

## CloudWatch-Alarms-Assignment---5

### **Problem Statement:**

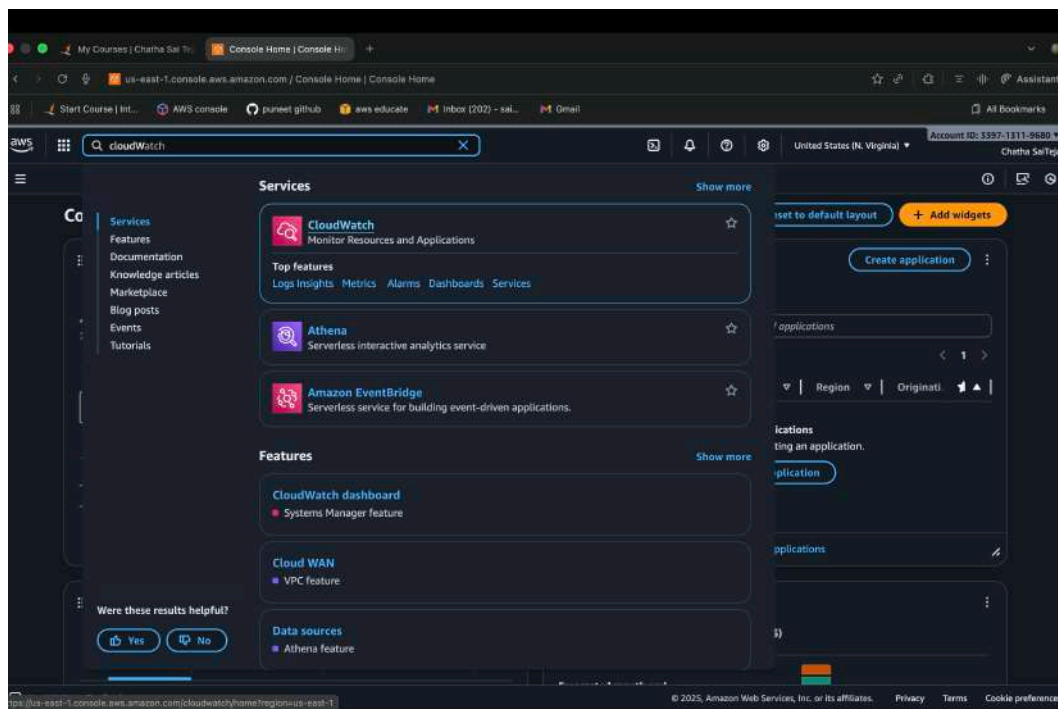
You work for XYZ Corporation. To maintain the security of the AWS account and the resources you have been asked to implement a solution that can help easily recognize and monitor the different users. Also, you will be monitoring the machines created by these users for any errors or misconfigurations.

### **Tasks To Be Performed:**

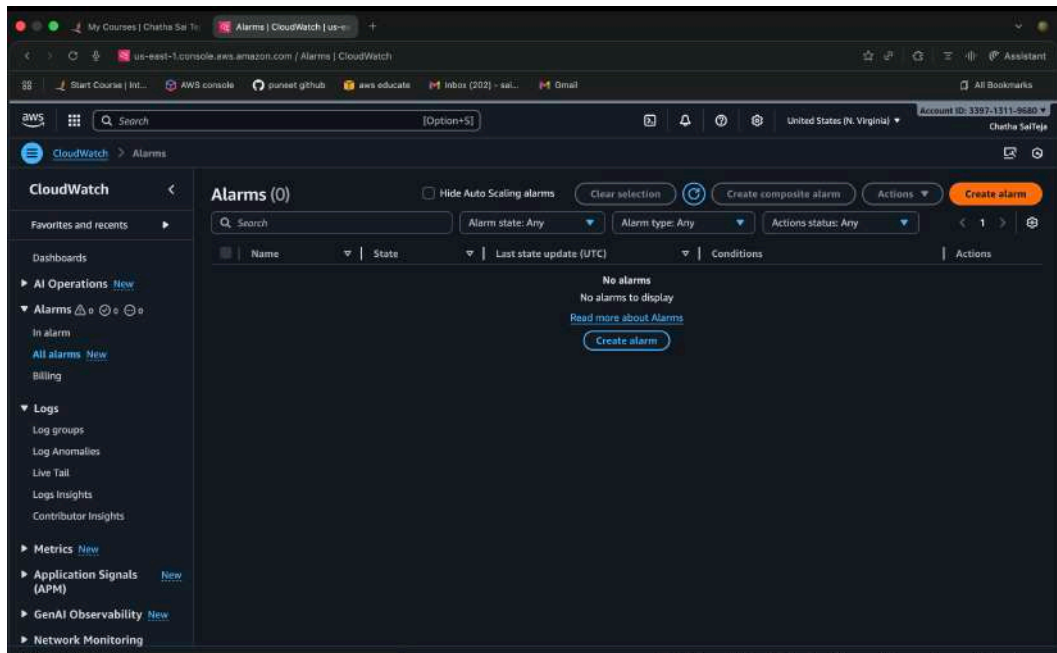
1. Create a CloudWatch billing alarm which goes off when the estimated charges go above \$500.

