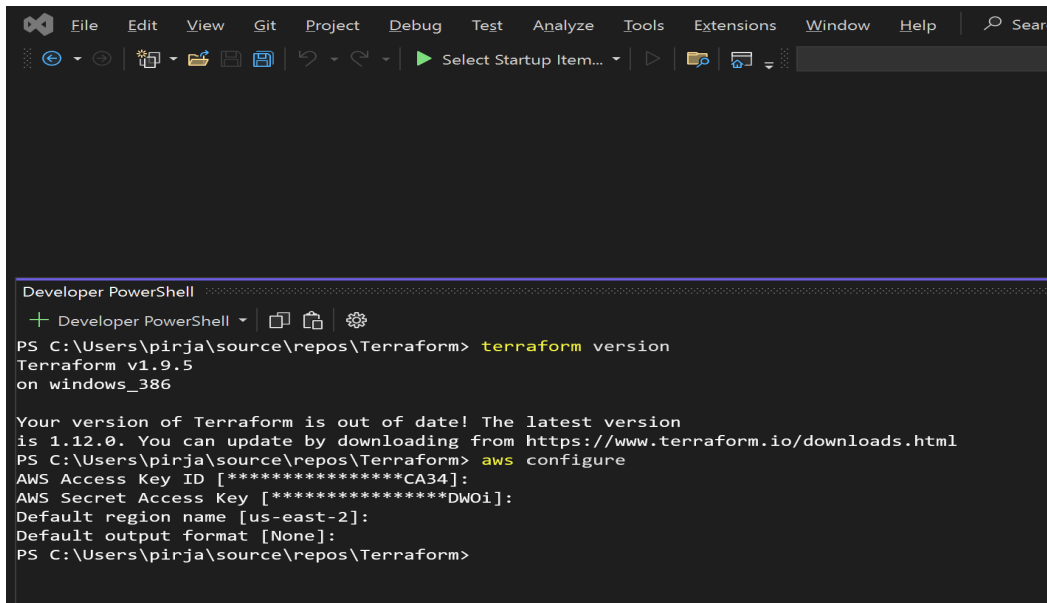

QUESTIONS

1. TF an SNS and SQS (TF Documentation)
 2. Python-Boto3 Create Script To upload a message to the SNS
 3. Create a Lambda function retrieves the message from the queue
-

PREREQUISITE

1. Visual Code Editor
2. AWS Account - make sure to configure using AWS IAM Secret Key
3. AWS CLI
4. Terraform Installation
5. Python Installation
6. Git Installation



```
File Edit View Git Project Debug Test Analyze Tools Extensions Window Help Search
Select Startup Item...

Developer PowerShell
+ Developer PowerShell
PS C:\Users\pirja\source\repos\Terraform> terraform version
Terraform v1.9.5
on windows_386

Your version of Terraform is out of date! The latest version
is 1.12.0. You can update by downloading from https://www.terraform.io/downloads.html
PS C:\Users\pirja\source\repos\Terraform> aws configure
AWS Access Key ID [*****CA34]:
AWS Secret Access Key [*****DWOi]:
Default region name [us-east-2]:
Default output format [None]:
PS C:\Users\pirja\source\repos\Terraform>
```

```
PS C:\Users\pirja\source\repos\Terraform> python --version
Python 3.12.2
PS C:\Users\pirja\source\repos\Terraform>
```

```
PS C:\Users\pirja\source\repos\Terraform\Task3_lambda> git --version
git version 2.47.0.windows.2
```

[TASK 1 : Terraform an SNS and SQS \(TF Documentation\)](#)

Case1 :

