EC2 Resource Monitoring and Alert Script Project

Goal: In this project, we can monitor the CPU and Disk usage of an EC2 instance using simple Linux commands.

If the usage crosses a specific limit (for example, CPU usage above 80%), an automatic alert will be sent via Email or AWS SNS (Simple Notification Service).

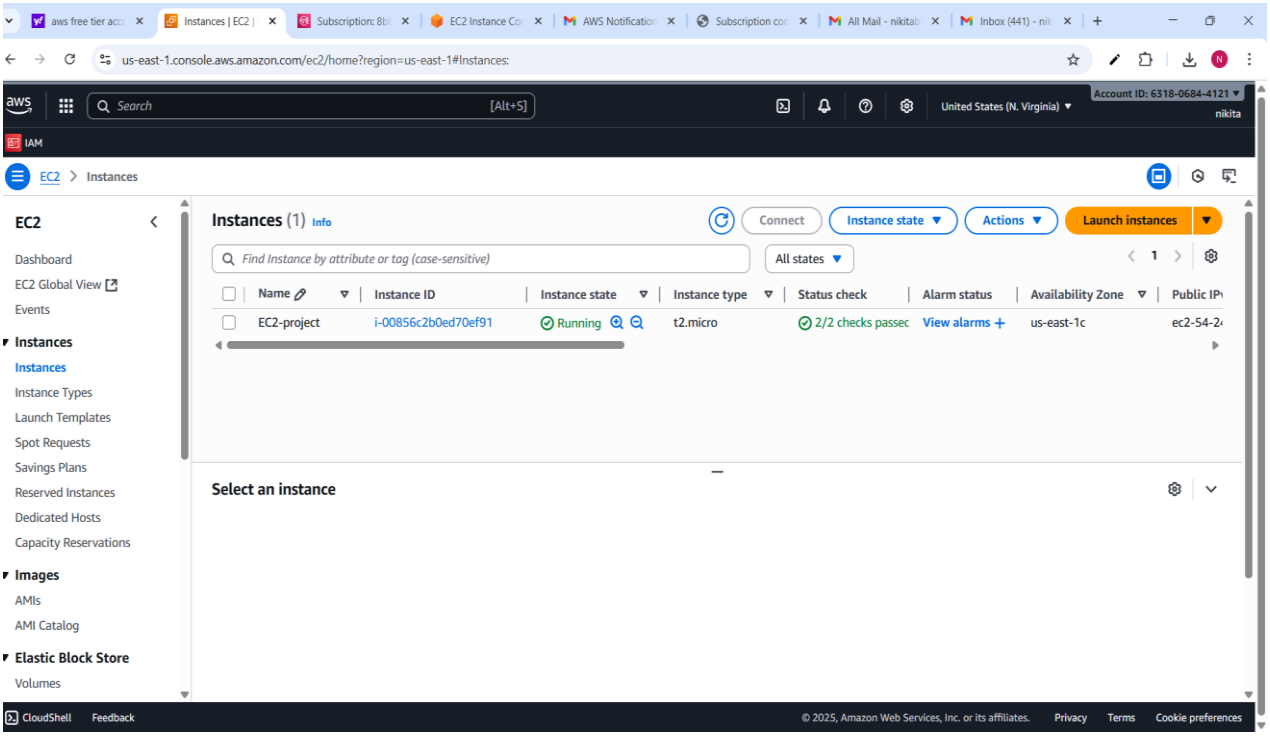
Use Case Examples:

- EC2 instance monitoring
- Bash scripting for automation
- Cron jobs (to schedule the script)
- AWS SNS integration for notifications