### **Step-By-Step Procedure:-**

**Step 1:-** To Create a CloudWatch billing alarm we have to go to cloud watch in that click on “All Alarms”.

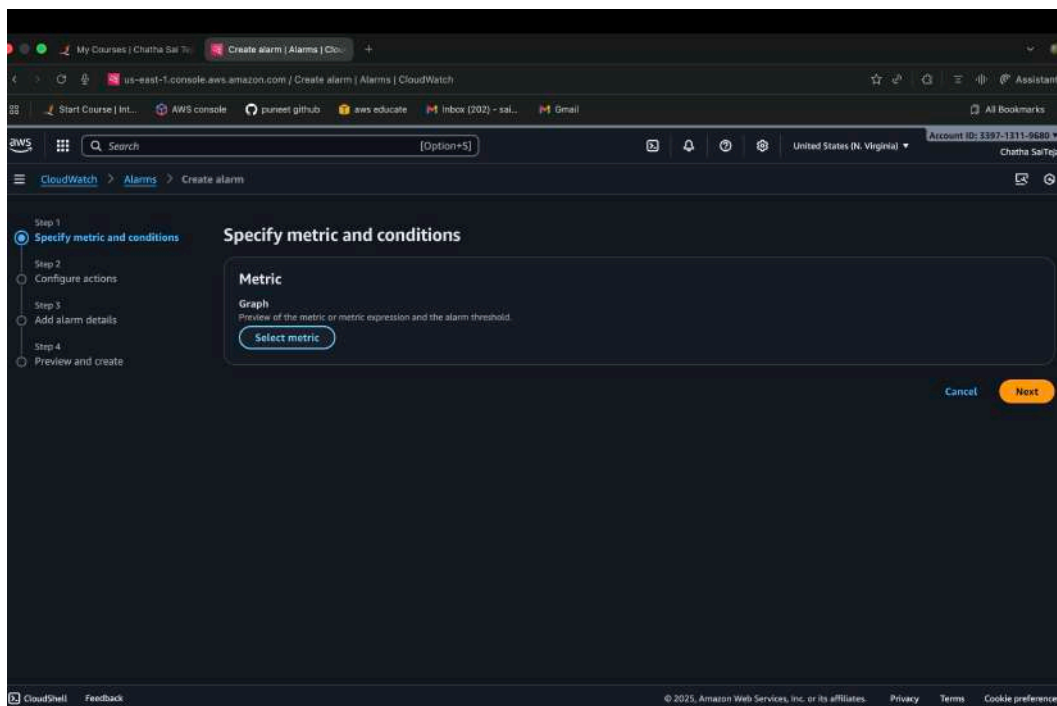


Go to CloudWatch

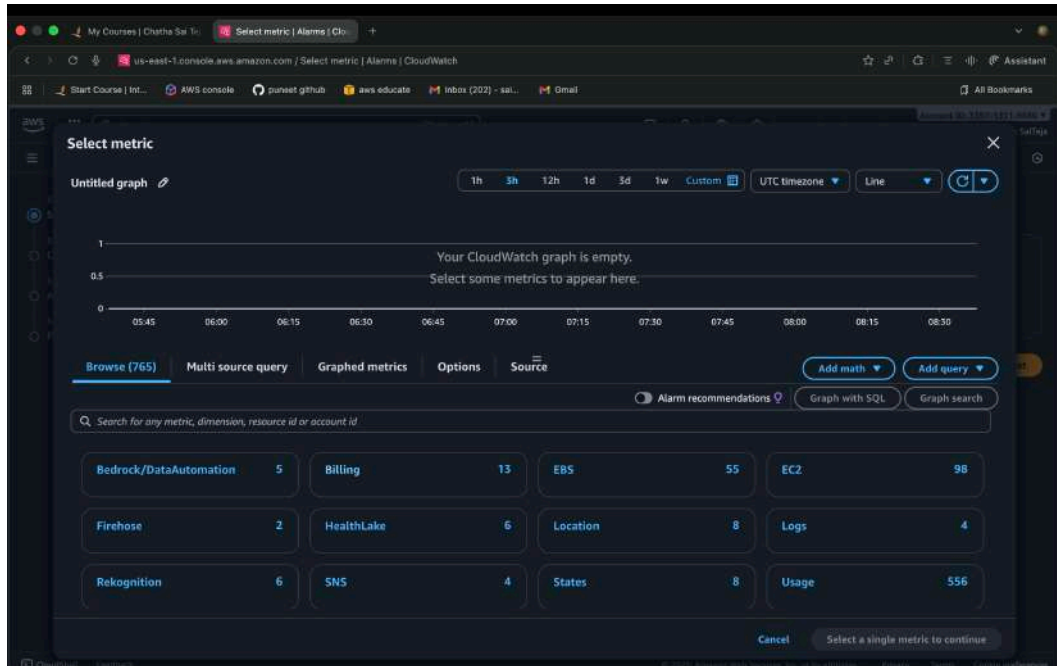


Click On All Alarms

**Step 2:-** Now click on create Alarm before it you have to enable billing alerts then only we can see the Billing namespace, as we click on create alarm we have to specify the metric & select billing.

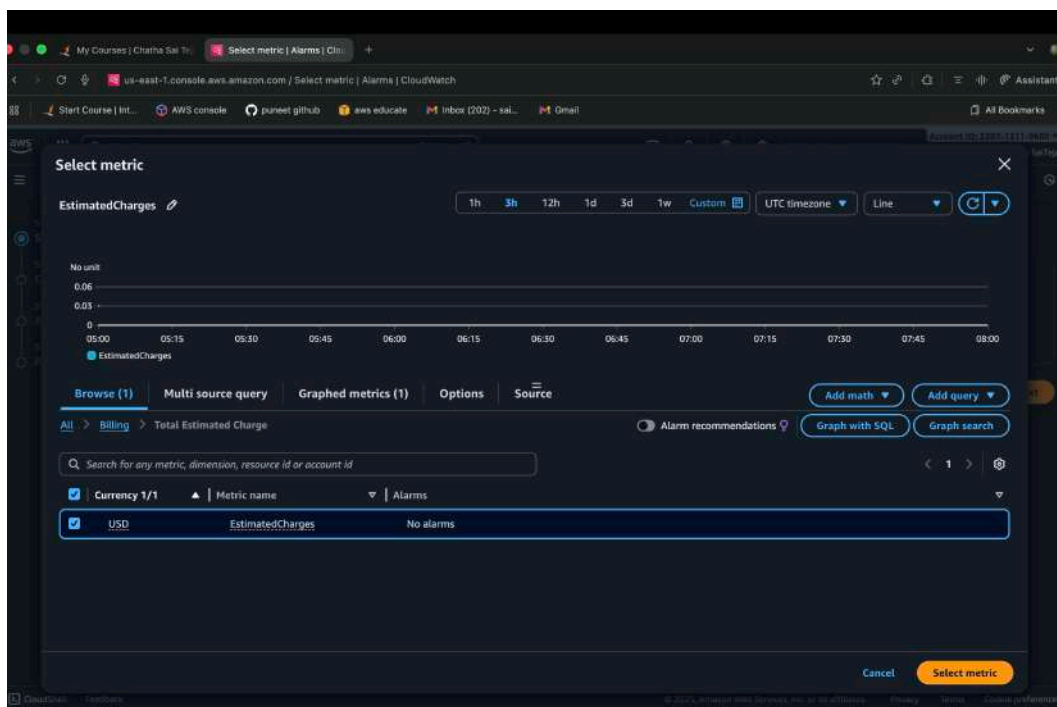


Specify the metric



Select Billing

**Step 3:-** After we selecting billing namespace then we have to select “Total Estimated Charges” in that we select USD currency and click on select metric.



