

Amazon SES (Simple Email Service) Marketing

Aim : Creating an Email Marketing Campaign System

- Services that are used in this project:
AWS S3, AWS Lambda, Amazon Simple Email Service, Amazon EventBridge, AWS Identity & Access Management (IAM)



- We have to create an s3 bucket name as ttt-email-marketing2258

The screenshot shows the AWS S3 'Create bucket' interface. The 'General configuration' section is open, displaying the following settings:

- AWS Region:** US East (N. Virginia) us-east-1
- Bucket type:** General purpose (selected)
- Bucket name:** ttt-email-marketing2258

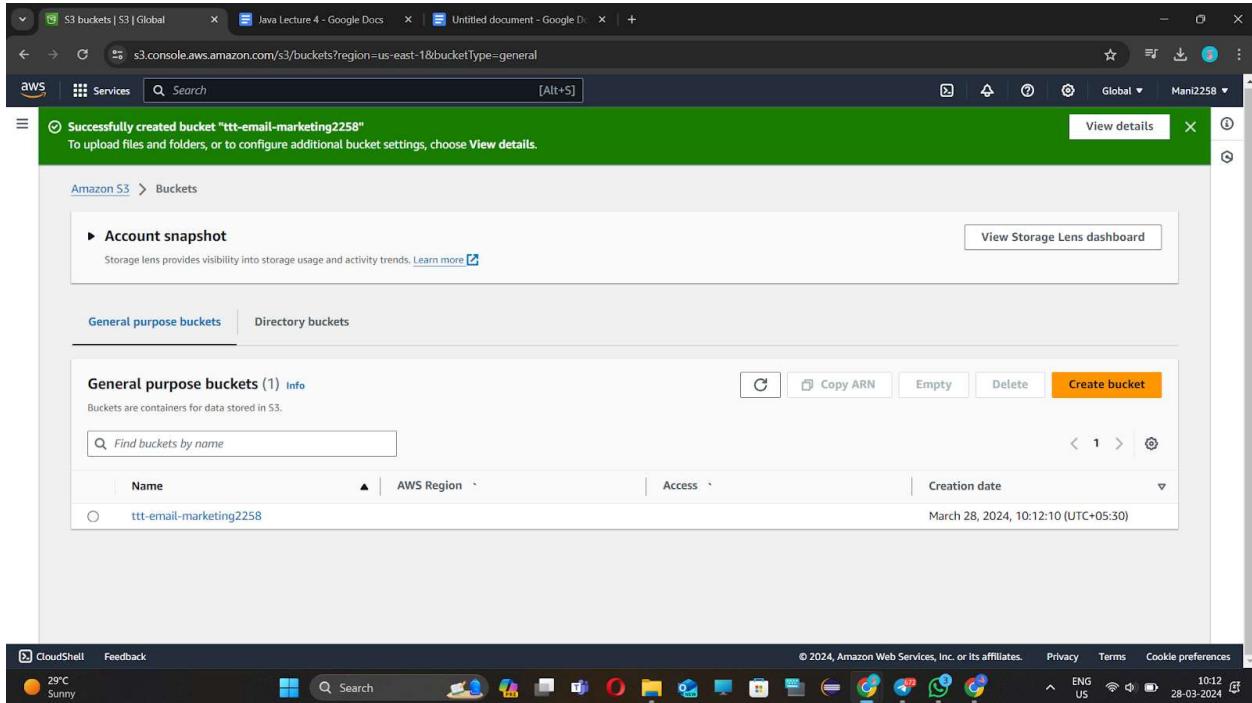
Other visible sections include 'Copy settings from existing bucket - optional' and a note about the bucket name being unique within the global namespace. The bottom of the screen shows the Windows taskbar with various pinned icons and the system tray.

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- Then click on the create bucket



- This is email_template.html that we have to upload in to the s3 bucket this can be taken from the chatgpt as an sample code

A screenshot of a code editor window titled 'email_template.html'. The code is as follows:

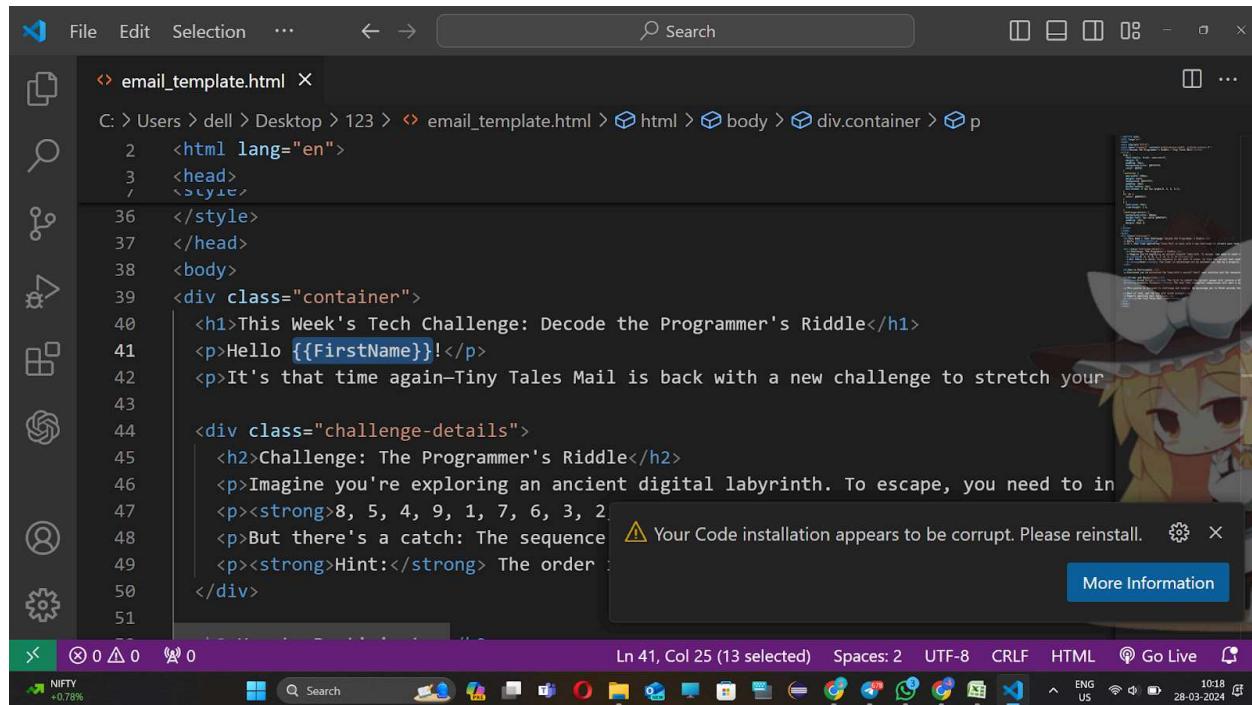
```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Decode the Programmer's Riddle - Tiny Tales Mail</title>
<style>
body {
    font-family: Arial, sans-serif;
    margin: 0;
    padding: 20px;
    background-color: #f4f4f4;
    color: #333;
}
.container {
    max-width: 600px;
    margin: auto;
    background: #ffffff;
    padding: 20px;
}</style>
```

The code editor has a dark theme with a cartoon character icon on the right. The status bar at the bottom shows 'Ln 1, Col 1' through 'HTML' and 'Go Live'.

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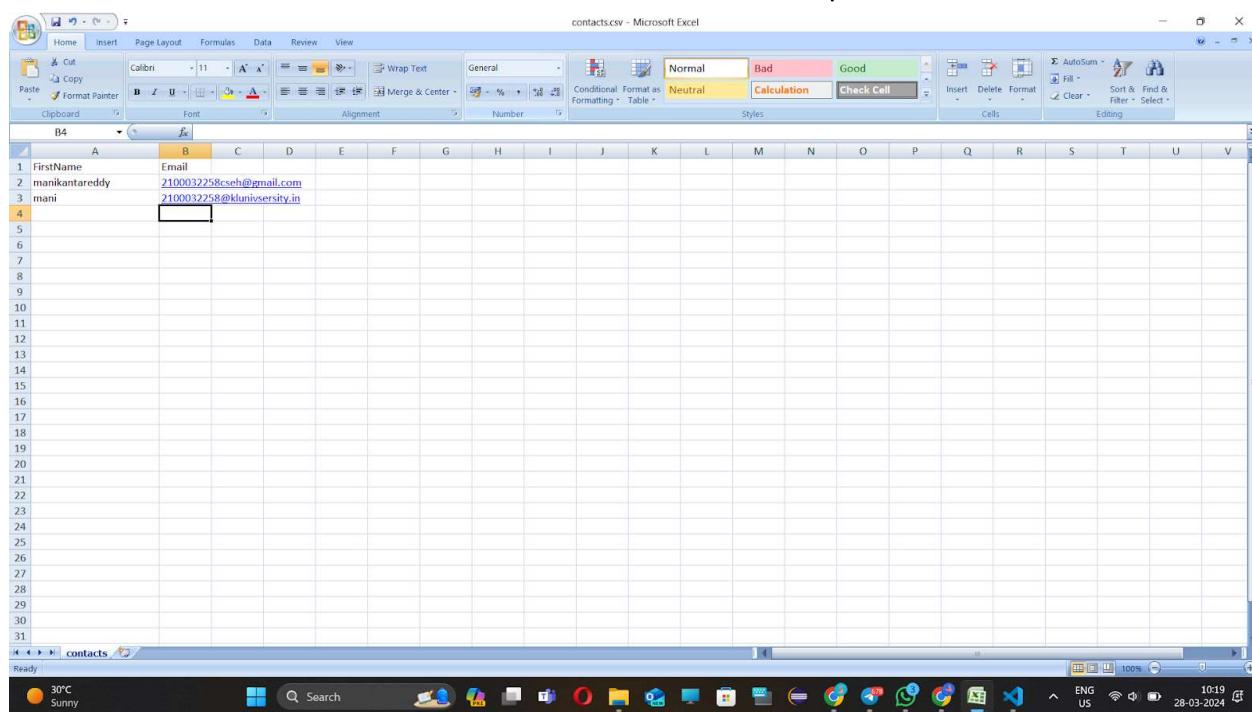
```
C: > Users > dell > Desktop > 123 > email_template.html > html > body > div.container > p
 2   <html lang="en">
 3     <head>
 4       <style>
 5       ...
 6     </style>
 7   </head>
 8   <body>
 9     <div class="container">
10       <h1>This Week's Tech Challenge: Decode the Programmer's Riddle</h1>
11       <p>Hello {{FirstName}}!</p>
12       <p>It's that time again-Tiny Tales Mail is back with a new challenge to stretch your
13         ...
14       <div class="challenge-details">
15         <h2>Challenge: The Programmer's Riddle</h2>
16         <p>Imagine you're exploring an ancient digital labyrinth. To escape, you need to in
17         <p><strong>8, 5, 4, 9, 1, 7, 6, 3, 2</strong>
18         <p>But there's a catch: The sequence is ...
19         <p><strong>Hint:</strong> The order is ...
20       </div>
21     </div>
22   </body>
23 </html>
```

Ln 41, Col 25 (13 selected) Spaces: 2 UTF-8 CRLF HTML ⚡ Go Live 🌐

Your Code installation appears to be corrupt. Please reinstall.

