“IMPLEMENTING AND MONITORING A WEB SERVER (Using AWS)”

By:

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Overview

Our project is about '**implementing and monitoring a webserver'.** In this project, first we will be implementing a webserver, i.e. **a virtual instance**. To actually have a compute environment to run our workloads, we are launching our instances on amazon web services (AWS) using Amazon **Elastic compute cloud (EC2)** services. We then will be connecting our instance to remote server. Once we get the remote access, we will be hosting our website on virtual instance. we then will be monitoring our web server using CloudWatch and **simple notification service (SNS).** We will be triggering the alarm.

AWS SERVICES USED:

1. **EC2 (ELASTIC CLOUD COMPUTING):**EC2 is a Web Service that enables you to Launch and manage LINUX/UNIX and WINDOWS server instances in Amazon's Data center.

(AMAZON EC2)

2. **SNS (SIMPLE NOTIFICATION SERVICE):** Amazon Simple Notification Service (SNS) is a highly available, durable, secure, fully managed pub/sub messaging service that enables you to decouple microservices, distributed systems, and serverless applications. Amazon SNS provides topics for high-throughput, push-based, many-to-many messaging.

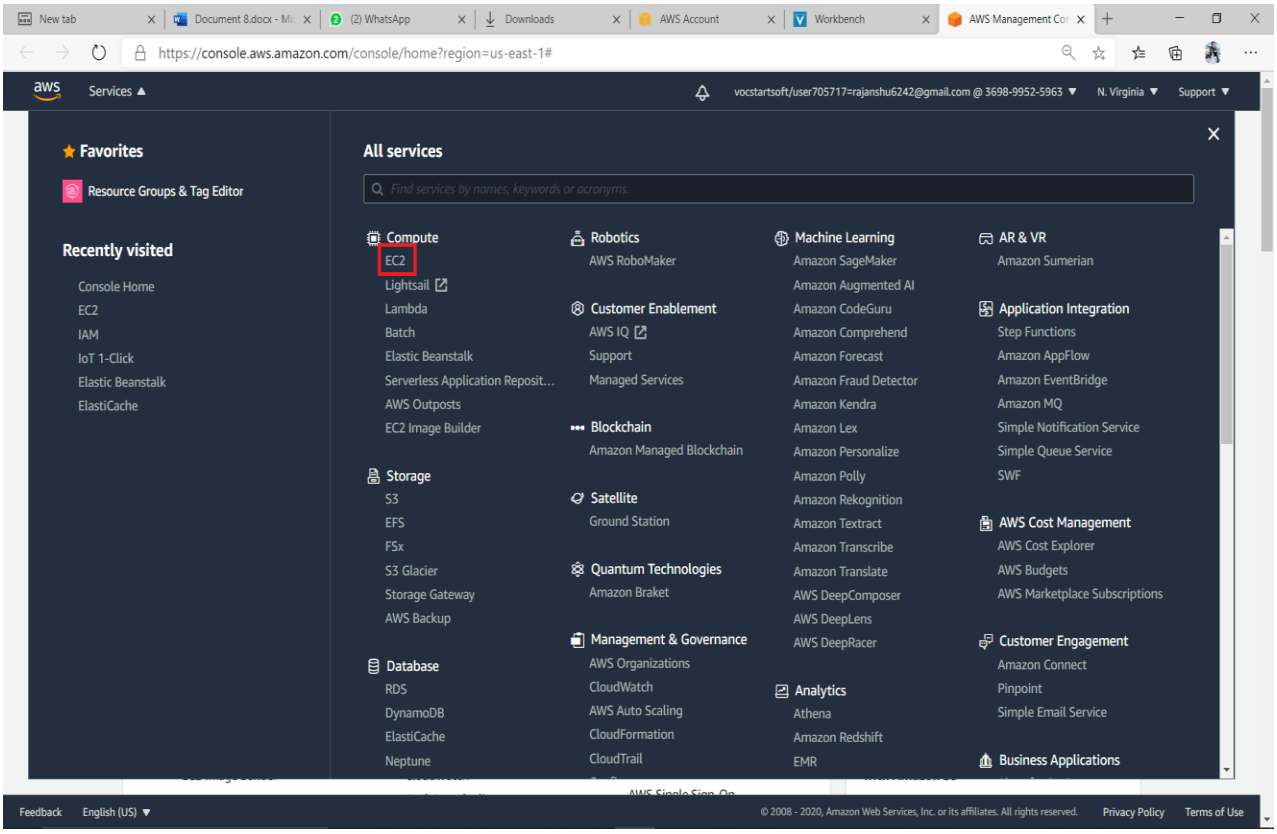
(AMAZON SNS)

3. **CLOUDWATCH:** Amazon CloudWatch is a monitoring and observability service built for DevOps engineers, developers, site reliability engineers (SREs), and IT managers.

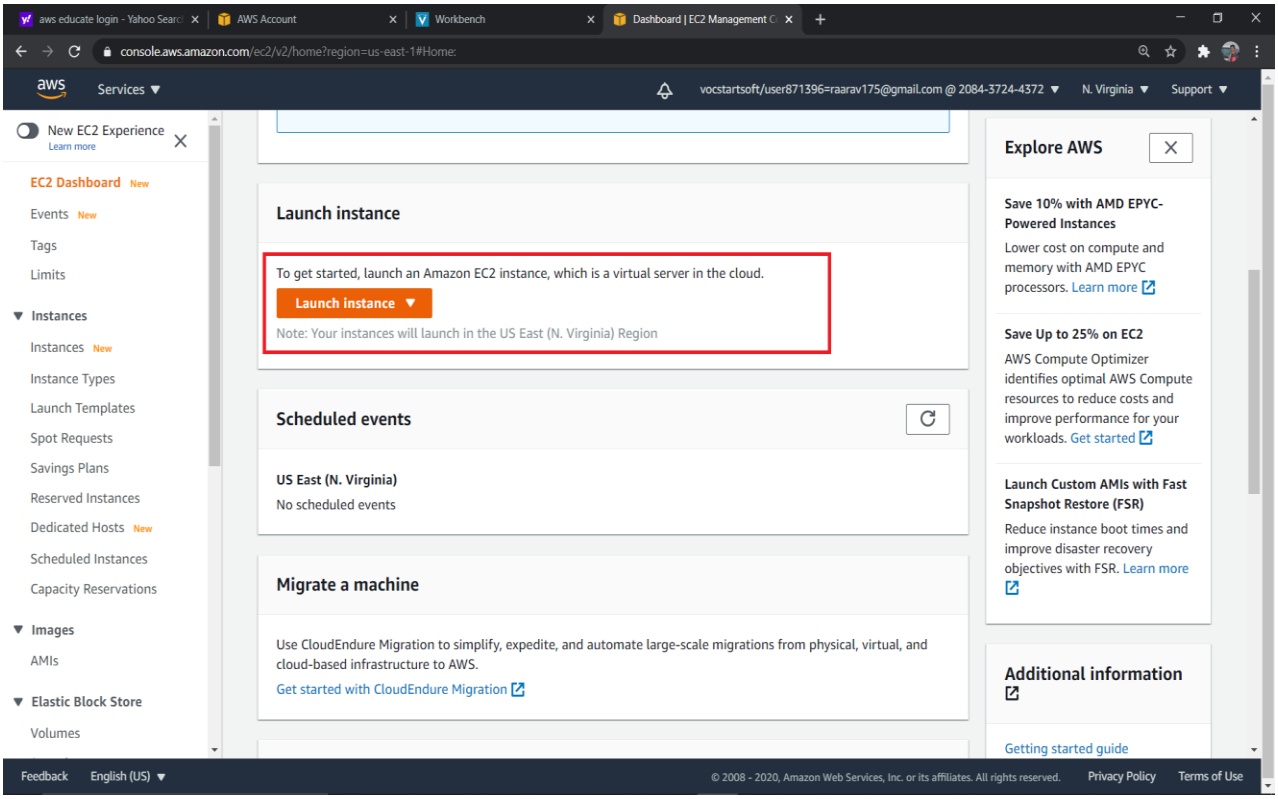
(CLOUDWATCH)

“Creating an EC2 instance and Implementing web server on it “

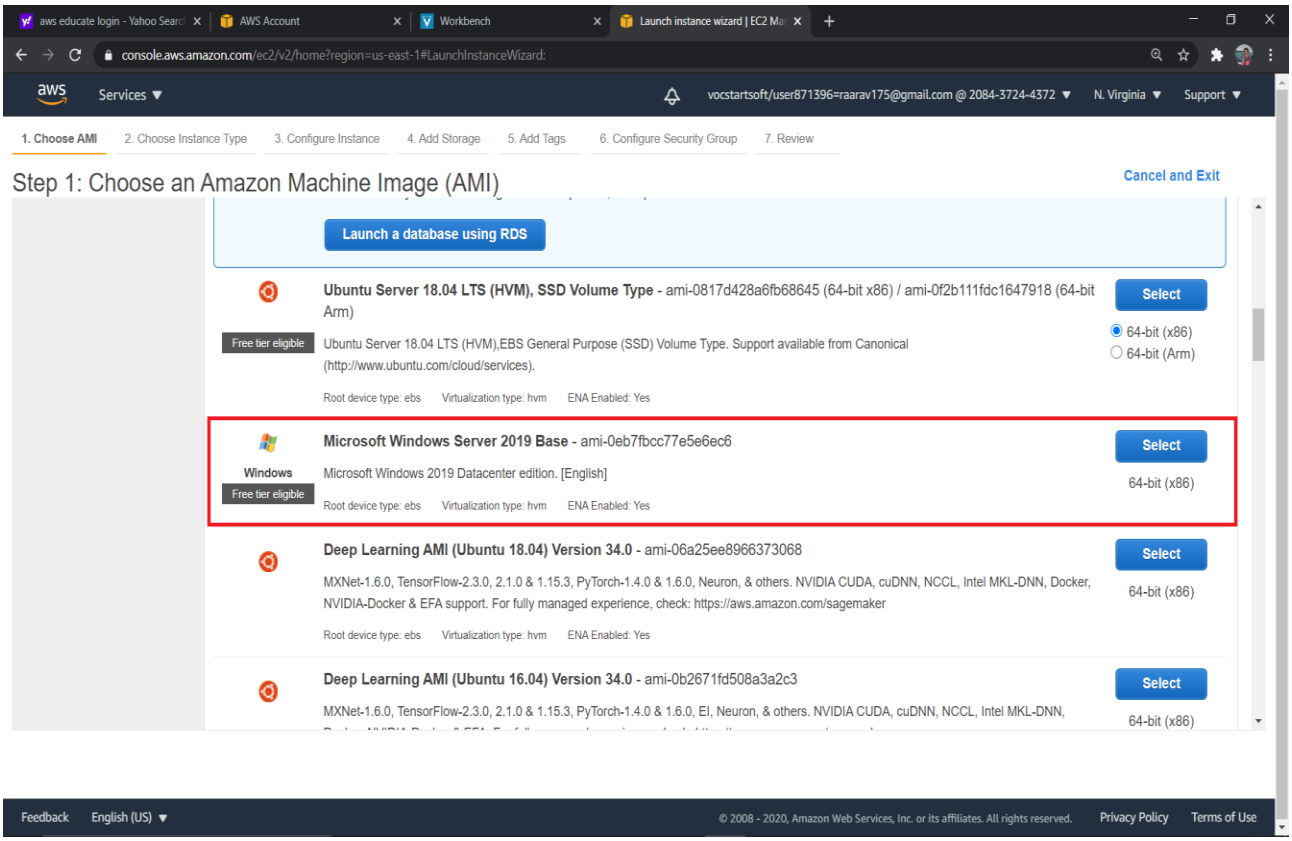
STEP 1: Login to AWS account and click on ‘EC2’ under All Services section.



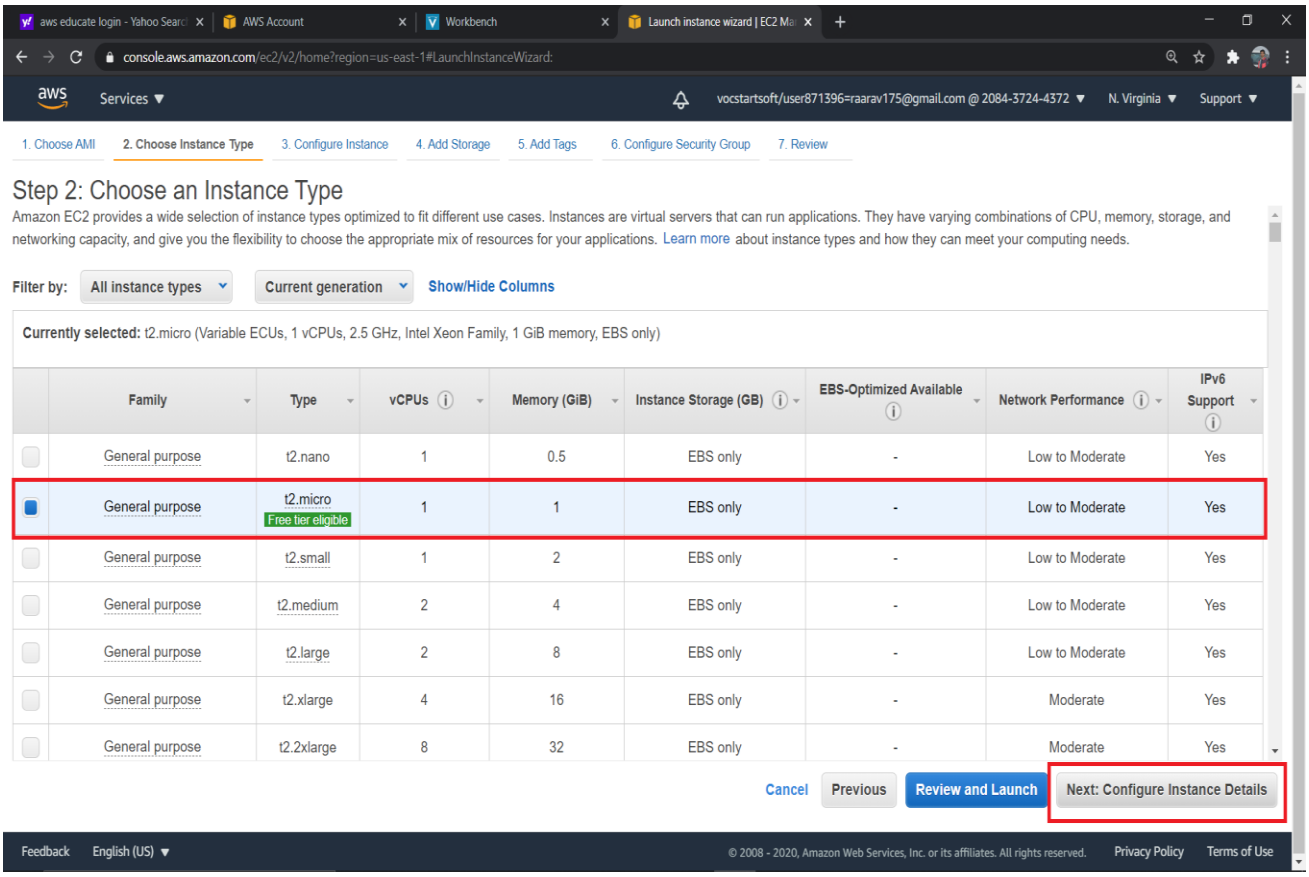
STEP 2: Click on ‘Launch Instance’ and from the dropdown launch it.



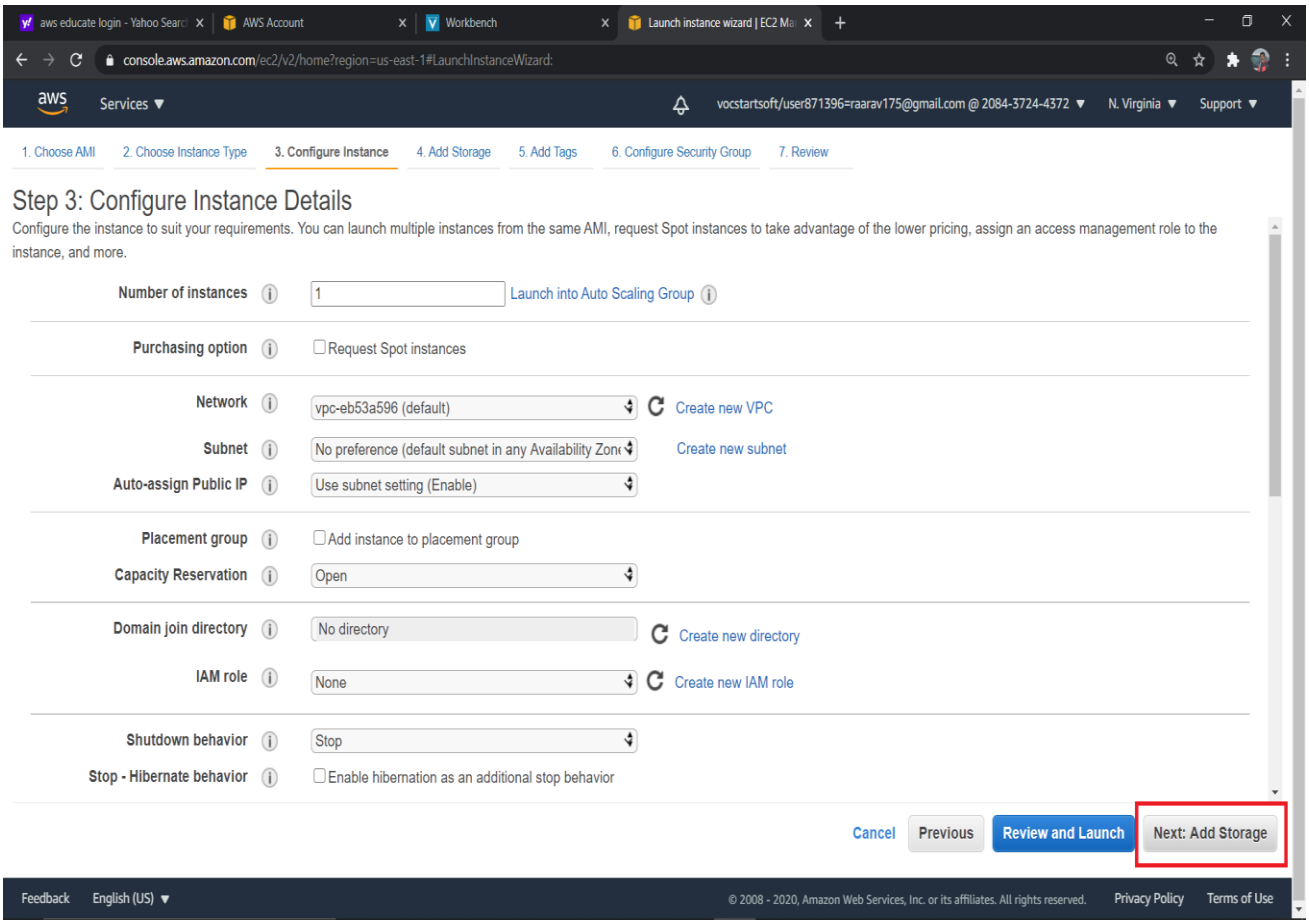
STEP 3: Select an Amazon Machine Image (AMI) of ‘Microsoft Windows Server 2019 Base’.



