

OM SAKTHI

**ADHIPARASAKTHI COLLEGE OF ENGINEERING**  
(NAAC Accredited)

G. B. Nagar, Kalavai - 632 506, Ranipet District, Tamil Nadu.



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**CCS336-CLOUD SERVICES MANAGEMENT**

Name :

Reg.No:

Year/Semester :

OM SAKTHI

**ADHIPARASAKTHI COLLEGE OF ENGINEERING**  
**(NAAC Accredited)**

G. B. Nagar, Kalavai - 632 506, Ranipet District, Tamil Nadu.

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**



Name :  
Register Number :  
Subject Code : CCS336  
Subject Name : CLOUD SERVICES MANAGEMENT  
Semester : VI Year: III

**CERTIFICATE**

Certified that this is the bonafide record of work done by the above student  
in the \_\_\_\_\_ laboratory during the year 2024-2025.

SIGNATURE OF FACULTY-IN-CHARGE

SIGNATURE OF HEAD OF THE DEPARTMENT

Submitted for the Practical Examination held on \_\_\_\_\_

Internal Examiner

External Examiner

## CONTENTS

SL. NO	DATE	NAME OF THE EXPERIMENT	PAGE NO.	MARKS	SIGNATURE
1		CREATE A CLOUD ORGANISATION IN AWS/GOOGLE CLOUD OR ANY EQUIVALENT OPEN SOURCE SOFTWARES LIKE OPENSTACK,ECALYPTUS,OPEN NEBULA WITH ROLE BASED ACTIONS.			
2		CREATE A COST-MODEL FOR A WEB APPLICATION USING VARIOUS SERVICES AND MAKE A ANALYSIS FOR COST-BENEFIT.			
3		CREATE ALERTS FOR USAGE OF CLOUD RESOURCES.			
4		CREATE BILLING ALERTS FOR YOUR CLOUD ORGANIZATION.			
5		COMPARE CLOUD COST FOR A SIMPLE WEB APPLICATION ACROSS AWS, AZURE AND GCP AND SUGGEST THE BEST ONE.			

**EXP NO:1**  
**DATE:**

**CREATE A CLOUD ORGANISATION IN AWS/GOOGLE CLOUD OR ANY EQUIVALENT OPEN SOURCE SOFTWARES LIKE OPENSTACK,ECALYPTUS,OPEN NEBULA WITH ROLE BASED ACTIONS.**

**AIM:**

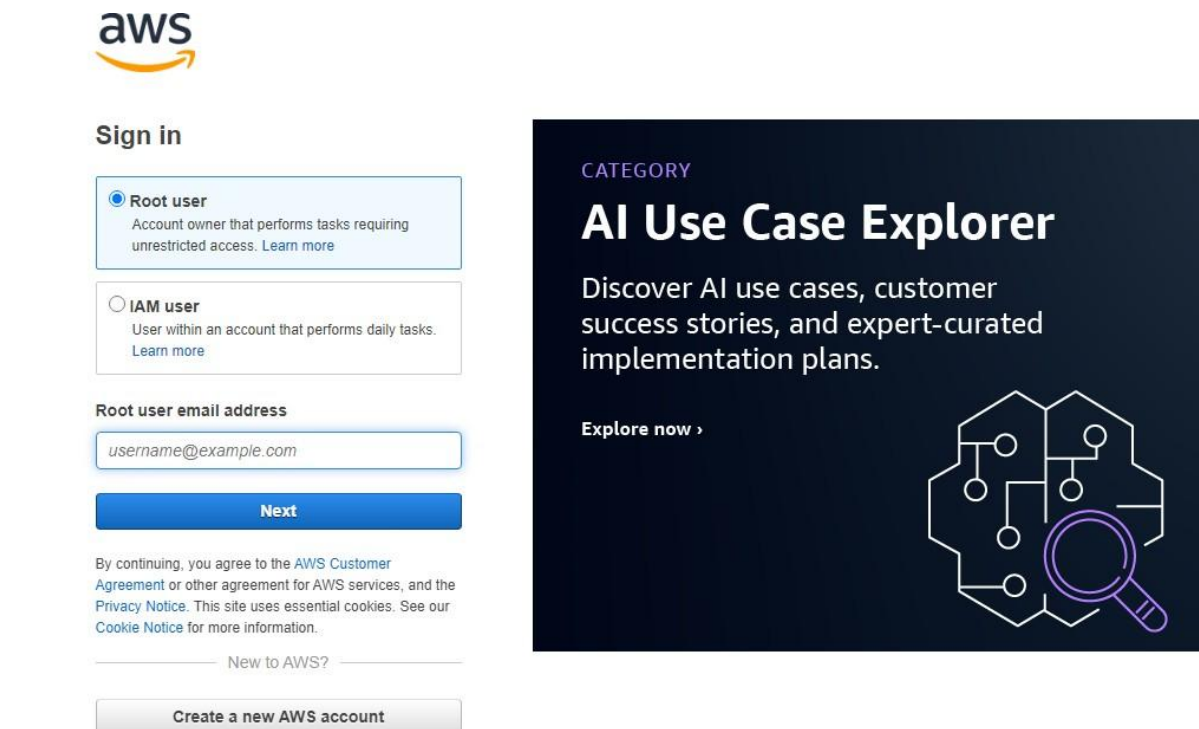
To create a cloud organisation in aws/google cloud or any equivalent open source softwares like openstack,ecalyptus,open nebula with role based actions.

**PROCEDURE:**

- 1.create the user account in aws.
- 2.create the user and corresponding user group.
- 3.add the user to the user group with role based access.

**1.CREATE THE USER ACCOUNT IN AWS**

**1(a)visit the aws management console.**



**aws**

**Sign in**

☒ **Root user**  
Account owner that performs tasks requiring unrestricted access. [Learn more](#)

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

**Root user email address**

username@example.com

**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**

**AI Use Case Explorer**

Discover AI use cases, customer success stories, and expert-curated implementation plans.

**Explore now >**

**Click on the create a new AWS account.**

**1(b) for creating the account enter the E-mail Id and verify your id using verification code sent by AWS to the corresponding E-mail Id.**



**Explore Free Tier products with a new AWS account.**

To learn more, visit [aws.amazon.com/free](https://aws.amazon.com/free).



## Sign up for AWS

### Confirm you are you

Making sure you are secure -- it's what we do.

We sent an email with a verification code to **pdhanushkumar96@gmail.com**. (not you?)

Enter it below to confirm your email.

Verification code


390453

Verify

**1(c) after the verification ,enter your details and then fill up your account details for the Identity verification.it can charge 2rupee from your account for the card verification.**



### Secure verification

 We will not charge you for usage below AWS Free Tier limits. We may temporarily hold up to \$1 USD (or an equivalent amount in local currency) as a pending transaction for 3-5 days to verify your identity.



## Sign up for AWS

### Billing Information

Credit or Debit card number



AWS accepts most major credit and debit cards. To learn more about payment options, review our [FAQ](#)

Expiration date

Month 

Year 

Security code 

Cardholder's name

☐ Save card information for faster future payments

Securely save card information payments as per

Then the aws account is created.

## 2.CREATE THE USER AND CORRESPONDING USER GROUP.

2(a)open the aws management console in any browser and log in as the Root user using your corresponding e-mail id and the password.