More Information

- This is an contact.csv file this also we have to import in the aws s3



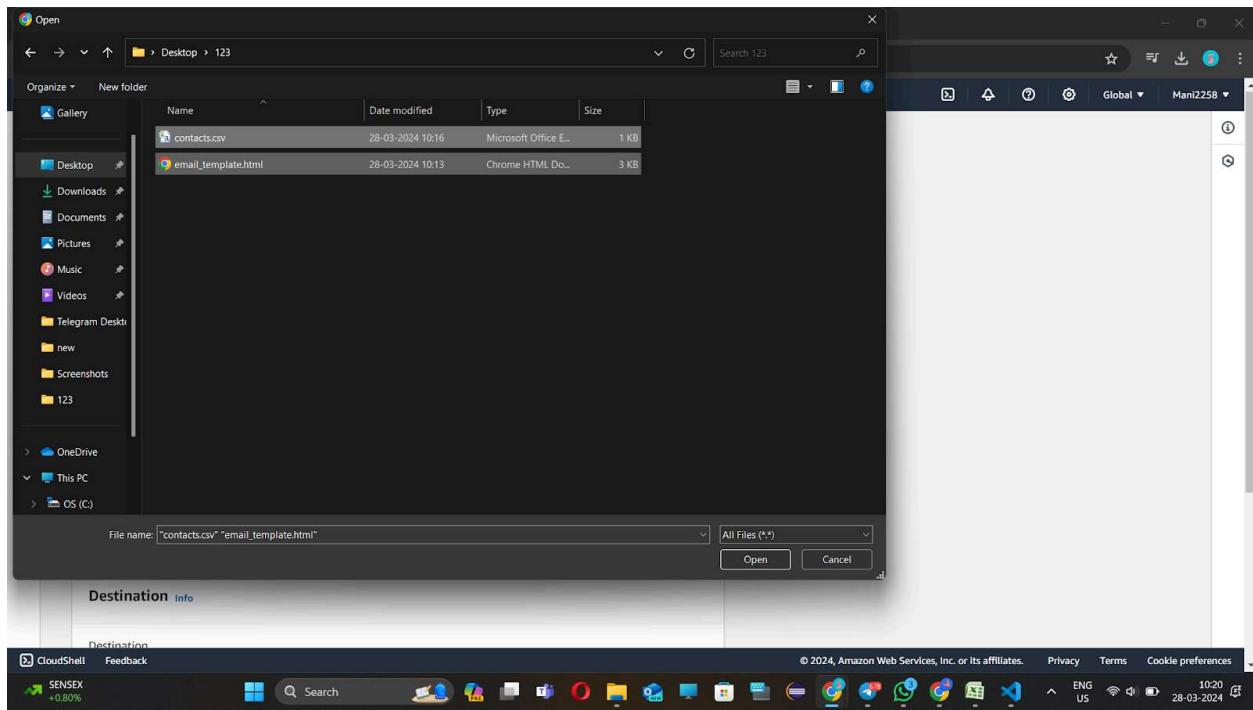
FirstName	Email
manikantareddy	2100032258cseh@gmail.com
mani	2100032258@kluniversity.in

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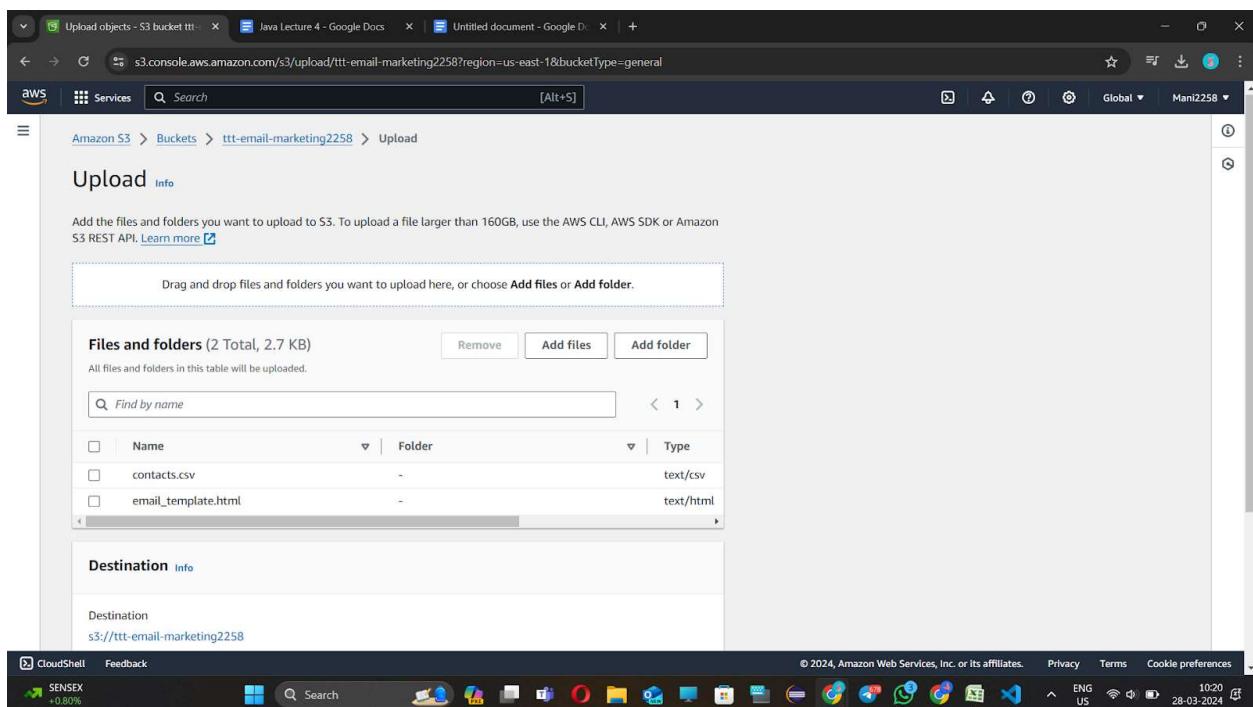
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- These are the two file that we are importing in the s3 bucket



- Now we uploaded the files in the s3



- Successfully files are uploaded in the bucket

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The screenshot shows the AWS S3 console interface. At the top, there's a green success message: "Upload succeeded" with a link to "View details below". Below this, a summary table shows the destination "s3://ttt-email-marketing2258" with two succeeded files (2.7 KB total) and zero failed files. Under the "Files and folders" tab, a table lists two files: "contacts.csv" (text/csv, 55.0 B, succeeded) and "email_template.html" (text/html, 2.7 KB, succeeded). The bottom of the screen shows the Windows taskbar with various pinned icons.

- Now open the Amazon SES from the services now Get started

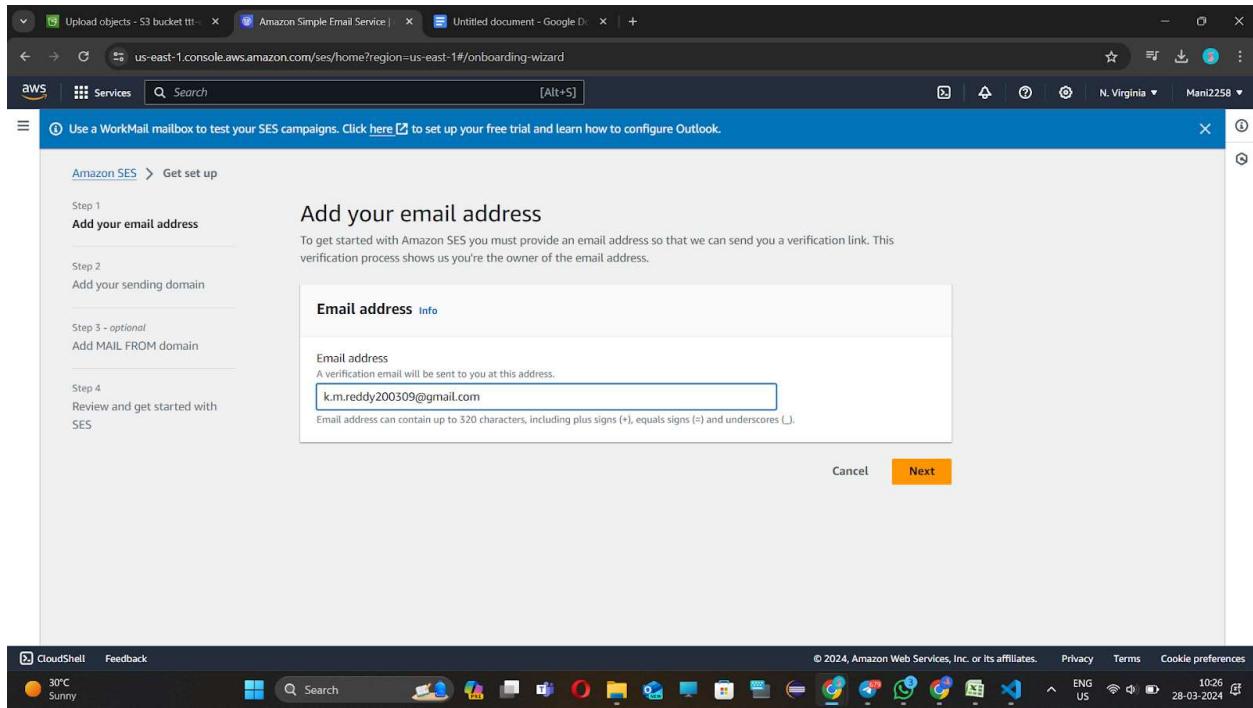
The screenshot shows the Amazon Simple Email Service (SES) homepage. It features a dark header with the AWS logo and a search bar. A blue banner at the top encourages users to "Use a WorkMail mailbox to test your SES campaigns. Click here to set up your free trial and learn how to configure Outlook." Below this, the main content area has a heading "Amazon SES" and a sub-section "Highly-scalable inbound and outbound email service". It includes a brief description of what SES is and a "Get started" button. Another section titled "Pricing" provides information about pay-as-you-go pricing. The bottom of the screen shows the Windows taskbar with various pinned icons.