Selecting USD currency

**Step 4:-** After specifying the metric now we have to give the condition for alarm it means ,we have to set a threshold value (500 USD mentioned in the question) ,as billing of an account meets the threshold value then alarm triggers, then click next.

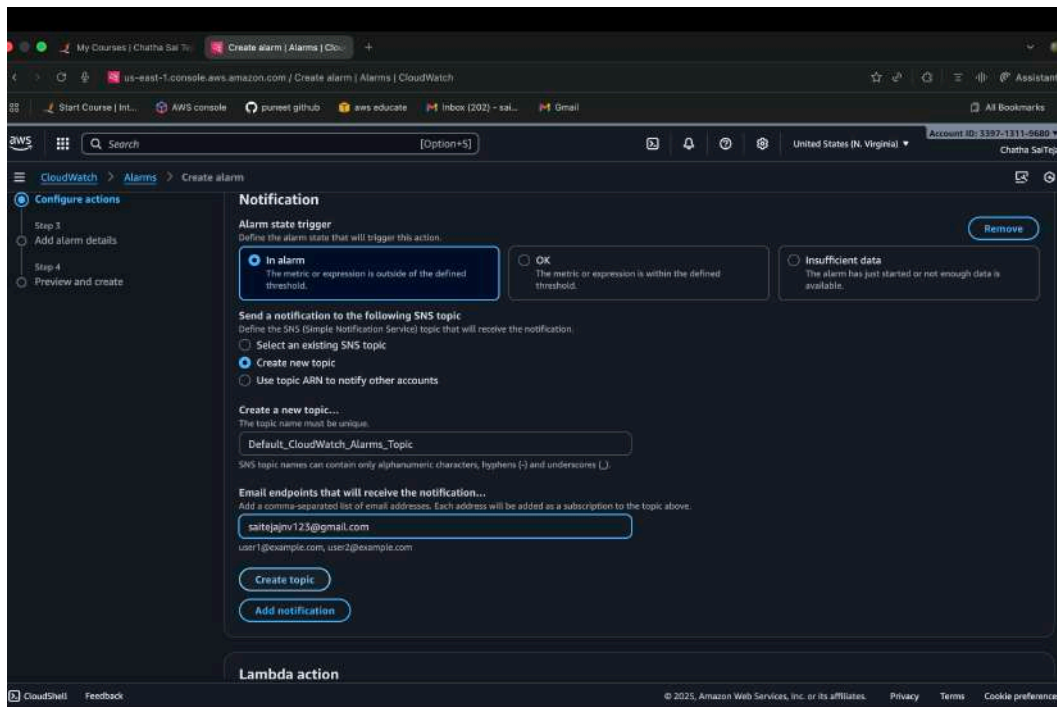
The screenshot shows the 'Create alarm' wizard in the AWS CloudWatch console. In the 'Conditions' section, the 'Threshold type' is 'Static'. The condition is 'Whenever EstimatedCharges is... Greater > threshold'. The threshold value is '500' USD. The 'Period' is '6 hours'. The 'Next' button is highlighted.

Setting Threshold Value(500 USD)

**Step 5:-** Now we have to configure the actions after alarm triggered, we have many actions(lambda action,Ec2 action ,etc..) and also we can send a notification to user by creating a “SNS Topic” first then we have to select it.

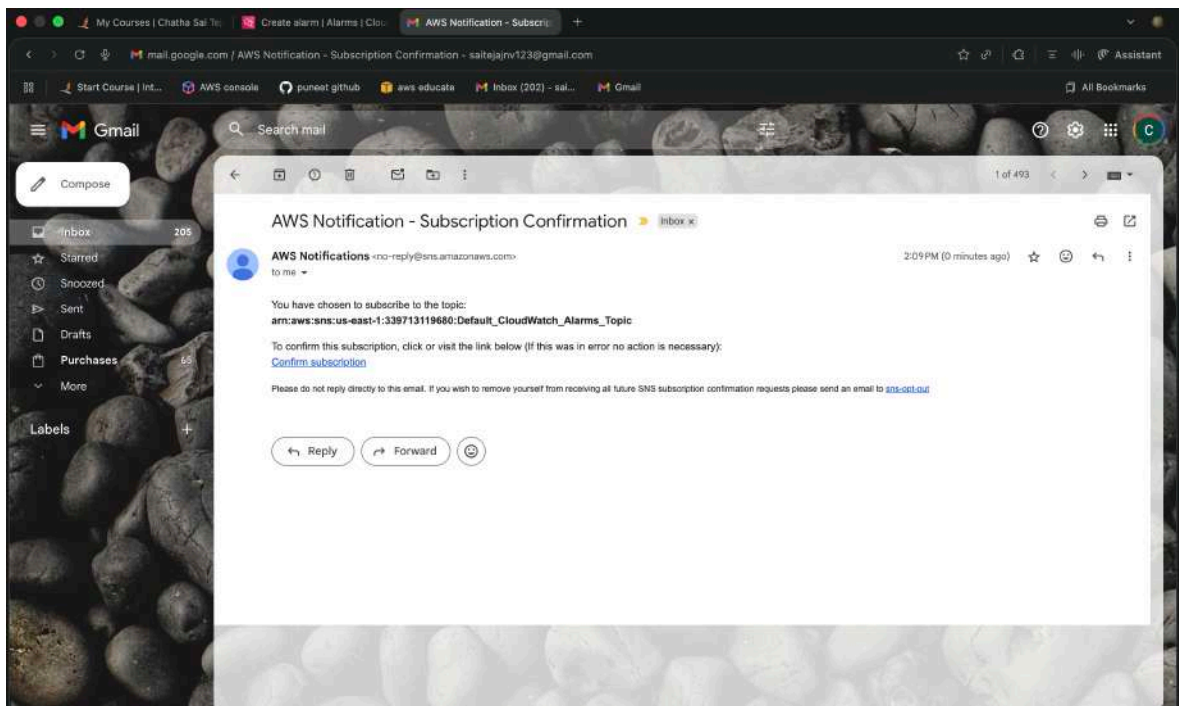
The screenshot shows the 'Configure actions' step in the 'Create alarm' wizard. Under 'Notification', the 'Alarm state trigger' is 'In alarm'. The 'Send a notification to the following SNS topic' section has 'Create new topic' selected. The 'Create a new topic...' section shows the topic name 'Default\_CloudWatch\_Alarms\_Topic' and email endpoints 'user@example.com' and 'user2@example.com'. The 'Create topic' button is highlighted.