### Sign in

#### ☒ Root user

Account owner that performs tasks requiring unrestricted access. [Learn more](#)

#### ☐ IAM user

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

Root user email address

username@example.com

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

CATEGORY

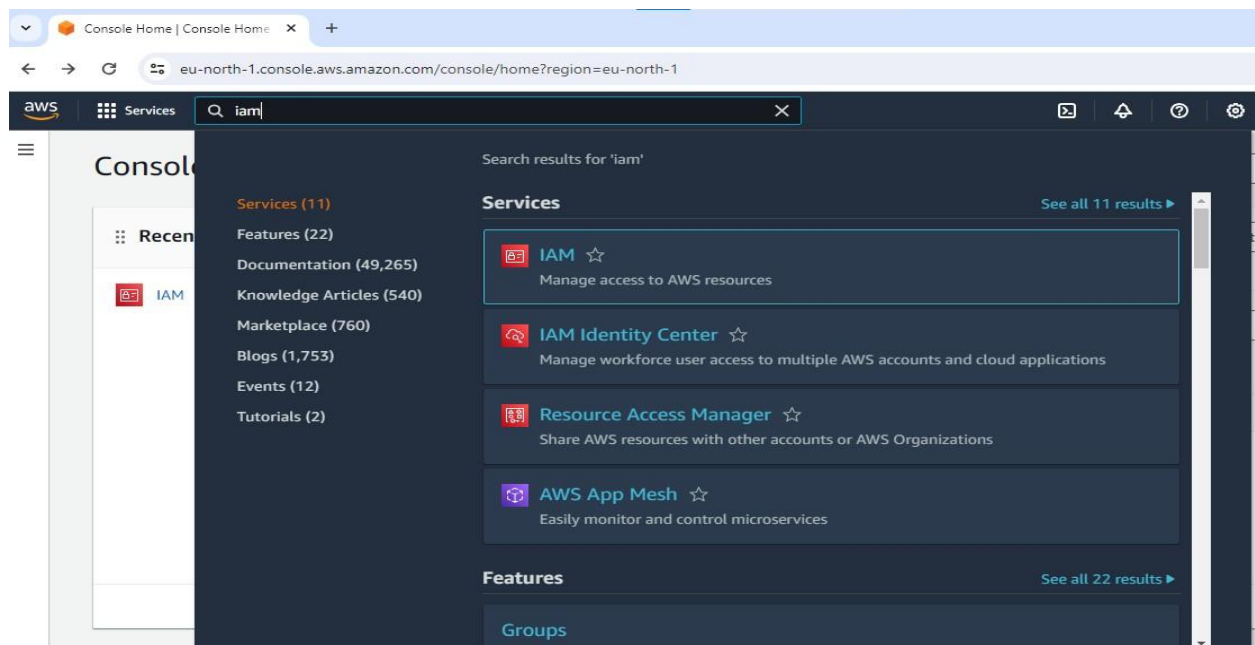
## AI Use Case Explorer

Discover AI use cases, customer success stories, and expert-curated implementation plans.