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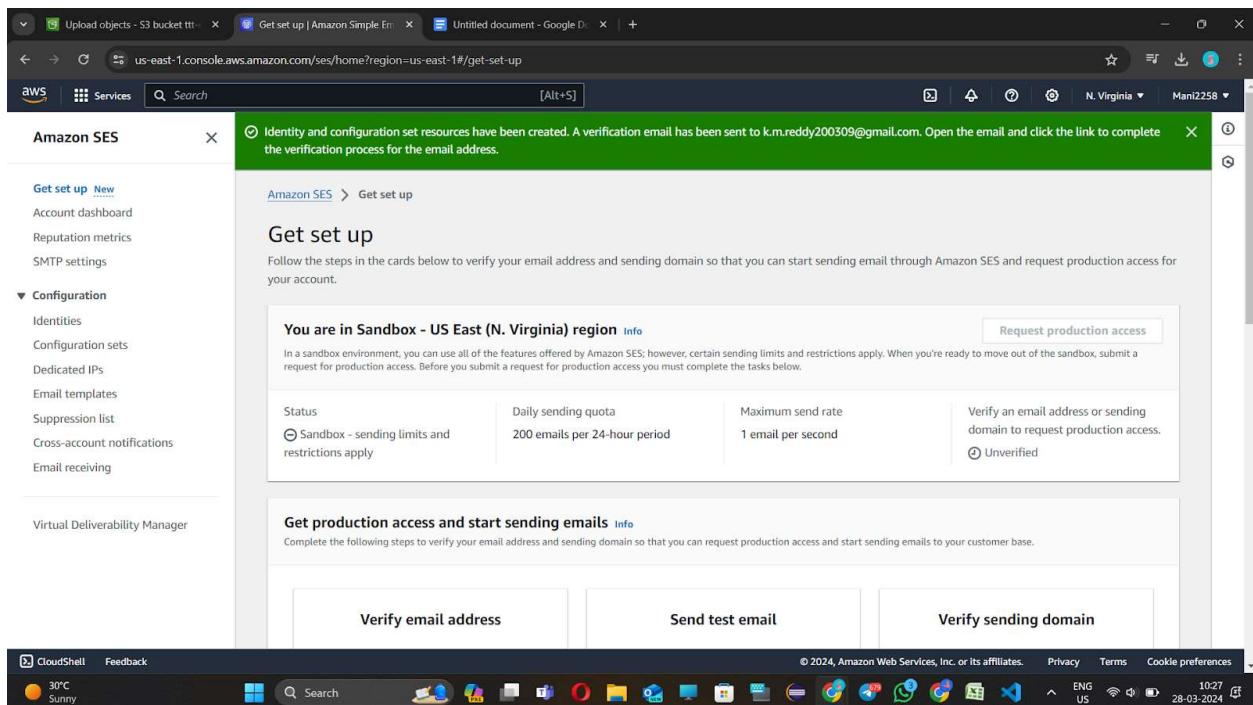
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- Add email and click next then you will get the verification mail then verify it



- We can see the pop up that email verification successfully sent

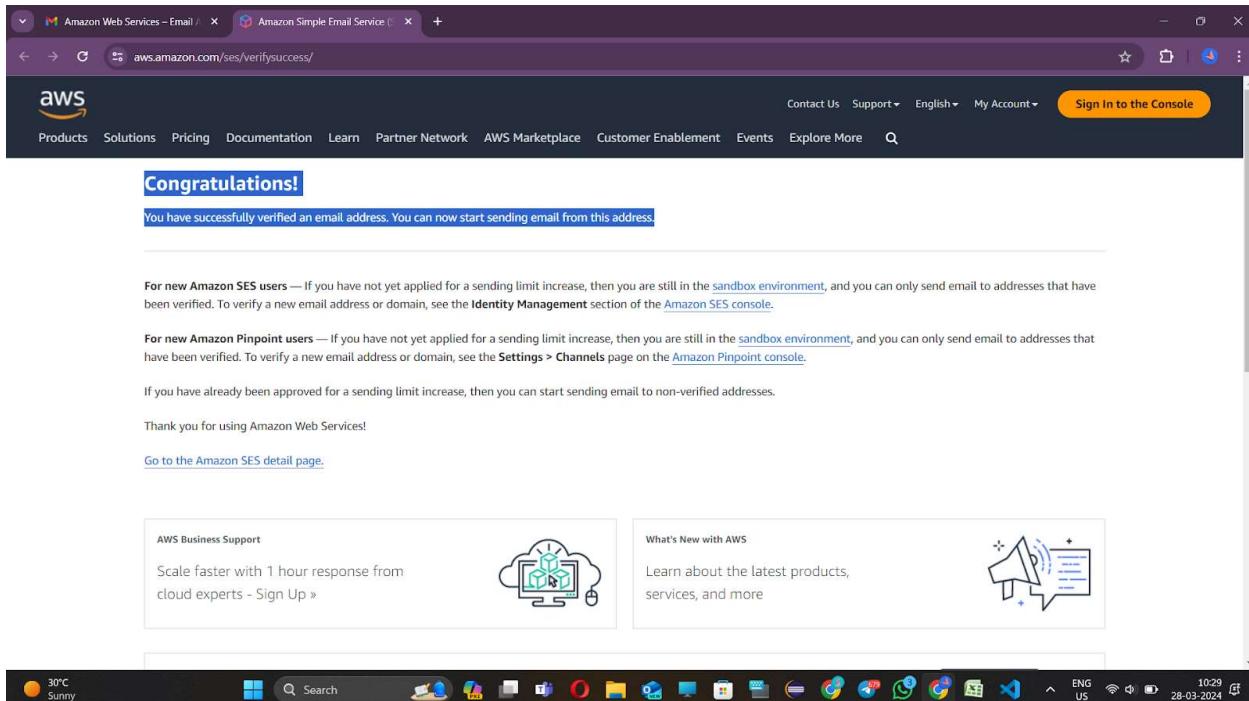


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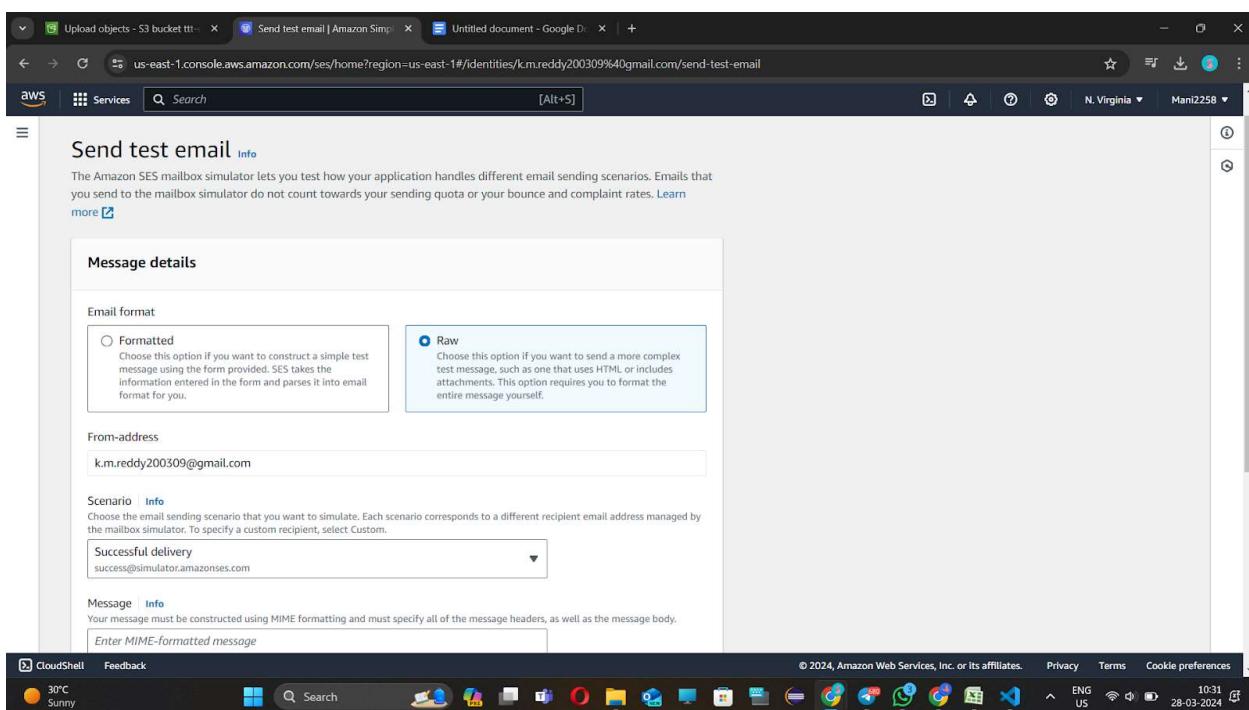
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- After click on the verification mail you will redirect to this page that congratulations that you are successfully verified