Created an Encrypted SNS topic with

Type=Standard

Topic Name : aws-sns-topic-case1

Subscription=Email

Code : Uploaded in the github link

Output -

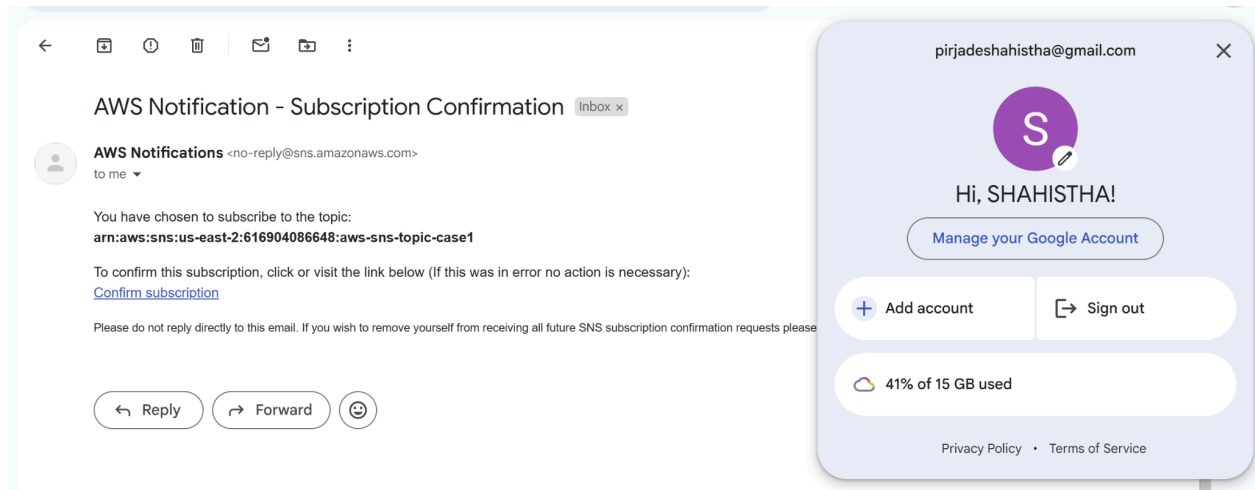
The screenshot displays the AWS Management Console interface for an Amazon SNS topic. The breadcrumb navigation shows 'Amazon SNS > Topics > aws-sns-topic-case1'. A 'New Feature' banner at the top states 'Amazon SNS now supports High Throughput FIFO topics. Learn more'. The topic name 'aws-sns-topic-case1' is at the top right, with 'Edit', 'Delete', and 'Publish message' buttons. The 'Details' section shows the following information:

Details	
Name aws-sns-topic-case1	Display name -
ARN arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case1	Topic owner 616904086648
Type Standard	

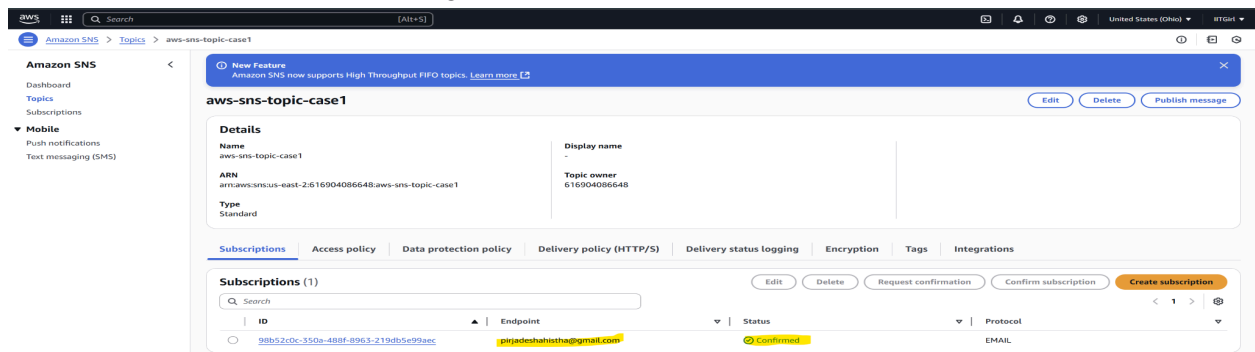
Below the details are tabs for 'Subscriptions', 'Access policy', 'Data protection policy', 'Delivery policy (HTTP/S)', 'Delivery status logging', 'Encryption', 'Tags', and 'Integrations'. The 'Subscriptions (1)' tab is active, showing a search bar and a table with one subscription:

ID	Endpoint	Status	Protocol
Pending confirmation	pirjadeshahistha@gmail.com	Pending confirmation	EMAIL

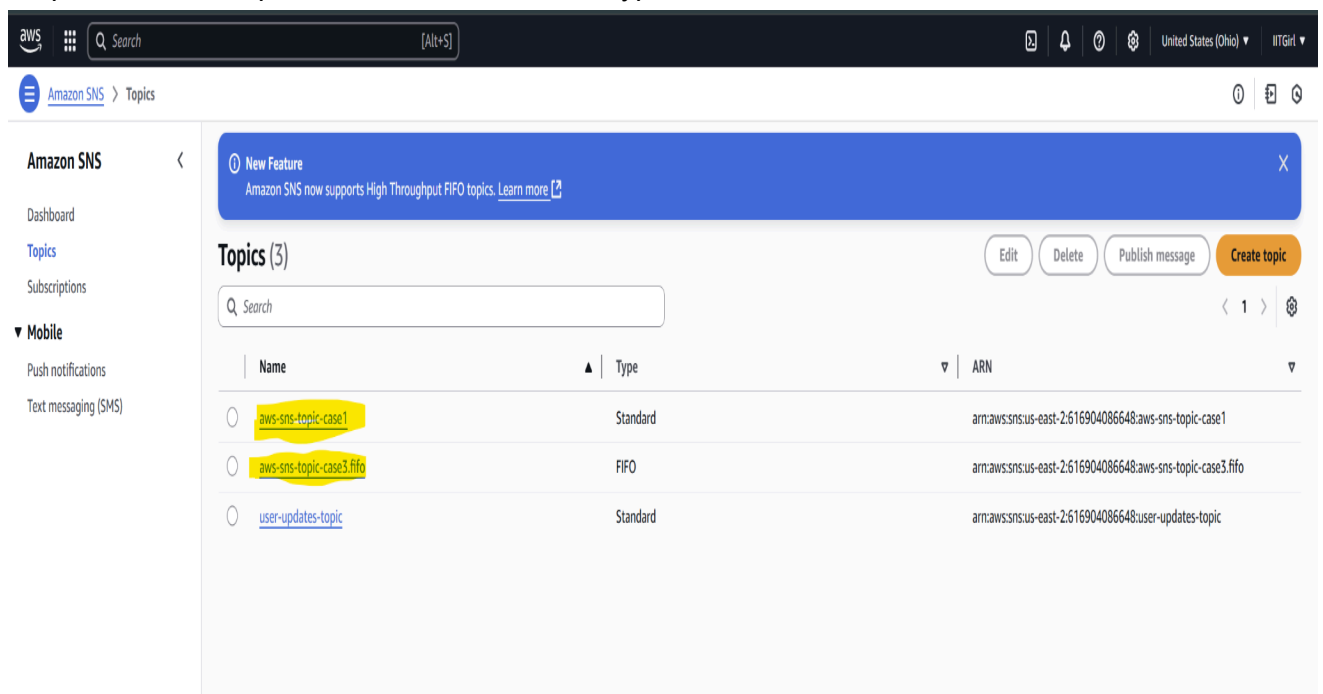
At the bottom of the subscriptions section are buttons for 'Edit', 'Delete', 'Request confirmation', 'Confirm subscription', and 'Create subscription'.



After Confirmation : Status changed as Confirmed



Output with the 2 topics created for 2 different Types



New Feature
 Amazon SNS now supports High Throughput FIFO topics. [Learn more](#)

Topics (3)

<

1

>

⚙️

	Name	Type	ARN
<input type="radio"/>	aws-sns-topic-case1	Standard	arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case1
<input type="radio"/>	aws-sns-topic-case3.fifo	FIFO	arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case3.fifo

Edit

Delete

Publish message

Create topic

Amazon SNS

Topics

aws-sns-topic-case1

Dashboard

Topics

Subscriptions

▼ Mobile

Push notifications

Text messaging (SMS)