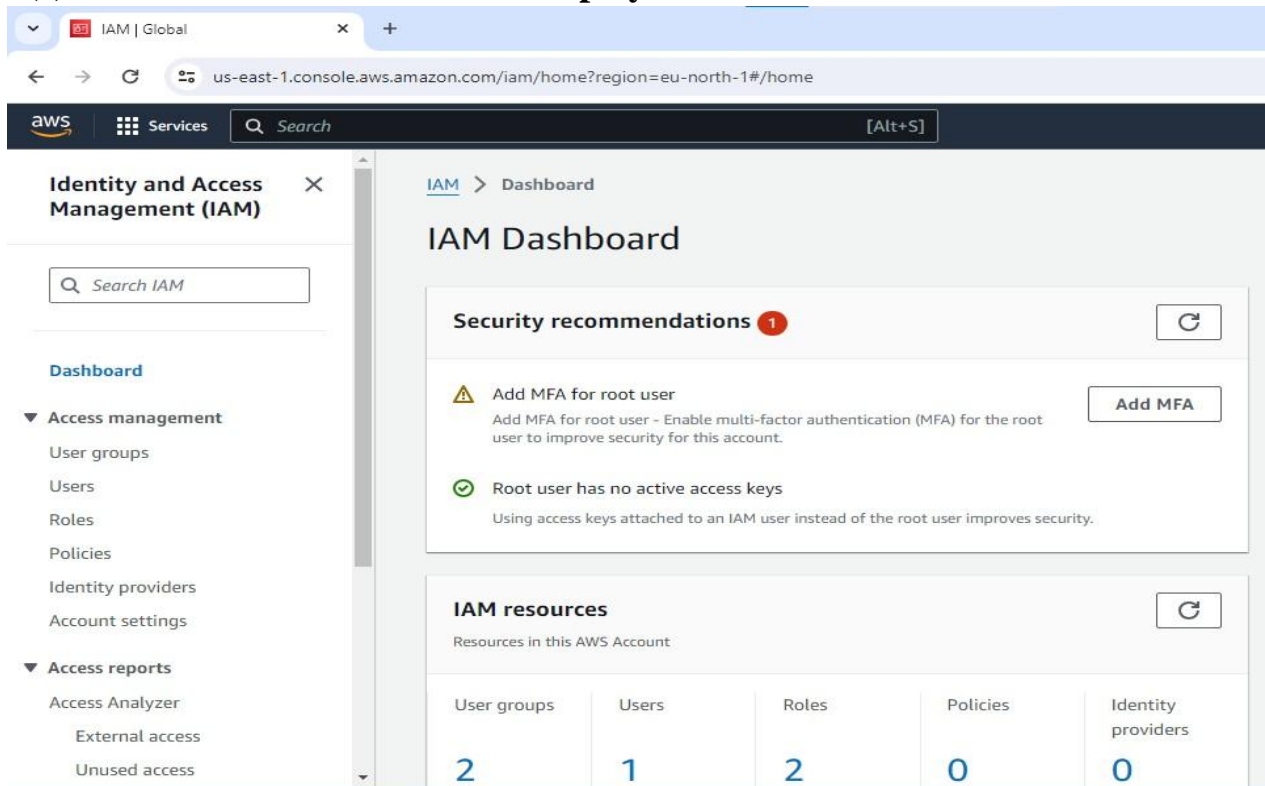
Explore now >



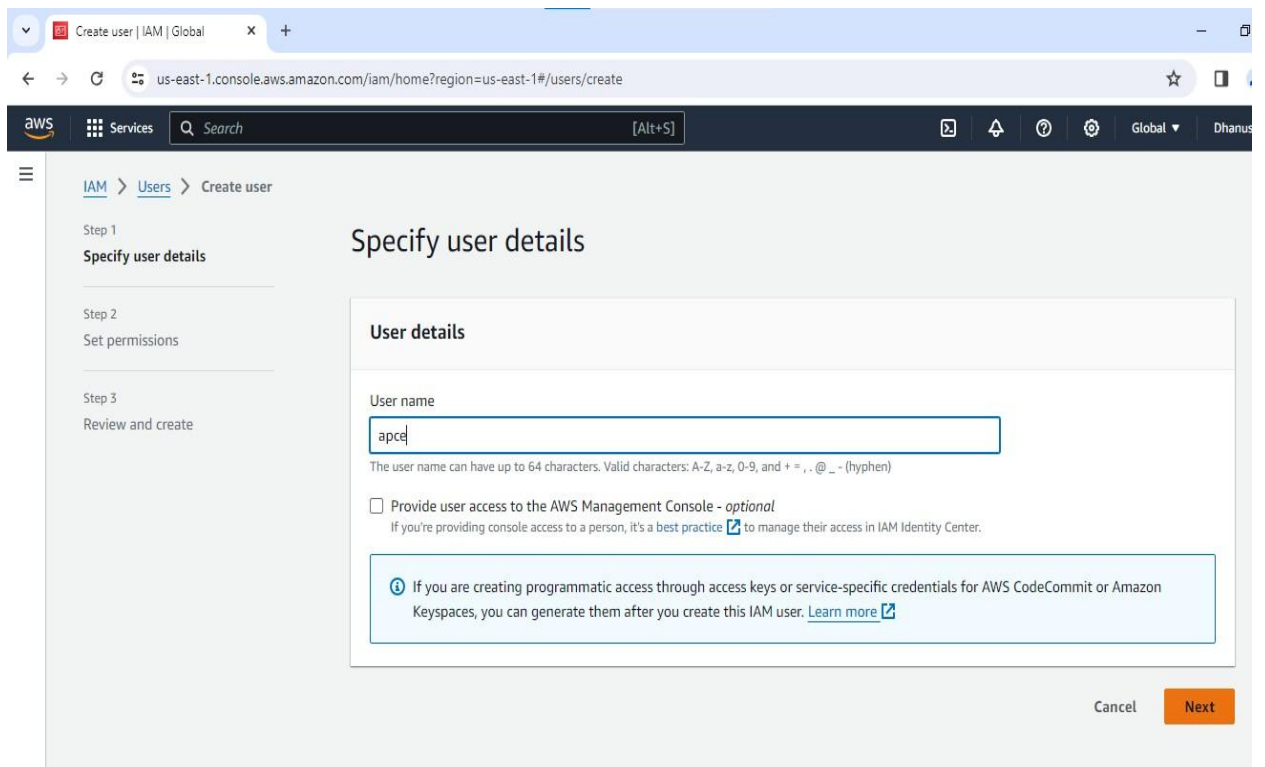
2(b)after entering into the aws management console.then search for IAM in the services.



2(c) the dash board of the IAM is displayed as follows.



2(d) then click on the user and then under this click on the create new user and enter the user name.



2(e)then click on the next.click on the add user to the group.after that click on the create group option.

## 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.

**Get started with groups**  
Create a group and select policies to attach to the group. We recommend using groups to manage user permissions by job function, AWS service access, or custom permissions.  
[Learn more](#)

Create group

► Set permissions boundary - optional

Cancel

Previous

Next

2(f)then the create user group with the user group name.after entering the name you need to specify the permission policies as EC2 with read only access.

**User group name**  
Enter a meaningful name to identify this group.  
  
Maximum 128 characters. Use alphanumeric and '+@\_-' characters.

**Permissions policies (1/912)**

↻ Create policy

Filter by Type

X

All types ▼

30 matches

< 1 2 >

⚙

	Policy name	Type	Use...	Description
<input type="checkbox"/>	AmazonEC2Contai...	AWS managed	None	Provides administrative access to A
<input type="checkbox"/>	AmazonEC2Contai...	AWS managed	None	Provides full access to Amazon EC2
<input type="checkbox"/>	AmazonEC2Contai...	AWS managed	None	Provides read-only access to Amazi
<input type="checkbox"/>	AmazonEC2Contai...	AWS managed	None	Policy to enable Task Autoscaling f
<input type="checkbox"/>	AmazonEC2Contai...	AWS managed	None	Policy to enable CloudWatch Event
<input type="checkbox"/>	AmazonEC2Contai...	AWS managed	None	Default policy for the Amazon EC2
<input type="checkbox"/>	AmazonEC2Contai...	AWS managed	None	Default policy for Amazon ECS serv
<input type="checkbox"/>	AmazonEC2FullAcc...	AWS managed	None	Provides full access to Amazon EC2
<input checked="" type="checkbox"/>	AmazonEC2ReadO...	AWS managed	None	Provides read only access to Amazc
<input type="checkbox"/>	AmazonEC2Rolefo...	AWS managed	None	Provides EC2 access to S3 bucket te
<input type="checkbox"/>	AmazonEC2Rolefo...	AWS managed	None	Provides EC2 limited access to S3 b

Cancel

Create user group



**2(g)click on the create user group.and you will be redirected into the review and create under this click on the create user.then the user will be created.**

### 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 apce	Console password type None	Require password reset No
-------------------	-------------------------------	------------------------------

#### Permissions summary

< 1 >

Name	Type	Used as
No resources		

#### 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

**3.ADD THE USER TO THE USER GROUP WITH ROLE BASED ACCESS.**

**3(a) to add the users into the group click on the add users**

IAM > User groups > apce-cse

apce-cse info

Delete

Summary

Edit

User group name apce-cse	Creation time February 26, 2024, 21:19 (UTC+05:30)	ARN am:aws:iam:058264173179:group/apce-cse
-----------------------------	-------------------------------------------------------	-----------------------------------------------

Users

Permissions

Access Advisor

Users in this group (0)

Remove Add users

An IAM user is an entity that you create in AWS to represent the person or application that uses it to interact with AWS.

Q Search

< 1 >

	User name	Groups	Last activity	Creation time
No resources to display				

**3(b) then add the existing group to the user group and click on Add users option now the user is added into the group with the role based action.**

[IAM](#) > [User groups](#) > [apce-cse](#) > Add users

Add users to apce-cse [Info](#)

Other users in this account (1/1) Refresh

☒

User name [?](#)

▲ Groups | Last activity ▼ | Creation time ▼

<input checked="" type="checkbox"/>	<a href="#">apce</a>	0	None	1 minute ago
-------------------------------------	----------------------	---	------	--------------

Cancel Add users

**3(c) you can view the summary of the user group which is created.by clicking on the user groups on the dashboard.**

User groups (1) [Info](#) Refresh Delete Create group

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

<input type="checkbox"/>	Group name ▼	Users ▼	Permissions ▼	Creation time ▼
<input type="checkbox"/>	<a href="#">apce-cse</a>	1	✓ Defined	27 minutes ago

## RESULT:

Thus the organization was created in the amazon aws with the role based actions.

**EXP NO:2**

**DATE:**

**CREATE A COST-MODEL FOR A WEB APPLICATION  
USING VARIOUS SERVICES AND MAKE A ANALYSIS  
FOR COST-BENEFIT.**

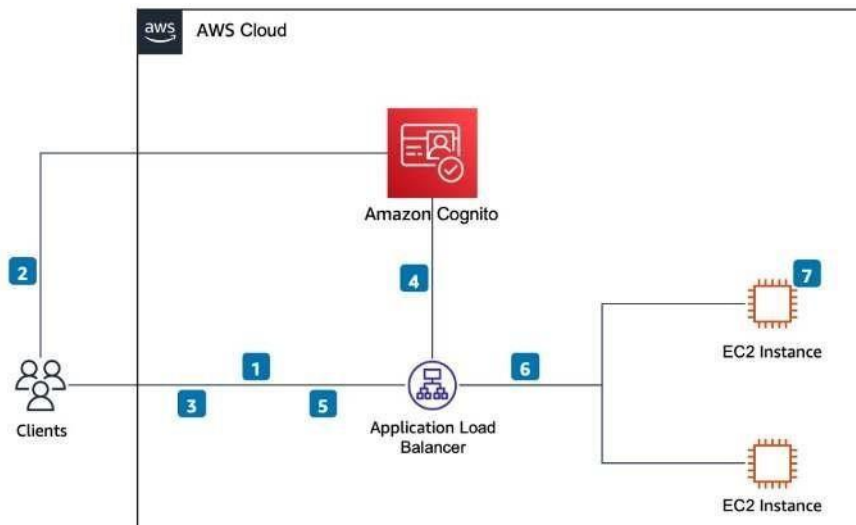
**AIM:**

To create a Cost-model for a web application using various services and make aanalysis for Cost-benefit.