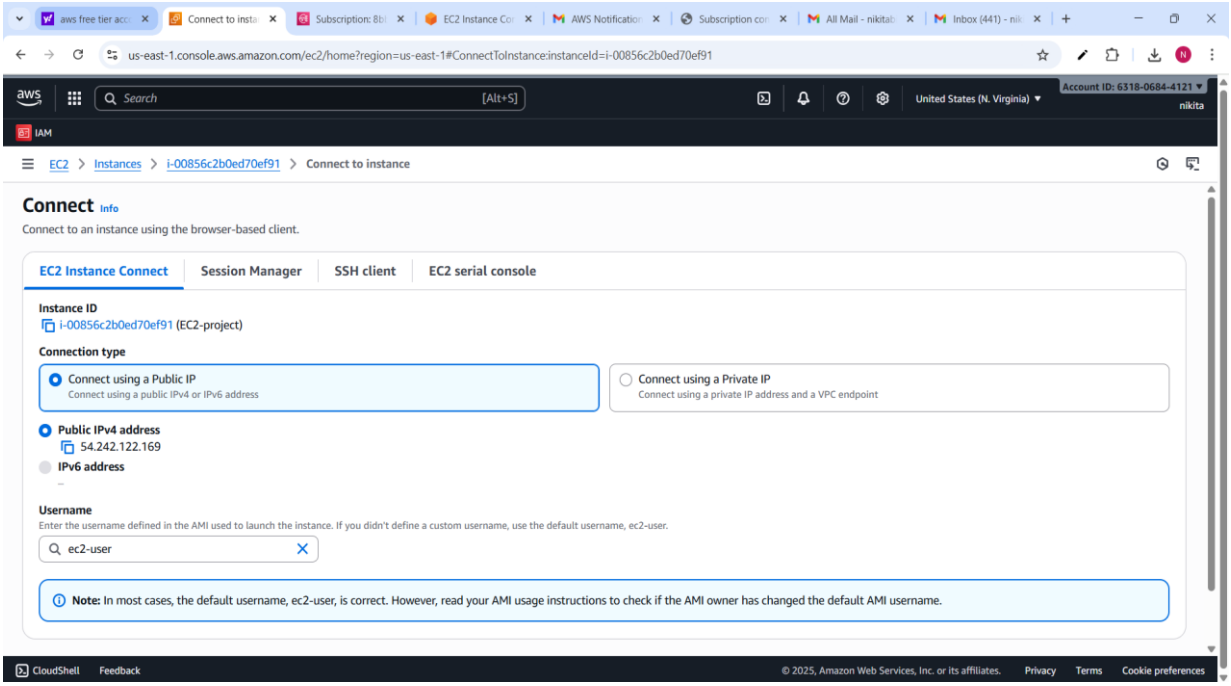
Key Components

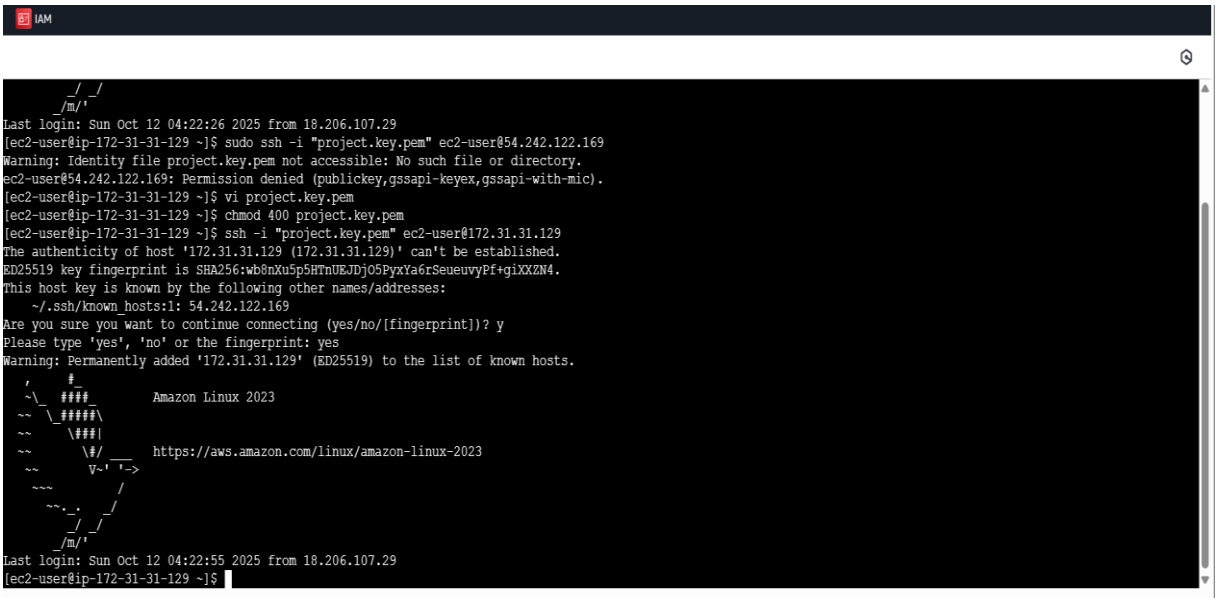
Step 1. Launch an Ec2 Instance