New Feature
 Amazon SNS now supports High Throughput FIFO topics. [Learn more](#)

aws-sns-topic-case1

Edit

Delete

Publish message

Details

Name

aws-sns-topic-case1

Display name

-

ARN

arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case1

Topic owner

616904086648

Type

Standard

Subscriptions

Access policy

Data protection policy

Delivery policy (HTTP/S)

Delivery status logging

Encryption

Tags

Integrations

Subscriptions (1)

Edit

Delete

Request confirmation

Confirm subscription

Create subscription

<

1

>

⚙️

	ID	Endpoint	Status	Protocol
<input type="radio"/>	98b52c0c-350a-488f-8963-219db5e99aec	pirjadeshahistha@gmail.com	✔ Confirmed	EMAIL

Case3 :

Created an Encrypted SNS topic with
 Type=FIFO
 Topic Name : aws-sns-topic-case3.fifo
 Subscription=SQS

Amazon SNS > Topics > aws-sns-topic-case3.fifo

Amazon SNS

- Dashboard
- Topics
- Subscriptions
- ▼ Mobile
 - Push notifications
 - Text messaging (SMS)

aws-sns-topic-case3.fifo [Edit] [Delete] [Publish message]

Details

Name aws-sns-topic-case3.fifo	Display name -	Retention policy Inactive
ARN arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case3.fifo	Topic owner 616904086648	
Type FIFO	Content-based message deduplication Enabled	

Subscriptions | Access policy | Archive policy | Delivery status logging | Encryption | Tags | Integrations

Subscriptions (1) [Edit] [Delete] [Request confirmation] [Confirm subscription] [Create subscription]

Search

ID	Endpoint	Status	Protocol
5ff0a26-0e3f-4a50-9f09-b7f061faaa06	arn:aws:sqs:us-east-2:616904086648:terraform-e...	Confirmed	SQS

Case 2 :

Created a SQS with type=FIFO and Encrypted.

Amazon SQS > Queues

Queues (2) [Edit] [Delete] [Send and receive messages] [Actions] [Create queue]

Search queues by prefix

Name	Type	Created	Messages available	Messages in flight	Encryption	Content-based deduplication
terraform-example-deadletter-queue.fifo	FIFO	2025-05-18T00:39-05:00	0	0	AWS Key Management Service key (SSE-KMS)	Enabled
terraform-example-queue.fifo	FIFO	2025-05-18T00:40-05:00	0	0	AWS Key Management Service key (SSE-KMS)	Enabled

Queue Name : terraform-example-deadletter-queue.fifo

Amazon SQS > Queues > terraform-example-deadletter-queue.fifo

terraform-example-deadletter-queue.fifo

Edit Delete Purge Send and receive messages Start DLQ redrive

Details info

Name terraform-example-deadletter-queue.fifo	Type FIFO High throughput mode is off	ARN arn:aws:sqs:us-east-2:616904086648:terraform-example-deadletter-queue.fifo
Encryption AWS Key Management Service key (SSE-KMS)	URL https://sqs.us-east-2.amazonaws.com/616904086648/terraform-example-deadletter-queue.fifo	Dead-letter queue -

► More

SNS subscriptions Lambda triggers EventBridge Pipes Dead-letter queue Monitoring Tagging Queue policies Encryption Dead-letter queue redrive tasks

Subscription region
us-east-2

SNS subscriptions (0) info

Search subscriptions

Subscription ARN	Topic ARN
------------------	-----------

No Amazon SNS subscriptions

Queue Name : terraform-example-queue.fifo

aws Search [Alt+S] United States (Ohio)

Amazon SQS > Queues > terraform-example-queue.fifo

terraform-example-queue.fifo

Edit Delete Purge Send and receive messages Start DLQ redrive

Details info

Name terraform-example-queue.fifo	Type FIFO High throughput mode is off	ARN arn:aws:sqs:us-east-2:616904086648:terraform-example-queue.fifo
Encryption AWS Key Management Service key (SSE-KMS)	URL https://sqs.us-east-2.amazonaws.com/616904086648/terraform-example-queue.fifo	Dead-letter queue Enabled

► More

SNS subscriptions Lambda triggers EventBridge Pipes Dead-letter queue Monitoring Tagging Queue policies Encryption Dead-letter queue redrive tasks