**PROCEDURE:**

Creating a cost-model for a web applicationon in AWS involves estimating the costs of using various AWS services for the application. Here's a general process to create a cost-model and do cost-benefitt analysis:

1. **Identify the AWS services used by the web application:** Some common services used by web applications include Amazon S3, Amazon EC2, Amazon RDS, Amazon API Gateway, AWS Lambda, Amazon DynamoDB, Amazon CloudFront, and Amazon SNS.



2. **Estimate the costs of each service:** You can use the AWS Pricing Calculator to estimate the costs of each service. The pricing calculator allows you to enter the specifics of your usage, such as the number of instances, storage size, and data transfer.

3. **Create a cost-model:** Once you have estimated the costs of each service, you can create a costmodel that summarizes the total costs. You can use a spreadsheet or a cloud cost management tool to create the cost-model.
4. **Do cost-benefit analysis:** after creating the cost-model, you can do a cost-benefit analysis to determine if the benefits of using AWS services outweigh the costs. You can compare the costs of using AWS services to the costs of running the application on-premises or using a different cloud provider.

Python code:

```
import boto3

session = boto3.Session(
    aws_access_key_id='YOUR_ACCESS_KEY',
    aws_secret_access_key='YOUR_SECRET_KEY',
    region_name='us-east-1'
)

# Create a Cost Explorer
client cost_explorer =
session.client('ce')

Model time_period = {
    'TimeUnit': 'MONTHS',
    'Start': '2022-01-01',
    'End': '2022-12-31'
}
```

```
model granularity = 'DAILY'
```

```
model metrics =
```

```
['BlendedCost',  
'UsageQuantity']
```

```
model group_by = [{'Type':
```

```
'DIMENSION', 'Key':
```

```
'SERVICE'}] # Get the cost and
```

```
usage data response =
```

```
cost_explorer.get_cost_and_usage
```

```
(
```

```
    TimePeriod=time_period,
```

```
    Granularity=granularity,
```

```
    Metrics=metrics,
```

```
    GroupBy=group_by
```

```
)# Print the cost and usage
```

```
data print(response)
```

**Output:**

```
{
```

```
    'ResultsByTime': [
```

```
        {
```

```
            'TimePeriod': {
```

```
                'Start': '2022-01-01',
```

```
                'End': '2022-12-31',
```

```
                'TimeUnit': 'MONTHS'
```

```
},
'Groups': [
  {
    'Keys': [
      'AmazonEC2'
    ],
    'Metrics': {
      'BlendedCost': {
        'Amount': '1234.56',
        'Unit': 'USD'
      },
      'UsageQuantity': {
        'Amount': '1000.0',
        'Unit': 'Hours'
      }
    }
  },
  {
    'Keys': [
      'AWSLambda'
    ],
    'Metrics': {
      'BlendedCost': {
        'Amount': '789.0',
        'Unit': 'USD'
      }
    }
  }
]
```

```
    },
    'UsageQuantity': {
        'Amount': '5000000',
        'Unit': 'requests'
    }
}
]
}
],
'ResponseMetadata': {
    'RequestId': 'abcdefg-1234-5678-90ab-cdefghijkl',
    'HTTPStatusCode': 200,
    'HTTPHeaders': {
        'content-type': 'text/xml;charset=UTF-8',
        'content-length': '1234',
        'date': 'Tue, 15 Feb 2022 12:34:56 GMT'
    },
    'RetryAttempts': 0
}
```

**Result:**

Thus, Cost-model for a web application using various services created and analysis was implemented successfully.

## EXP NO:3      CREATE ALERTS FOR USAGE OF CLOUD RESOURCES

DATE:

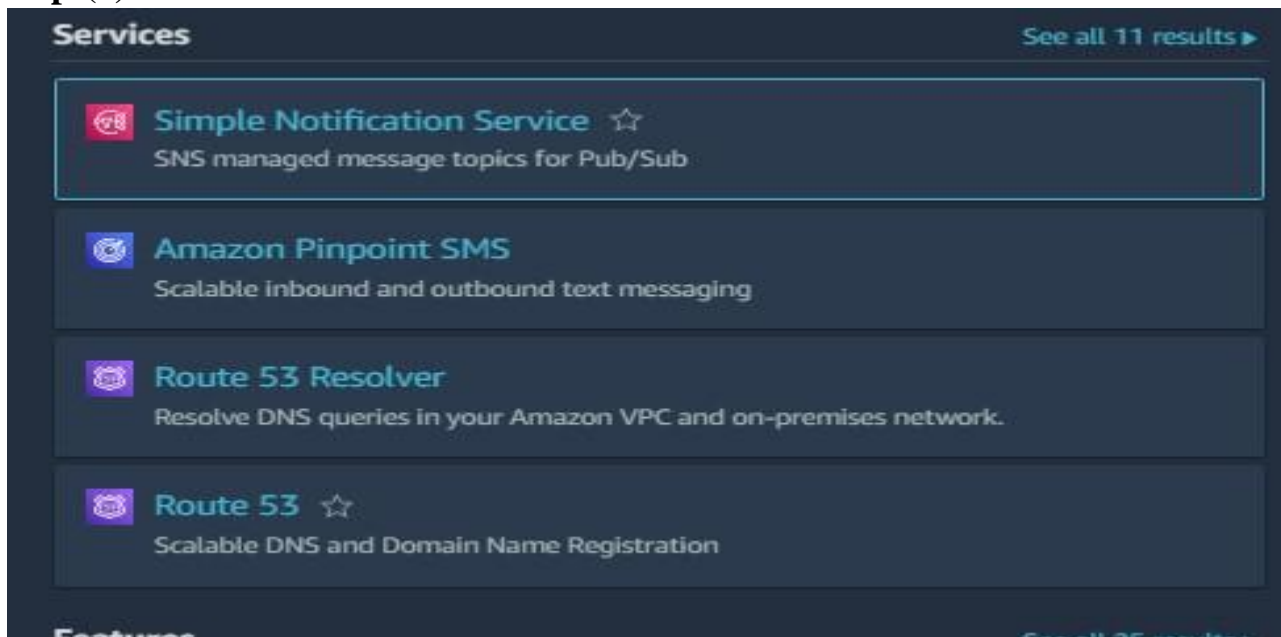
### AIM:

To create alerts for usage of cloud resources.

### PROCEDURE:

step-(1)-login into the aws management console.

step-(2)-search for the sns on the services.



step-(3)-under the sns click on the create topic with standard type.

### Create topic

**Details**

Type **Info**  
Topic type cannot be modified after topic is created

☐ FIFO (first-in, first-out)

- Strictly-preserved message ordering
- Exactly-once message delivery
- High throughput, up to 300 publishes/second
- Subscription protocols: SQS

☒ Standard

- Best-effort message ordering
- At-least once message delivery
- Highest throughput in publishes/second
- Subscription protocols: SQS, Lambda, HTTP, SMS, email, mobile application endpoints

Name

topic1

Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (\_).