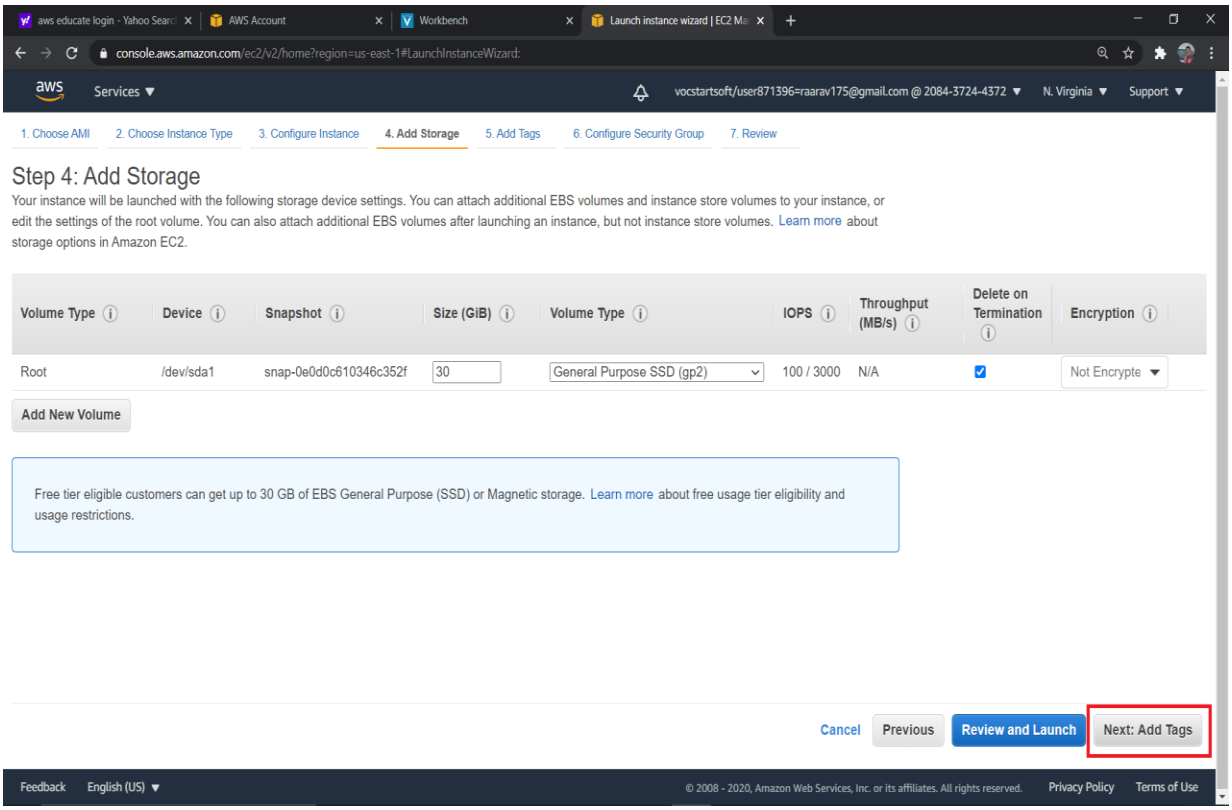
STEP 4: Choose a ‘t2. micro’ instance which have 1 vCPU and have IPv6 Support and Click on “Next: Configure Instance Details”



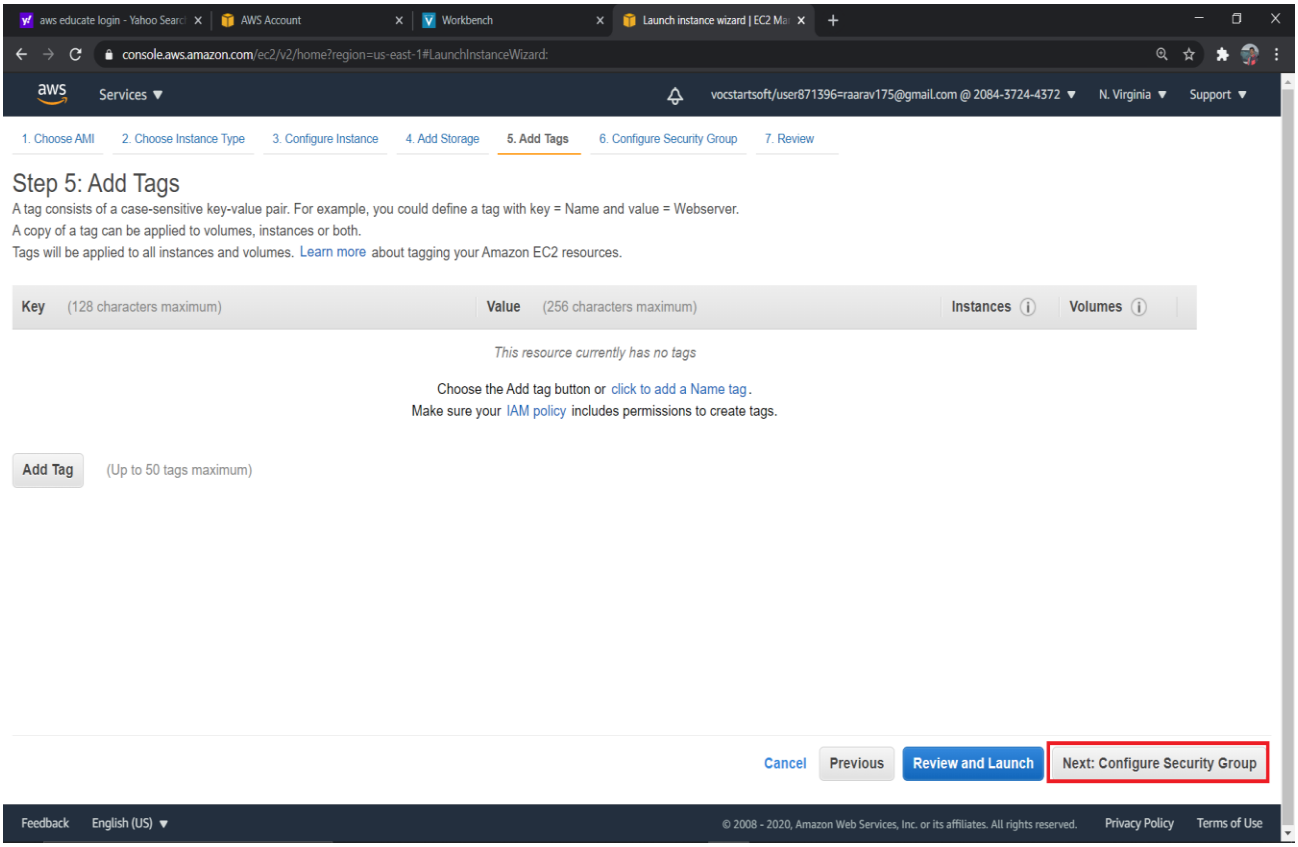
STEP 5: Keep Everything as it is and Click on “Next: Add Storage”.



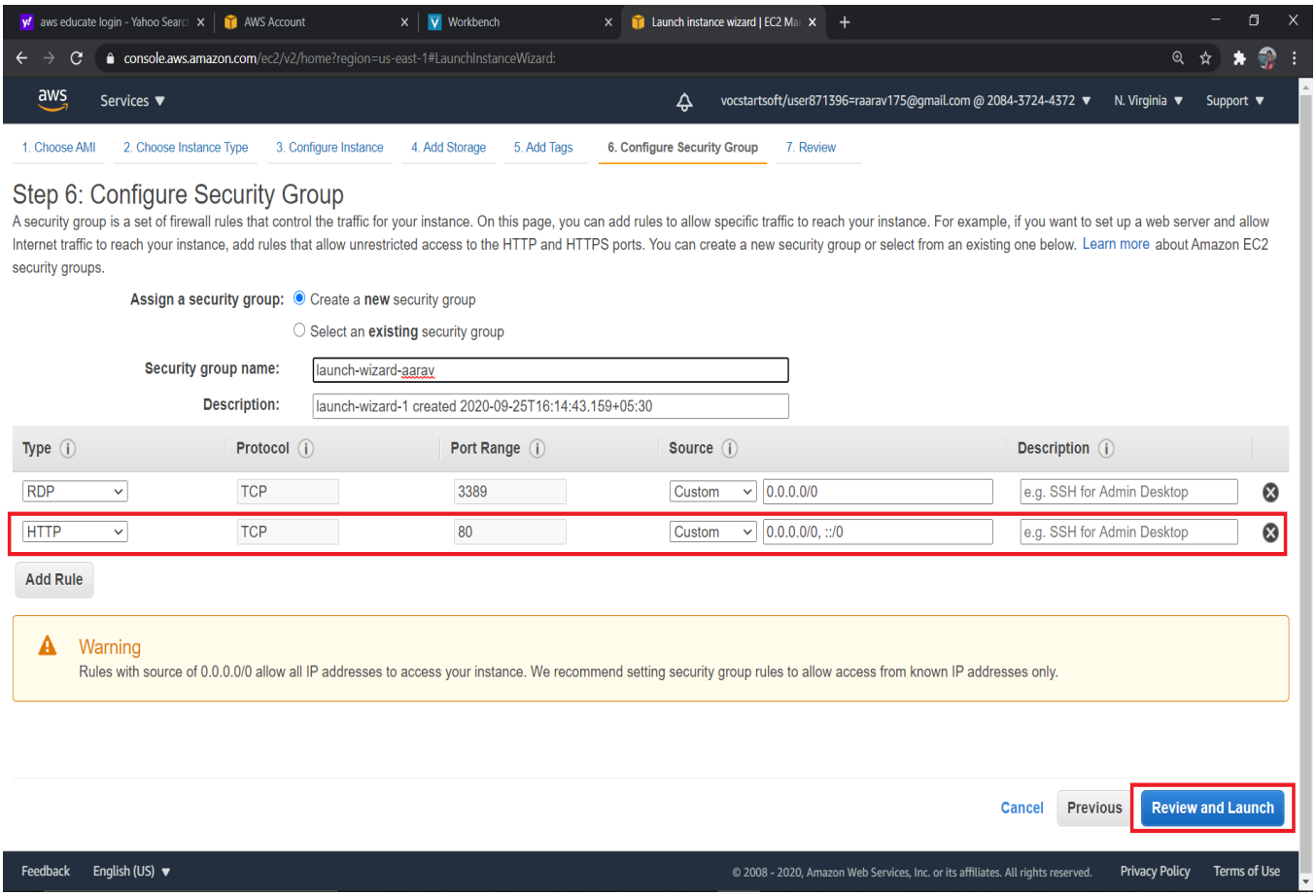
STEP 6: Don’t make any changes and Click on “Next: Add Tags”.



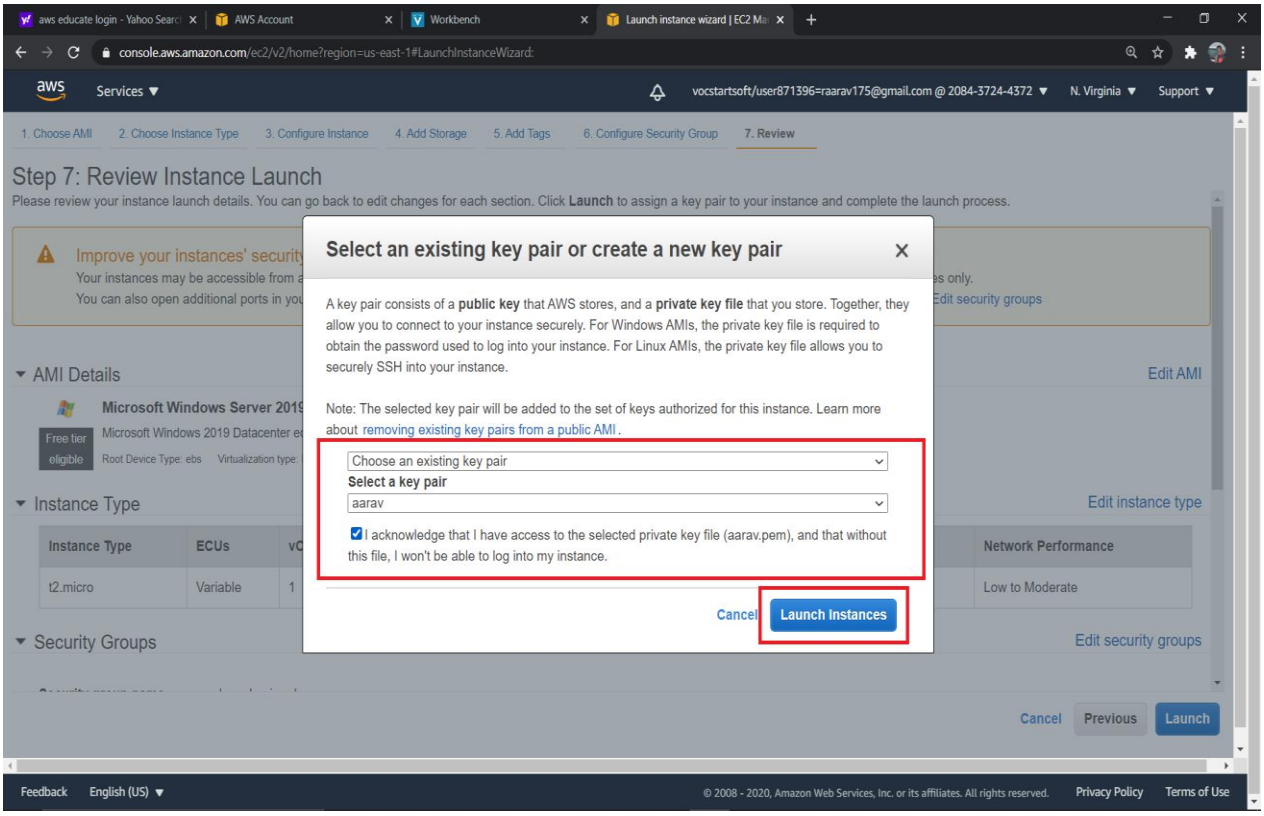
STEP 7: Don't make any Changes and click on "Next: Configure Security Group"



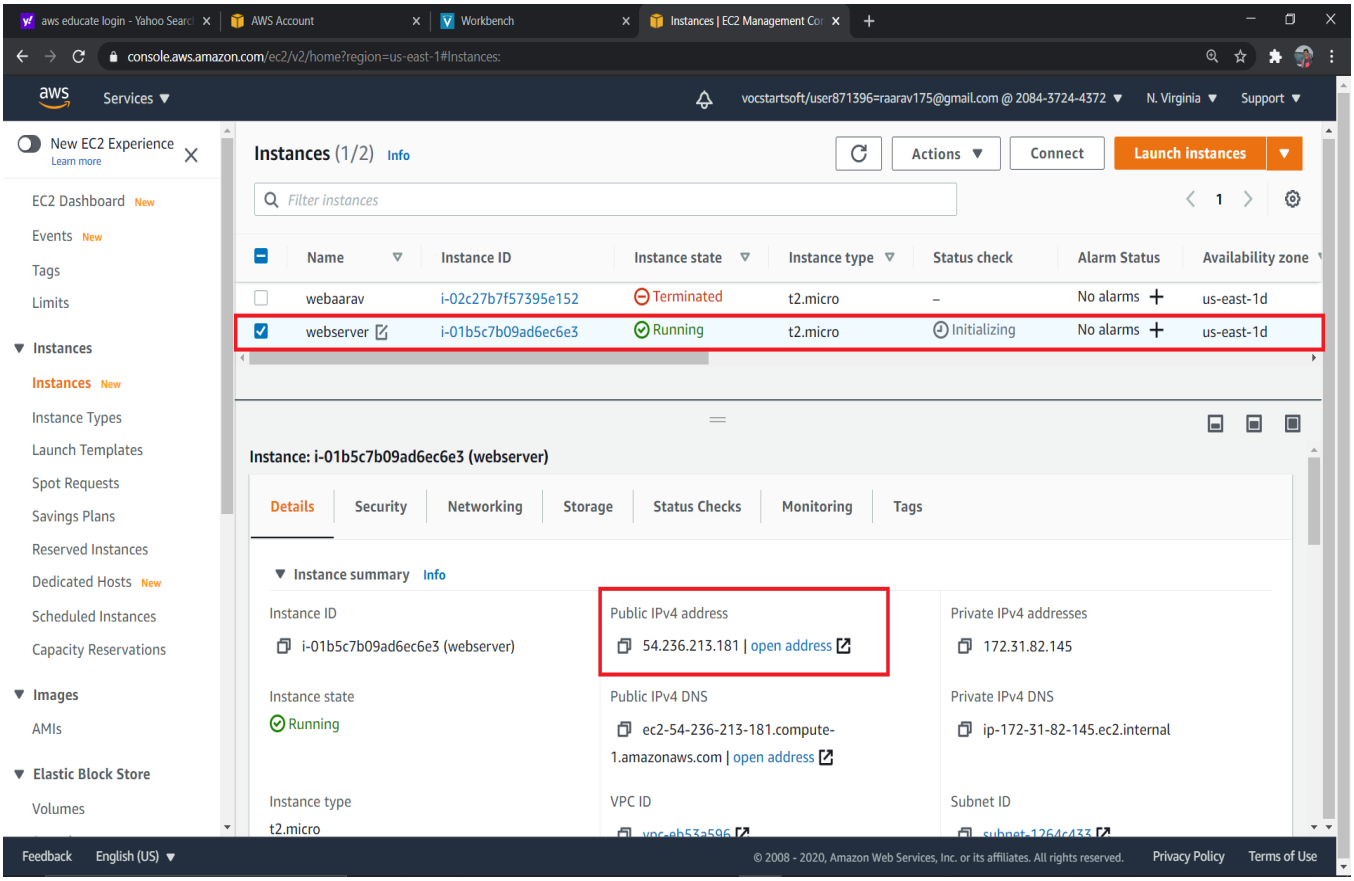
STEP 8: Click on Add Rule and Choose HTTP. Now Click on "Review and Launch".



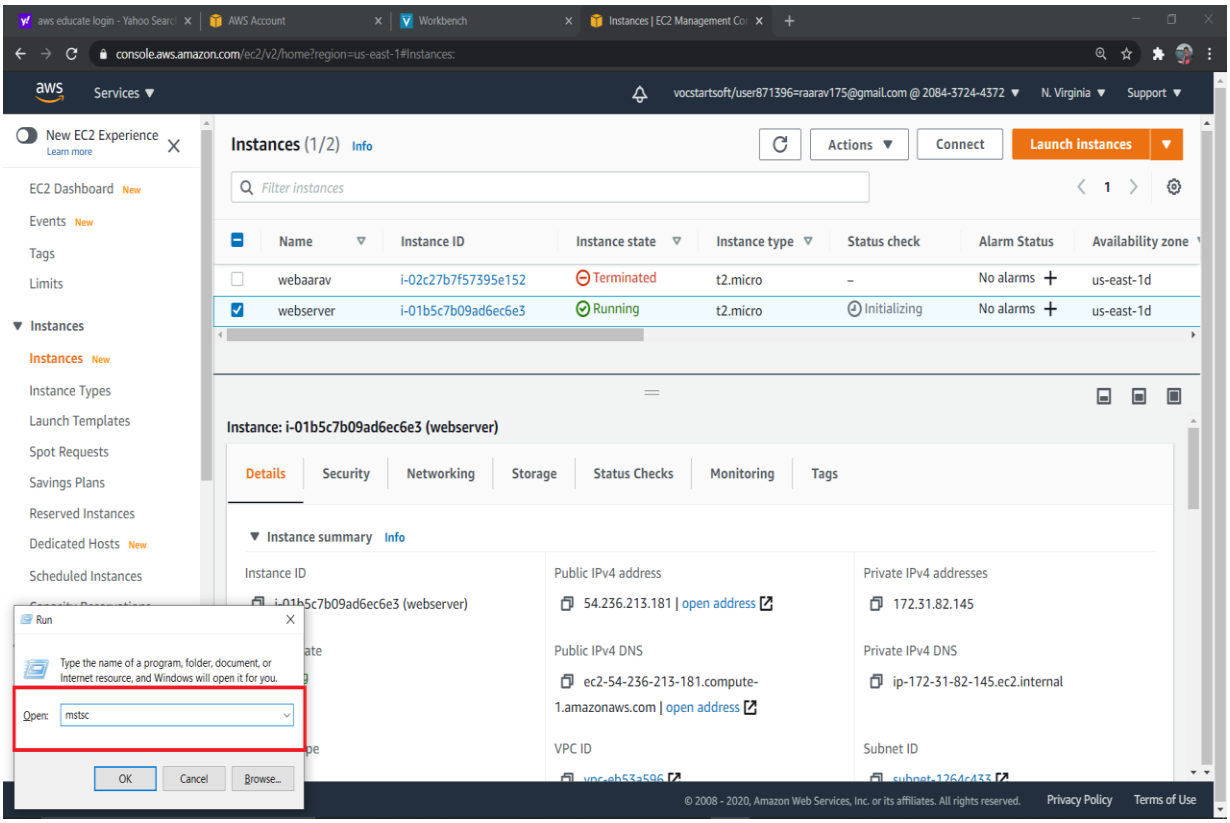
STEP 9: Select "Choose an existing key pair" or "Create a new pair", check that box and click on "Launch Instance".