Subscription region
us-east-2

SNS subscriptions (1) info

Search subscriptions

Subscription ARN	Topic ARN
arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case3.fifo:5fff0a26-0e3f-4a50-9f09-b7f061faaa06	arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case3.fifo

Allowing SNS to send message to SQS

Files Used in this terraform

```

PS C:\Users\pirja\source\repos\Terraform> notepad outputs.tf
PS C:\Users\pirja\source\repos\Terraform> notepad variables.tf
PS C:\Users\pirja\source\repos\Terraform> ls

Directory: C:\Users\pirja\source\repos\Terraform

Mode                LastWriteTime         Length Name
----                -
d-----          5/17/2025   9:16 PM                .terraform
-a-----          5/17/2025   9:16 PM             1416 .terraform.lock.hcl
-a-----          5/18/2025  12:44 AM             3260 main.tf
-a-----          5/18/2025   1:15 AM              326 outputs.tf
-a-----          5/17/2025   9:16 PM              198 provider.tf
-a-----          5/18/2025  12:44 AM            12103 terraform.tfstate
-a-----          5/18/2025  12:44 AM            10079 terraform.tfstate.backup
-a-----          5/18/2025   1:15 AM              614 variables.tf

PS C:\Users\pirja\source\repos\Terraform> terraform validate
Success! The configuration is valid.

PS C:\Users\pirja\source\repos\Terraform> terraform plan

```

I haven't substituted the variables in the [main.tf](#) file as it was **instructed to use the code directly from the terraform documents**. But the standard way is to have the [variables.tf](#) so, i have made sure to create a [variables.tf](#) file for it.

Outputs

```

dlq_queue_arn = "arn:aws:sqs:us-east-2:616904086648:terraform-example-deadletter-queue.fifo"
sns_fifo_topic_arn = "arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case3.fifo"
sns_standard_topic_arn = "arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case1"
sqs_queue_arn = "arn:aws:sqs:us-east-2:616904086648:terraform-example-queue.fifo"

```

[TASK 2 : Python-Boto3 Create Script To upload a message to the SNS](#)

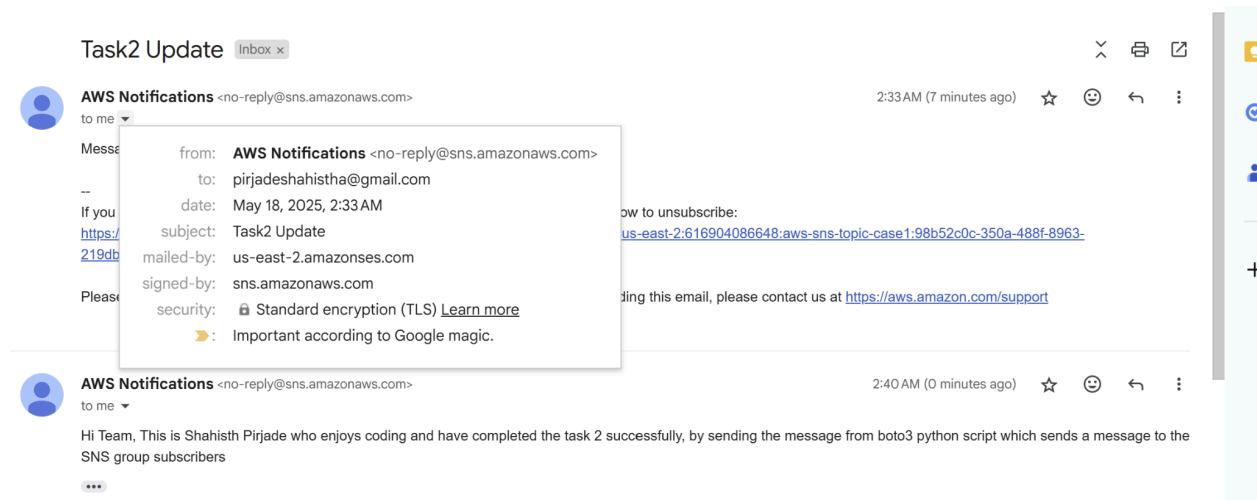
Input Code : Uploaded in the git.