Display name - optional **Info**  
To use this topic with SMS subscriptions, enter a display name. Only the first 10 characters are displayed in an SMS message.

My Topic

Maximum 100 characters.



**step-(4)-enter the topic and click create to proceed further,then the topic is created.**

topic1 Edit Delete Publish message

---

**Details**

Name topic1	Display name -
ARN arn:aws:sns:us-east-1:058264173179:topic1	Topic owner 058264173179
Type Standard	

---

**Subscriptions** | Access policy | Data protection policy | Delivery policy (HTTP/S) | Delivery status logging | Encryption | Tags | Integrations

---

**Subscriptions (0)** Edit Delete Request confirmation Confirm subscription Create subscription

< 1 >

ID	Endpoint	Status	Protocol
No subscriptions found You don't have any subscriptions to this topic.			

Create subscription

**step-(5)-then the next step is to create the subscription.to do this click on the create subscription.**

Create subscription

---

**Details**

Topic ARN

Protocol  
The type of endpoint to subscribe  
Select protocol

After your subscription is created, you must confirm it. [Info](#)

---

► **Subscription filter policy - optional** [Info](#)  
This policy filters the messages that a subscriber receives.

---

► **Redrive policy (dead-letter queue) - optional** [Info](#)  
Send undeliverable messages to a dead-letter queue.

Cancel Create subscription

**select the protocol as E-mail and then enter the root e-mail id,then click on the create subscription option.**

**the conformation mail will be send after clicking on the create subscription.go to your mail box and check the mail of aws,also click on the confirm**

## subscription.



**AWS Notifications** <no-reply@sns.amazonaws.com>  
to me ▾

22:21 (1 minute ago) ☆

You have chosen to subscribe to the topic:  
**arn:aws:sns:us-east-1:058264173179:topic1**

\*\*\*

To confirm this subscription, click or visit the link below (If this was in error no action is necessary):  
[Confirm subscription](#)

Please do not reply directly to this email. If you wish to remove yourself from receiving all future SNS subscription confirmation requests please send an email to [sns-opt-out](#)

**after confirm subscription, you can able to see the following message.**



Simple Notification Service

### Subscription confirmed!

You have successfully subscribed.

Your subscription's id is:

**arn:aws:sns:us-east-1:058264173179:topic1:5f0d8f1c-cc4f-4a26-a706-92118d3e7f28**

If it was not your intention to subscribe, [click here to unsubscribe](#).