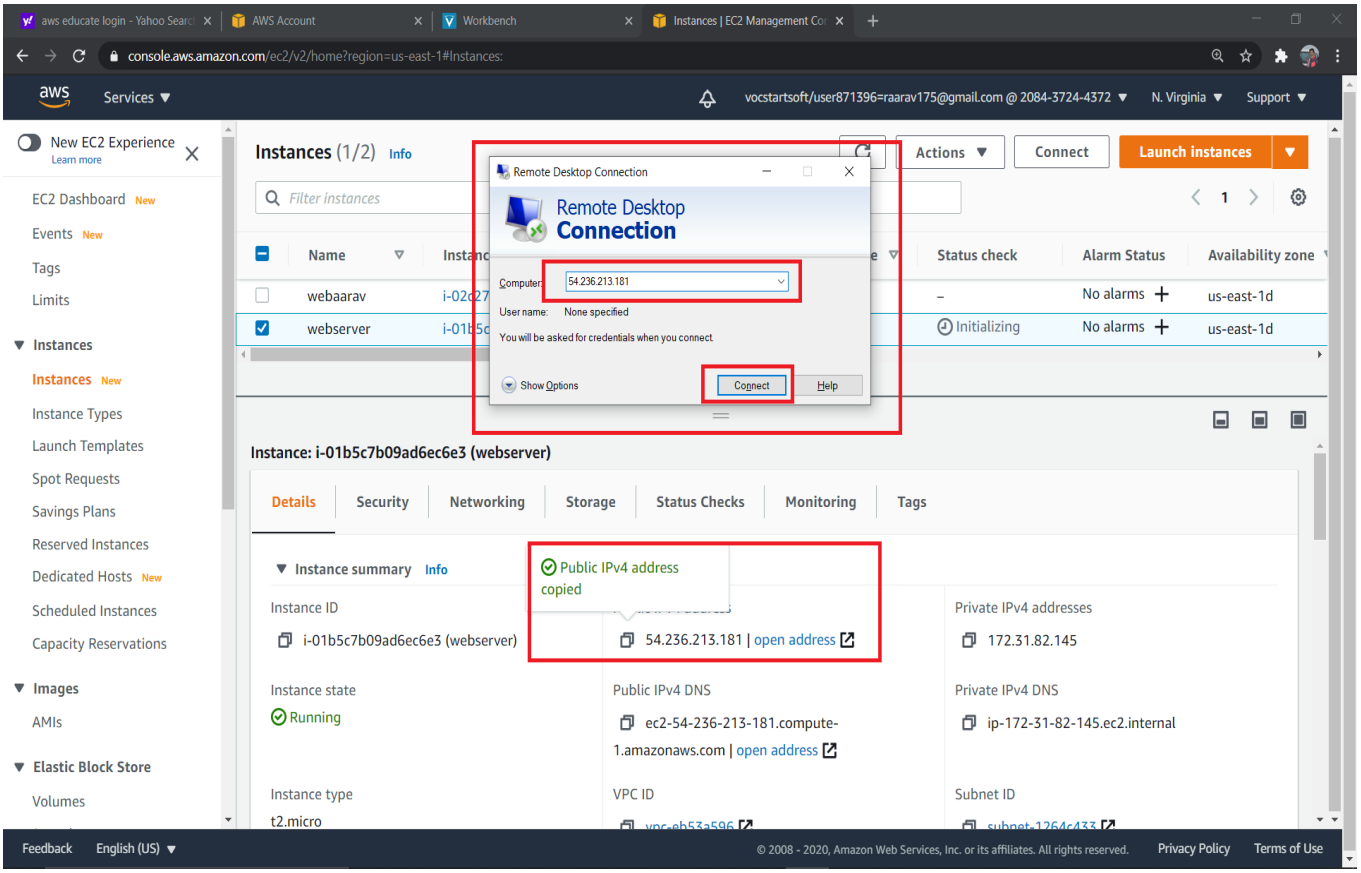
STEP 10: check your instance box and name it accordingly. Copy the Public IPv4 address.



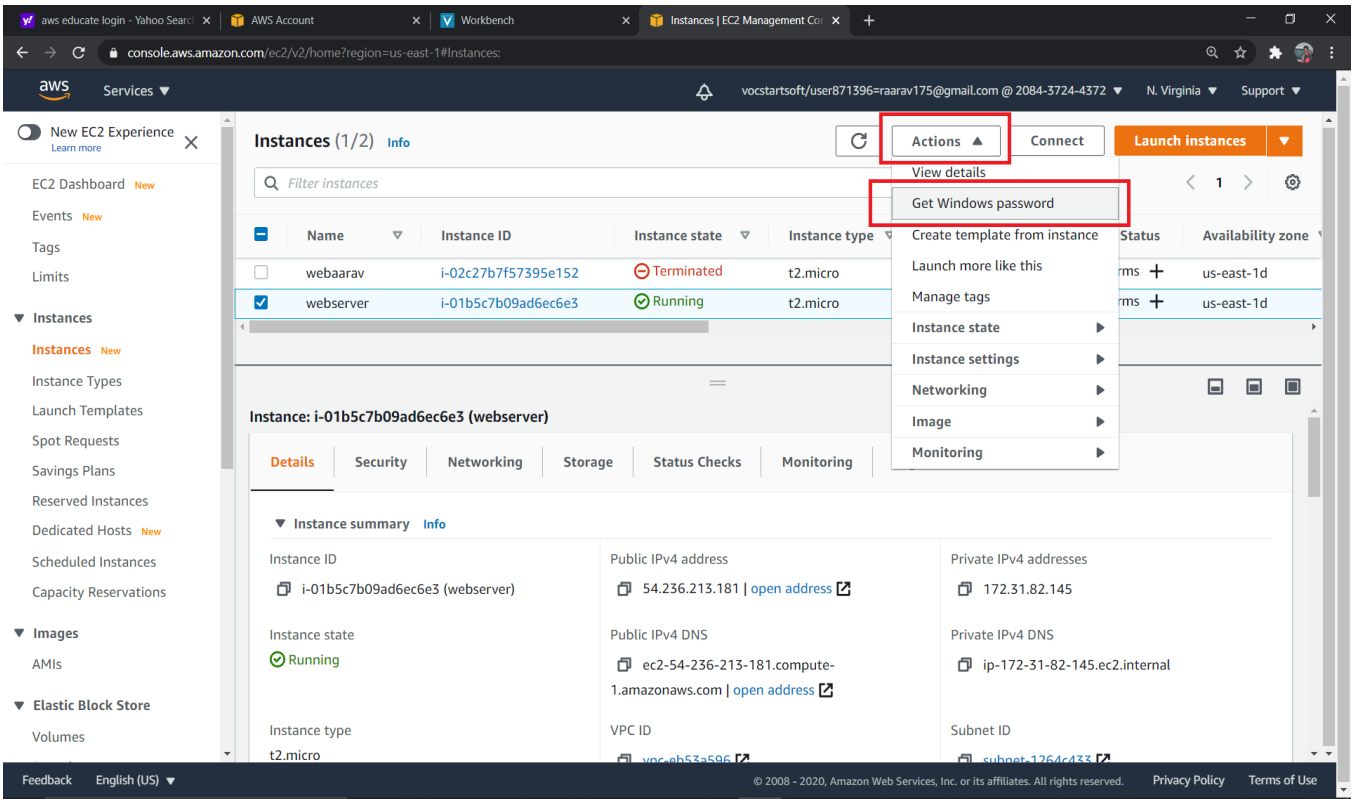
STEP 11: press ‘win+R’ key (open Run terminal) and type ‘mstsc’ and hit OK.



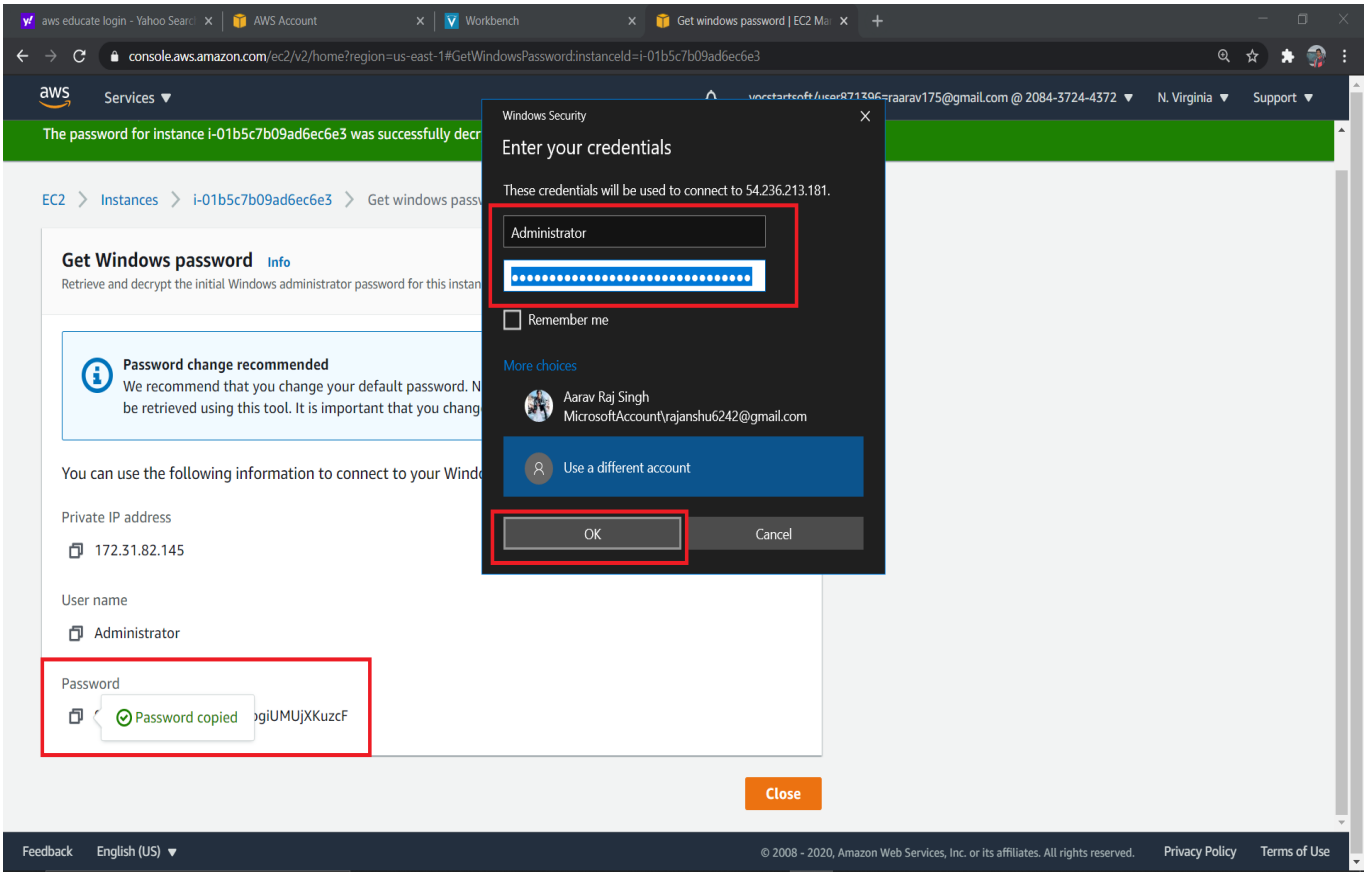
STEP 12: Copy ipv4 of the instance and then paste it in remote connection. Then click on connect.



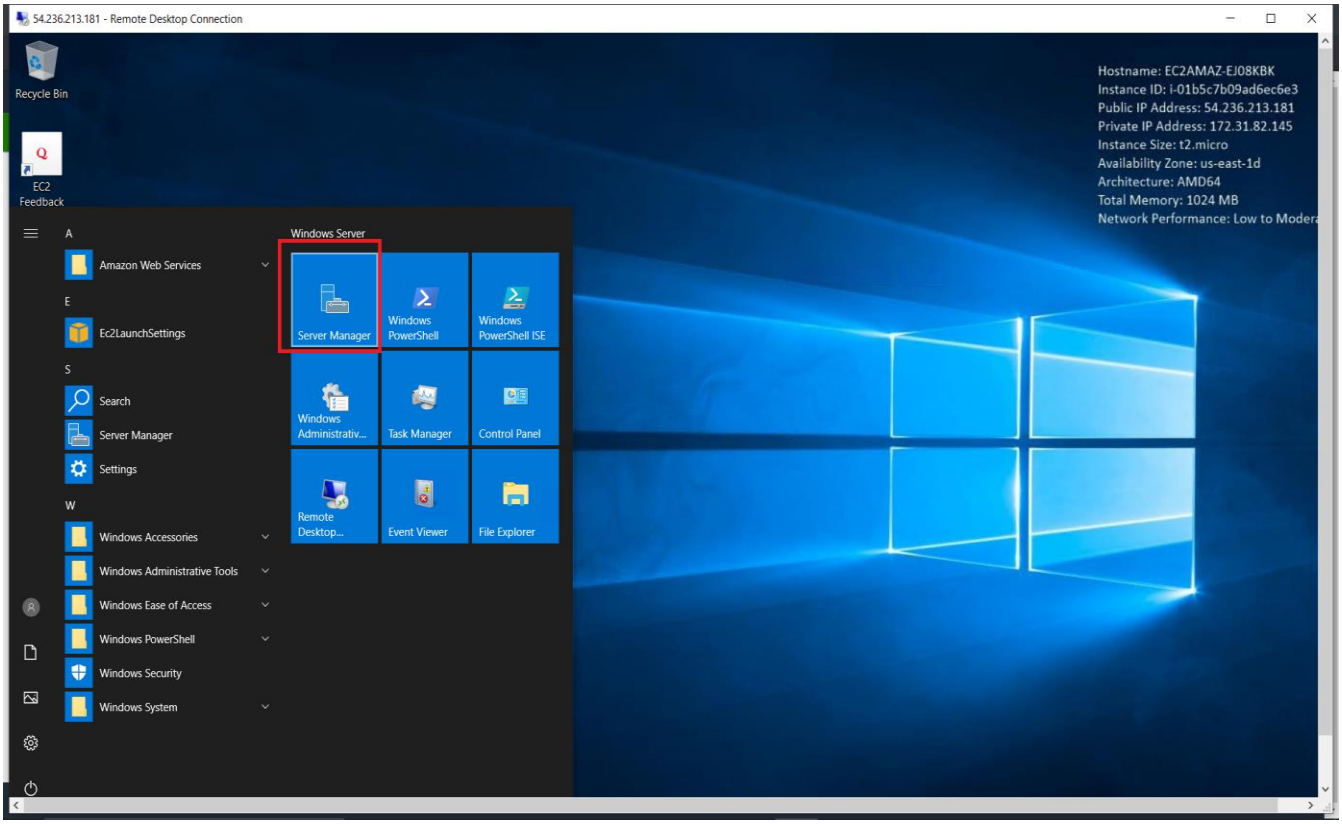
STEP 13: Go to your instance window and then click on actions. Get password from there.



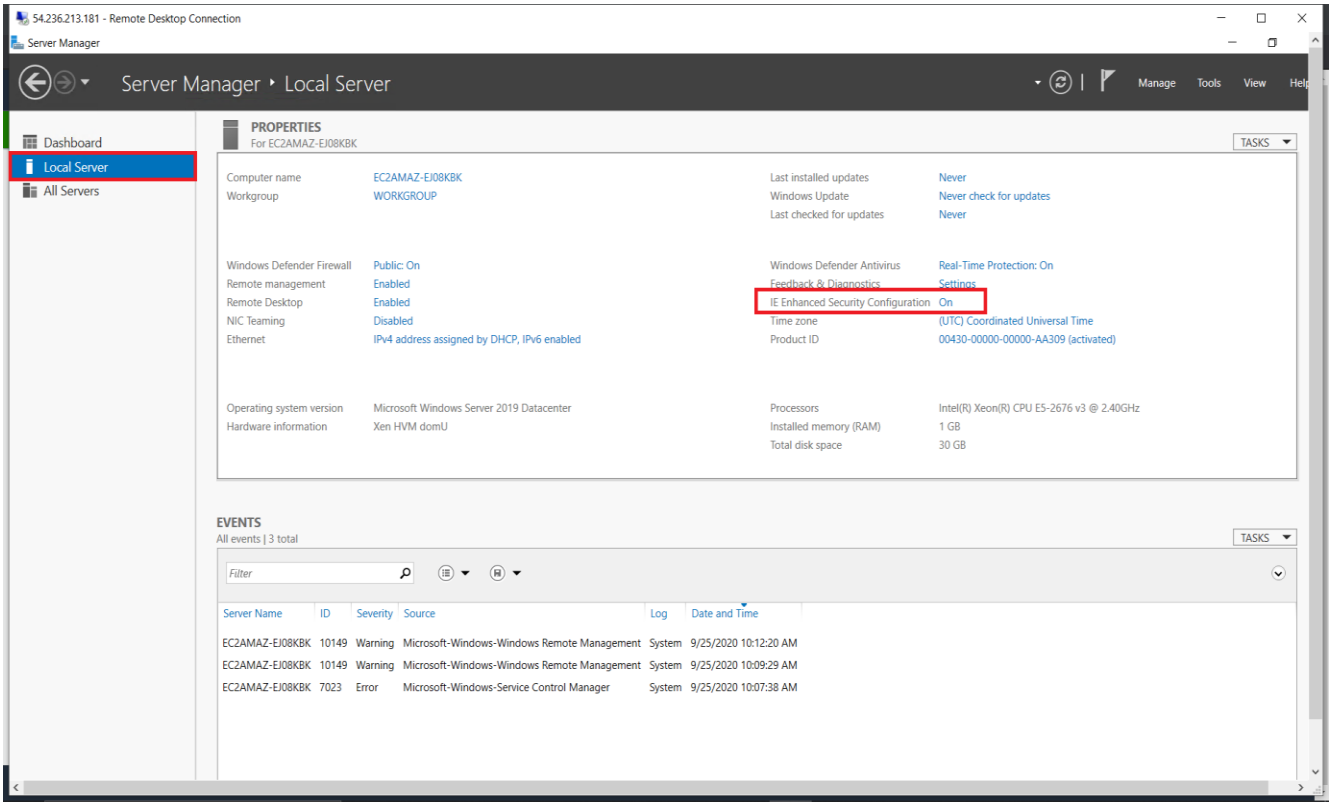
STEP 14: Go to your remote connection and enter your username as "Administrator" and copy the password from get password then paste it.



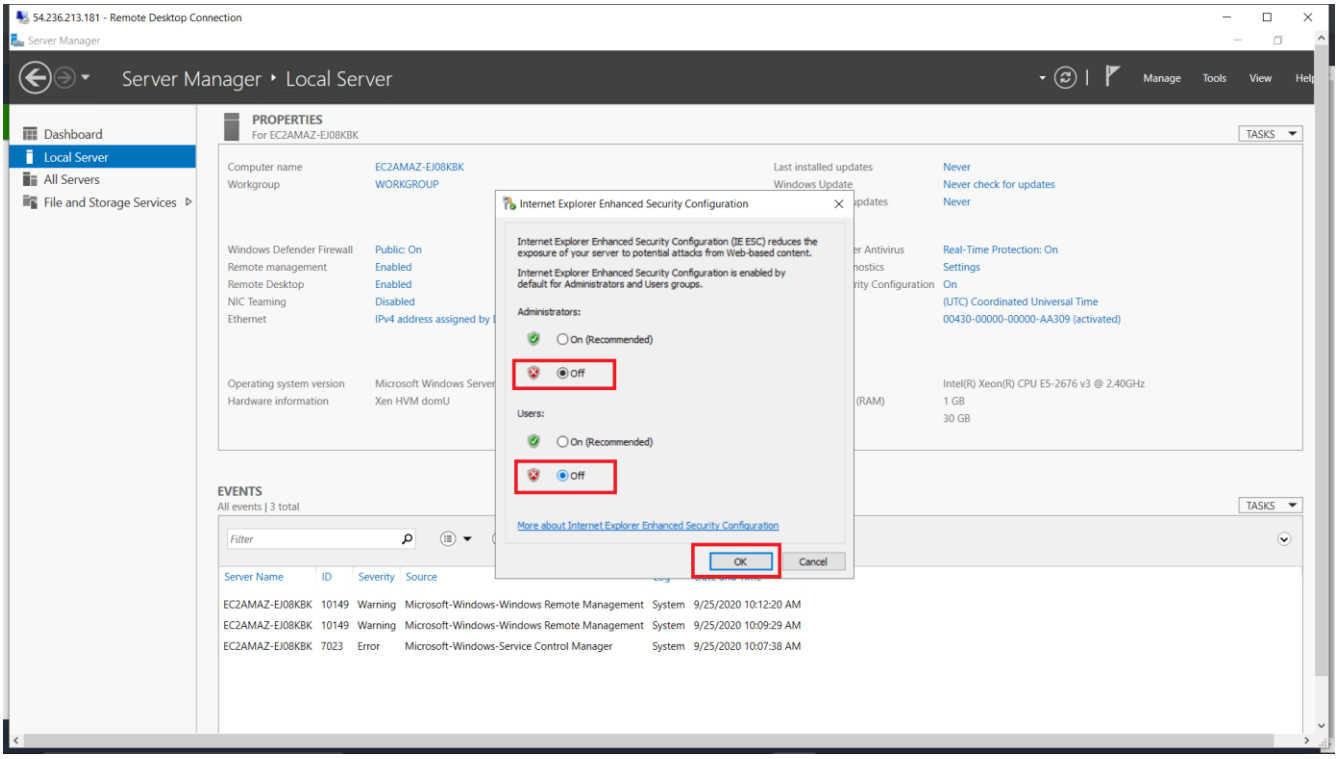
STEP 15: After you got the remote access, click on ‘server manager’ in start bar on Your Virtual Machine.



