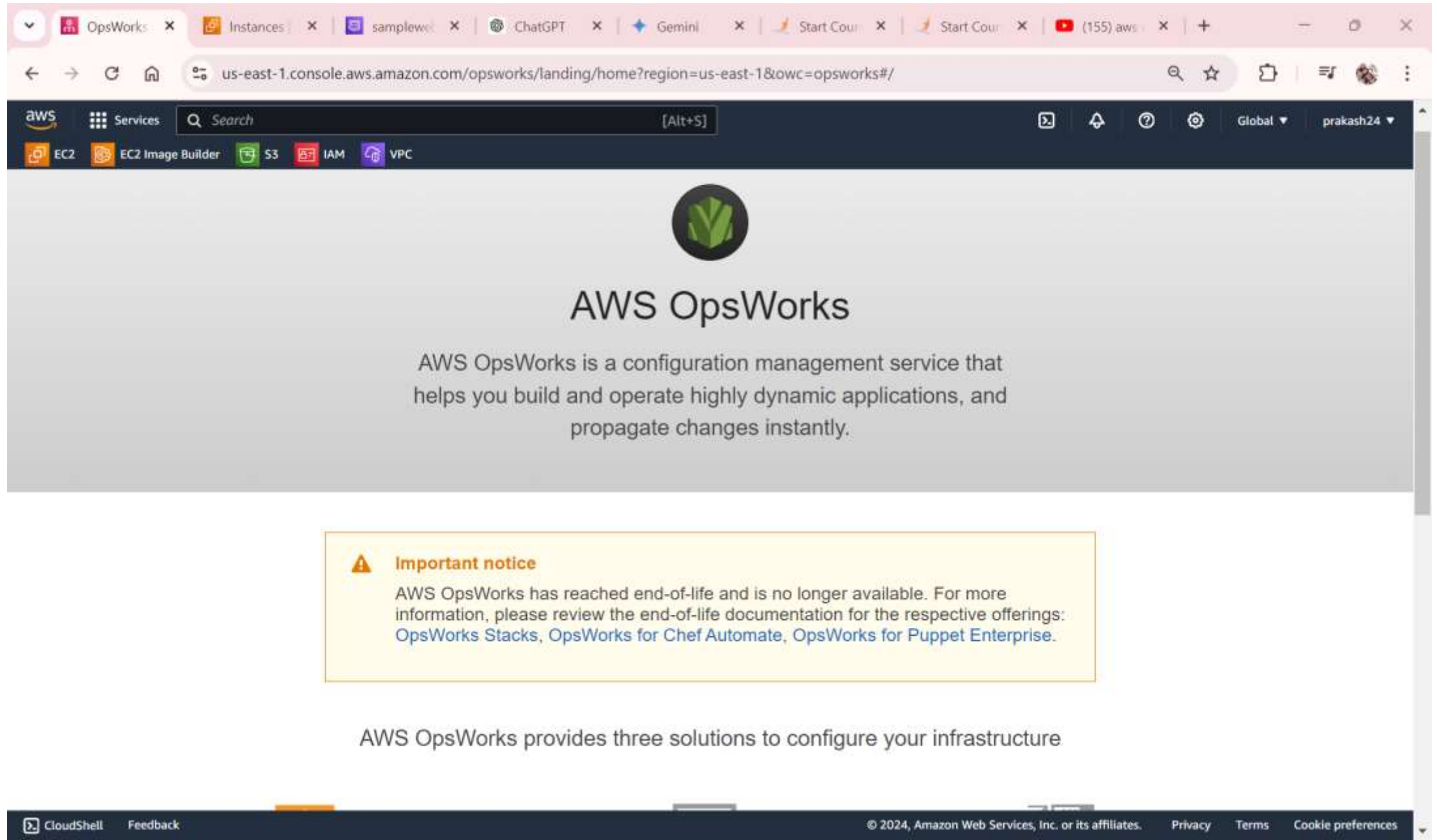
Problem Statement:

You work for XYZ Corporation. Your corporation wants to launch a new web-based application and they do not want their servers to be running all the time. It should also be managed by AWS. Implement suitable solutions.