Goto EC2 Service



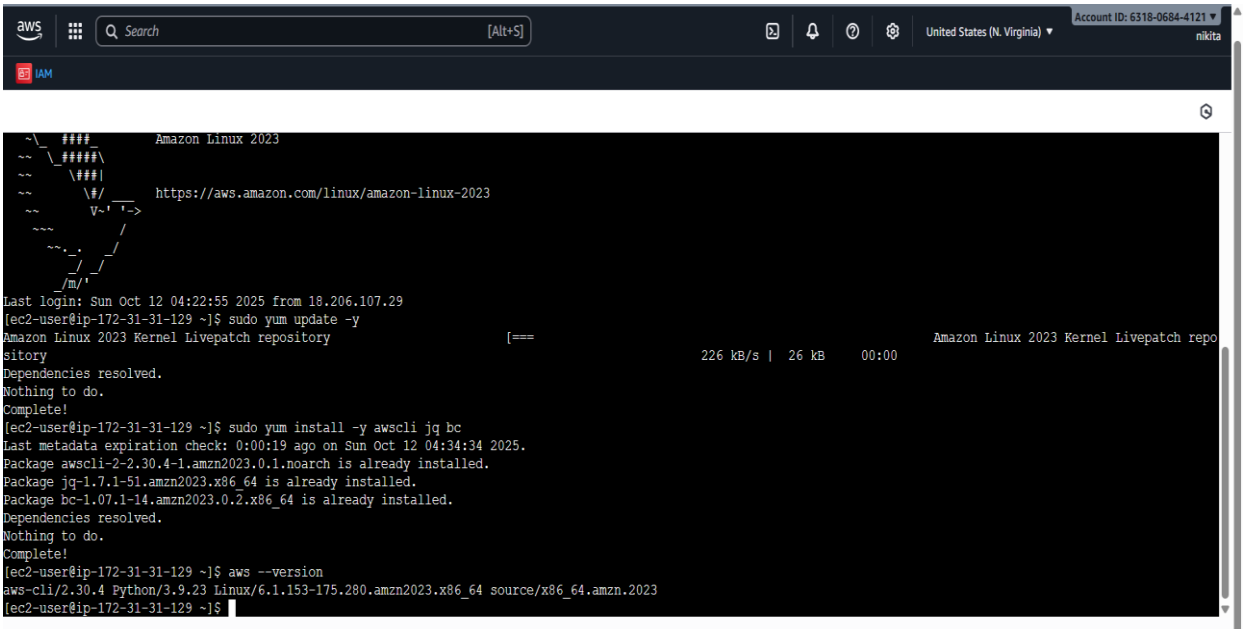
Step 2: Connect to your EC2 Instance



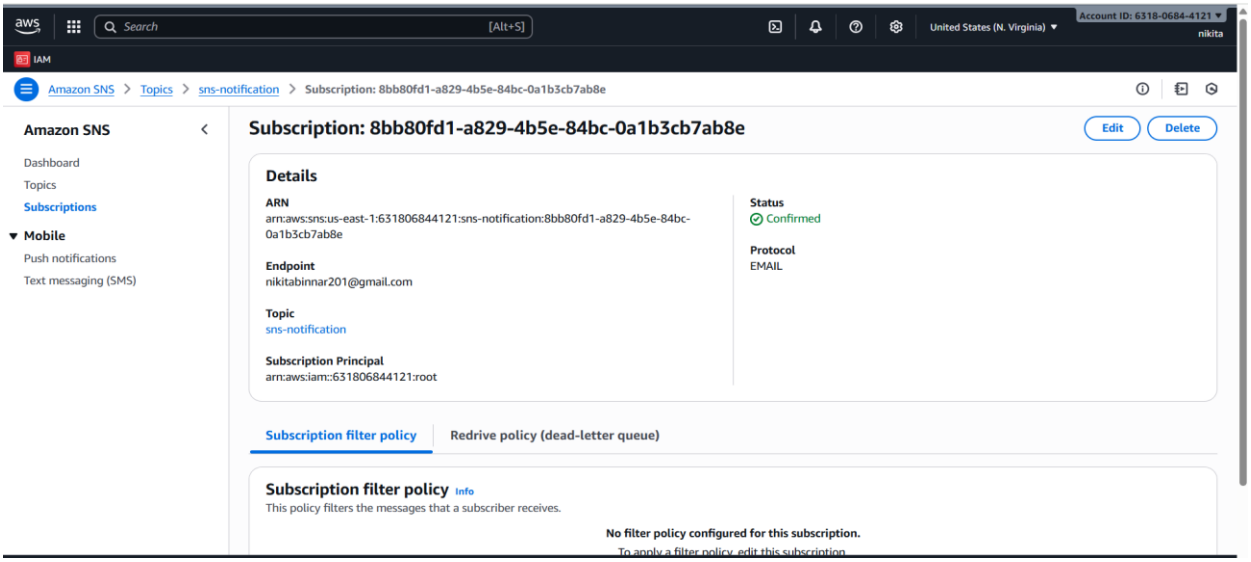


Step 3: Install AWS CLI and Tools

sudo yum update -y
sudo yum install -y awscli jq bc



Step 4: Create SNS Topic (for email alerts)