Click on create new topic

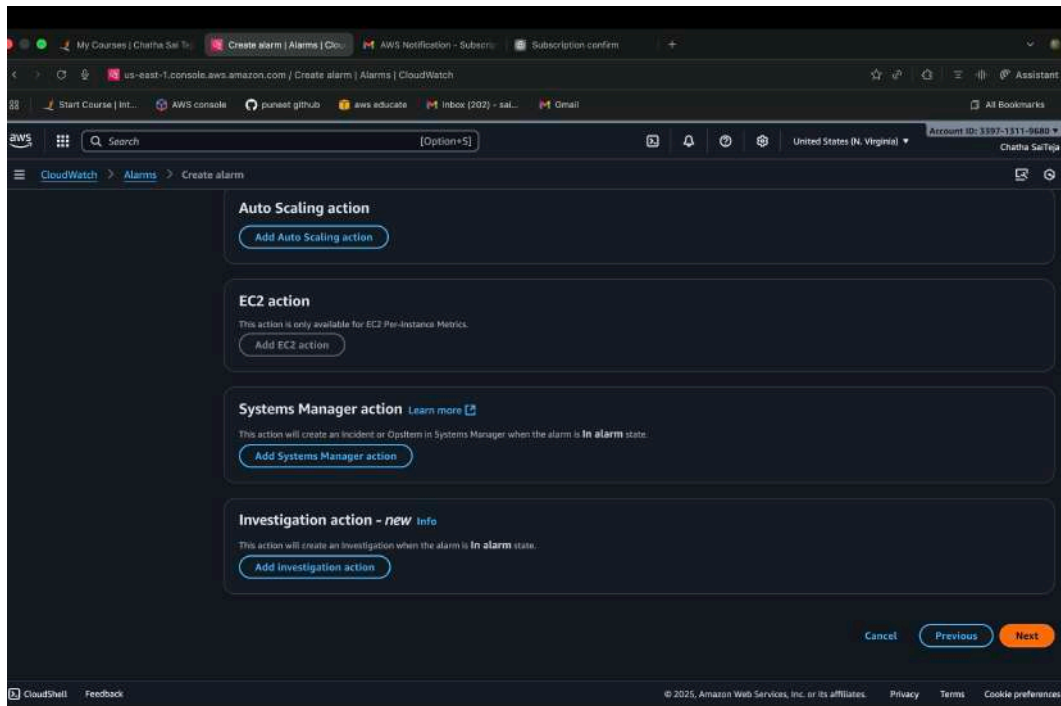


Set an email to get a notification

- As we set an email, we get a subscription mail from AWS to confirm subscription there we have to click and accept the subscription for the billing alarm then click next

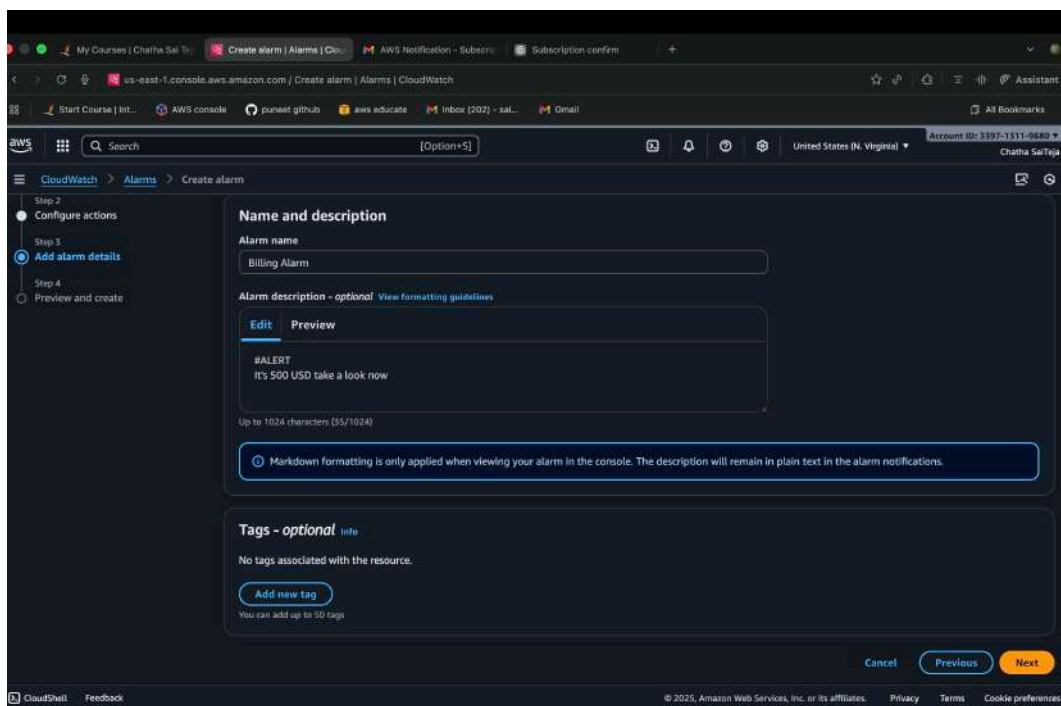


Mail for confirming subscription



Click on next

**Step 6:-** Now we have to specify the alarm name and text for notification it means the text we can see in notification after we have to click next.



Mention the alarm name and preview text for notification



**Step 7:-** in next step we can review the total process we did ,Then we click on create alarm , the alarm triggers if the bill is above 500 USD.

The screenshot shows the AWS CloudWatch 'Create alarm' console. It is divided into two main sections: 'Step 2: Configure actions' and 'Step 3: Add alarm details'. In Step 2, under 'Actions', there is a notification action configured to send a message to the 'Default\_CloudWatch\_Alarms\_Topic' when the alarm is triggered. In Step 3, under 'Alarm details', the 'Name' is 'Billing Alarm' and the 'Description' is '#ALERT It's 500 USD take a look now'. There are no tags added. At the bottom, there are buttons for 'Cancel', 'Previous', and 'Create alarm'.