**Now the topic can be successfully created as**

#### Details

ARN

arn:aws:sns:us-east-1:058264173179:topic1:5f0d8f1c-cc4f-4a26-a706-92118d3e7f28

Endpoint

pdhanushkumar96@gmail.com

Topic

topic1

Subscription Principal

arn:aws:iam::058264173179:root

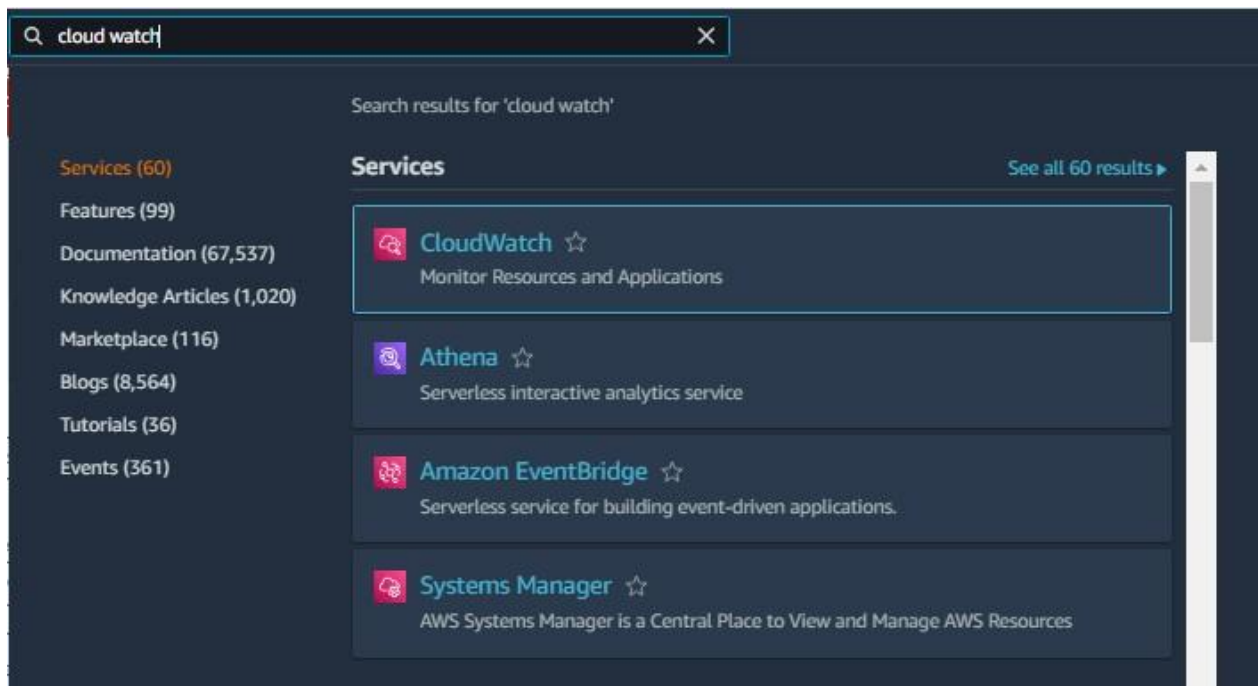
Status

✔ Confirmed

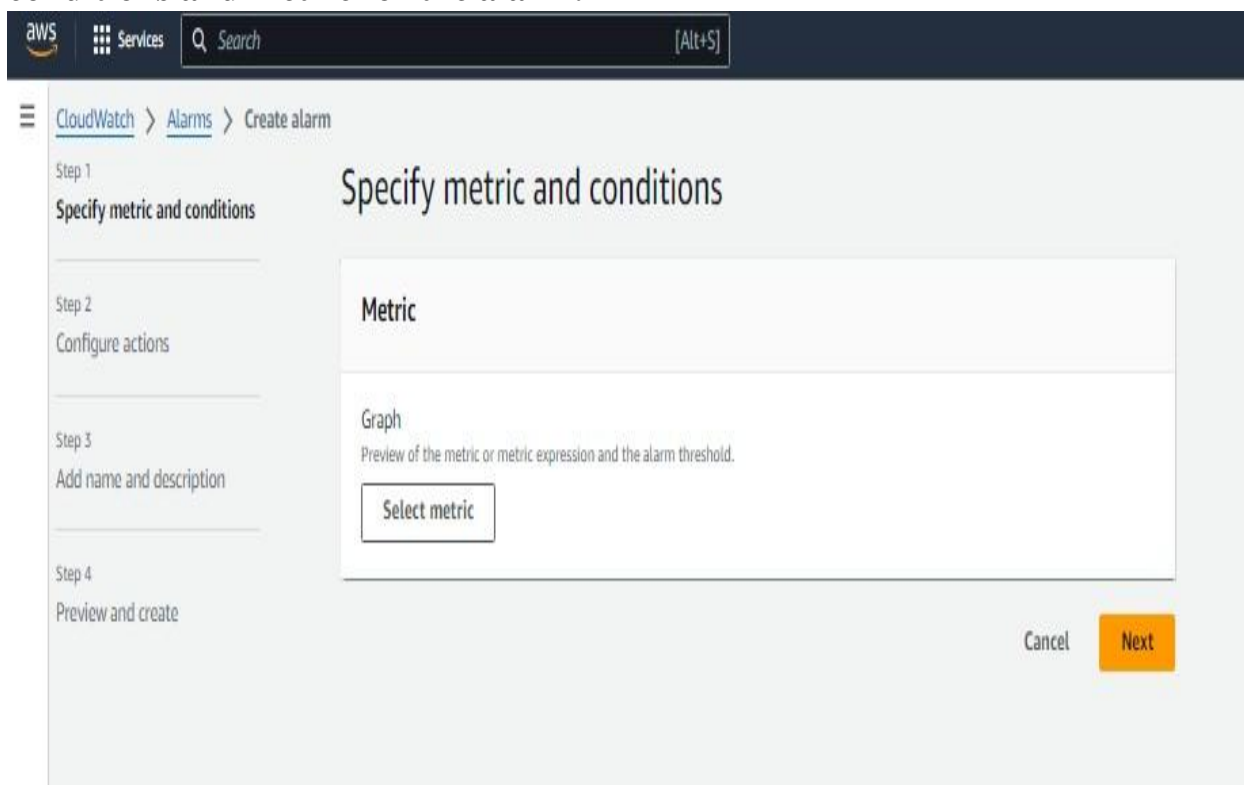
Protocol

EMAIL

**Step-(6)-search for the cloud in the services for creating the alarms for alert the billing of the cloud resource usage.**



**Step-(7)-click on the create alarm option in the cloud watch.specify the conditions and metric for the alarm.**



**Step-(8)-click on next and under the select metric click on the sns.**

Select metric

Untitled graph

1h 3h 12h 1d 3d 1w Custom UTC timezone Line

Your CloudWatch graph is empty.  
Select some metrics to appear here.

Browse Multi source query - new Graphed metrics Options Source

Metrics (52)

N. Virginia

Search for any metric, dimension, resource id or account id

EC2/API 8 Events 1 Logs 2 SNS 4

Usage 37

Cancel Select a single metric to continue

**Step-(9)-then the notification option for the alarm.**

Select metric

Number of notifications delivered

Browse Multi source query - new Graphed metrics (1) Options Source

Metrics (4)

N. Virginia All > SNS > Topic Metrics

Search for any metric, dimension, resource id or account id

TopicName 4/4	Metric name	Alarms
<input type="checkbox"/> mytopic	NumberOfNotificationsDelivered	No alarms
<input type="checkbox"/> mytopic	NumberOfNotificationsFailed	1 alarm(s)
<input checked="" type="checkbox"/> topic1	NumberOfNotificationsDelivered	No alarms
<input type="checkbox"/> topic1	NumberOfNotificationsFailed	No alarms

Cancel Select metric

**After this select your metric for the alarm as shown above.**

**Step-(10)-set the threshold value as 500 and click on the greater than or equal option.**

The screenshot shows the 'Conditions' configuration page in AWS CloudWatch. Under 'Threshold type', the 'Static' option is selected with the subtext 'Use a value as a threshold'. The 'Whenever NumberOfNotificationsDelivered is...' section has four radio button options: 'Greater > threshold', 'Greater/Equal >= threshold' (which is selected), 'Lower/Equal <= threshold', and 'Lower < threshold'. Below this, the 'than...' section has a text input field containing '500' with the subtext 'Define the threshold value.' and a note 'Must be a number'. At the bottom right, there are 'Cancel' and 'Next' buttons.

**Step-(11)-then click on the next and choose the topic for sending the notification.**

## Configure actions

The screenshot shows the 'Notification' configuration page. Under 'Alarm state trigger', there are three radio button options: 'In alarm' (selected, with subtext 'The metric or expression is outside of the defined threshold.'), 'OK' (with subtext 'The metric or expression is within the defined threshold.'), and 'Insufficient data' (with subtext 'The alarm has just started or not enough data is available.'). A 'Remove' button is to the right. Below this, the section 'Send a notification to the following SNS topic' has the subtext 'Define the SNS (Simple Notification Service) topic that will receive the notification.' and three radio button options: 'Select an existing SNS topic' (selected), 'Create new topic', and 'Use topic ARN to notify other accounts'. The 'Send a notification to...' section has a search input field containing 'topic1' with a clear button (X). Below the input is a note: 'Only topics belonging to this account are listed here. All persons and applications subscribed to the selected topic will receive notifications.' The 'Email (endpoints)' section shows 'pdhanushkumar96@gmail.com - View in SNS Console' with an external link icon. At the bottom is an 'Add notification' button.

**Step-(11)-after configuring click on the create alarm.**

► Additional configuration

Step 2: Configure actions

Edit

Actions

Notification

When In alarm, send a notification to "topic1"

Step 3: Add name and description

Edit

Name and description

Name

billing alarm

Description

-

Cancel

Previous

Create alarm

**step-(12)-now the alarm can be created as shown below.**

Alarms (1/2)

☐ Hide Auto Scaling alarms

Clear selection

Create composite alarm

Actions ▾

Create alarm

Alarm state: Insufficient d... ▾

Alarm type: Any ▾

Actions status: Any ▾

< 1 >

	Name ▾	State ▾	Last state update ▾	Conditions	Actions ▾
<input checked="" type="checkbox"/>	<a href="#">billing alarm</a>	Insufficient data	2024-02-26 17:23:00	NumberOfNotificationsDelivered >= 500 for 1 datapoints within 5 minutes	Actions enabled

## RESULT:

Thus the alerts for usage of cloud resources was created successfully.

**EXP NO:4**  
**DATE:**

## **CREATE BILLING ALERTS FOR YOUR CLOUD ORGANIZATION.**

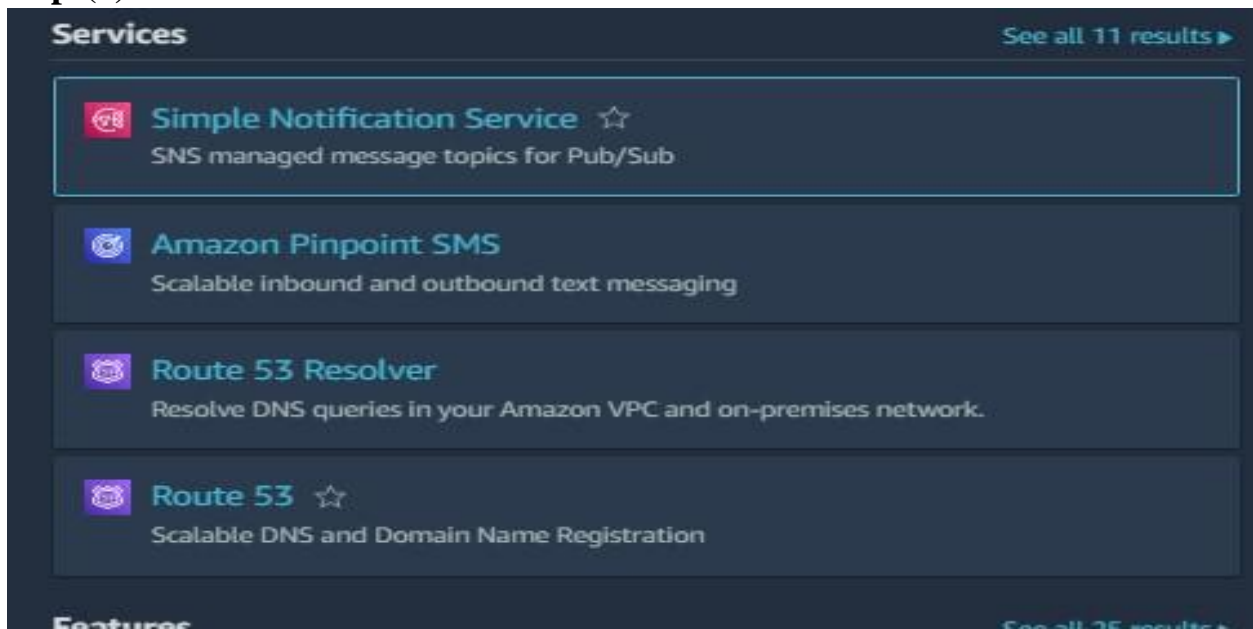
### **AIM:**

To create billing alerts for the cloud organization.