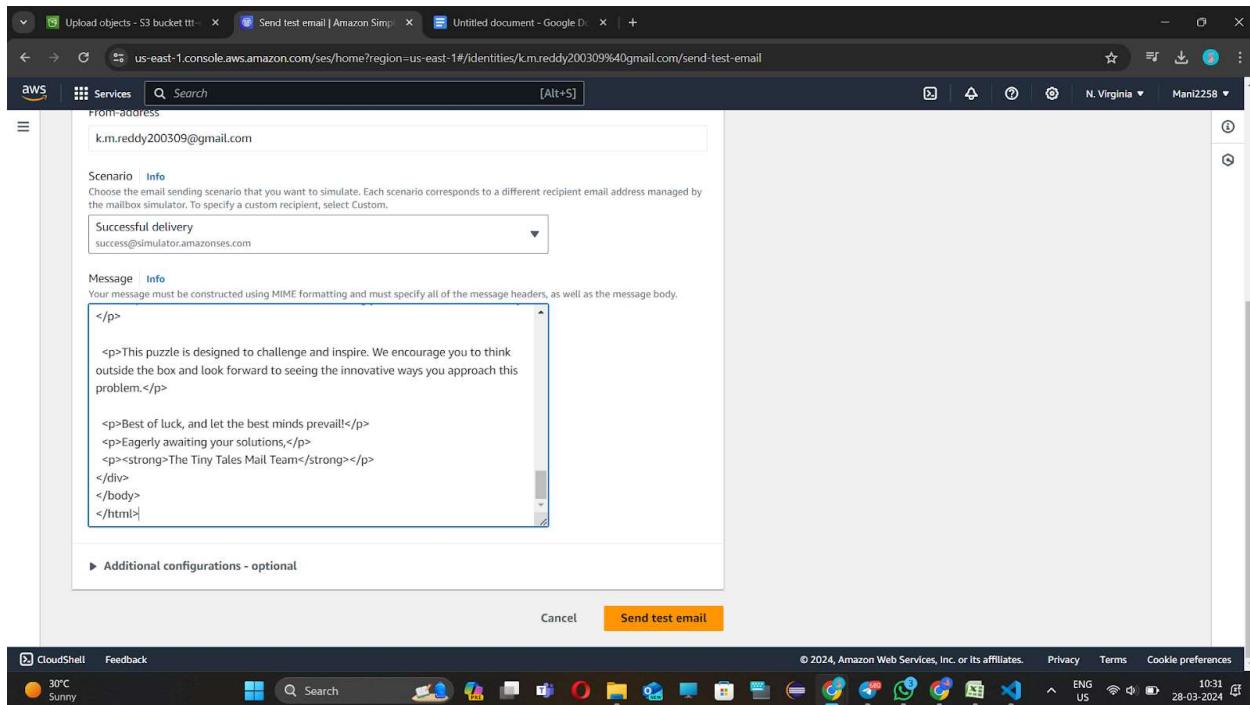
- Click on send test email then select the email format as raw and add email address in from-address



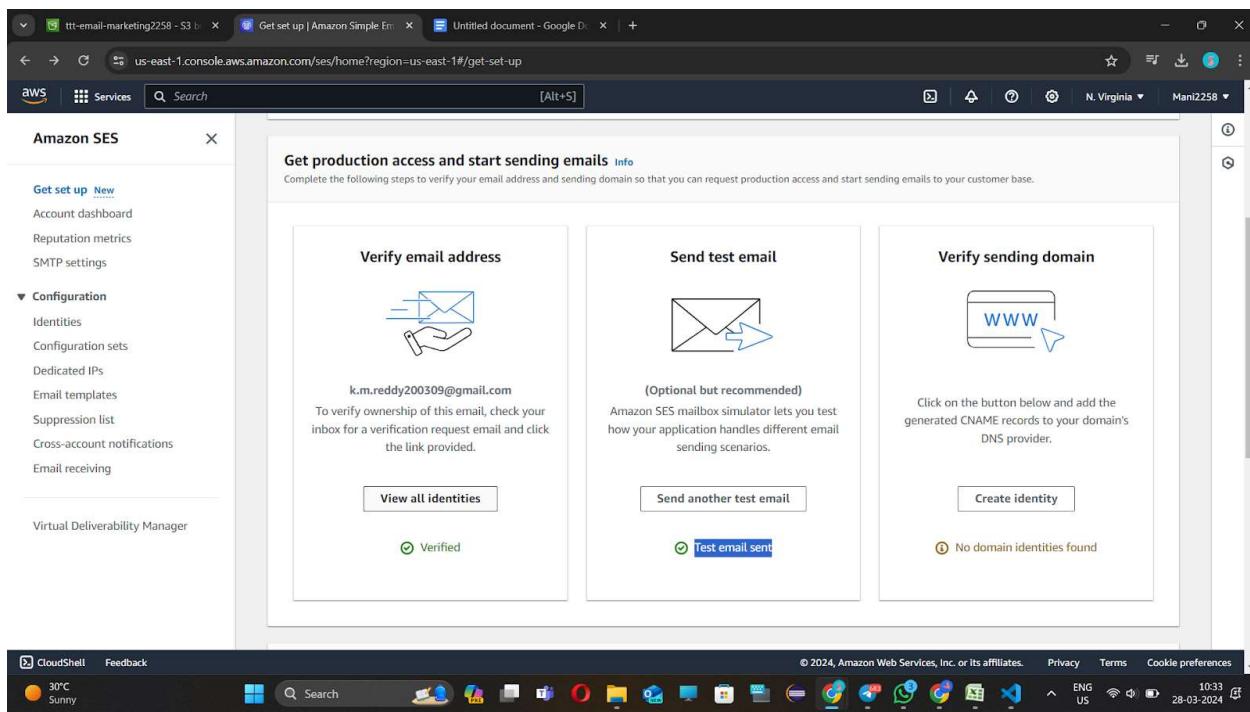
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- Add the code that we are used in `email_template.html` in the message box then click on the send the email