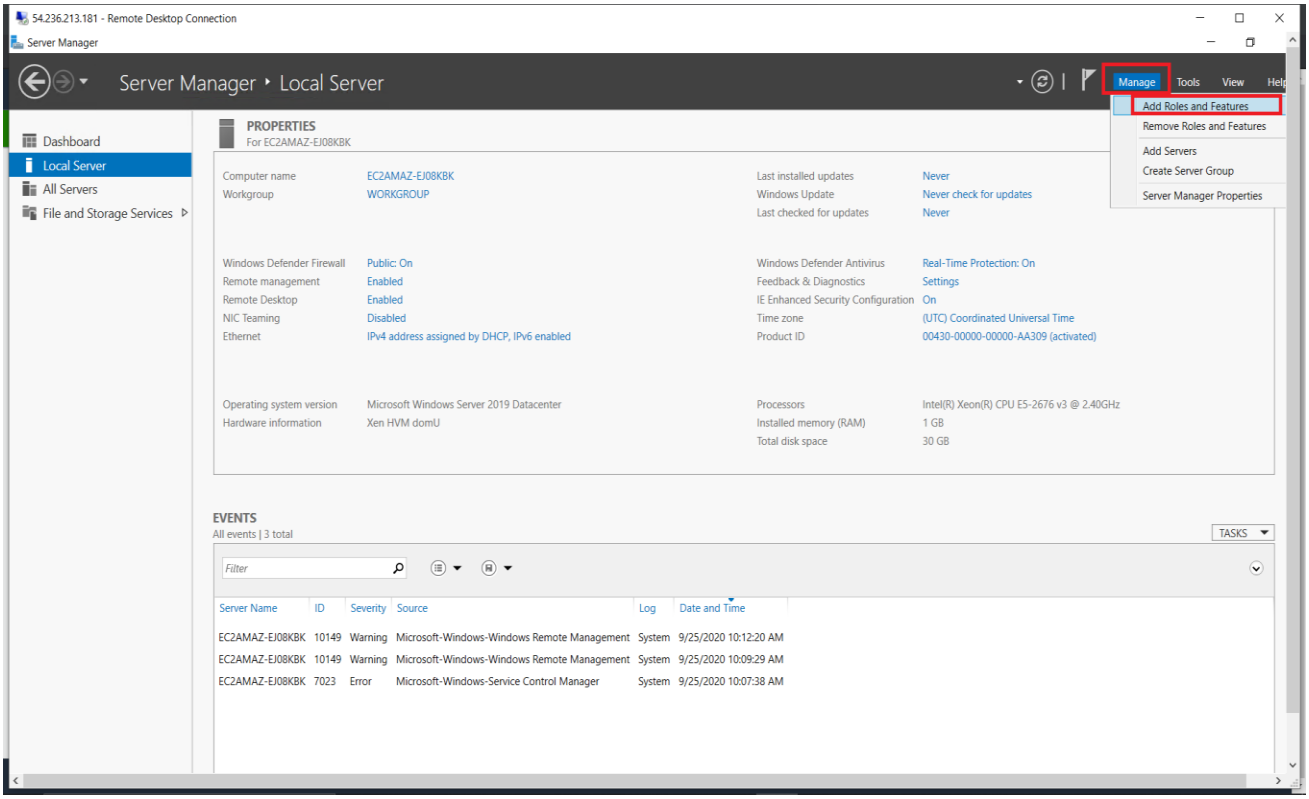
STEP 16: click on ‘Local Server’ then open IE enhanced security configuration.



STEP 17: Turn ‘Off’ both the settings and click ‘OK’

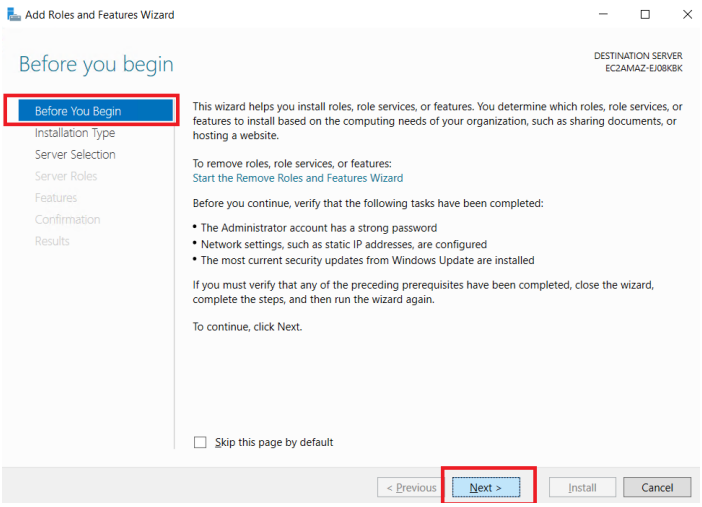


STEP 18: Click on manage and open add roles and features on Top-Right.

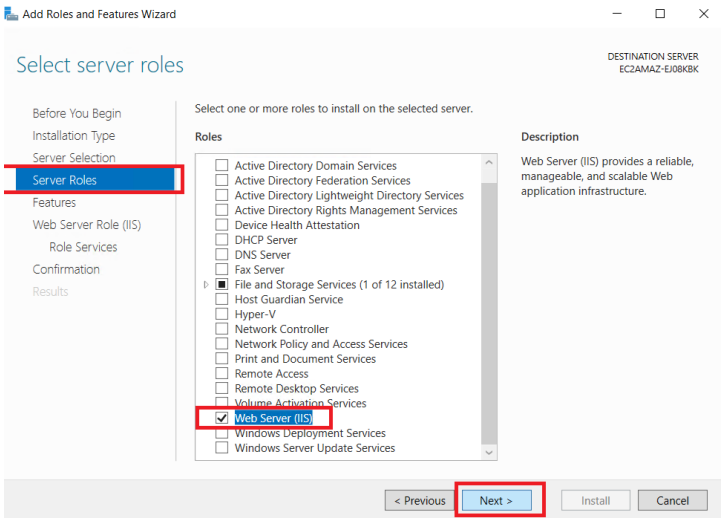


STEP 19: Install Web Server (IIS).

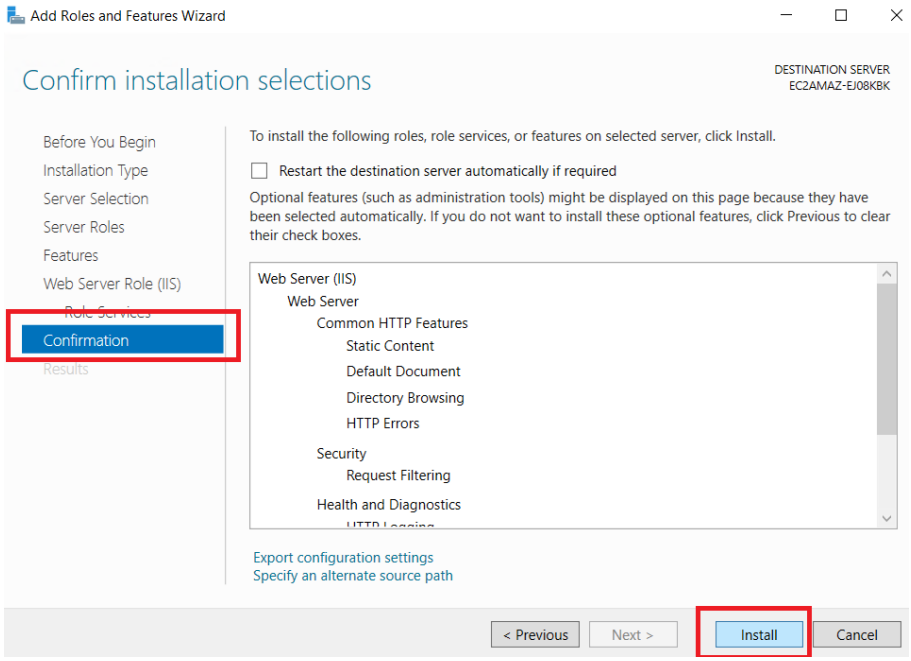
Sub-step I: click on next >>next>>next since no need to make any changes.



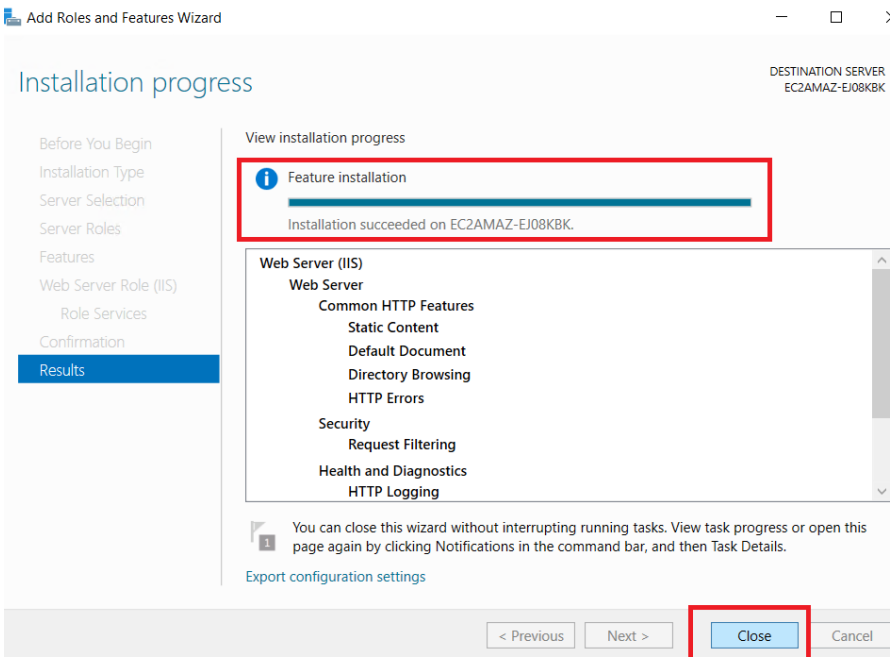
Sub-step II: click on web server (IIS) and add features, then click on next>>next.



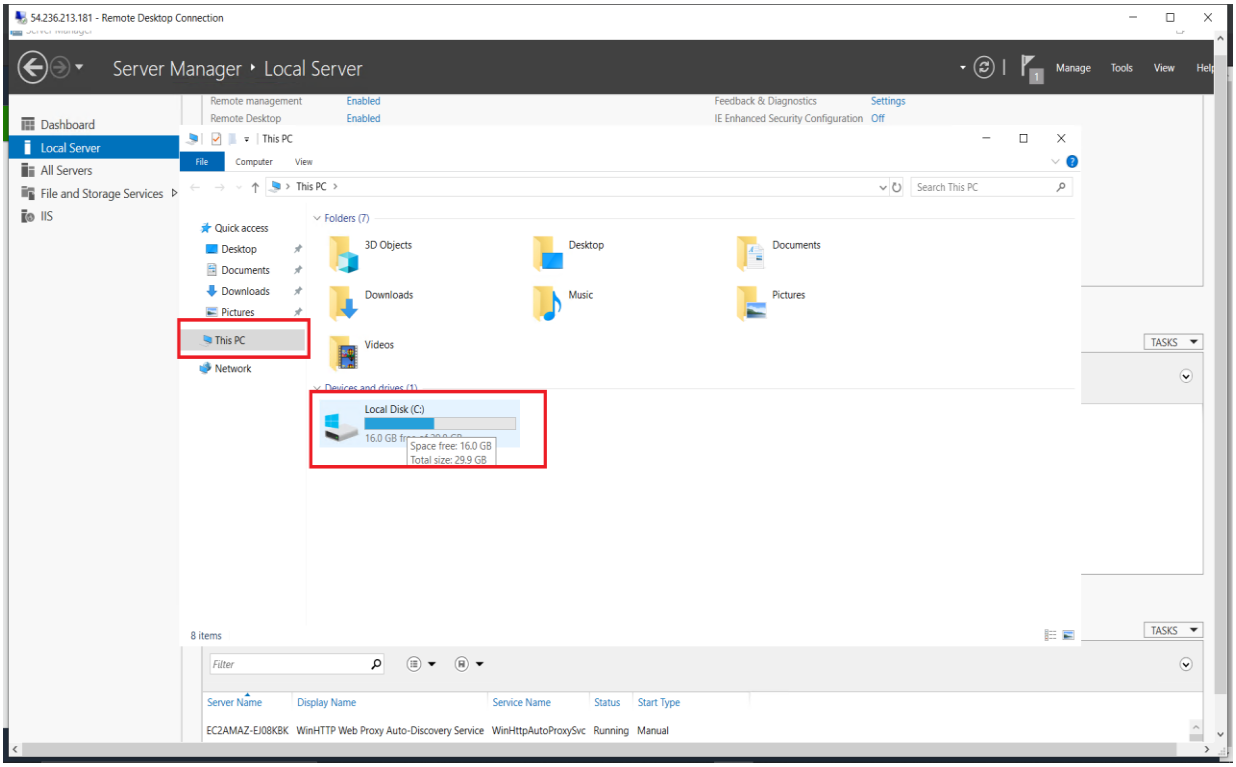
Sub-step III: On the confirmation step Click on install.



Sub-step IV: wait for installation completion and then click on close.

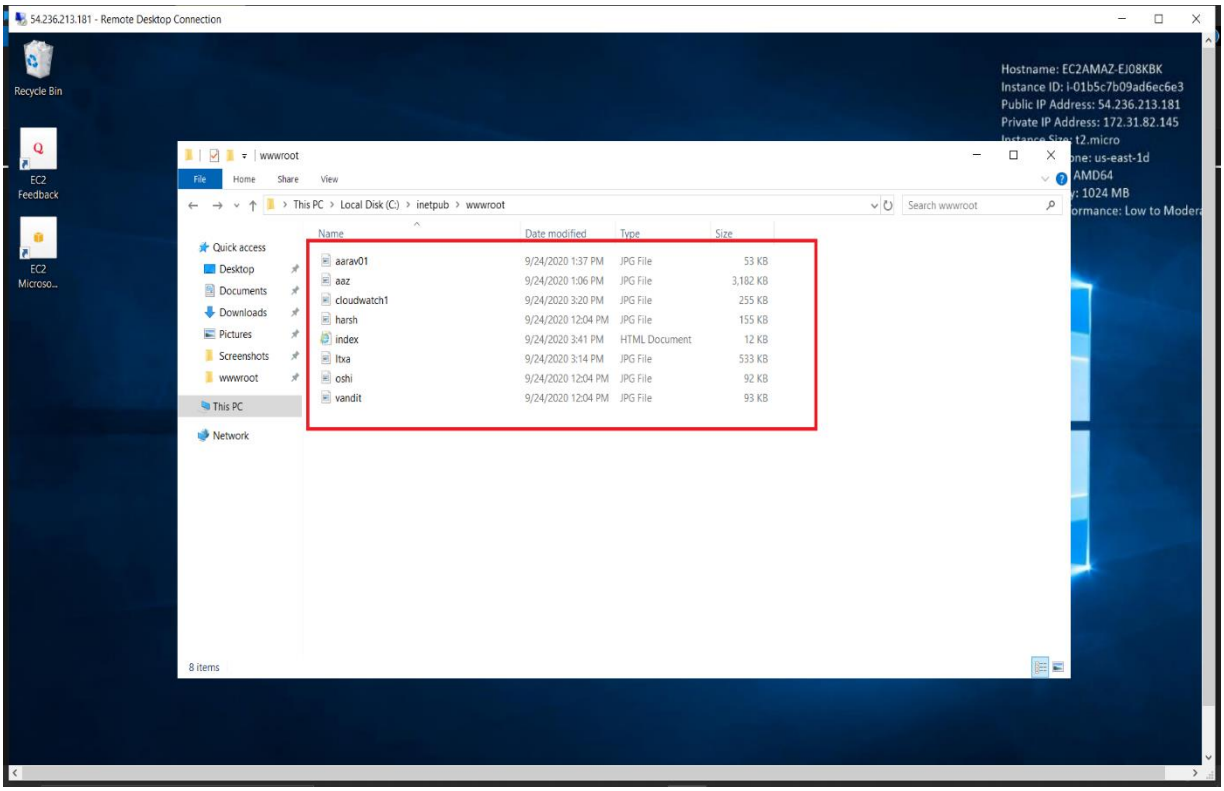


STEP 20: Click on ‘win + E’ key to open ‘This PC’. Click on C drive.

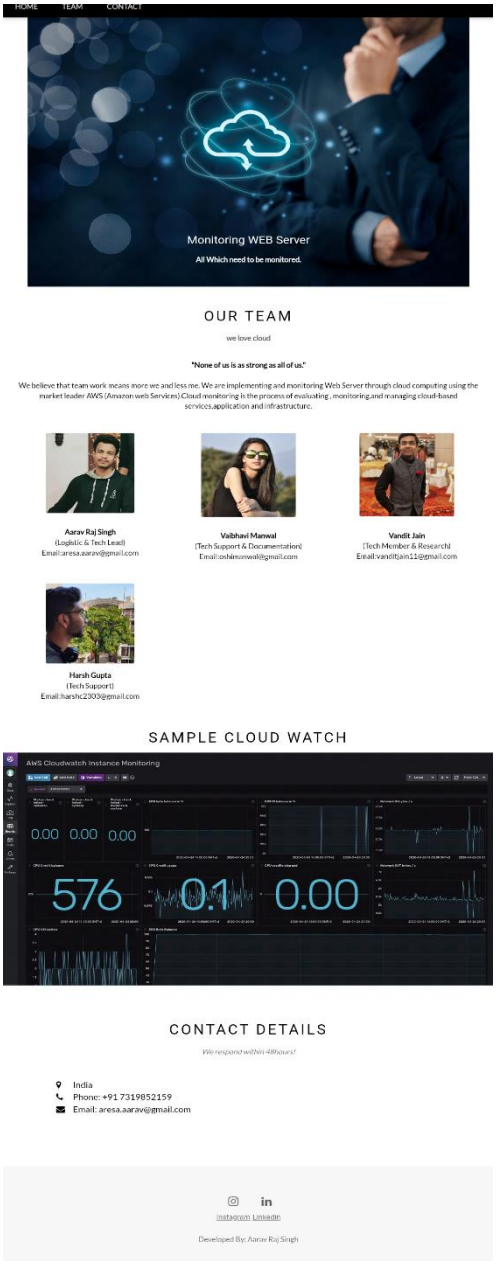


Step 21: click on inetpub folder then on wwwroot folder and paste all the content you have for website which is needed to be hosted.

‘Delete the content which was already there.’