Official Documentation Referred:

<https://boto3.amazonaws.com/v1/documentation/api/latest/reference/services/sns/client/publish.html#>

Ouput

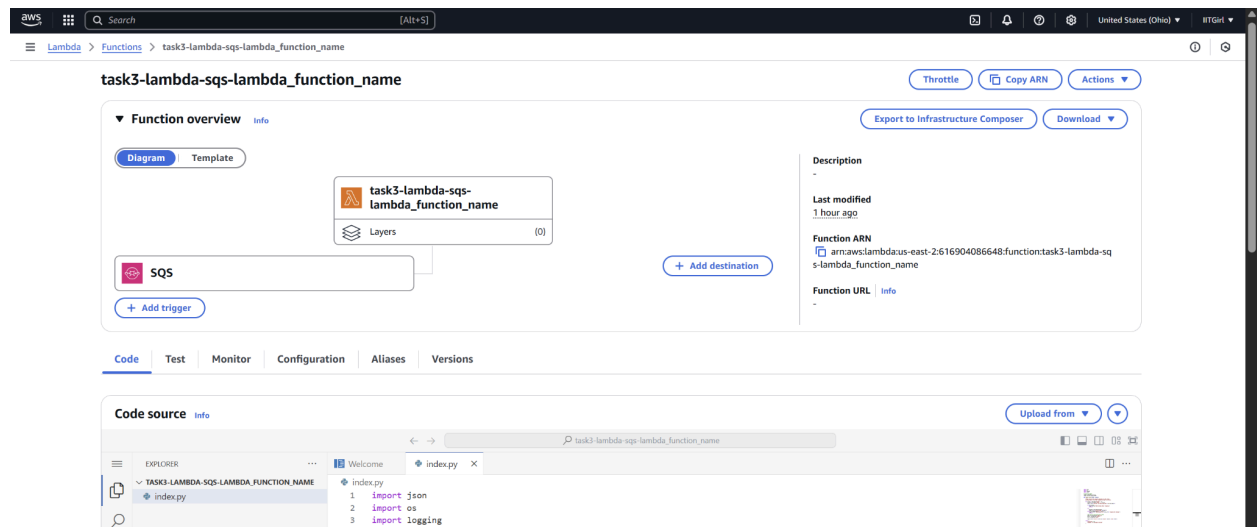
Output of the Message



[TASK 3 : Create a Lambda function that retrieves the message from the queue](#)

All the infrastructure is taken care by Terraform scripts.

Lambda Function



Queue Created

Name	Type	Created	Messages available	Messages in flight	Encryption	Content-based deduplication
my-sqs-queue	Standard	2025-05-18T05:03:05:00	1	0	Amazon SQS key (SSE-SQS)	-
task3-lambda-sqs3-event-notification-queue	Standard	2025-05-18T17:17:05:00	0	0	Amazon SQS key (SSE-SQS)	-
terraform-example-deadletter-queue.fifo	FIFO	2025-05-18T00:39:05:00	0	0	AWS Key Management Service key (SSE-KMS)	Enabled
terraform-example-queue.fifo	FIFO	2025-05-18T00:40:05:00	2	0	AWS Key Management Service key (SSE-KMS)	Enabled

Log stream	Last event time
2025/05/19/[\$LATEST]e917a8349f064649abe7d895442c91ac	2025-05-19 03:28:21 (UTC)
2025/05/19/[\$LATEST]c7cbf291c6ee4dcbe8eaf99ec3062a1	2025-05-19 03:07:57 (UTC)

Challenges Resolved

1. Error: setting SNS Topic (arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case2.fifo) attribute (SQSSuccessFeedbackSampleRate): operation error SNS: SetTopicAttributes, https response error StatusCode: 404, RequestID: c98013b7-6b6b-5cca-8c09-73141f871d80, NotFound: Topic does not exist