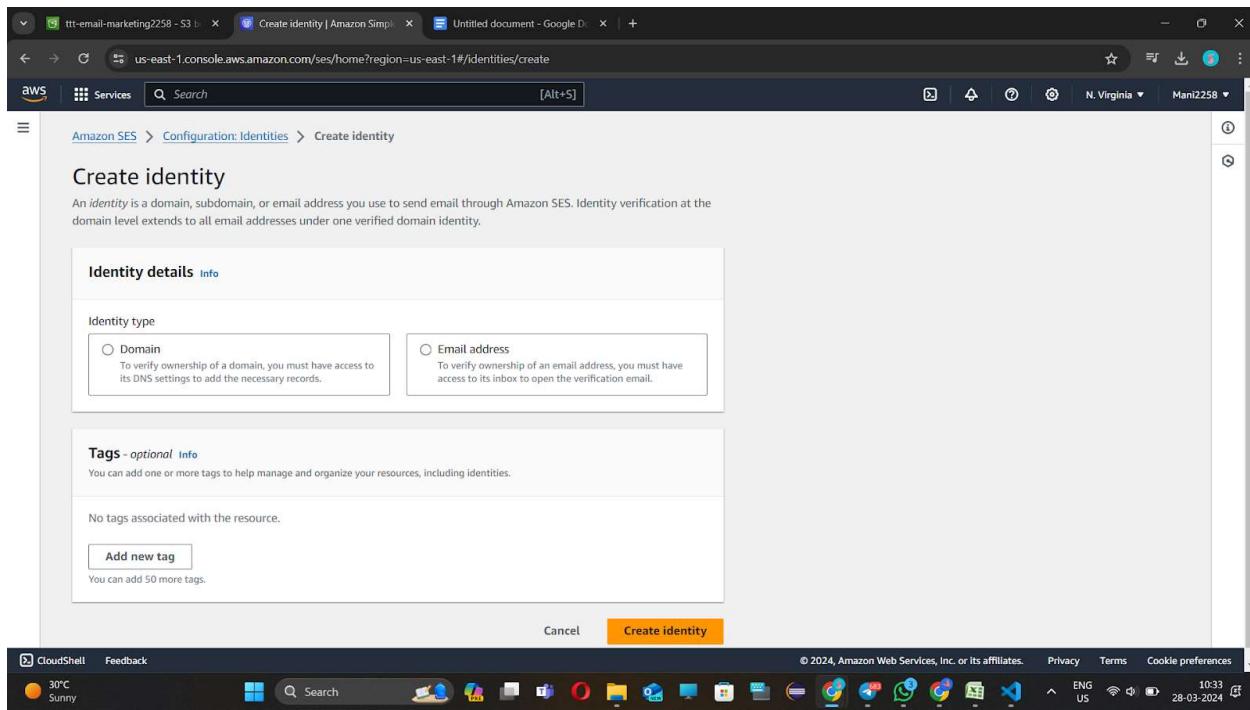
- Now click on the verify email address



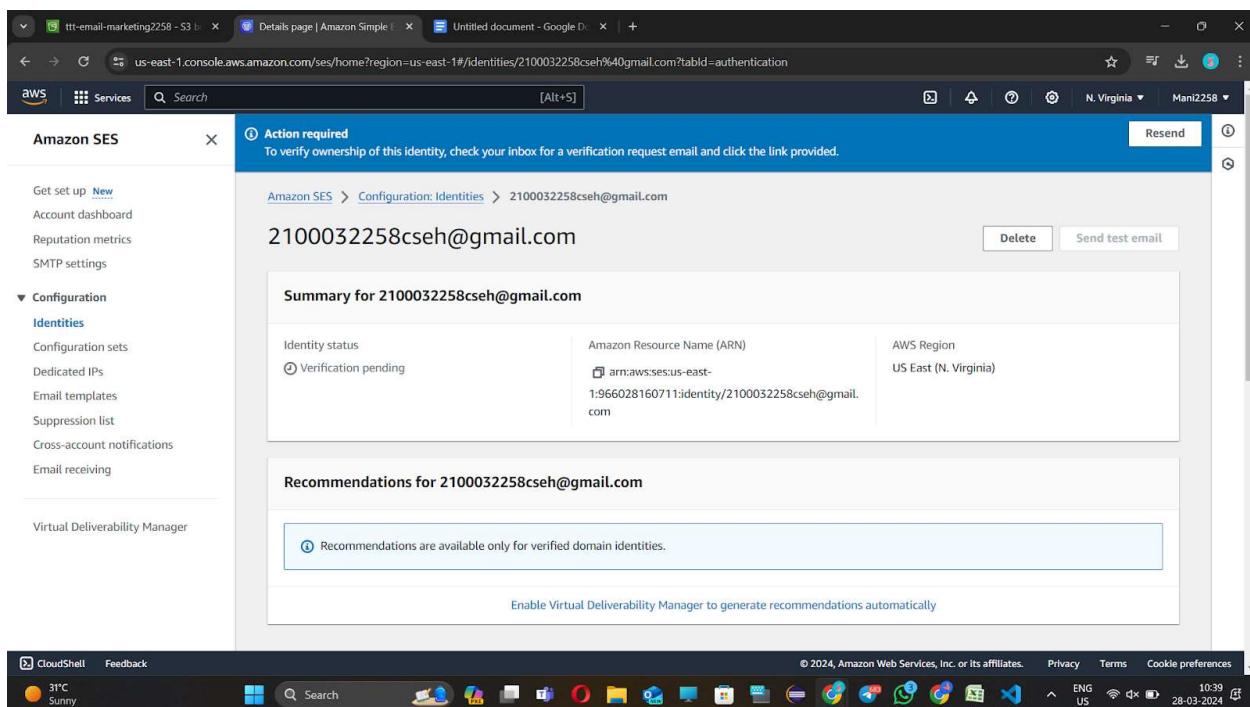
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- Select email address then click on create identity by adding email



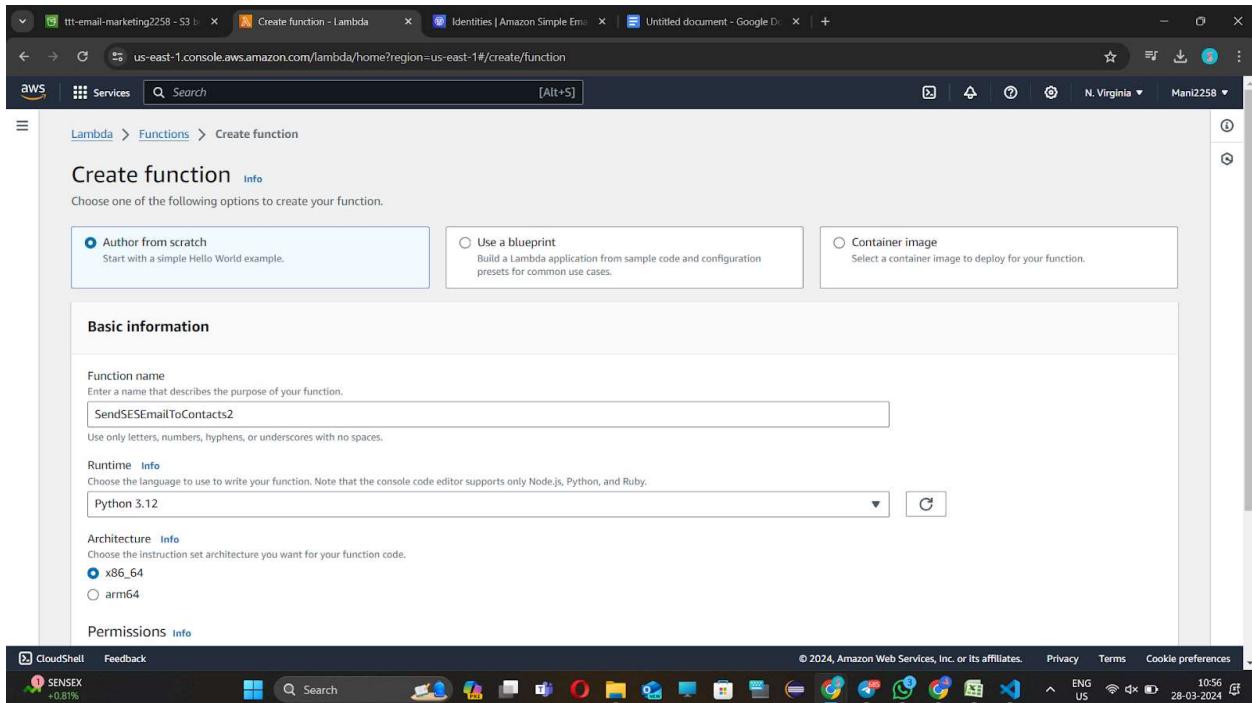
- After adding then you will get the verification mail then we have verify it



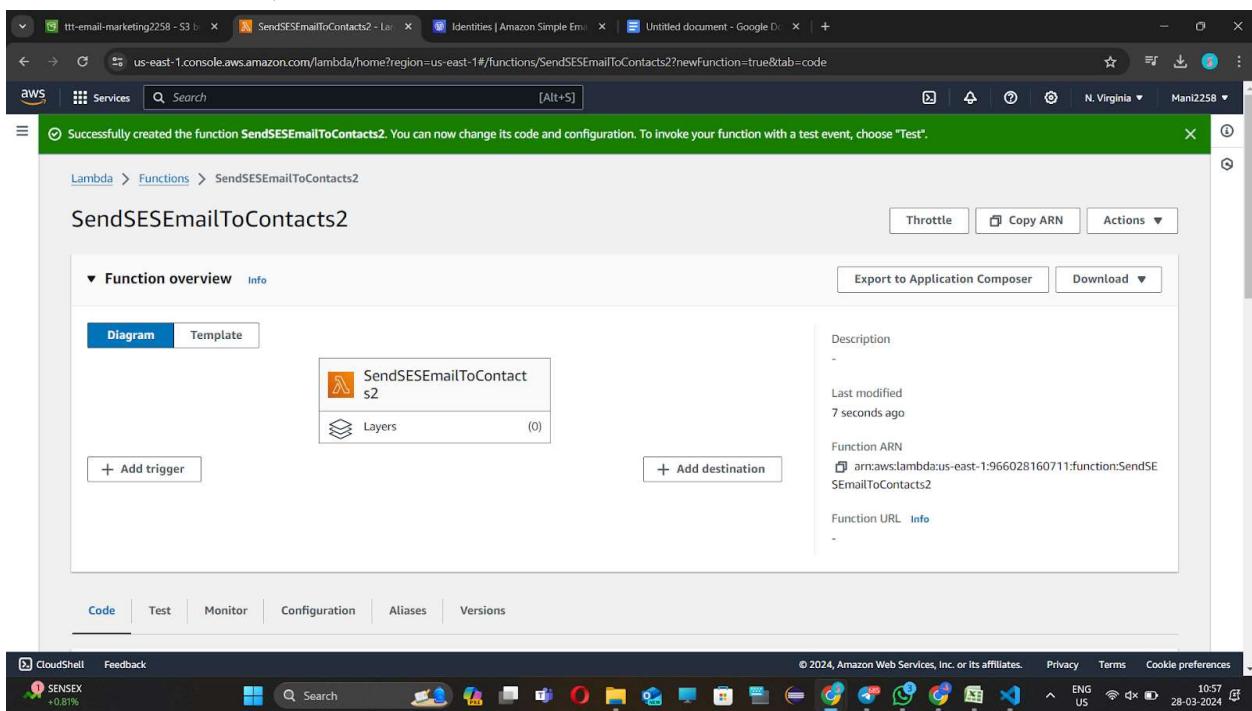
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- Now open lambda function and create an function by giving the required fields shown in the image