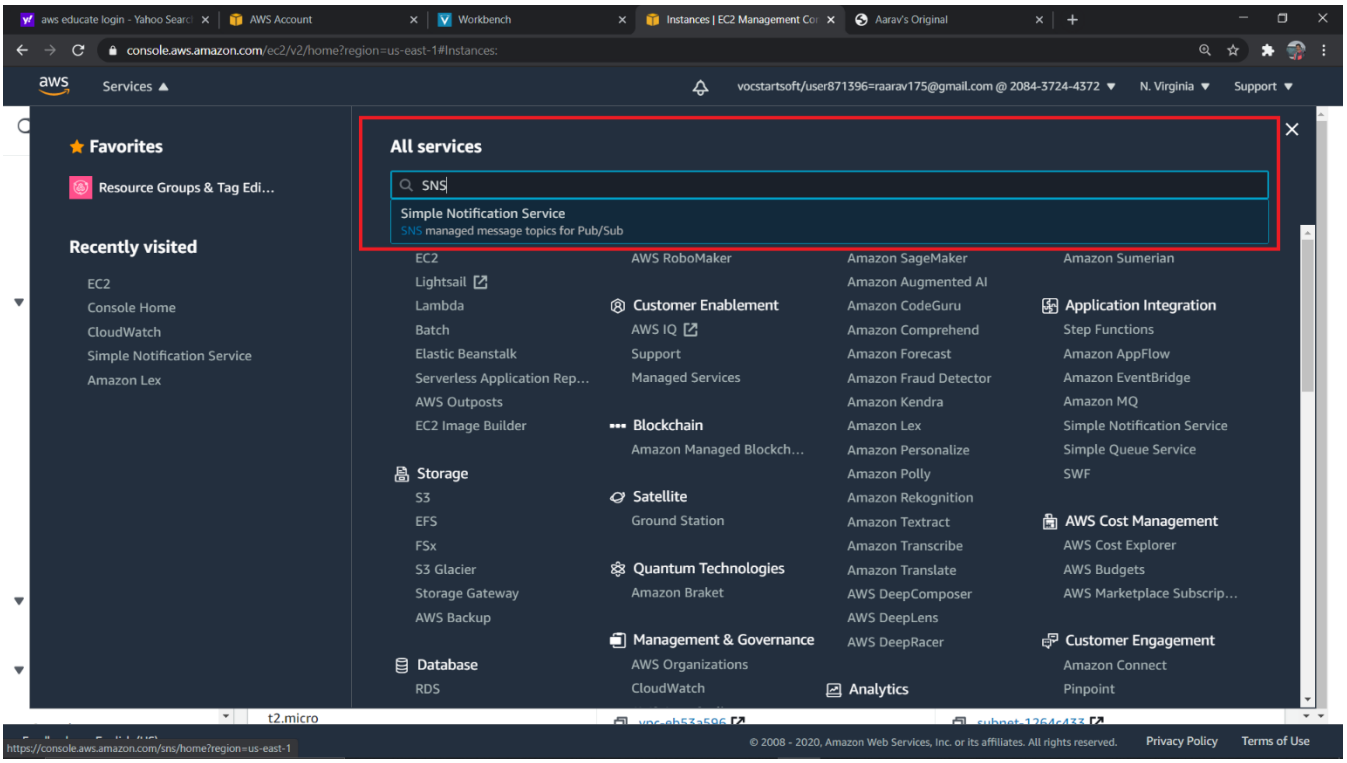


STEP 22: Website hosted

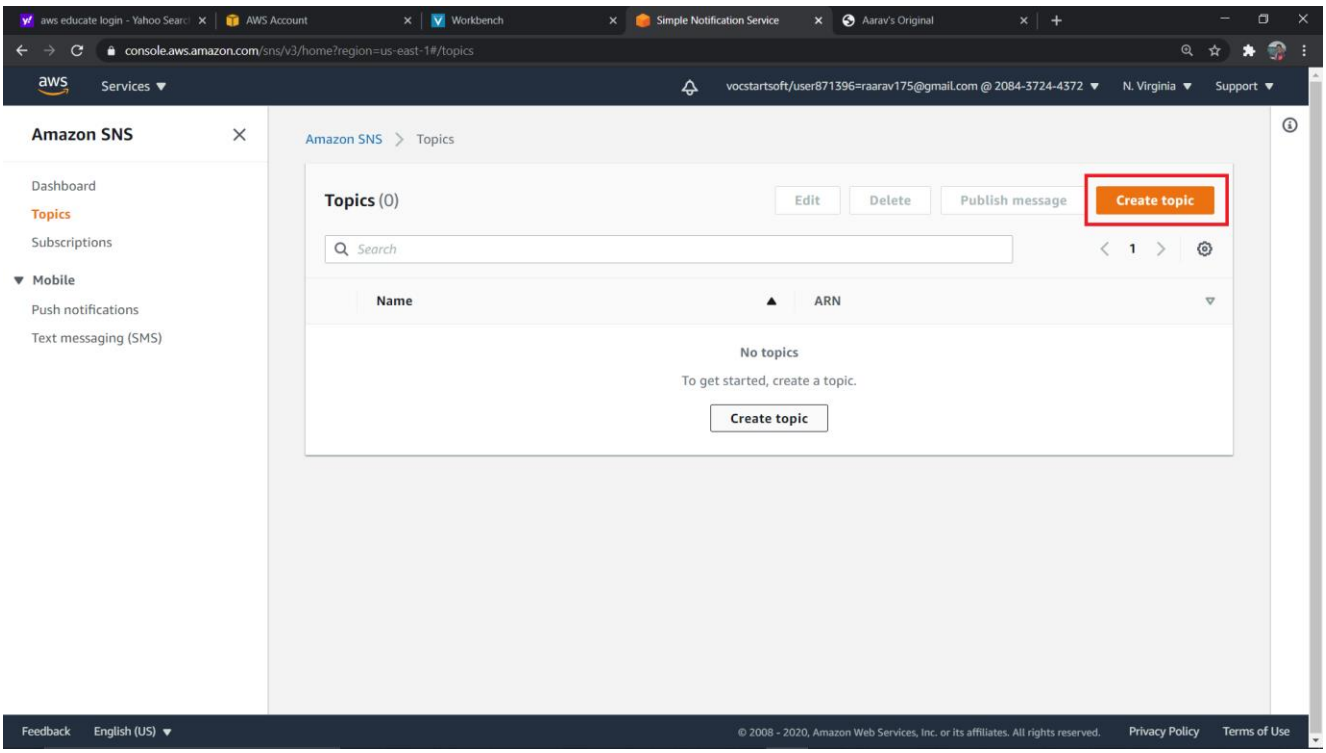


Now you can check your web server by opening the ipv4 address.

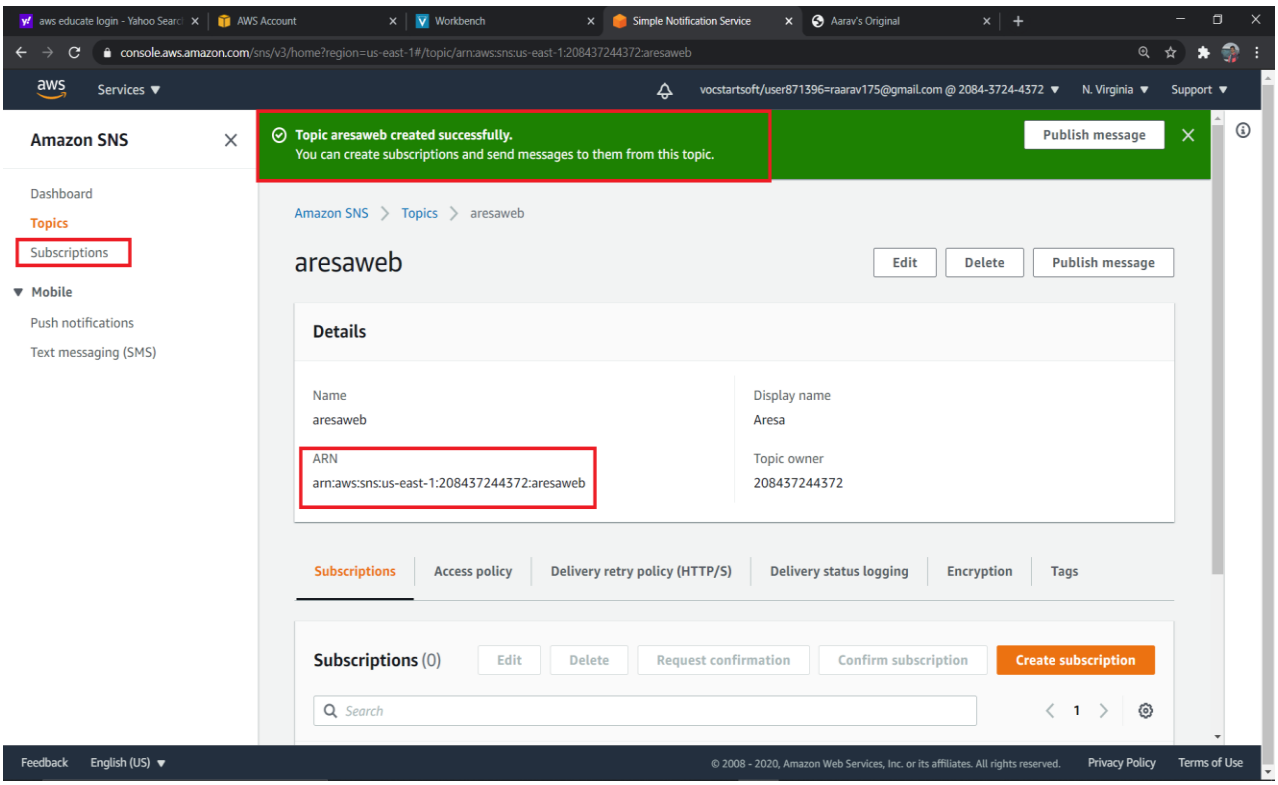
STEP 23: Go back to your AWS dashboard and search for SNS service under All Service section.



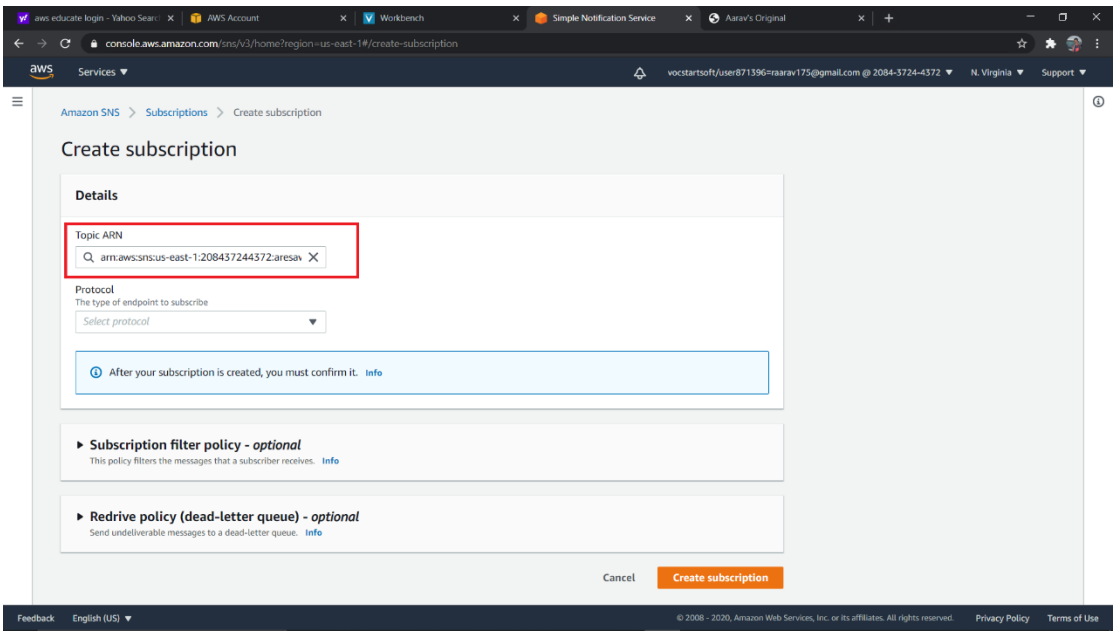
STEP 24: click on create topic under topics in Amazon SNS.

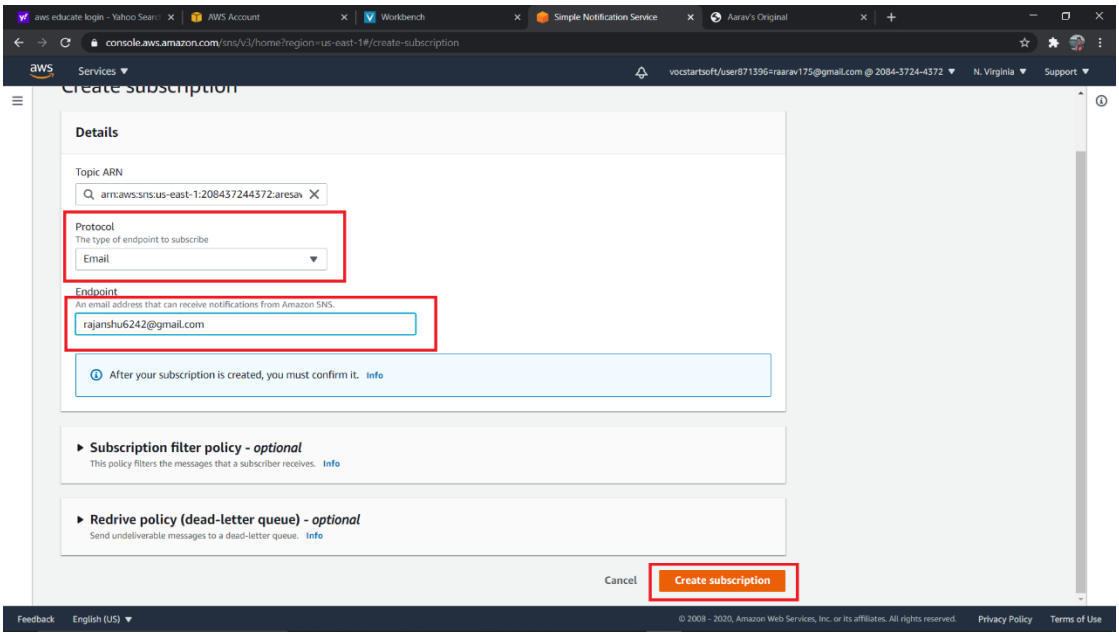


STEP 25: Then successfully create your topic name and save it.

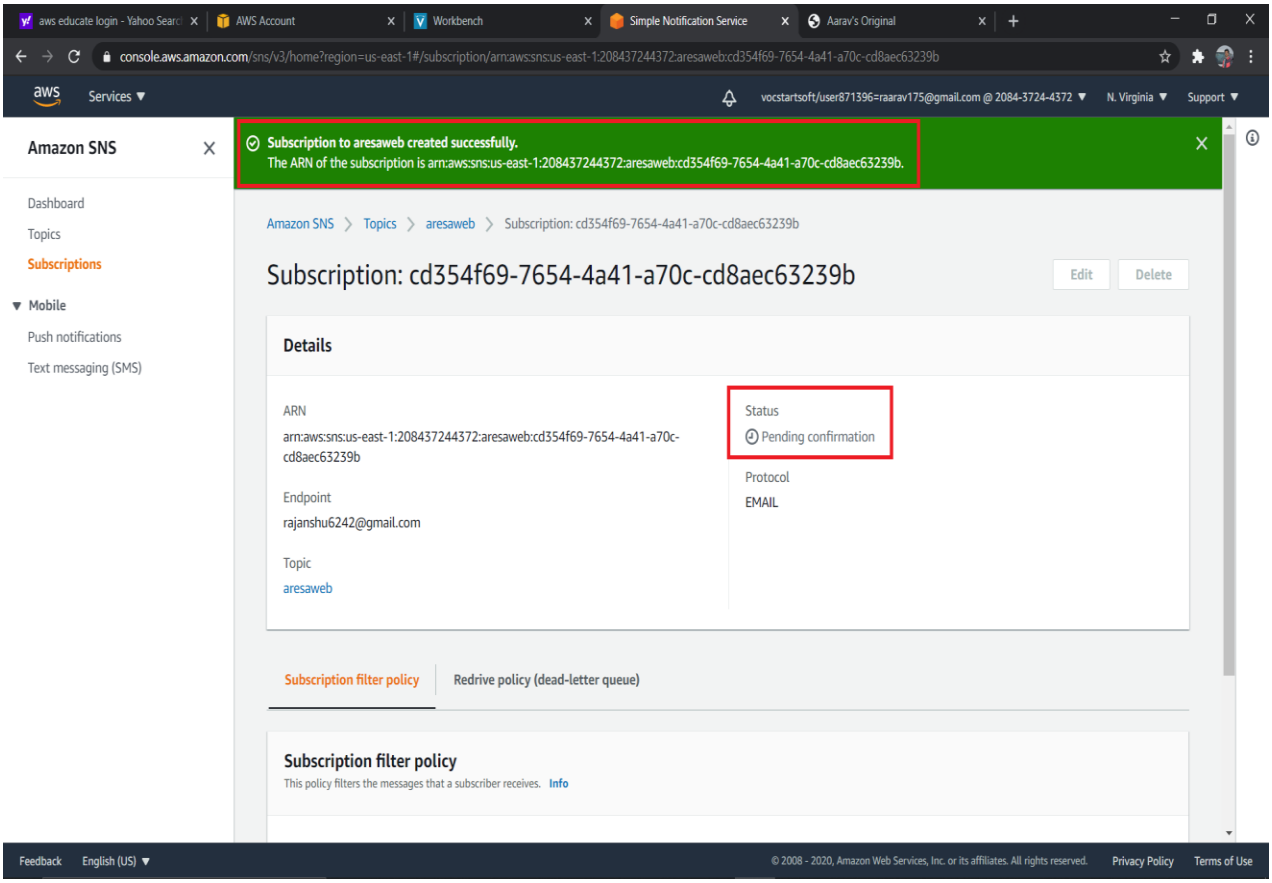


STEP 26: Now click on subscription and paste your ARN (Amazon Resource Number) and enter EMAIL as protocol and your email id in Endpoint and click on create subscription.

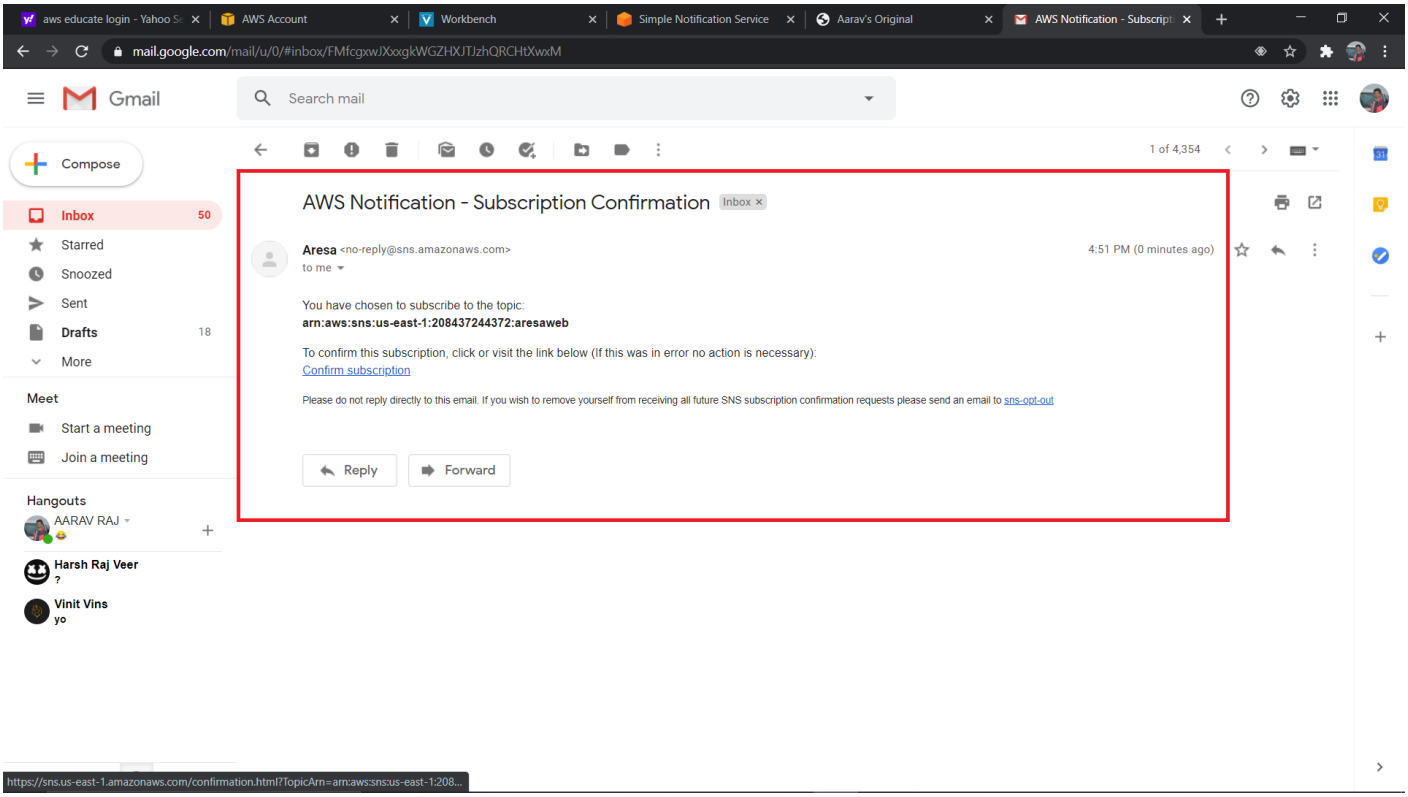




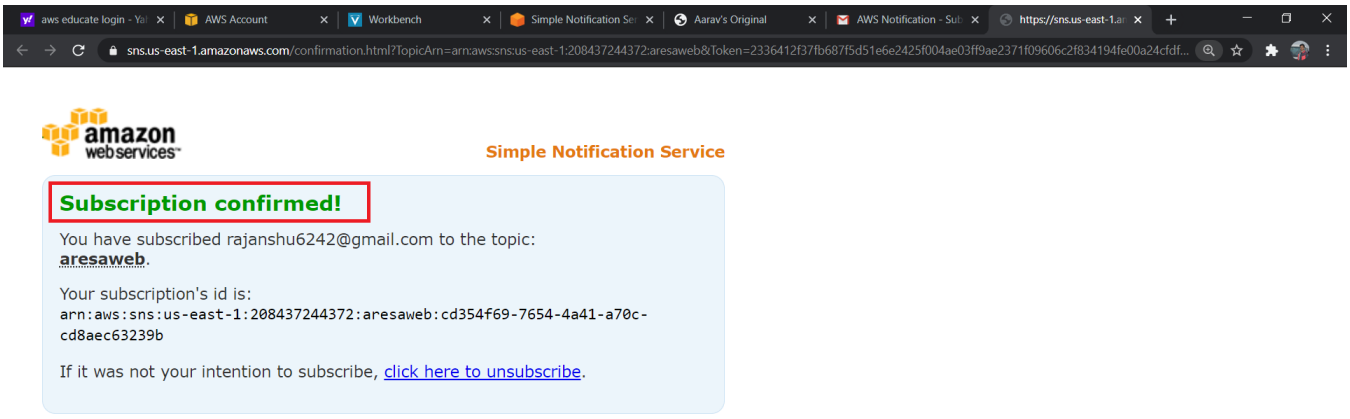
STEP 27: subscription created successfully. But the confirmation is still pending.