Review and click on create alarm

The screenshot shows the AWS CloudWatch 'Alarms' console. A green banner at the top indicates 'Successfully created alarm Billing Alarm.' with a 'View alarm' button. Below this, the 'Alarms (1)' section displays a table with one alarm listed. The table has columns for Name, State, Last state update (UTC), Conditions, and Actions.

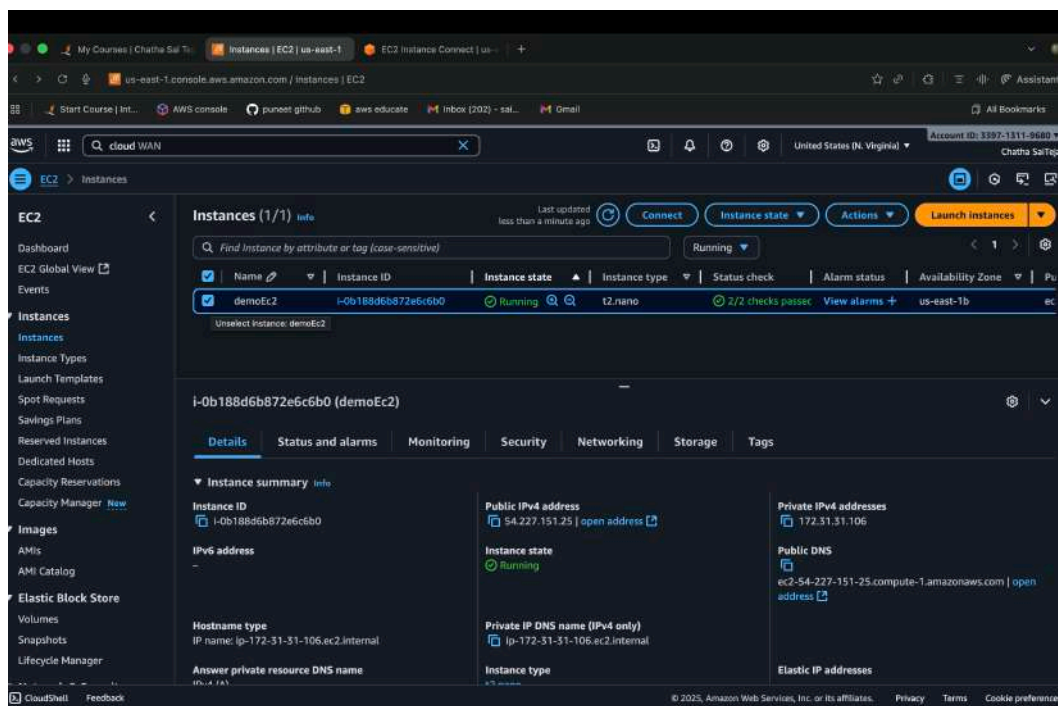
| Name          | State             | Last state update (UTC) | Conditions   | Actions         |
|---------------|-------------------|-------------------------|--|-----------------|
| Billing Alarm | Insufficient data | 2025-10-19 08:41:34     | EstimatedCharges > 500 for 1 datapoints within 6 hours | Actions enabled |

Billing alarm created

2. Create a CloudWatch alarm which goes off to an Alarm state when the CPU utilization of an EC2 instance goes above 65%. Also add an SNS topic so that it notifies the person when the threshold is crossed.

## Step-by-Step Procedure:-

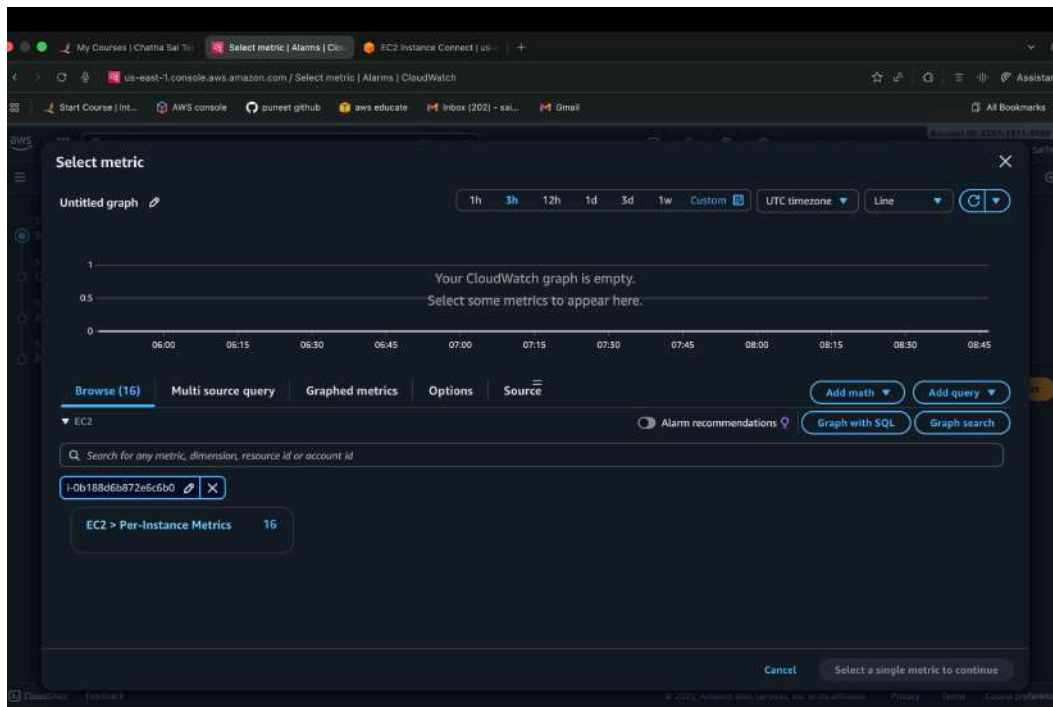
**Step 1:-** This process is similar to creating a billing alarm. Here, we will create a CPU utilization alarm for the EC2 instance which we created in the previous task (demoEc2), Go to All Alarms, click Create Alarm, select the EC2 namespace, and copy the instance ID of demoEc2.