### **PROCEDURE:**

**step-(1)-login into the aws management console.**

**step-(2)-search for the sns on the services.**



**step-(3)-under the sns click on the create topic with standard type.**

Create topic

**Details**

Type **Info**  
Topic type cannot be modified after topic is created

☐ FIFO (first-in, first-out)

- Strictly-preserved message ordering
- Exactly-once message delivery
- High throughput, up to 300 publishes/second
- Subscription protocols: SQS

☒ Standard

- Best-effort message ordering
- At-least once message delivery
- Highest throughput in publishes/second
- Subscription protocols: SQS, Lambda, HTTP, SMS, email, mobile application endpoints

Name

topic1

Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (\_).

Display name - optional **Info**  
To use this topic with SMS subscriptions, enter a display name. Only the first 10 characters are displayed in an SMS message.

My Topic

Maximum 100 characters.

**step-(4)-enter the topic and click create to proceed further,then the topic is created.**

topic1 Edit Delete Publish message

**Details**

Name topic1	Display name -
ARN arn:aws:sns:us-east-1:058264173179:topic1	Topic owner 058264173179
Type Standard	

Subscriptions Access policy Data protection policy Delivery policy (HTTP/S) Delivery status logging Encryption Tags Integrations

**Subscriptions (0)** Edit Delete Request confirmation Confirm subscription Create subscription

ID

Endpoint

Status

Protocol

No subscriptions found  
You don't have any subscriptions to this topic.  
Create subscription

**step-(5)-then the next step is to create the subscription.to do this click on the create subscription.**

Create subscription

**Details**

Topic ARN

Protocol  
The type of endpoint to subscribe  

Select protocol

After your subscription is created, you must confirm it. [Info](#)

**Subscription filter policy - optional** [Info](#)  
This policy filters the messages that a subscriber receives.

**Redrive policy (dead-letter queue) - optional** [Info](#)  
Send undeliverable messages to a dead-letter queue.

Cancel Create subscription

**select the protocol as E-mail and then enter the root e-mail id,then click on the create subscription option.**

**the conformation mail will be send after clicking on the create subscription.go to your mail box and check the mail of aws,also click on the confirm**



## subscription.



**AWS Notifications** <no-reply@sns.amazonaws.com>  
to me ▾

22:21 (1 minute ago) ☆

You have chosen to subscribe to the topic:  
**arn:aws:sns:us-east-1:058264173179:topic1**

\*\*\*

To confirm this subscription, click or visit the link below (If this was in error no action is necessary):  
[Confirm subscription](#)

Please do not reply directly to this email. If you wish to remove yourself from receiving all future SNS subscription confirmation requests please send an email to [sns-opt-out](#)

**after confirm subscription, you can able to see the following message.**



Simple Notification Service

### Subscription confirmed!

You have successfully subscribed.

Your subscription's id is:

**arn:aws:sns:us-east-1:058264173179:topic1:5f0d8f1c-cc4f-4a26-a706-92118d3e7f28**

If it was not your intention to subscribe, [click here to unsubscribe](#).