Tasks To Be Performed:

1. Create an OpsWorks sample stack, start the instances and deploy the application.
2. Add 2 more t2.medium instances.
3. Make a change to the repository code and check if it reflects in all the instances.

This service is no longer in AWS




The screenshot shows the AWS OpsWorks landing page in a web browser. The browser's address bar displays the URL: `us-east-1.console.aws.amazon.com/opsworks/landing/home?region=us-east-1&owc=opsworks#/`. The AWS navigation bar at the top includes the AWS logo, a 'Services' menu, a search bar, and a user profile 'prakash24'. Below the navigation bar, the OpsWorks logo is centered, followed by the heading 'AWS OpsWorks'. A descriptive paragraph states: 'AWS OpsWorks is a configuration management service that helps you build and operate highly dynamic applications, and propagate changes instantly.' Below this, a yellow warning box with an exclamation mark icon contains the following text: 'Important notice: AWS OpsWorks has reached end-of-life and is no longer available. For more information, please review the end-of-life documentation for the respective offerings: [OpsWorks Stacks](#), [OpsWorks for Chef Automate](#), [OpsWorks for Puppet Enterprise](#).' At the bottom of the page, the text 'AWS OpsWorks provides three solutions to configure your infrastructure' is visible. The footer of the browser window shows 'CloudShell', 'Feedback', and copyright information for Amazon Web Services, Inc. or its affiliates, along with links for 'Privacy', 'Terms', and 'Cookie preferences'.

OpsWorks x Instances x samplew x ChatGPT x Gemini x Start Cour x Start Cour x (155) aws x +

us-east-1.console.aws.amazon.com/opsworks/landing/home?region=us-east-1&owc=opsworks#/?


aws Services Search [Alt+S]

EC2 EC2 Image Builder S3 IAM VPC



AWS OpsWorks

AWS OpsWorks is a configuration management service that helps you build and operate highly dynamic applications, and propagate changes instantly.

 **Important notice**

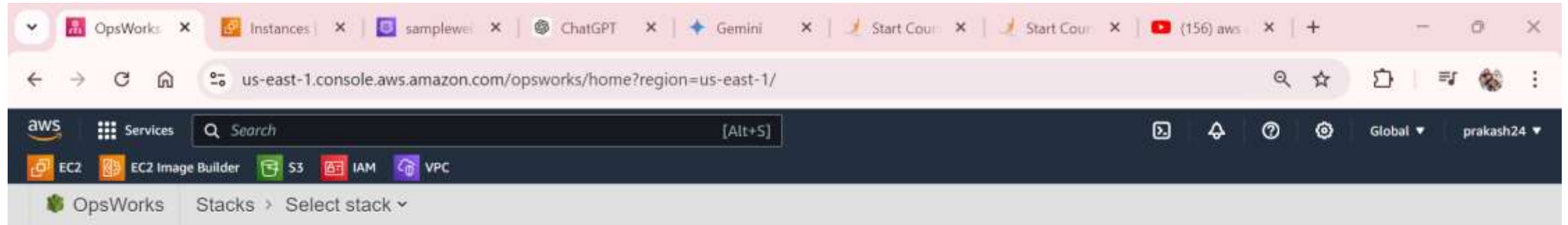
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AWS OpsWorks provides three solutions to configure your infrastructure

CloudShell Feedback

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This service is no longer in AWS



OpsWorks Stacks

Stacks

Users

OpsWorks for Chef Automate

Chef Automate servers

OpsWorks for Puppet Enterprise

Puppet Enterprise servers



Important notice

AWS OpsWorks Stacks reached end-of-life on 05/26/2024 and is no longer available. For more information, please review the AWS OpsWorks Stacks end of life documentation [here](#).