- Successfully lambda function created

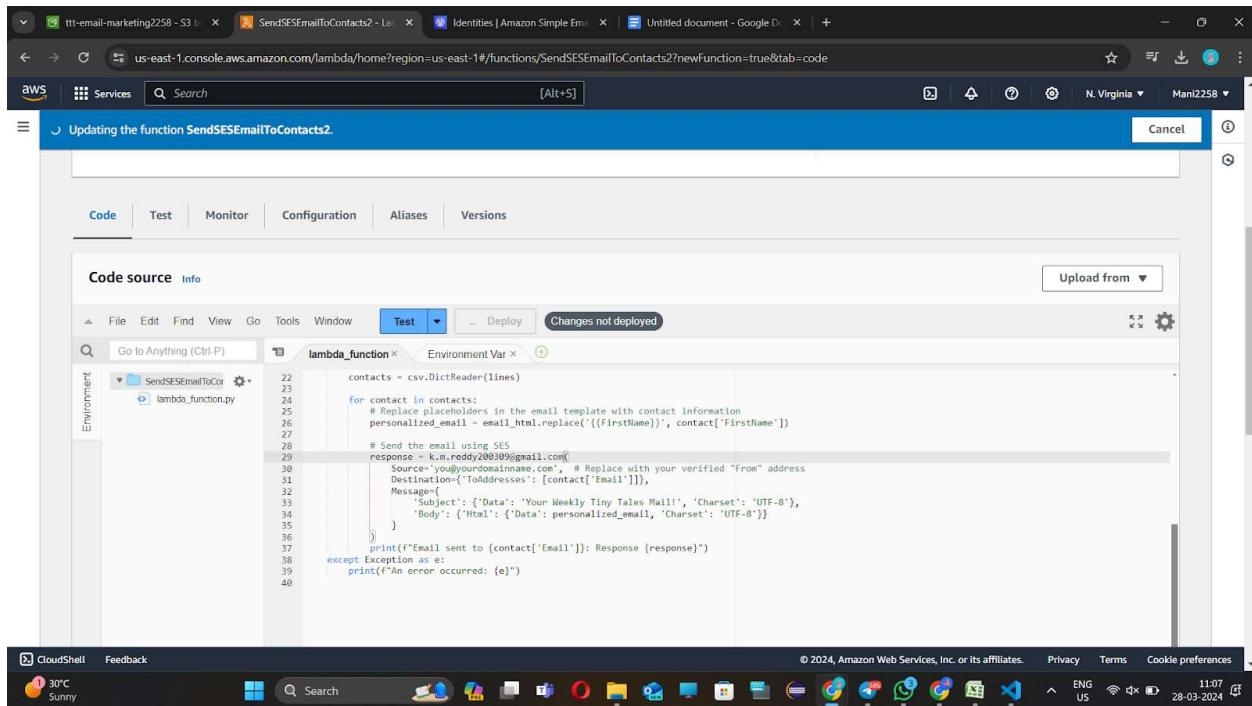


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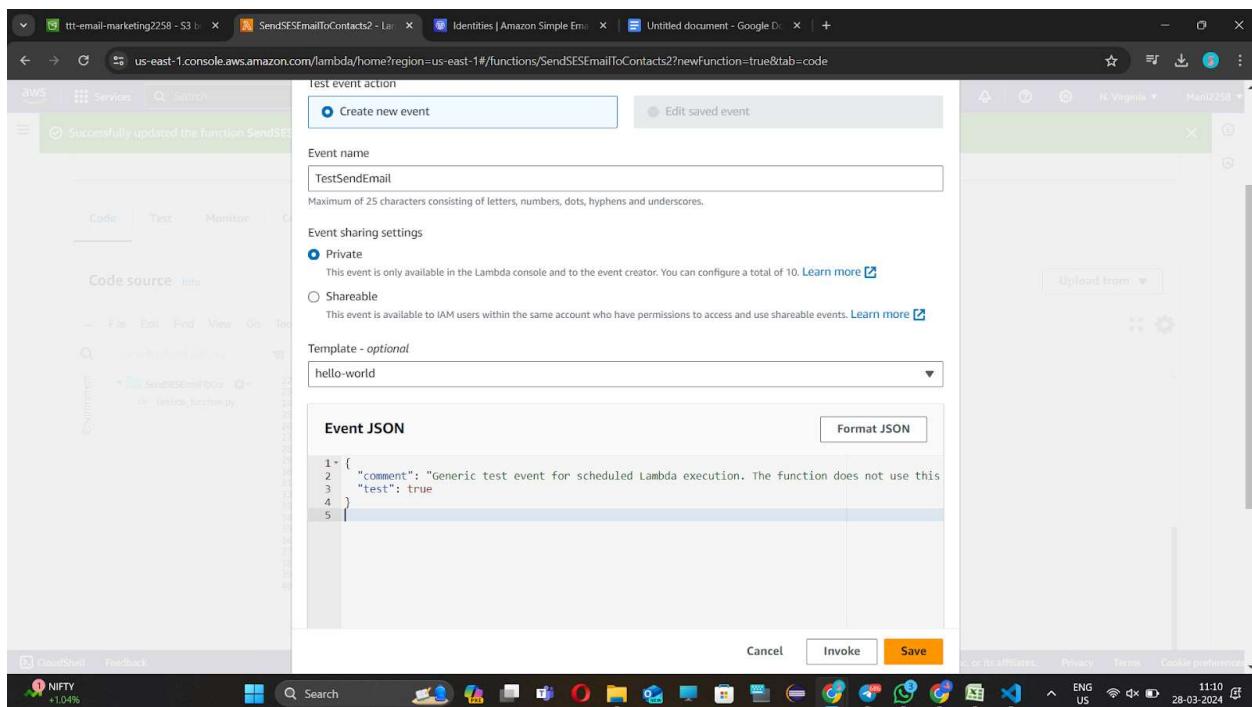
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- Change the lambda function code and the required code in it



- Now click on configure then add the required fields as in the image and change the code of Event JSON

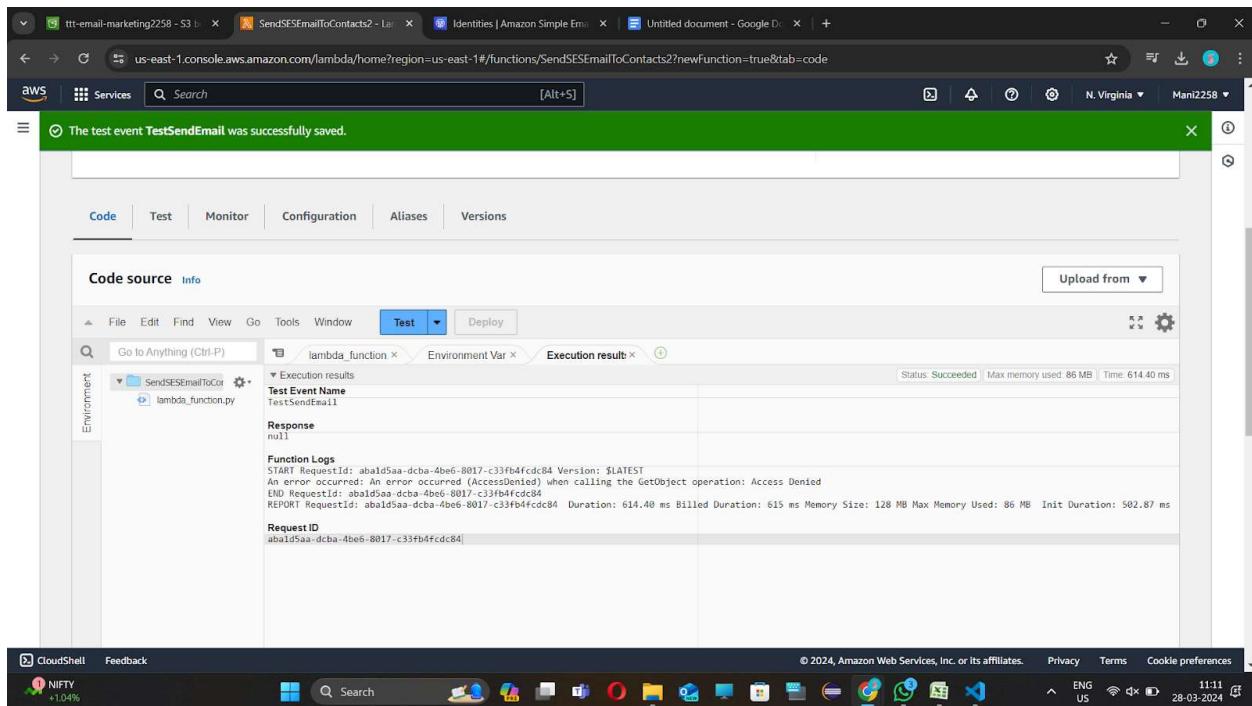


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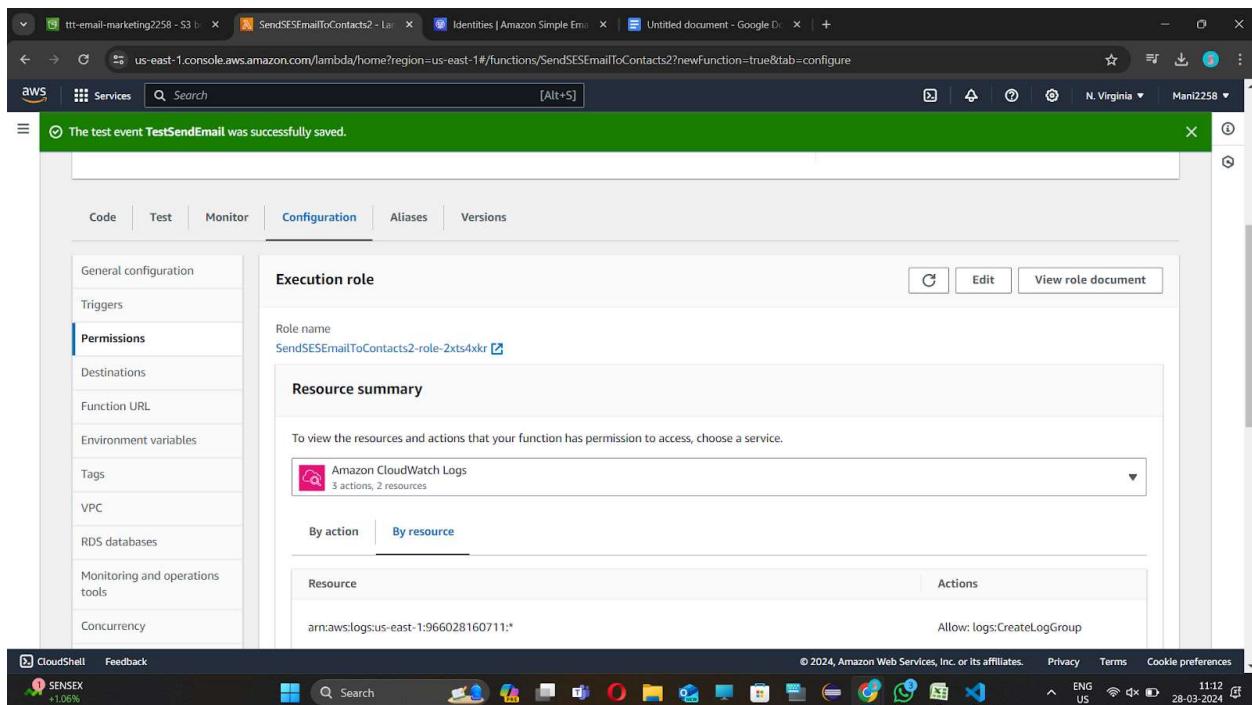
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- Now once check the code by click on the test



- Go to the configure dashboard then click IAM dashboard



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The screenshot shows the AWS IAM console with the 'Identity and Access Management (IAM)' service selected. In the left navigation pane, 'Access management' is expanded, showing 'Roles', 'Policies', and 'Identity providers'. Under 'Roles', the 'AWSLambdaBasicExecutionRole' is selected. The main content area displays the JSON code for this role's policy:

```
1< [ 2 "Version": "2012-10-17", 3 "Statement": [ 4 { 5 "Effect": "Allow", 6 "Action": "logs:createLogGroup", 7 "Resource": "arn:aws:logs:us-east-1:966028160711:log-group:/aws/lambda/SendSESEmailToContacts2:*" 8 }, 9 { 10 "Effect": "Allow", 11 "Action": [ 12 "logs:CreateLogStream", 13 "logs:PutLogEvents" 14 ], 15 "Resource": [ 16 "arn:aws:logs:us-east-1:966028160711:log-group:/aws/lambda/SendSESEmailToContacts2:*" 17 ] 18 } 19 ] 20 ]
```

Below the JSON editor, there is a section titled 'Permissions boundary (not set)'. The bottom of the screen shows the standard AWS navigation bar with CloudShell, Feedback, and various icons.