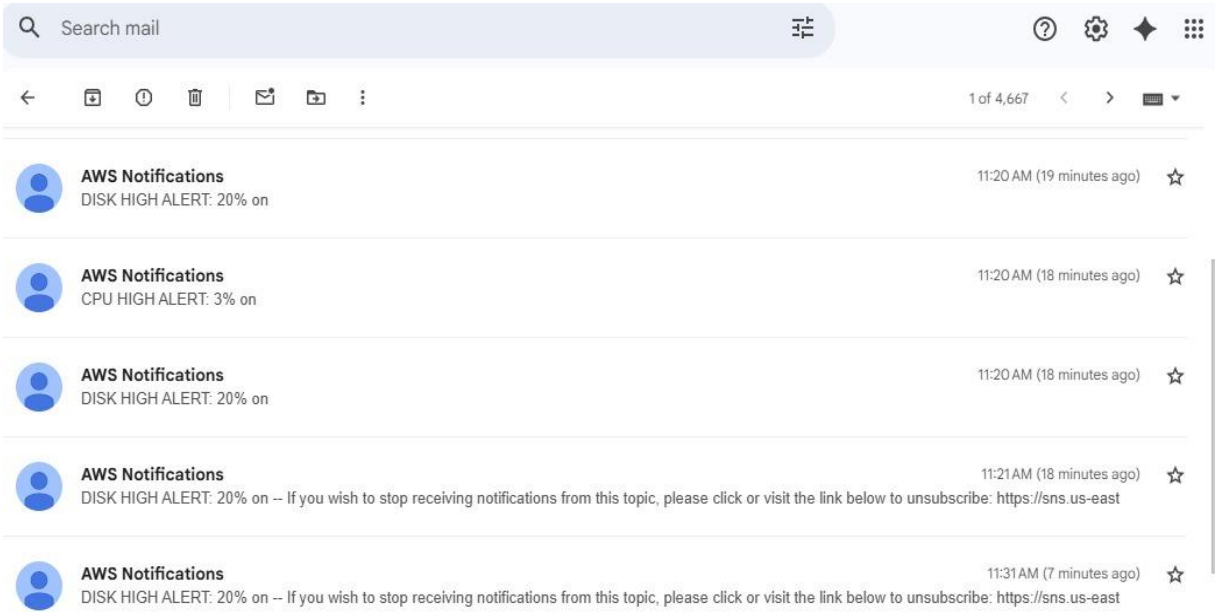
Step 5: Create Monitoring Script

```
#!/bin/bash

CPU_THRESHOLD=1
DISK_THRESHOLD=1
SNS_TOPIC_ARN="<arn:aws:sns:us-east-1:930832106341:projectalert”
INSTANCE_ID=$(curl -s http:// 169.254.169.254/latest/meta-data/instance-id)

CPU_USAGE=$(top -bn1 | grep "Cpu(s)" | awk '{print 100 - $8}')
CPU_USAGE=${CPU_USAGE%.*}

DISK_USAGE=$(df -h / | grep / | awk '{print $5}' | sed 's/%//g')

if [ "$CPU_USAGE" -gt "$CPU_THRESHOLD" ]; then
   aws sns publish --topic-arn "$SNS_TOPIC_ARN" --message "CPU HIGH ALERT: $CPU_USAGE% on
$INSTANCE_ID"
fi

if [ "$DISK_USAGE" -gt "$DISK_THRESHOLD" ]; then
   aws sns publish --topic-arn "$SNS_TOPIC_ARN" --message "DISK HIGH ALERT: $DISK_USAGE% on
$INSTANCE_ID"
fi
```

```
  GNU nano 8.3                                          /home/ec2-user/monitor.sh
#!/bin/bash

LOGFILE="/var/log/monitor.log"
CPU_THRESHOLD=1
DISK_THRESHOLD=1
SNS_TOPIC_ARN="arn:aws:sns:us-east-1:930832106341:projectalert"
INSTANCE_ID=$(curl -s http://169.254.169.254/latest/meta-data/instance-id)

# Get CPU usage (1-min average)
CPU_USAGE=$(top -bn1 | grep "Cpu(s)" | awk -F',' '{print $4+$2}' | awk '{print 100 - $1}'
CPU_INT=$(printf "%.0f" "$CPU_USAGE")

# Get Disk usage for root /
DISK_USAGE=$(df / --output=pcent | tail -1 | tr -dc '0-9')

# Add timestamp function
timestamp() { date +"%Y-%m-%d %H:%M:%S"; }
```

Step 6: Test Alerts :