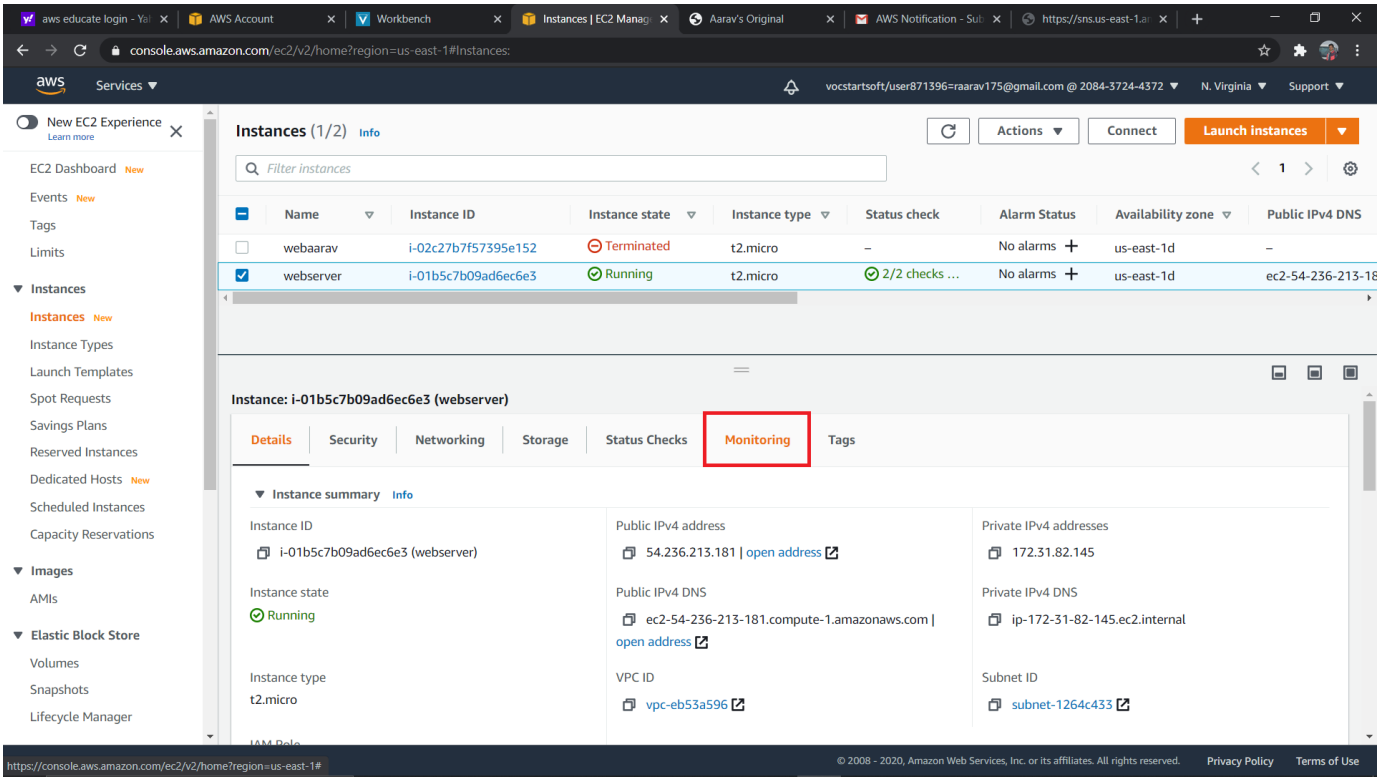
STEP 28: Go to your Gmail and click on confirm subscription.



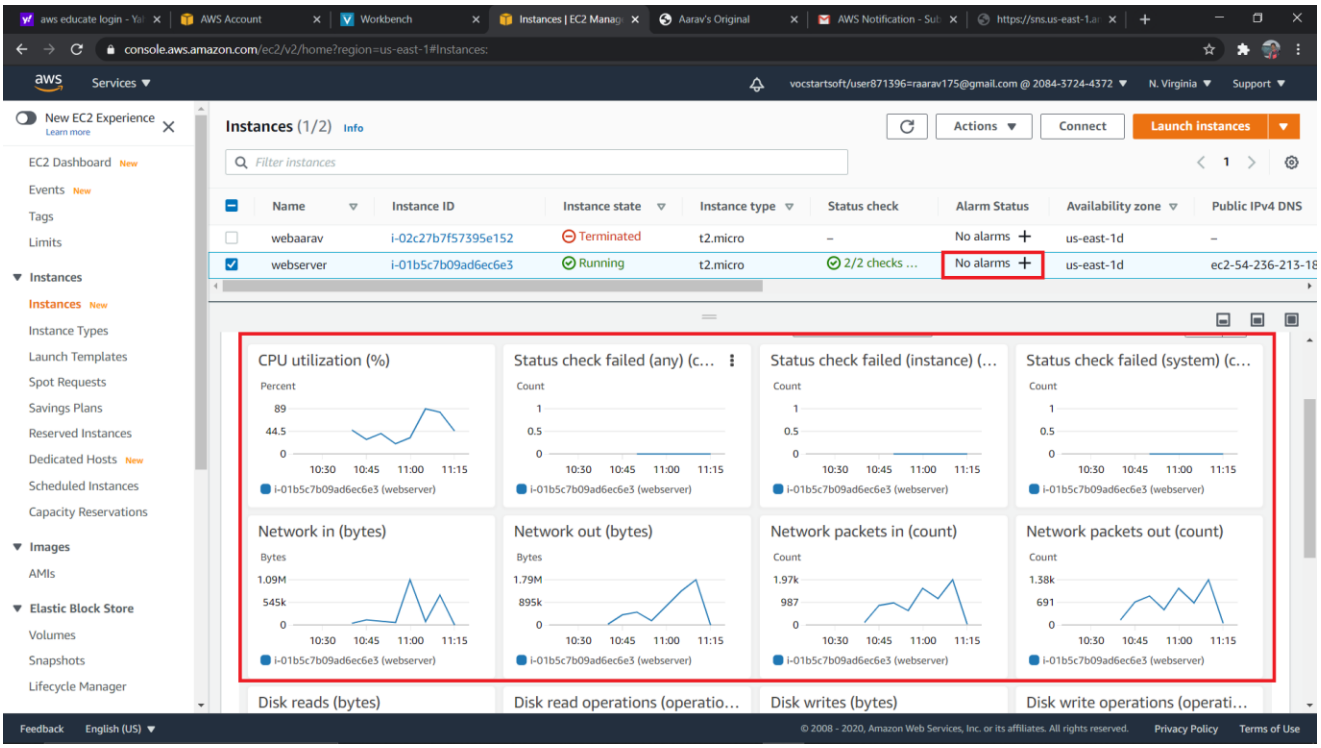
STEP 29: Then you got the message “Subscription Confirmed". As shown below



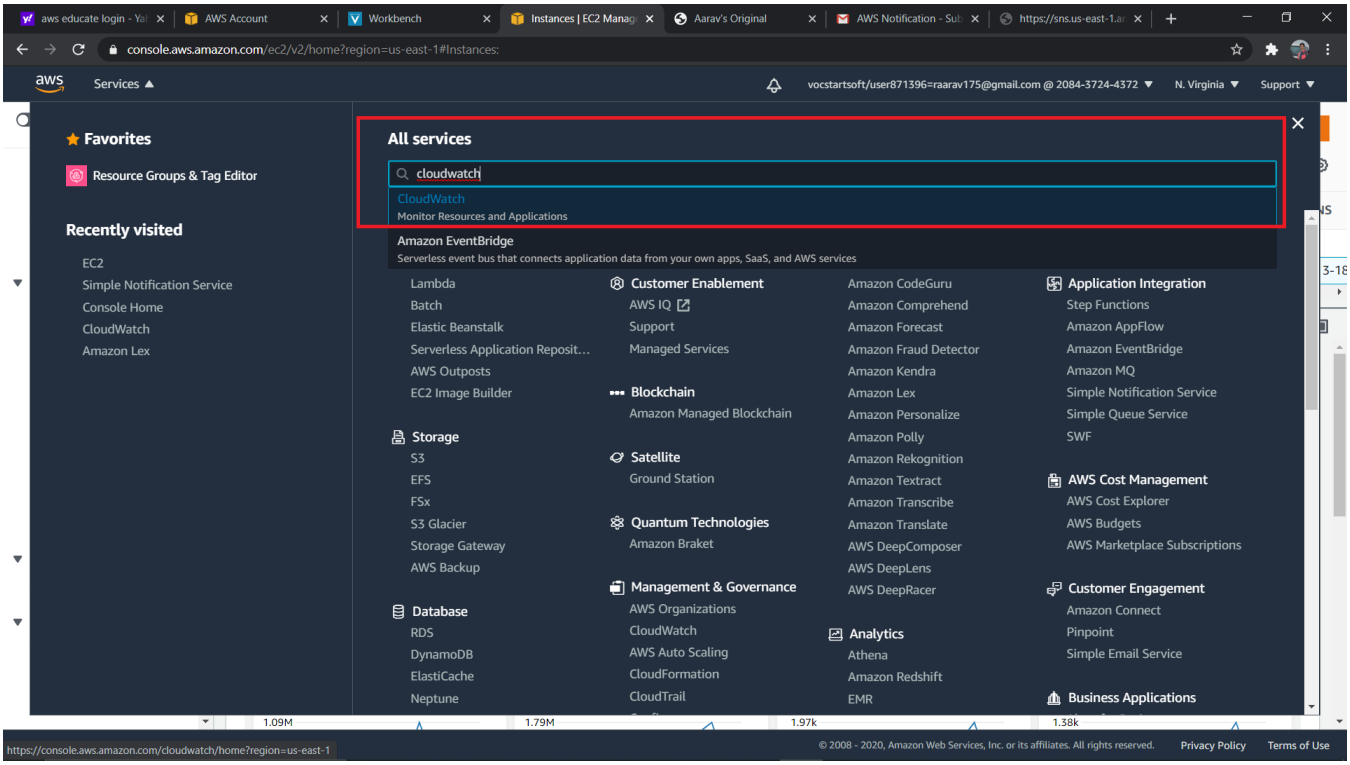
STEP 30: Go to your Ec2 dashboard and click on monitoring.



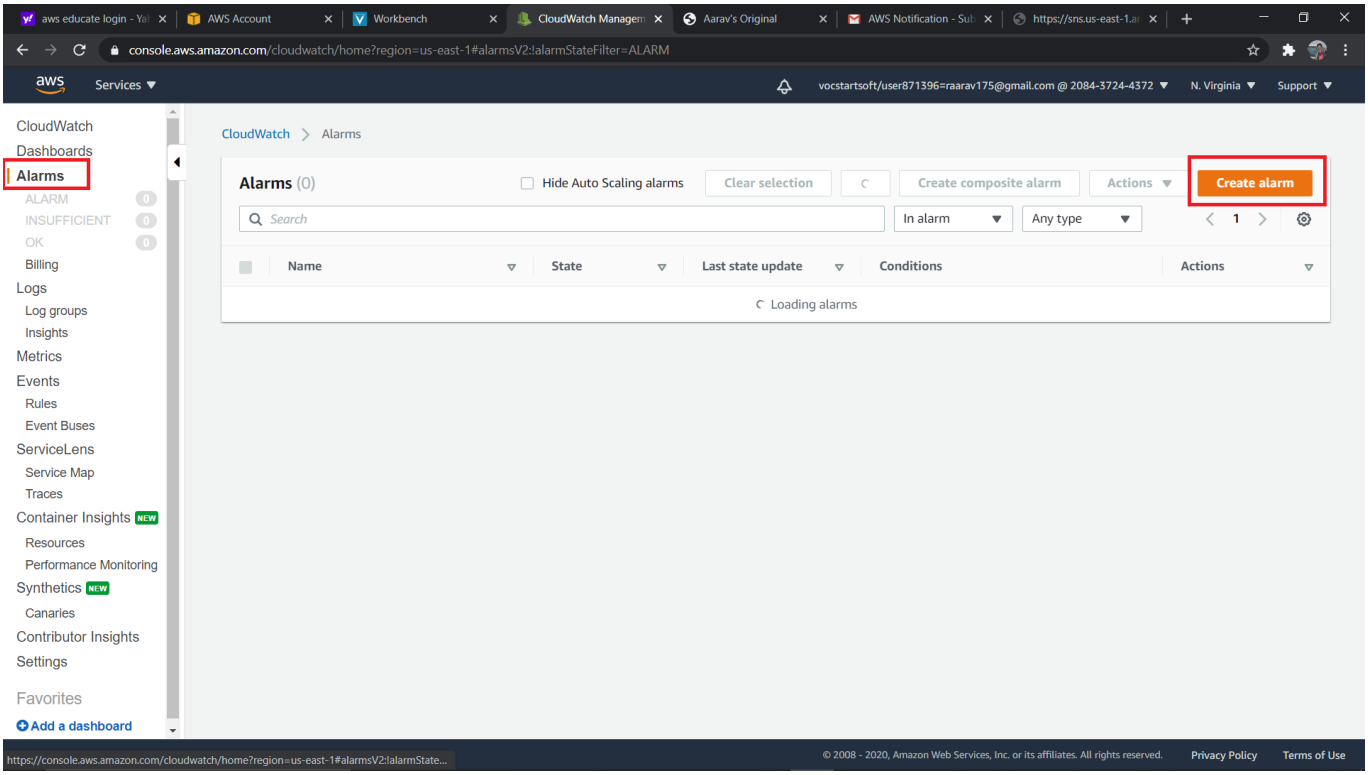
STEP 31: No alarm is created for this instance till now, and the CPU utilization is also very less.(Refer to image given below)



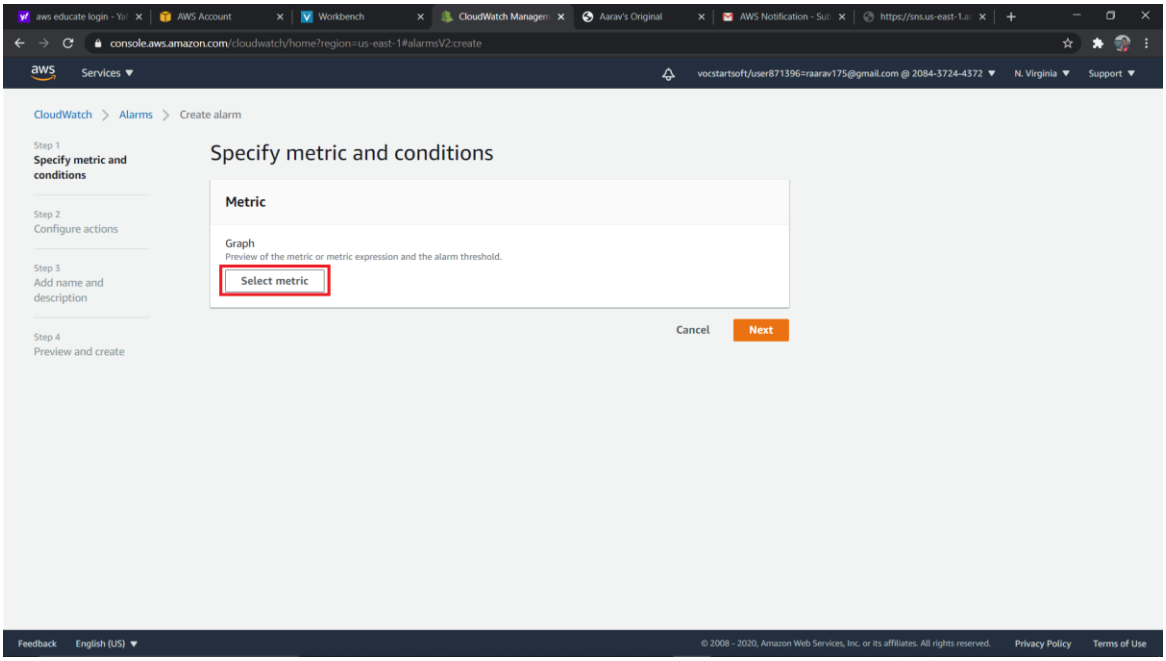
STEP 32: Search for cloud watch under All service section.



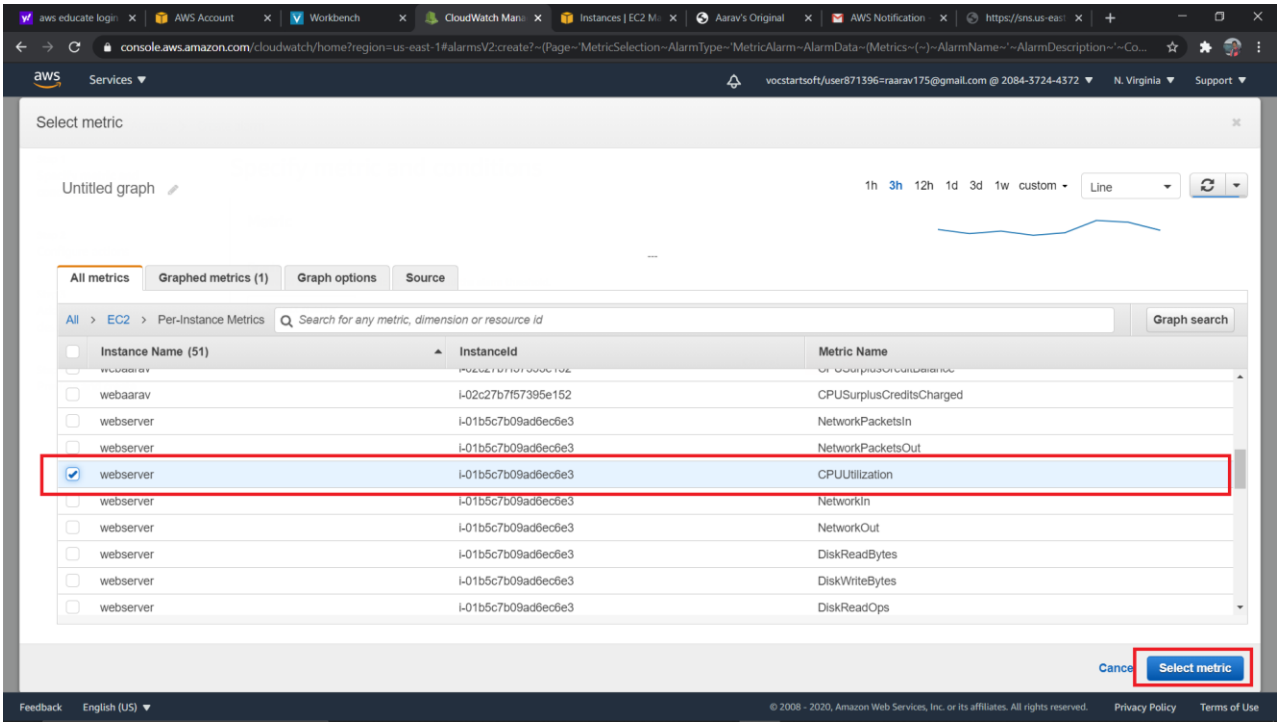
STEP 33: click on Alarm and then click create alarm.