- Now go to the policies then remove the code existed

The screenshot shows the 'Create policy' wizard in the AWS IAM console. It is on 'Step 1: Specify permissions'. The title is 'Specify permissions' with an 'Info' link. Below it says 'Add permissions by selecting services, actions, resources, and conditions. Build permission statements using the JSON editor.' A 'Policy editor' JSON code editor is shown, containing the same JSON as the previous screenshot. To the right of the editor is a sidebar with 'Edit statement', 'Remove', 'Add actions', 'Choose a service' (with a 'Filter services' search bar), and a list of available services: AMP, API Gateway, API Gateway V2, ASC, Access Analyzer, Account, Activate, Alexa for Business, and Amplify. The bottom of the screen shows the standard AWS navigation bar.

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- Now add the required code in the policy editor

The screenshot shows the AWS IAM Policy Editor interface. The main area displays the following JSON policy code:

```
1 {  
2     "Version": "2012-10-17",  
3     "Statement": [  
4         {  
5             "Effect": "Allow",  
6             "Action": [  
7                 "s3:GetObject"  
8             ],  
9             "Resource": "arn:aws:s3:::ttt-email-marketing2258/*"  
10        },  
11        {  
12            "Effect": "Allow",  
13            "Action": [  
14                "ses:SendEmail",  
15                "ses:SendRawEmail"  
16            ],  
17            "Resource": "*"  
18        }  
19    ]  
20}  
21
```

To the right of the code, there are tabs for "Visual" and "JSON", with "JSON" selected. Below the code, there's a sidebar titled "Included" which lists "S3". The "Available" section includes services like "API Gateway" and "AWS Lambda". A search bar at the top right says "Filter services".

- Then create an policy

The screenshot shows the "Create policy" wizard in the AWS IAM console. The steps are "Step 1 Specify permissions" and "Step 2 Review and create".

Review and create (Info)
Review the permissions, specify details, and tags.

Policy details

Policy name
Enter a meaningful name to identify this policy.
LambdaS3SESPolicy
Maximum 128 characters. Use alphanumeric and '+-_@-' characters.

Description - optional
Add a short explanation for this policy.
Maximum 1,000 characters. Use alphanumeric and '+-_@-' characters.

Permissions defined in this policy (Info)
Permissions defined in this policy document specify which actions are allowed or denied. To define permissions for an IAM identity (user, user group, or role), attach a policy to it.

Allow (4 of 405 services)

Show remaining 401 services

At the bottom, there's a search bar and a note about showing remaining services.

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The screenshot shows the AWS IAM Policies page. A green banner at the top says "Policy LambdaS3SES Policy created." The main area displays a table of policies with columns for Policy name, Type, Used as, and Description. A progress bar at the bottom indicates "Loading policies". The left sidebar shows navigation options like Dashboard, Access management, Policies, and Access reports.

- Then add permissions to it by IAM

The screenshot shows the AWS IAM Add permissions page for a role named "SendSESEmailToContacts2-role-2xts4xr". It lists "Current permissions policies (1)" and "Other permissions policies (921)". The "LambdaS3SES Policy" is selected and highlighted in blue. The bottom right corner shows a "Cancel" button and an "Add permissions" button.

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- Then policy was successfully created for the attached role

The screenshot shows the AWS IAM console with the URL <https://us-east-1.console.aws.amazon.com/iam/home?region=us-east-1#/roles/details/SendSESEmailToContacts2-role-2xts4xkr?section=permissions>. A green success banner at the top says "Policy was successfully attached to role." The main pane displays the "SendSESEmailToContacts2-role-2xts4xkr" role details, including its ARN and creation date (March 28, 2024). The "Permissions" tab is selected, showing a list of managed policies attached to the role. The status bar at the bottom indicates it's 11:20 AM on March 28, 2024.

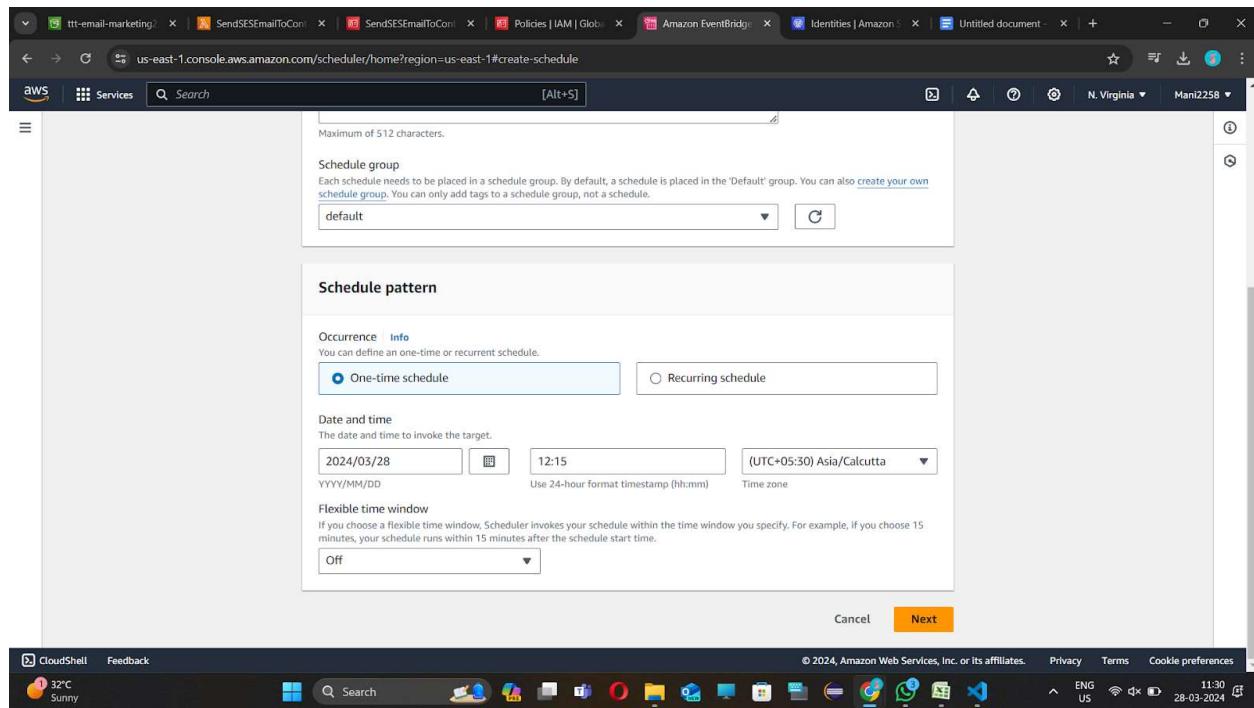
- Then again test the code by click on the test

The screenshot shows the AWS Lambda console with the URL <https://us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/SendSESEmailToContacts2?newFunction=true&tab=code>. A green success banner at the top says "Successfully updated the function SendSESEmailToContacts2.". The main pane shows the "Code source" tab for the "SendSESEmailToContacts2" function. The "Execution results" section shows a successful test run with the message "Status: Succeeded | Max memory used: 87 MB | Time: 1179.59 ms". The "Function Logs" section shows an error log entry. The status bar at the bottom indicates it's 11:20 AM on March 28, 2024.

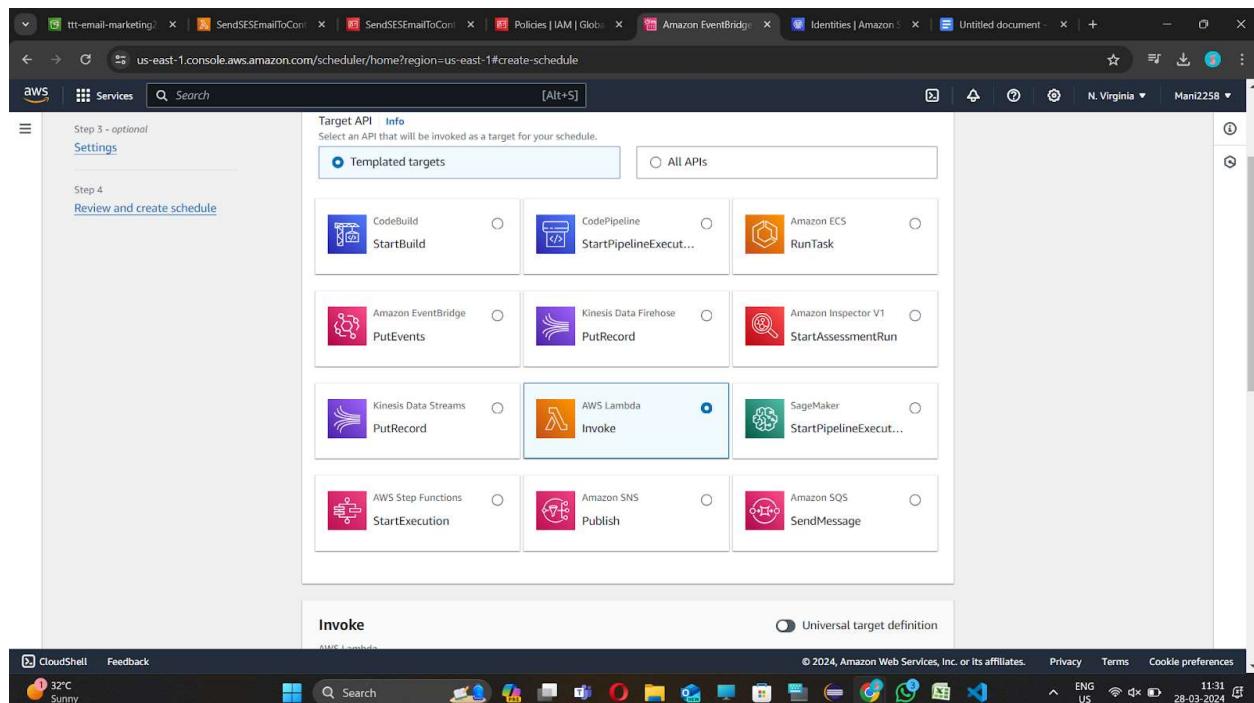
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- Now go to the service eventbridge the create an schedule when we have to send the email



- Click on AWS Lambda invoke



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- Select the lambda function that we are created

The screenshot shows the AWS Lambda console interface. In the top navigation bar, the URL is `us-east-1.console.aws.amazon.com/scheduler/home?region=us-east-1#create-schedule`. The main area is titled "Invoke" and "AWS Lambda". A dropdown menu labeled "Lambda function" contains several entries, with "SendSESEmailToContacts2" currently selected. Below the dropdown, there is a search bar and a button labeled "Create new Lambda function". The bottom of the screen shows a Windows taskbar with various icons and system status.