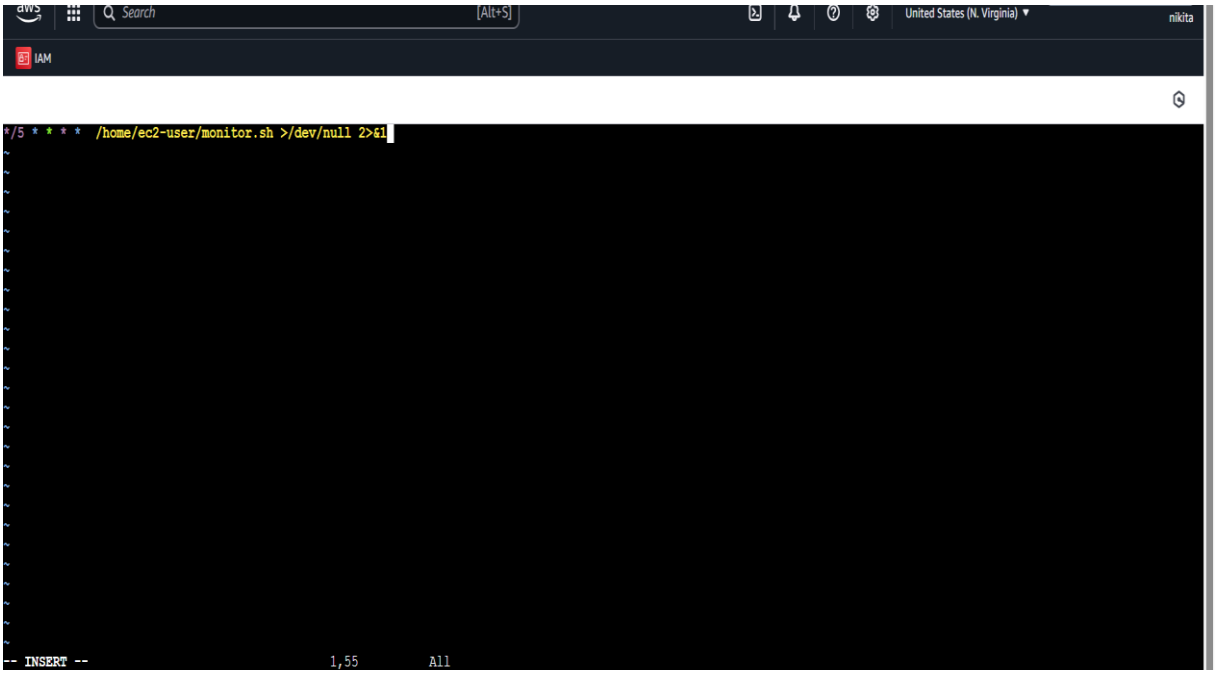
```
CPU_THRESHOLD=1
DISK_THRESHOLD=1
~/monitor.sh
```



Step 7: Automate with Cron

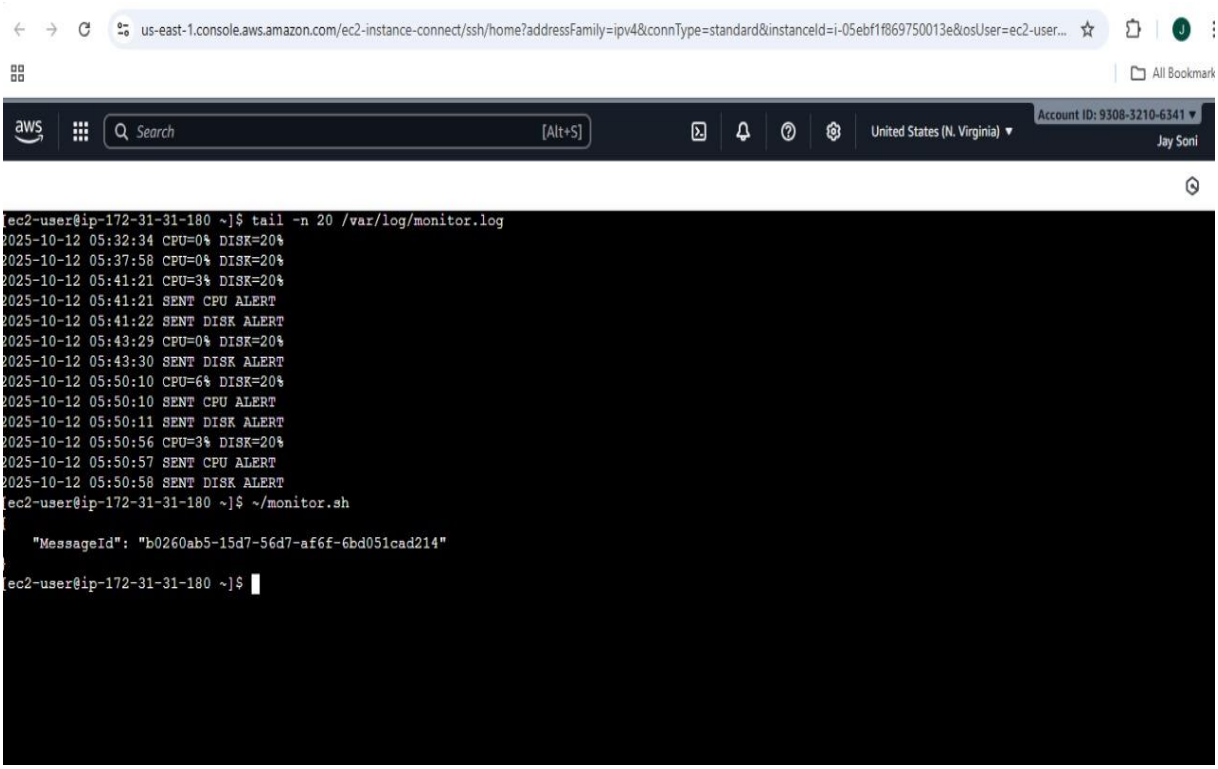
Cron will run the script **automatically every 5 minutes**.