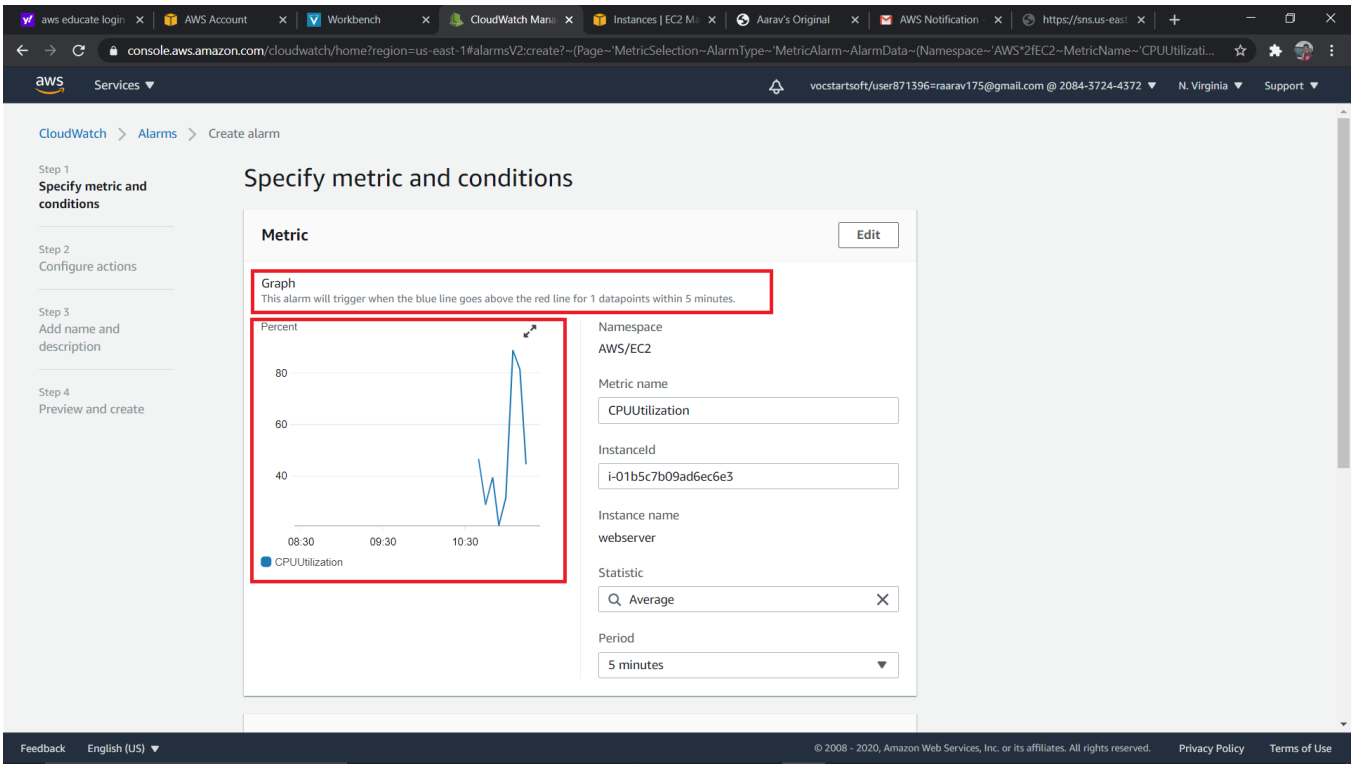
STEP 34: Click on ‘Select metric’.



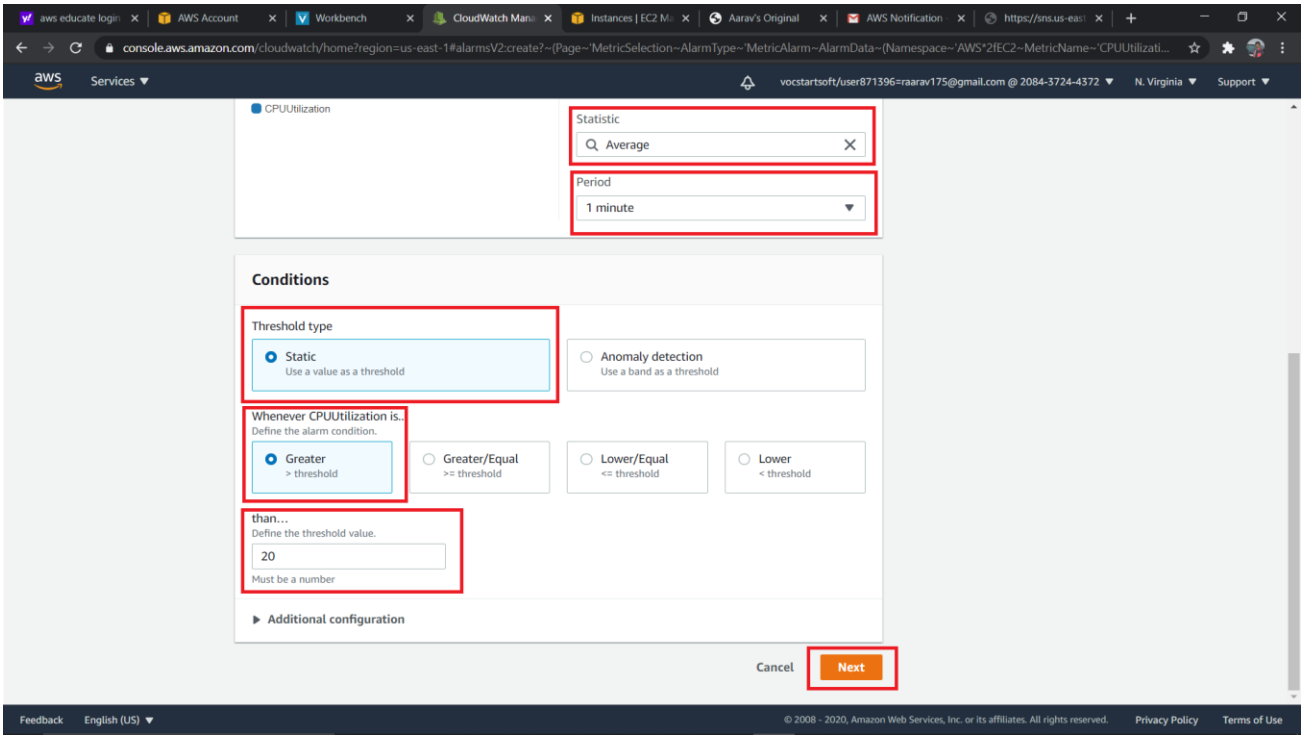
STEP 35: Choose EC2>> Per Instance Metrices and carefully select the metric name corresponding to your instance name.



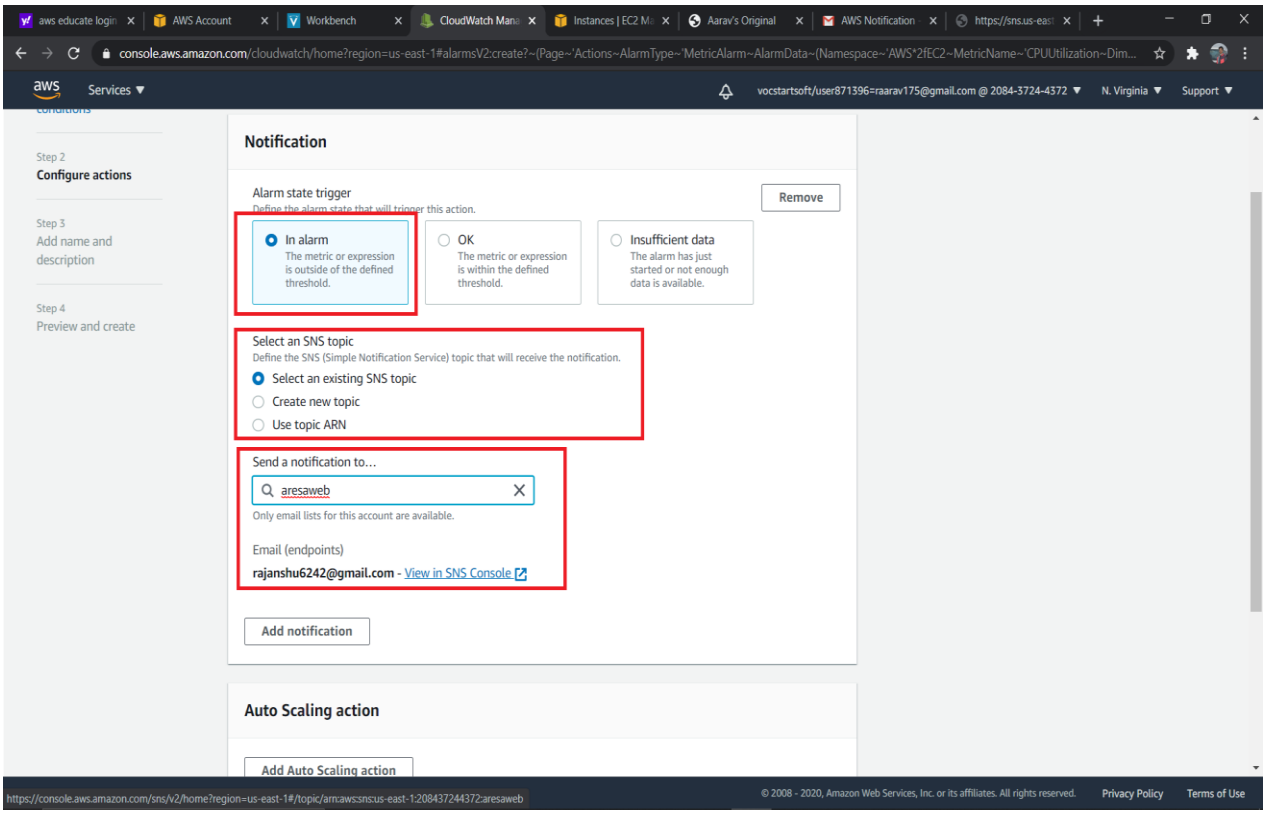
STEP 36: watch out for the graph and the threshold will trigger an alarm only when blue line will exceed red line.



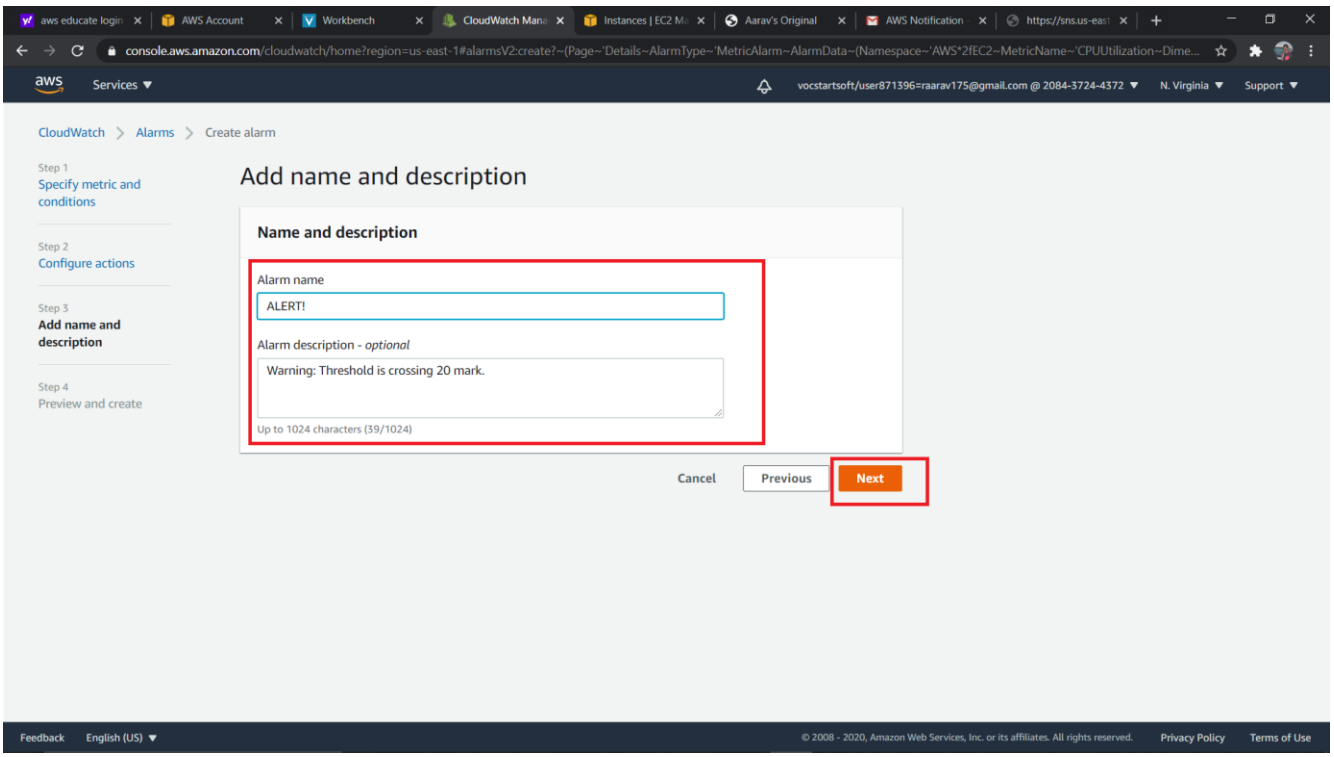
STEP 37: Select the static condition and put the threshold as eg.20(our case), watch out for time period as well and click on "Next".



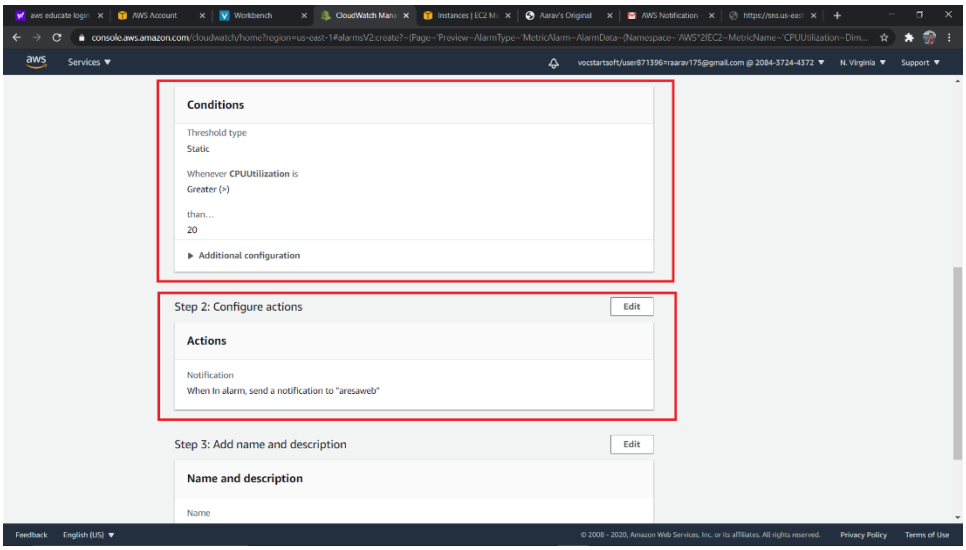
STEP 38: Select where to send notification and choose your topic.

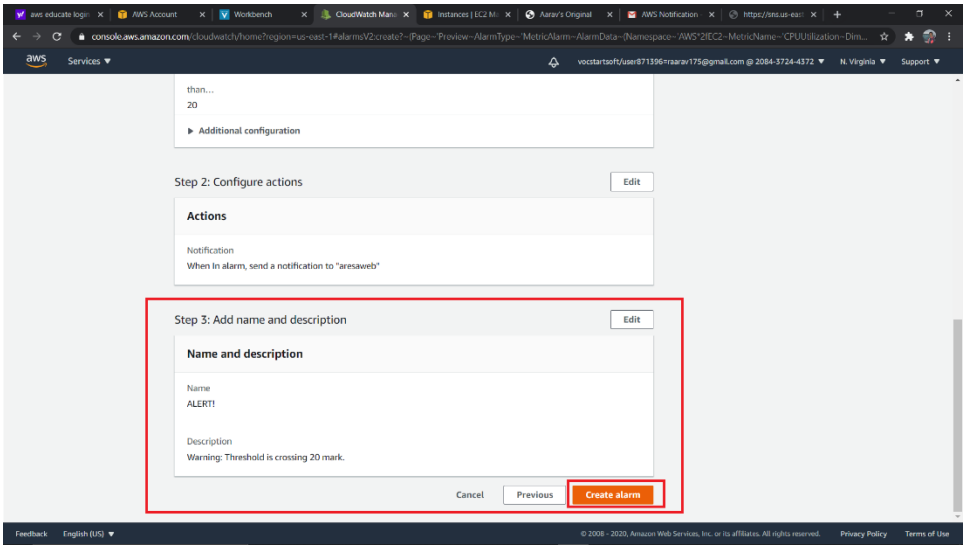


STEP 39: Add Alarm Name and description.

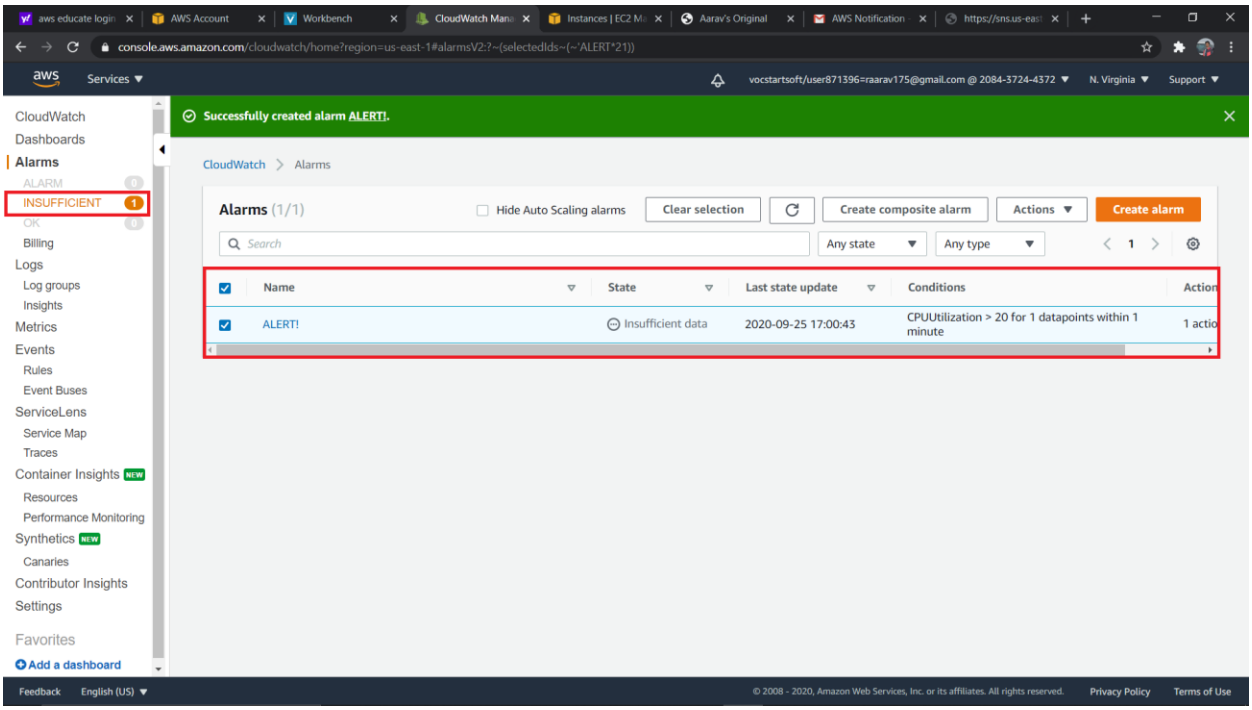


STEP 40: Look at Conditions and configure actions, review alarm and click on create alarm.