The screenshot shows the AWS EventBridge Scheduler console. The URL is `us-east-1.console.aws.amazon.com/scheduler/home?region=us-east-1#create-schedule`. The page is titled "Create schedule". It has four steps: Step 1 (Specify schedule detail), Step 2 (optional, Select target), Step 3 (optional, Settings), and Step 4 (Review and create schedule). The "Settings - optional" step is currently active. It includes sections for "Schedule state" (with an "Enable" checkbox checked) and "Action after schedule completion" (with a dropdown menu set to "NONE"). There is also a "Retry policy and dead-letter queue (DLQ)" section. The bottom of the screen shows a Windows taskbar with various icons and system status.

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- Here we can see the review of the created schedule

Schedule detail

Schedule name SendWeeklyEmail2	Description -	Schedule group default
Time zone (UTC+05:30) Asia/Calcutta	Occurrence One-time	Date and time 2024-03-28 12:15 (UTC+05:30) Asia/Calcutta
Flexible time window Off		

Target detail

Target	Target ARN
--------	------------

- Schedule successfully created

Your schedule SendWeeklyEmail2 is being created.

SendWeeklyEmail2

Schedule name SendWeeklyEmail2	Status Enabled	Schedule start time -	Flexible time window -
Description -	Schedule ARN arn:aws:scheduler:us-east-1:966028160711:schedule/default/SendWeeklyEmail2	Schedule end time -	Created date Mar 28, 2024, 11:34:47 (UTC+05:30)
Schedule group name default	Action after completion NONE	Execution time zone Asia/Calcutta	Last modified date Mar 28, 2024, 11:34:47 (UTC+05:30)

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- In this monitor we can see the recent activity and logs that happened

The screenshot shows the AWS Lambda Monitor interface. At the top, there are tabs for Code, Test, Monitor, Configuration, Aliases, and Versions. The Monitor tab is selected. Below the tabs are buttons for View CloudWatch logs, View X-Ray traces, View Lambda Insights, and View CodeGuru profiles. A filter metric by Function dropdown is also present. The main area is titled 'CloudWatch metrics' and contains three charts:

- Invocations:** Shows 1 invocation. Note: No data available. Try adjusting the dashboard time range.
- Duration:** Shows 0.5 seconds. Note: No data available. Try adjusting the dashboard time range.
- Error count and success rate (%):** Shows 1 error and 100% success rate. Note: No data available. Try adjusting the dashboard time range.

The screenshot shows the AWS CloudWatch Logs interface. The left sidebar includes options for Favorites and recent, Dashboards, Alarms, Logs (selected), Log groups, Metrics, X-Ray traces, Events, Application Signals, Network monitoring, and Insights. The main content area shows the log group details for '/aws/lambda/SendSESEmailToContacts2'. The details section includes:

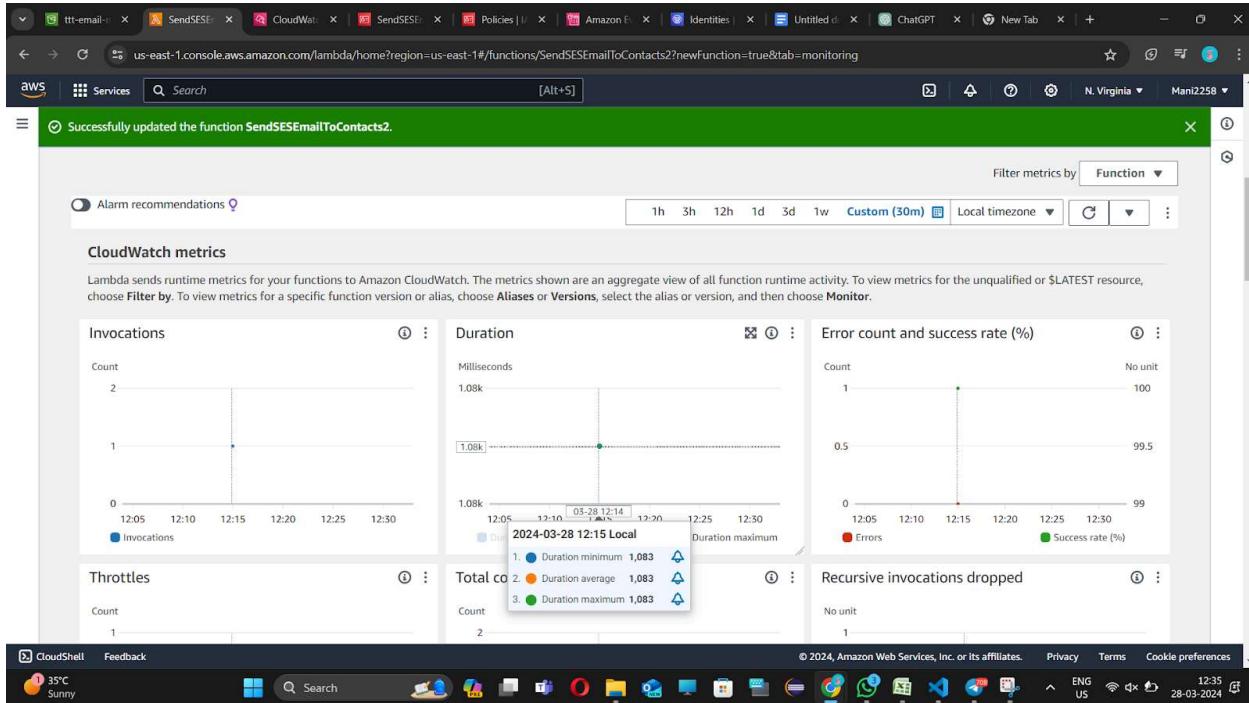
- Log class:** Info
- ARN:** arn:aws:logs:us-east-1:966028160711:log-group:/aws/lambda/SendSESEmailToContacts2:*
- Metric filters:** 0
- Subscription filters:** 0
- Anomaly detection:** Configure
- Data protection:** -
- Contributor Insights rules:** -
- KMS key ID:** -
- Anomaly detection:** Configure
- Data protection:** -
- Sensitive data count:** -

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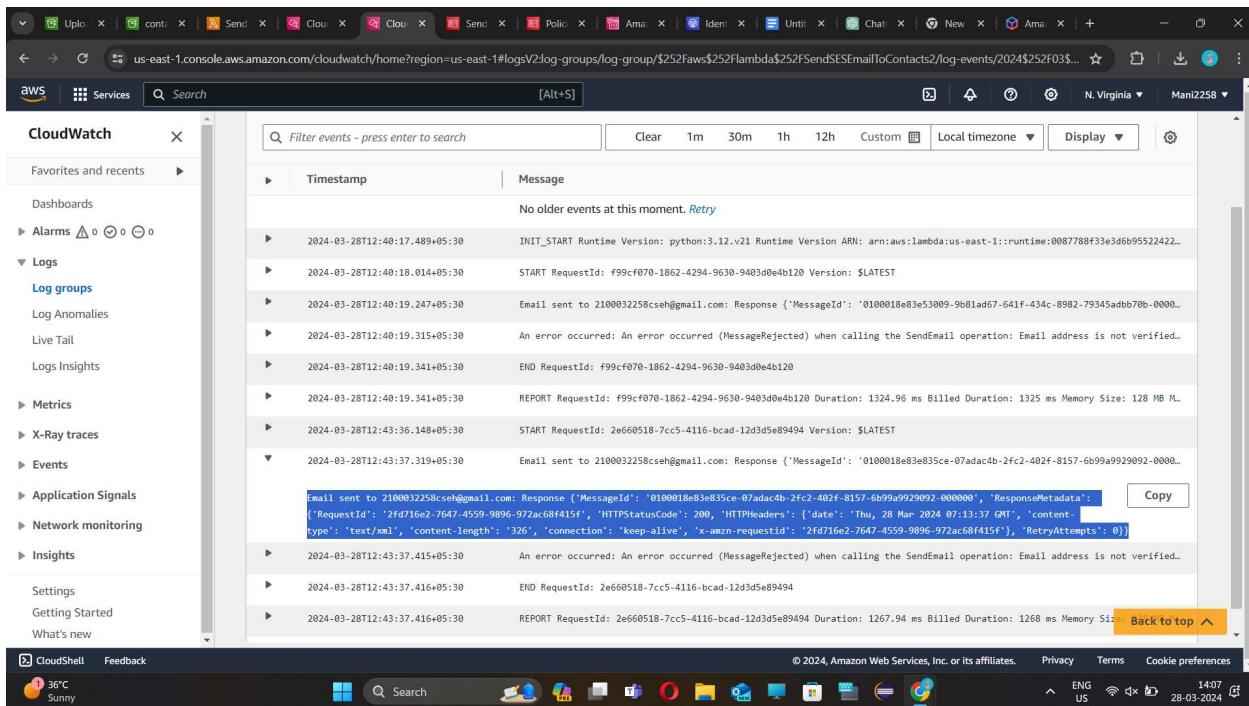
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- We can see the activity that email sends out which time all



- Here we can see the output that email successfully sent at give schedule



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