crontab -e

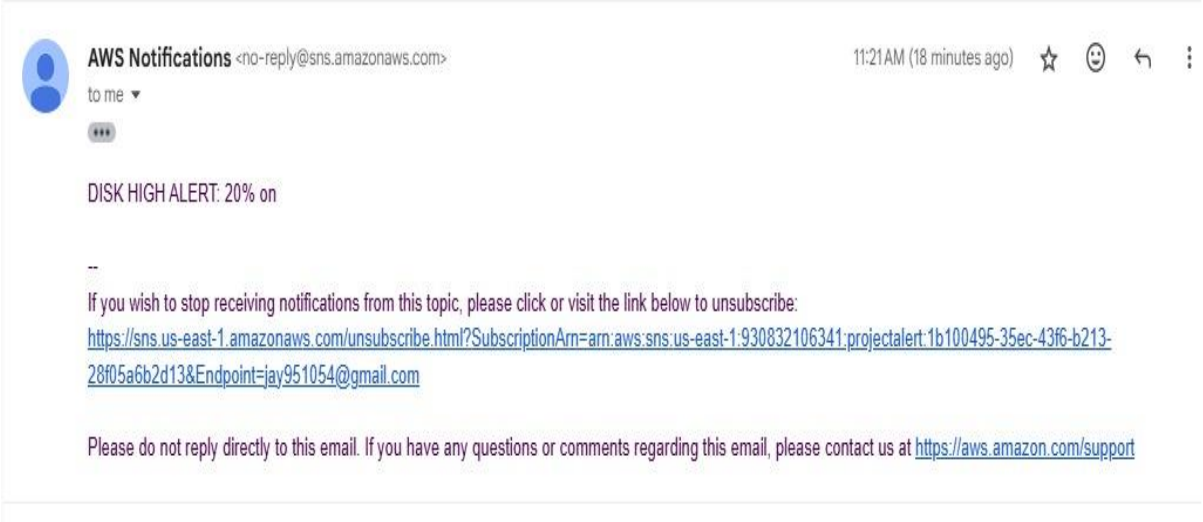


Final Output:

- Cron job is scheduled.
- Check logs (after 5–10 min):



Email Alerts:



AWS Notifications <no-reply@sns.amazonaws.com> 11:21 AM (18 minutes ago)

to me

DISK HIGH ALERT: 20% on

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If you wish to stop receiving notifications from this topic, please click or visit the link below to unsubscribe:
https://sns.us-east-1.amazonaws.com/unsubscribe.html?SubscriptionArn=arn:aws:sns:us-east-1:930832106341:projectalert:1b100495-35ec-43f6-b213-28f05a6b2d13&Endpoint=jay951054@gmail.com

Please do not reply directly to this email. If you have any questions or comments regarding this email, please contact us at https://aws.amazon.com/support

Testing & Validation

1. CPU and Disk usage logged in /var/log/monitor.log.
2. Email alert from SNS when thresholds are exceeded.
3. Cron automatically runs every 5 minutes.
4. Optional: manually test SNS → receive alert instantly.

Contribution:

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