**Now the topic can be successfully created as**

#### Details

ARN

arn:aws:sns:us-east-1:058264173179:topic1:5f0d8f1c-cc4f-4a26-a706-92118d3e7f28

Endpoint

pdhanushkumar96@gmail.com

Topic

topic1

Subscription Principal

arn:aws:iam::058264173179:root

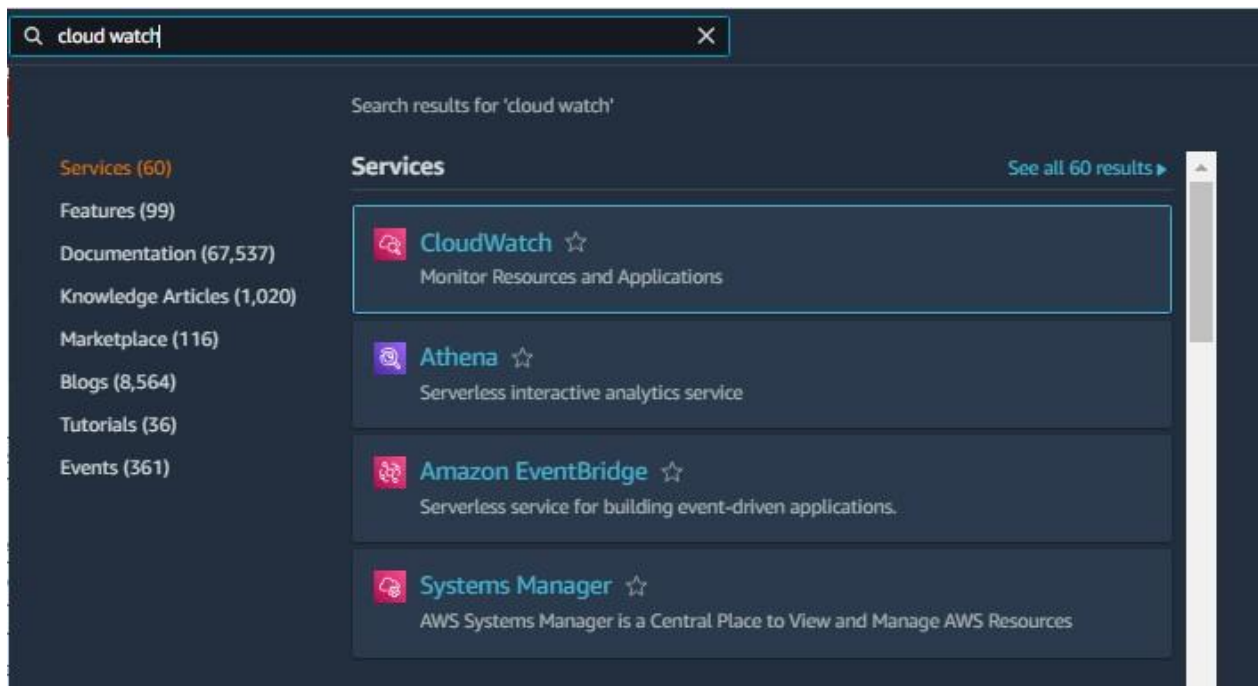
Status

✔ Confirmed

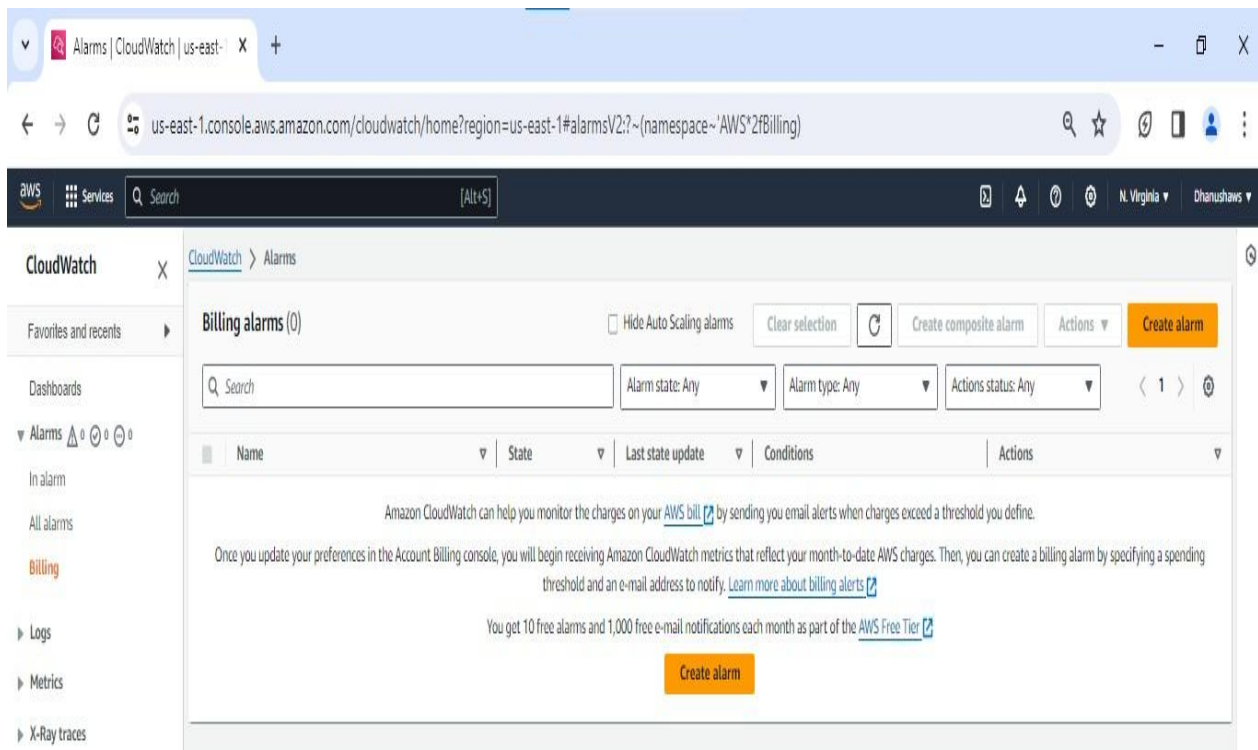
Protocol

EMAIL

**Step-(6)-search for the cloud in the services for creating the alarms for alert the billing of the cloud resource usage.**



**Step-(7)-in the cloud watch click on the billing alarm and then click on the create new alarm.**



**Step-(8)-then select the metric for the billing alarm as shown below.**

The screenshot shows the AWS CloudWatch console in the 'us-east-1' region. The breadcrumb navigation is 'CloudWatch > Alarms > Create alarm'. The left sidebar shows a progress indicator with four steps: Step 1 (Specify metric and conditions), Step 2 (Configure actions), Step 3 (Add name and description), and Step 4 (Preview and create). The main content area is titled 'Specify metric and conditions'. It features a 'Metric' input field, a 'Graph' section with a preview of the metric or metric expression and the alarm threshold, and a 'Select metric' button. At the bottom right, there are 'Cancel' and 'Next' buttons.

**Step-(9)-set USD as 10 dollars and specify the greater than or equal option.**

## Configure actions

The screenshot shows the 'Configure actions' page in the AWS CloudWatch console. The section is titled 'Notification'. Under 'Alarm state trigger', there are three radio button options: 'In alarm' (selected), 'OK', and 'Insufficient data'. Each option has a description of the trigger condition. A 'Remove' button is located to the right of the 'Insufficient data' option. Below this, there is a section 'Send a notification to the following SNS topic' with a description. There are three radio button options: 'Select an existing SNS topic' (selected), 'Create new topic', and 'Use topic ARN to notify other accounts'. Below this, there is a section 'Send a notification to...' with a search box containing 'topic1' and a close button. Below the search box, there is a note about the list of topics. At the bottom, there is a section 'Email (endpoints)' with the email address 'pdhanushkumar96@gmail.com' and a link to 'View in SNS Console'. An 'Add notification' button is located at the bottom left.

**Step-(10)-describe the name of the alarm and then click on next.**

**Add name and description**

**Name and description**

Alarm name

billing alerts

Alarm description - optional [View formatting guidelines](#)

Edit

Preview

if the usd goes > 10 dollars then it sends a mail to my Id

Up to 1024 characters (58/1024)

Markdown formatting is only applied when viewing your alarm in the console. The description will remain in plain text in the alarm notifications.

Cancel

Previous

Next

**Click on next.**

**step-(11)-now the billing alarm is created as shown in below.**

CloudWatch > Alarms

Alarms (1) ☐ Hide Auto Scaling alarms Clear selection ↺ Create composite alarm Actions Create alarm

Alarm state: OK Alarm type: Any Actions status: Any < 1 > ⓘ

<input type="checkbox"/>	Name	State	Last state update	Conditions	Actions
<input type="checkbox"/>	<a href="#">billing alert</a>	OK	2024-02-27 00:53:57	CallCount > 10 for 1 datapoints within 5 minutes	Actions enabled

**RESULT:**

Thus the billing alert is created for the cloud organization successfully.

**EXP NO:5**  
**DATE:**

**COMPARE CLOUD COST FOR A SIMPLE WEB APPLICATION ACROSS AWS, AZURE AND GCP AND SUGGEST BEST ONE.**

**AIM:**

To compare Cloud cost for a simple web application across AWS, Azure and GCP and suggest the best one

**OBSERVATION:**

1. AWS: AWS offers a rich array of tools, including databases, analytics, management, IoT, security, and enterprise applications. AWS introduced per-second billing in 2017 for EC2 Linux-based instances and EBS volumes.
2. Azure: Azure has slightly surpassed AWS in the percentage of enterprises using it. Azure also offers various services for enterprises, and Microsoft's longstanding relationship with this segment makes it an easy choice for some customers. While Azure is the most expensive choice for general-purpose instances, it's one of the most cost-effective alternatives to compute-optimized instances.
3. Google Cloud Platform (GCP): GCP stands out thanks to its almost limitless internal research and expense. GCP is different due to its role in developing various open-source technologies. Google Cloud is much cheaper than AWS and Azure for computing optimized cloud-based instances.

The best platform depends on your specific needs and requirements. If you need a wide array of tools and services, AWS might be the best choice. If you're looking for enterprise services and have a longstanding relationship with Microsoft, Azure could be your best bet.

### **CONCLUSION:**

If you prioritize innovation and open-source technologies, GCP could be the right choice. For compute optimized instances, GCP seems to be the most cost-effective. However, it's essential to understand your requirements fully before making a decision

### **RESULT:**

Thus, the comparison for Cloud cost for a simple web application across AWS, Azure and GCP were implemented successfully.