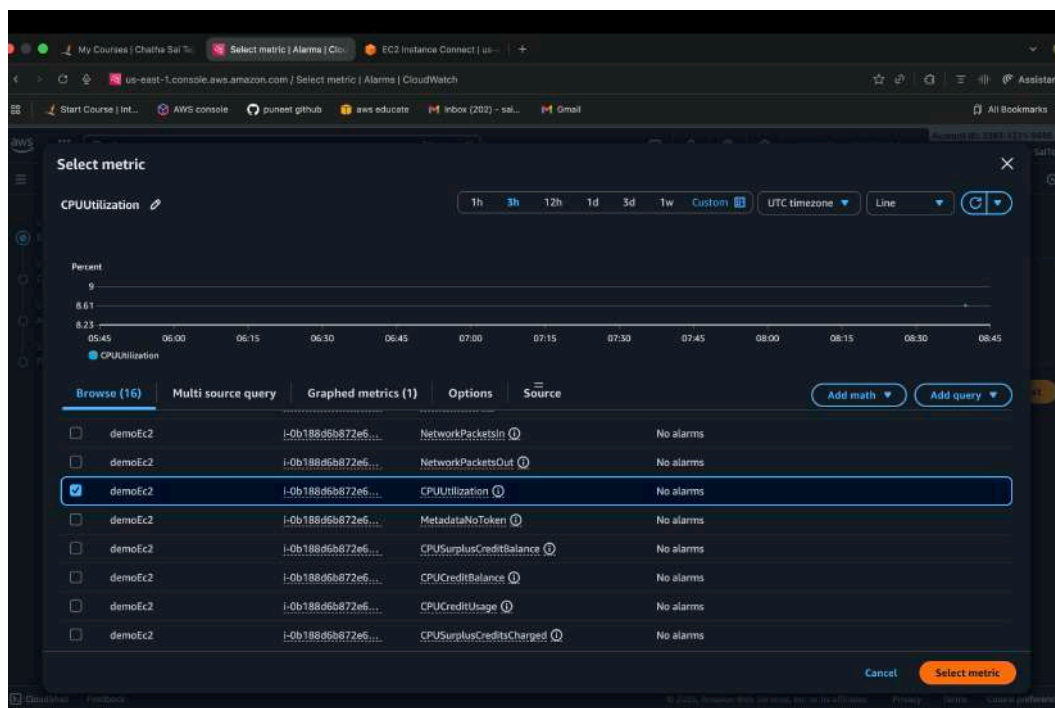
Copy Instance ID

**Step 2:-** After copying the Instance id ,paste it in search bar then we get the “Per Instance Metrics” click on it and select “Cpu Utilization” then click select metric.



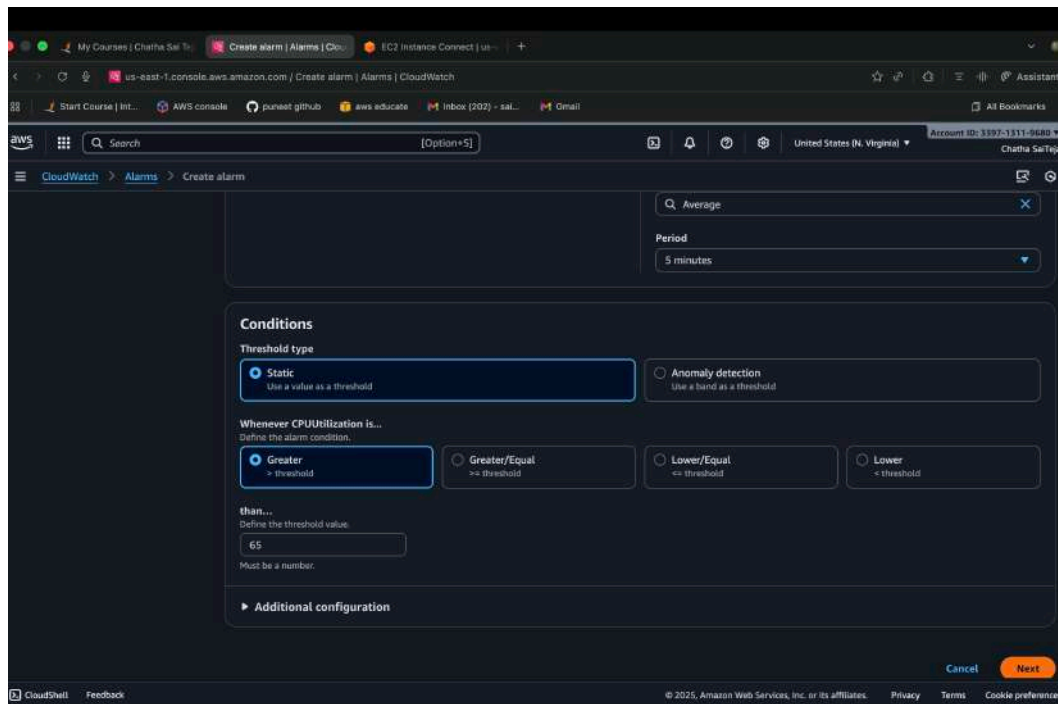


Searching the instance Id to get Per Instance Metrics



Select Cpu Utilization

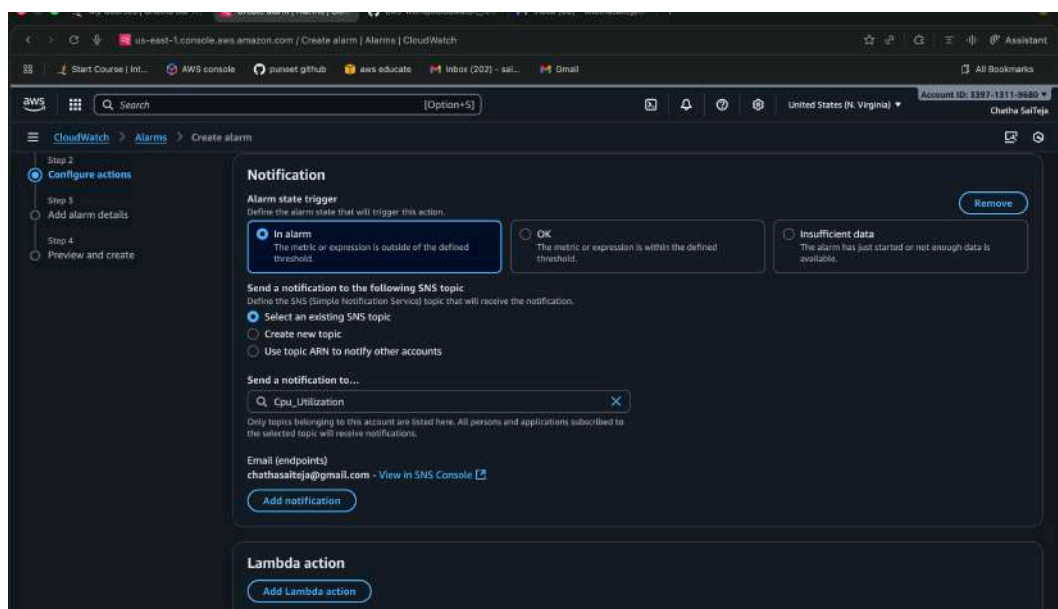
**Step 3:-** Now, specify the CPU utilization condition for the demoEC2 instance by setting the threshold value to 65% (as given in the question), and then click Next.