Error: setting SNS Topic (arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case2.fifo) attribute (SQSSuccessFeedbackSampleRate): operation error SNS: SetTopicAttributes, https response error StatusCode: 404, RequestID: c98013b7-6b6b-5cca-8c09-73141f871d80, NotFound: Topic does not exist

with `aws_sns_topic.user_updates_fifo`,
on `main.tf` line 61, in resource "aws_sns_topic" "user_updates_fifo":
61: resource "aws_sns_topic" "user_updates_fifo"

```

aws_sns_topic.user_updates_1: Destroying... [id=arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case2.fifo]
aws_sqs_queue.terraform_queue_deadletter: Creating...
aws_sns_topic.user_updates_fifo: Creating...
aws_sns_topic.user_updates_1: Destruction complete after 0s
aws_sqs_queue.terraform_queue_deadletter: Still creating... [10s elapsed]
aws_sqs_queue.terraform_queue_deadletter: Still creating... [20s elapsed]
aws_sqs_queue.terraform_queue_deadletter: Creation complete after 25s [id=https://sqs.us-east-2.amazonaws.com/616904086648/terraform-example-deadletter-queue.fifo]
aws_sqs_queue.terraform_queue: Creating...
aws_sqs_queue.terraform_queue: Still creating... [10s elapsed]
aws_sqs_queue.terraform_queue: Still creating... [20s elapsed]
aws_sqs_queue.terraform_queue: Creation complete after 25s [id=https://sqs.us-east-2.amazonaws.com/616904086648/terraform-example-queue.fifo]

Error: setting SNS Topic (arn:aws:sns:us-east-2:616904086648:aws-sns-topic-case2.fifo) attribute (SQSSuccessFeedbackSampleRate): operation error SNS: SetTopicAttributes, https response error StatusCode: 404, RequestID: c98013b7-6b6b-5cca-8c09-73141f871d80, NotFound: Topic does not exist

with aws_sns_topic.user_updates_fifo,
on main.tf line 61, in resource "aws_sns_topic" "user_updates_fifo":
61: resource "aws_sns_topic" "user_updates_fifo" {

PS C:\Users\pirja\source\repos\Terraform> terraform validate
Success! The configuration is valid.

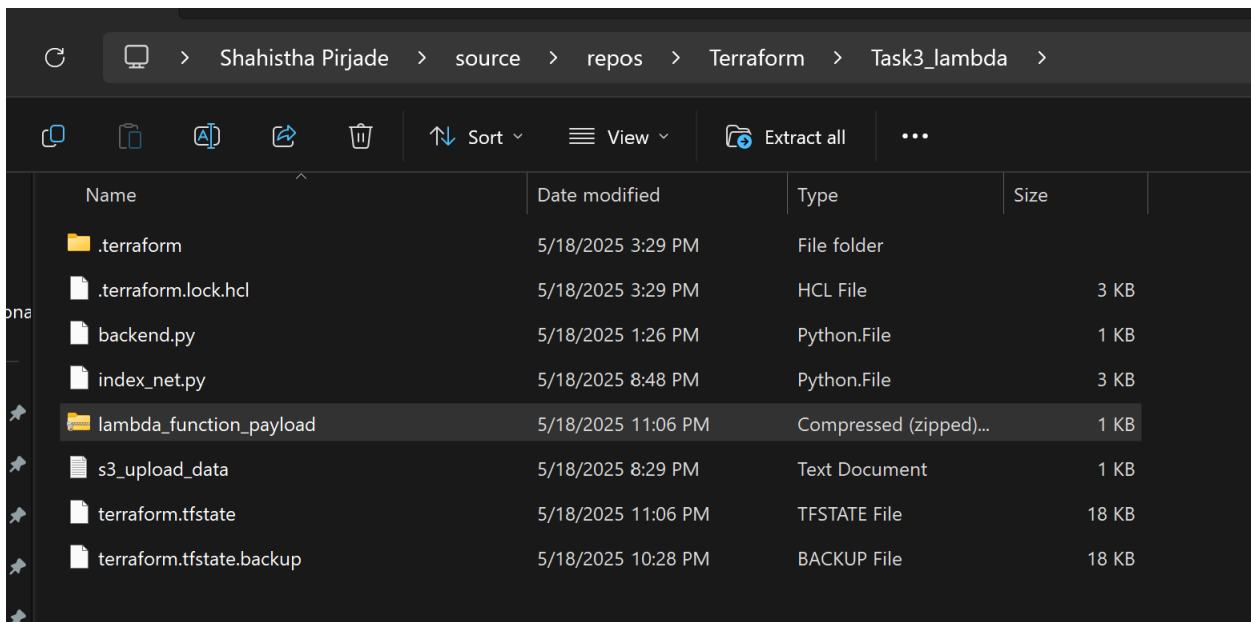
```