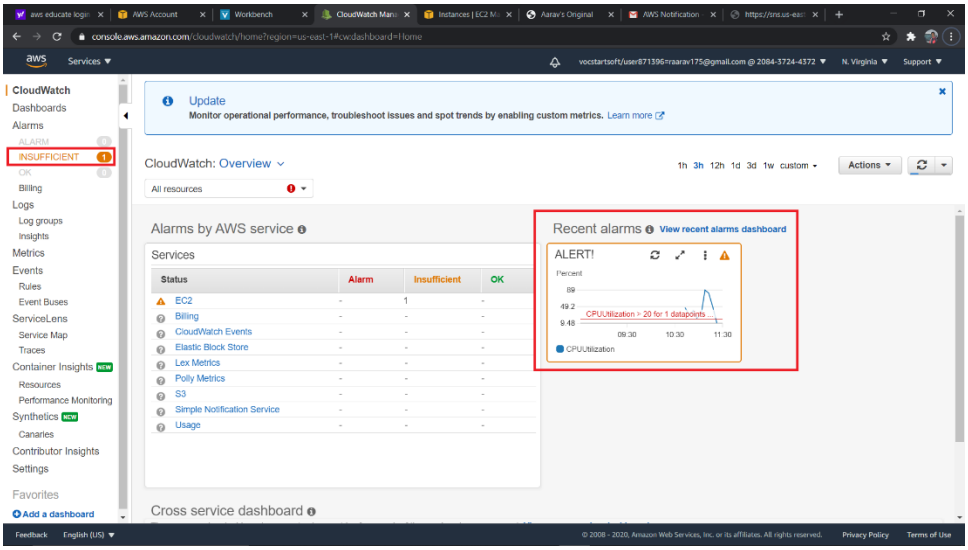


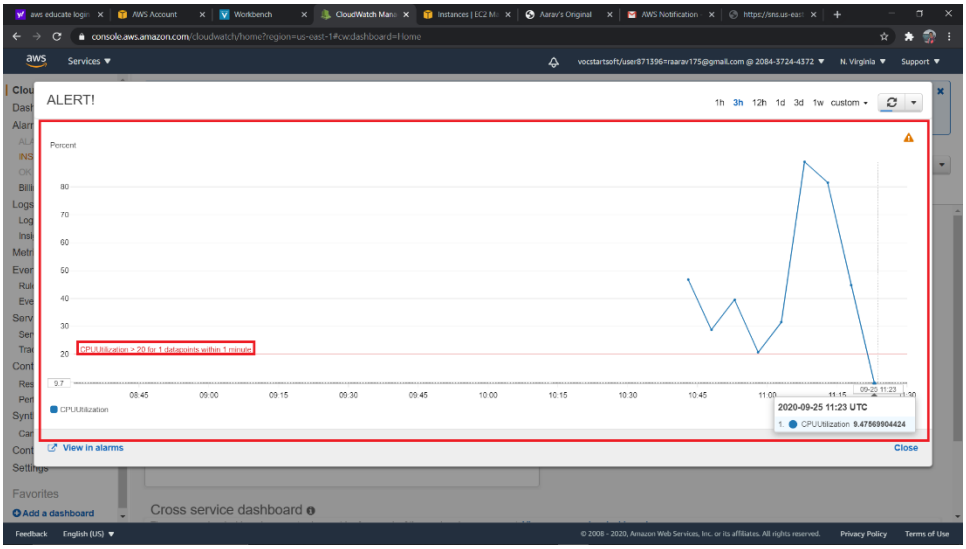


STEP 41: Alarm Alert has been successfully created and click on INSUFFICIENT or Dashboard on left side.

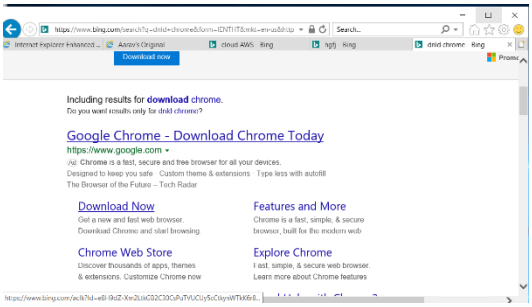


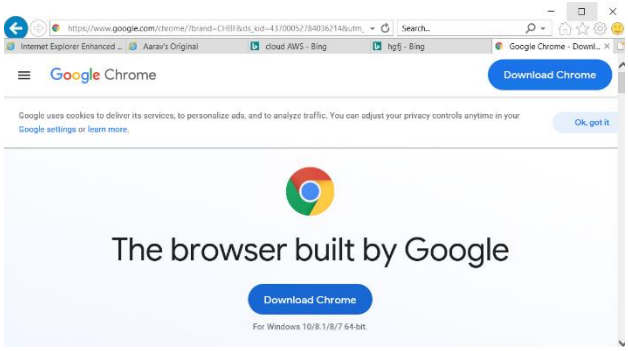
STEP 42: Enlarge the recent alarm and notice that the threshold is on 0, and to trigger alarm alert we need to make threshold reach 20(i.e. above red line).

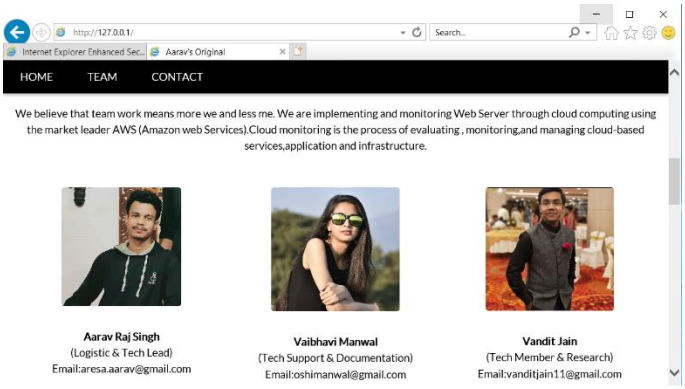




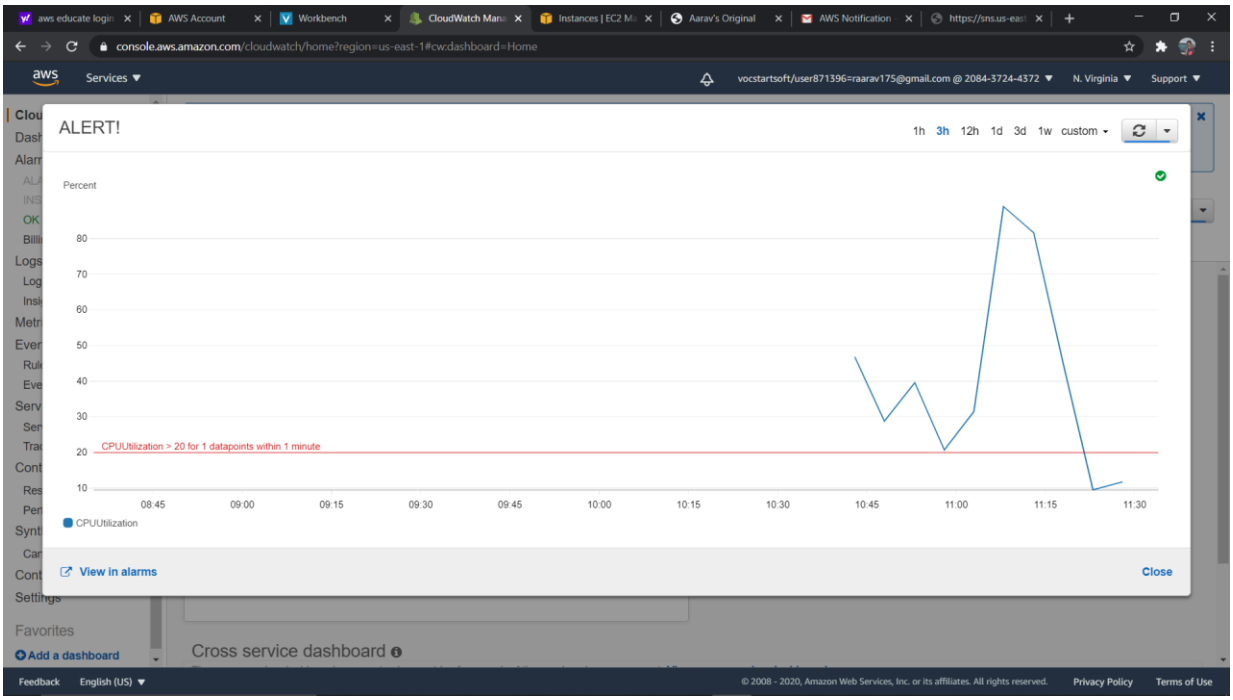
STEP 43: To increase threshold open virtual machine and run a few applications or search in browsers or download something to increase threshold of web server (i.e. virtual machine).



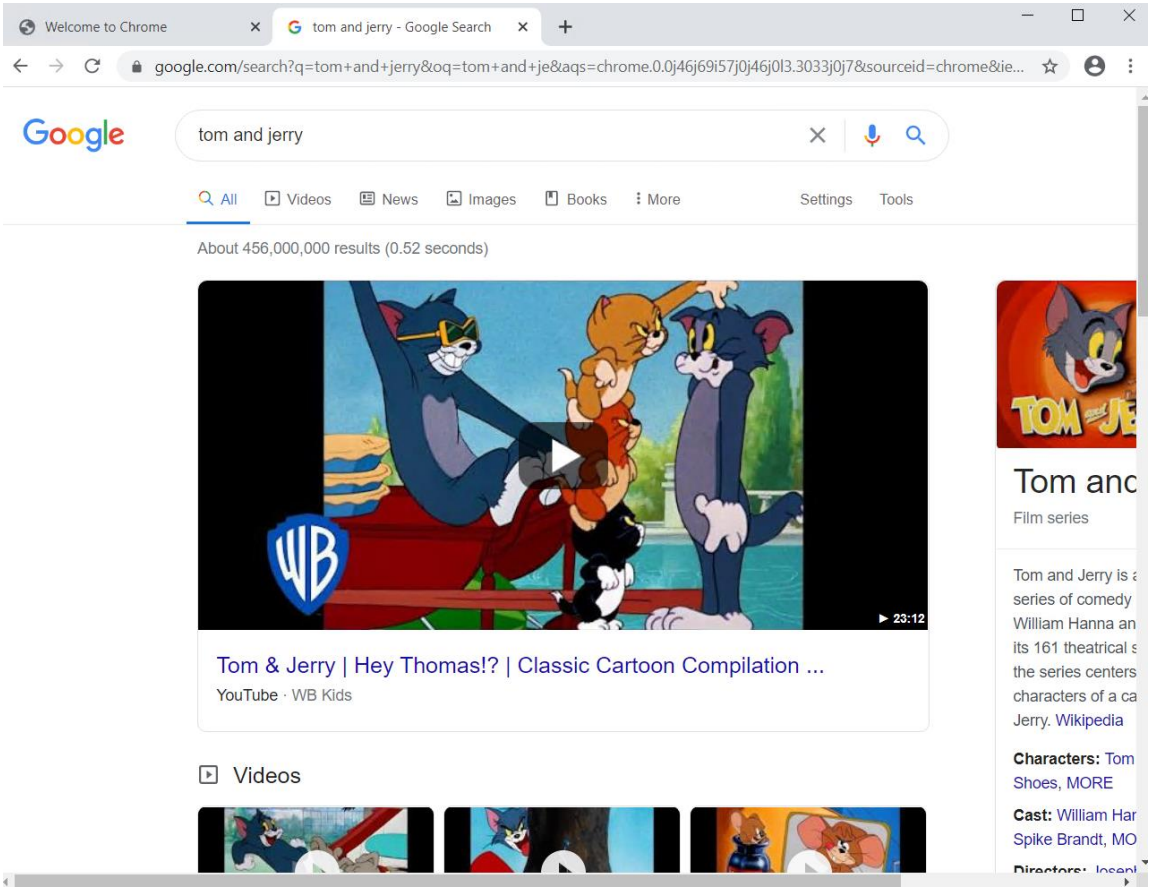




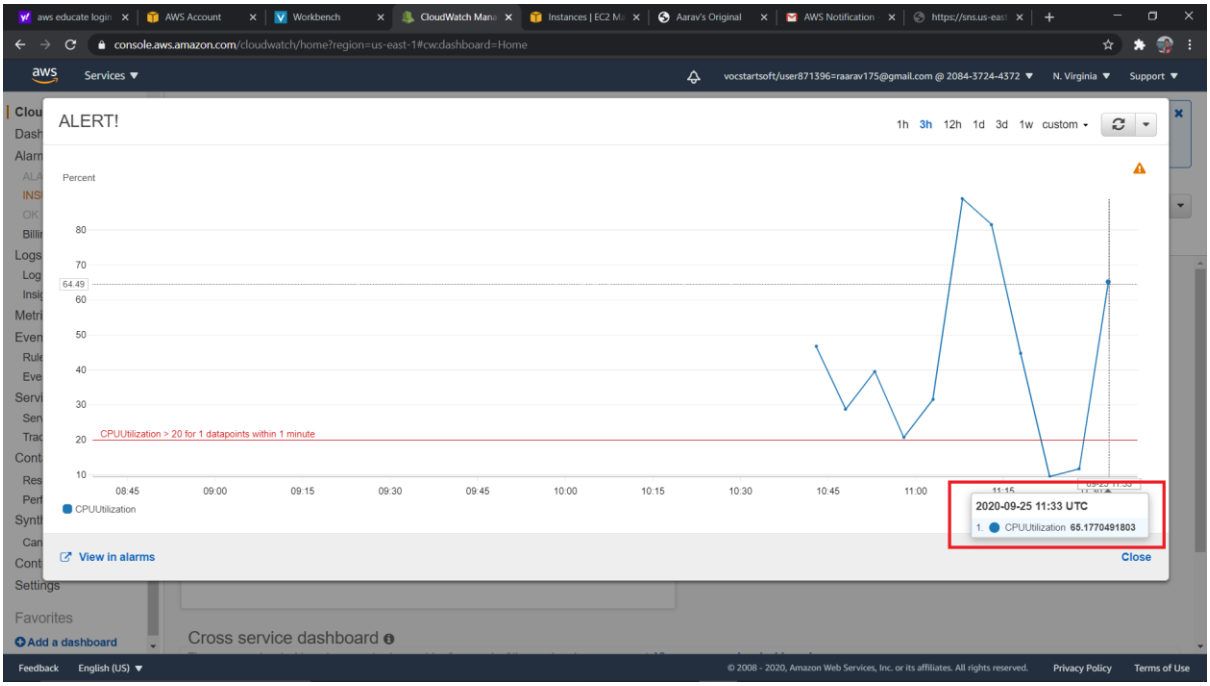
STEP 44: We can see threshold rising a little on dashboard of AWS CloudWatch.



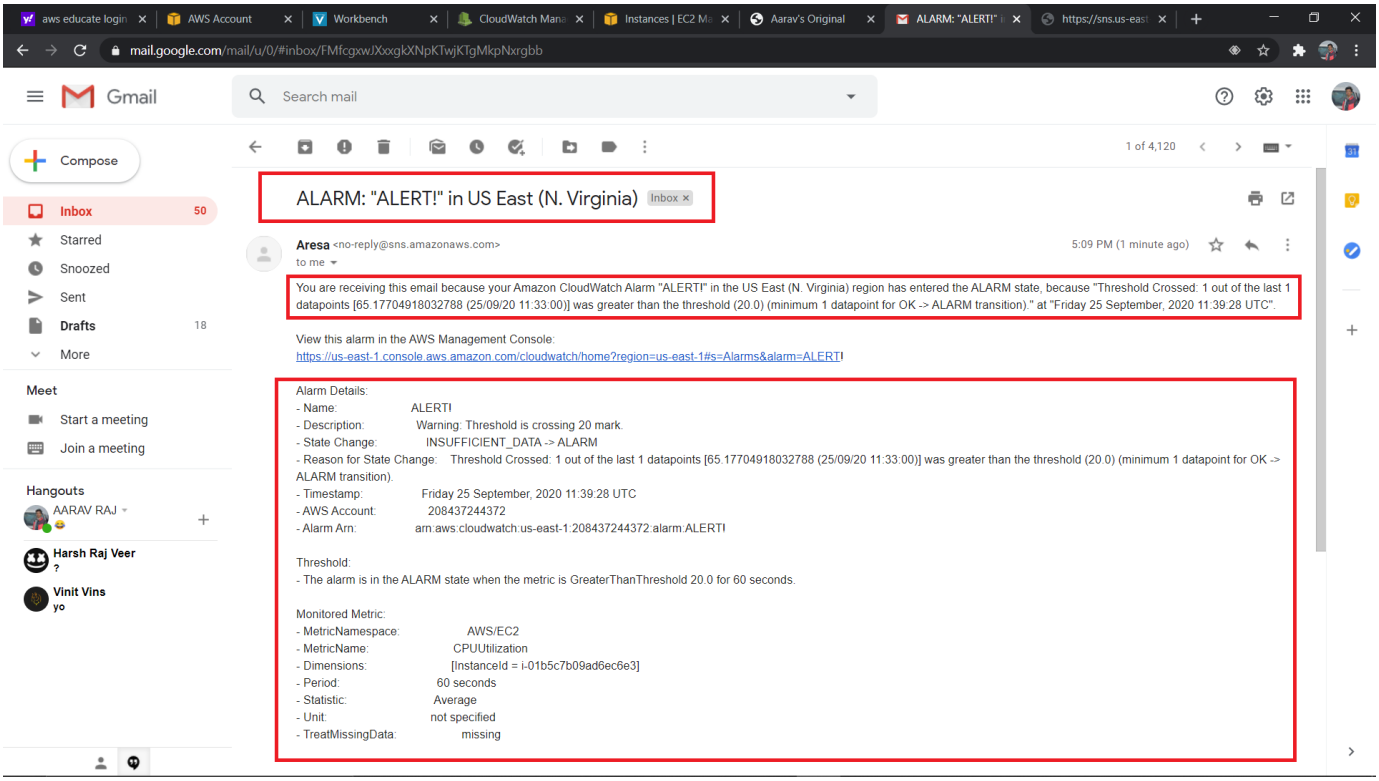
STEP 45: play a video to increase the threshold on our web server (virtual machine) or create traffic on website to trigger the alarm.



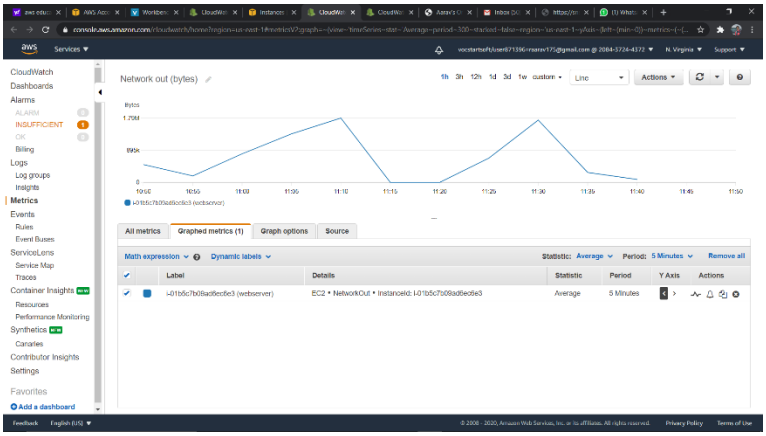
STEP 46: since the threshold is increased (>20) and the blue line exceeds the red, we created the condition to trigger the alarm.

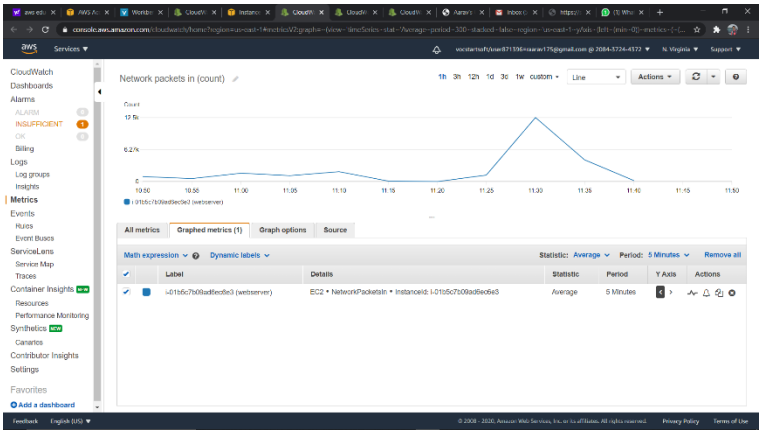


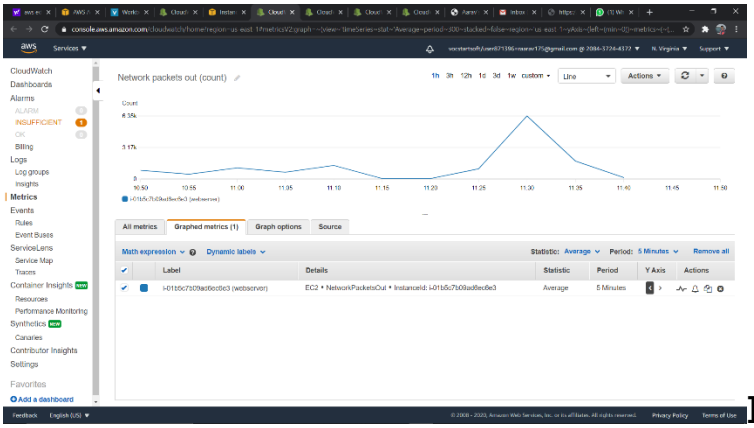
STEP 47: And finally, we got the alarm in the form of mail which was created with name ‘Aresa’.



STEP 48: We can see other plots as well.







Etc.

HENCE, WE **SUCCESSFULLY** IMPLEMENTED AND MONITORED THE WEB SERVER ON AWS (USING EC2, SNS and CLOUDWATCH).