The screenshot shows the AWS CloudWatch 'Create alarm' console. The 'Conditions' section is active. Under 'Threshold type', 'Static' is selected. The condition is 'Greater' than the threshold value of 65. The period is set to 5 minutes. The 'Additional configuration' section is collapsed. The 'Next' button is visible at the bottom right.

Setting up the threshold value (65%)

**Step 4:-** Configure the action to send a notification to the subscribed topic. Create a new topic, enter your email address to subscribe, and confirm the subscription (just like we did for the billing alarm).



The screenshot shows the AWS CloudWatch 'Create alarm' console, Step 2: Configure actions. The 'Notification' section is active. The 'Alarm state trigger' is 'In alarm'. The notification is sent to the 'Cpu Utilization' SNS topic. The 'Add notification' button is visible. The 'Lambda action' section is collapsed.

Selecting SNS topic

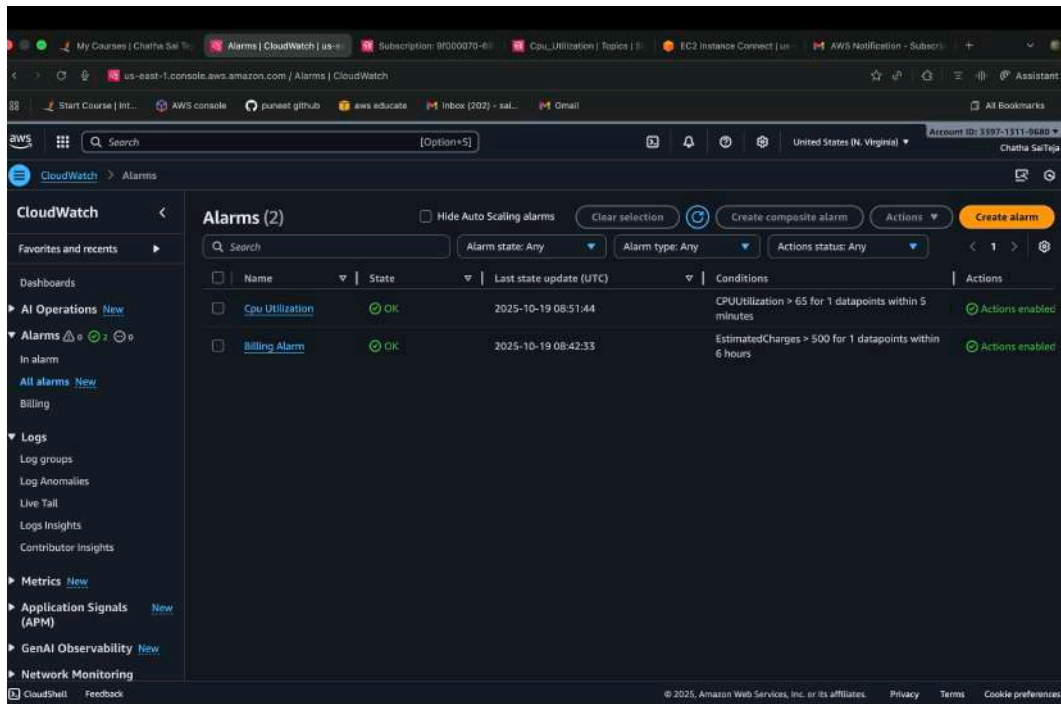
**Step 5:-** Now we have to specify the Name and description of an alarm, click on next then review the total configuration of Cpu Utilization Alarm and click on Create Alarm.

The screenshot shows the AWS CloudWatch 'Create alarm' console. The 'Add alarm details' step is active. The 'Alarm name' field contains 'Cpu Utilization'. The 'Alarm description - optional' field contains 'ALERT' and '65% CPU IS UTILIZED'. The 'Tags - optional' section shows 'No tags associated with the resource.' and a button to 'Add new tag'. The 'Next' button is highlighted in orange.

Specify Alarm name and description

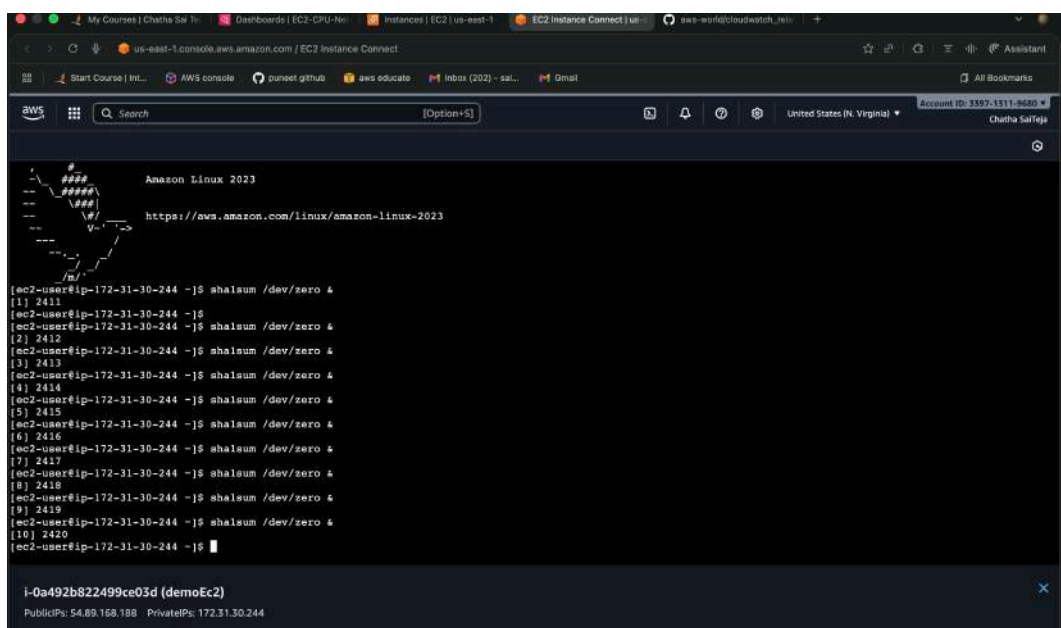
The screenshot shows the AWS CloudWatch 'Create alarm' console. The 'Add alarm details' step is active. The 'Alarm name' field contains 'Cpu Utilization'. The 'Alarm description' field contains 'ALERT' and '65% CPU IS UTILIZED'. The 'Tags (0)' section is visible. The 'Create alarm' button is highlighted in orange.