Resolution: I had already created a topic with the same name, which is why I got this error. Make sure your topics are unique and for FIFO has .fifo extension

2. Syntax Errors

3. Uploading all the .tf files

Git does not allow more than 100MB file to be uploaded, so I was not able to upload the **lambda_function.zip** file on git



The screenshot shows a Windows File Explorer window with the address bar displaying the path: `Shahistha Pirjade > source > repos > Terraform > Task3_lambda >`. The file list includes:

Name	Date modified	Type	Size
.terraform	5/18/2025 3:29 PM	File folder	
.terraform.lock.hcl	5/18/2025 3:29 PM	HCL File	3 KB
backend.py	5/18/2025 1:26 PM	Python.File	1 KB
index_net.py	5/18/2025 8:48 PM	Python.File	3 KB
lambda_function_payload	5/18/2025 11:06 PM	Compressed (zipped)...	1 KB
s3_upload_data	5/18/2025 8:29 PM	Text Document	1 KB
terraform.tfstate	5/18/2025 11:06 PM	TFSTATE File	18 KB
terraform.tfstate.backup	5/18/2025 10:28 PM	BACKUP File	18 KB

```
>>
Enumerating objects: 60, done.
Counting objects: 100% (60/60), done.
Delta compression using up to 20 threads
Compressing objects: 100% (44/44), done.
Writing objects: 100% (60/60), 396.87 MiB | 11.59 MiB/s, done.
Total 60 (delta 9), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (9/9), done.
remote: error: Trace: 783213b1ef1618a70ae29ffc6df1d4d7b1c79430cc847b1c9eebf40f47786e35
remote: error: See https://gh.io/lfs for more information.
remote: error: File Task3_lambda.zip is 130.77 MB; this exceeds GitHub's file size limit of 100.00 MB
remote: error: File .terraform/providers/registry.terraform.io/hashicorp/aws/6.0.0-beta1/windows_386/terraform-provider-aws_v6.0.0-beta1_x5.exe is 625.42 MB; this exceeds GitHub's file size limit of 100.00 MB
remote: error: File Task3_lambda/.terraform/providers/registry.terraform.io/hashicorp/aws/5.98.0/windows_386/terraform-provider-aws_v5.98.0_x5.exe is 624.29 MB; this exceeds GitHub's file size limit of 100.00 MB
remote: error: GH001: Large files detected. You may want to try Git Large File Storage - https://git-lfs.github.com.
To https://github.com/ShahiPirjade/AWS_TF_Test.git
! [remote rejected] main -> main (pre-receive hook declined)
error: failed to push some refs to 'https://github.com/ShahiPirjade/AWS_TF_Test.git'
PS C:\Users\pirja\source\repos\Terraform> git restore .
PS C:\Users\pirja\source\repos\Terraform> git add .\main.tf .\outputs.tf .\provider.tf .\UploadToSns.py .\variables.tf
PS C:\Users\pirja\source\repos\Terraform> git status
On branch Task1Task2
nothing to commit, working tree clean
```

4. **Error** -: Reference to undeclared input variable | | on sqs.tf line 28, in resource "aws_s3_bucket" "bucket": | 28: bucket = "\${var.app_env}-S3-sqs-bucket" | | An input variable with the name "app_env" has not been declared. This variable can be declared with a | variable "app_env" {} block.

Resolution—Even after declaring the variable, it still shows this issue. I simply initialised the Terraform file, and it worked.

Thank-You!

Thank you for sharing this opportunity. I look forward to contributing meaningfully to your team