Click on create Alarm



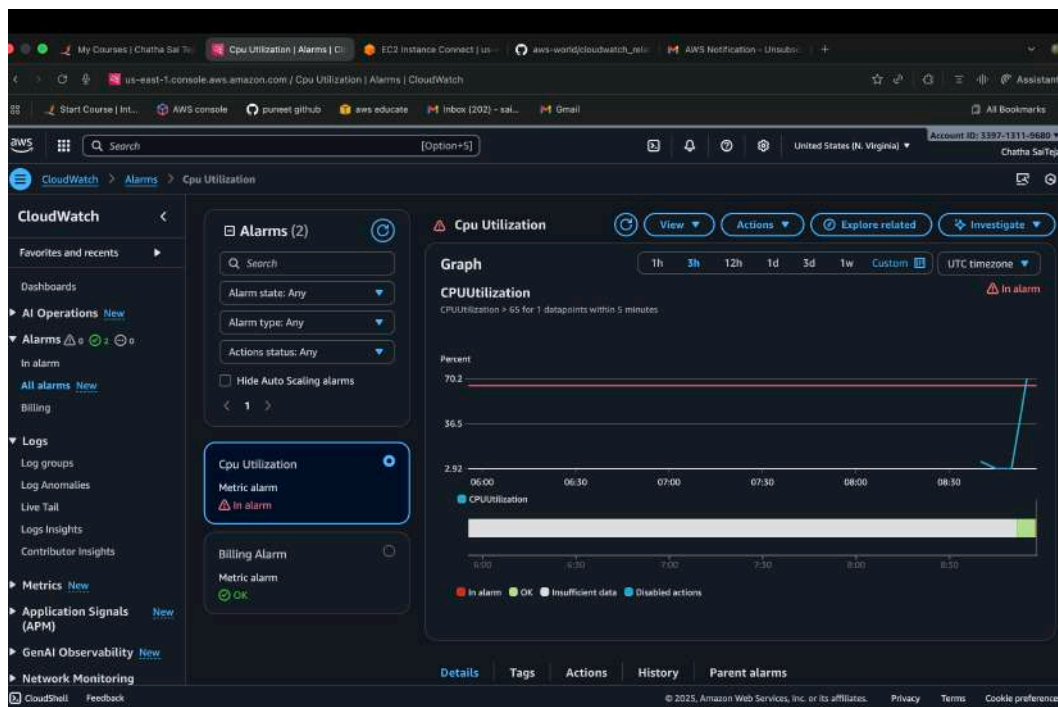
Cpu Utilization Alarm is created

**Step 6:-** To trigger the alarm, the threshold value must be reached. To achieve this, apply stress on the demoEC2 instance by running the command: `sha1sum /dev/zero`, This will increase the CPU utilization and activate the alarm.

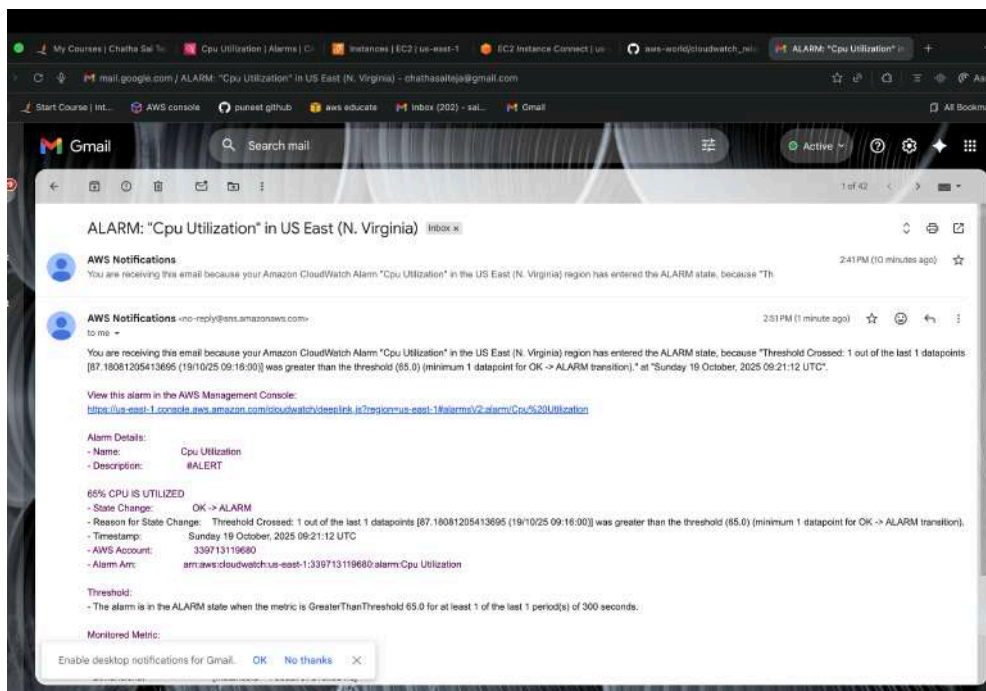


Applying stress on demoEc2

**Step 7:-**As we applied stress on the instance, some CPU resources are utilized. If the utilization exceeds 65%, the alarm is triggered, and a notification is sent to the subscription email.



Alarm is triggered (it exceeded the threshold value)



Notification received to email