CSC – PROJECT

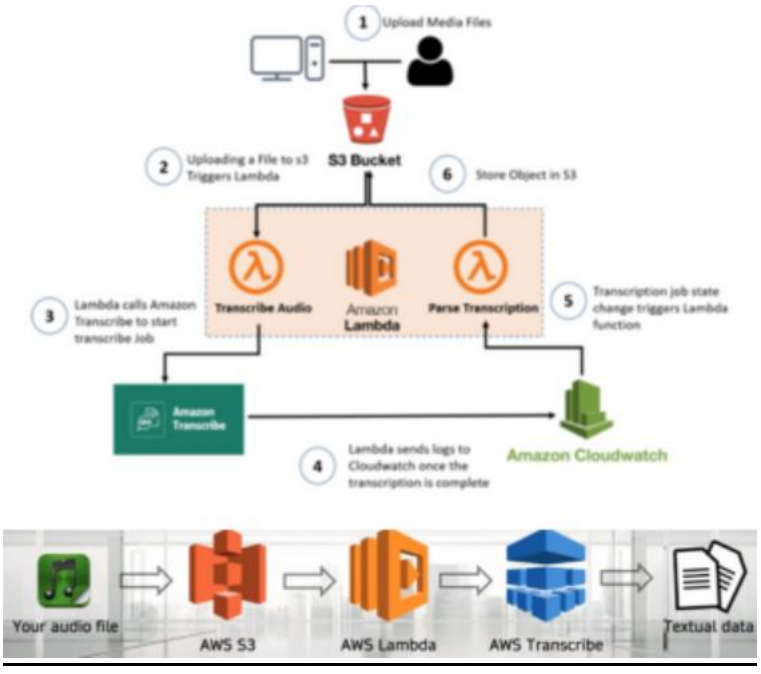
Serverless Speech-to-Text with AWS Transcribe and S3 Event Trigger using Lambda and CloudWatch.

Name : M.V.S.S.Suhaas

ID : 2100031534

Section : 35

Architectural Overview:



OVERVIEW OF THE SERVICES :

1).AWS S3 (Simple Storage Service):

Amazon S3, a scalable object storage service from Amazon Web Services, enables users to store and access data of any size securely from anywhere on the internet. Its durability, security features, and cost-effectiveness make it suitable for diverse applications such as data backup, content delivery, and hosting applications.

2).AWS Lambda:

AWS Lambda, a serverless computing service by Amazon Web Services, empowers developers to execute code without dealing with server management. Users pay for the compute time they consume, and Lambda automatically scales to handle varying workloads. It supports multiple

programming languages and is ideal for handling unpredictable traffic.

3).AWS CloudWatch:

AWS CloudWatch, a monitoring and observability service provided by Amazon Web Services, enables users to gather metrics, log files, and set alarms for real-time monitoring of their AWS resources and applications. It offers insights into system performance, resource usage, and operational status, aiding in efficient resource management.

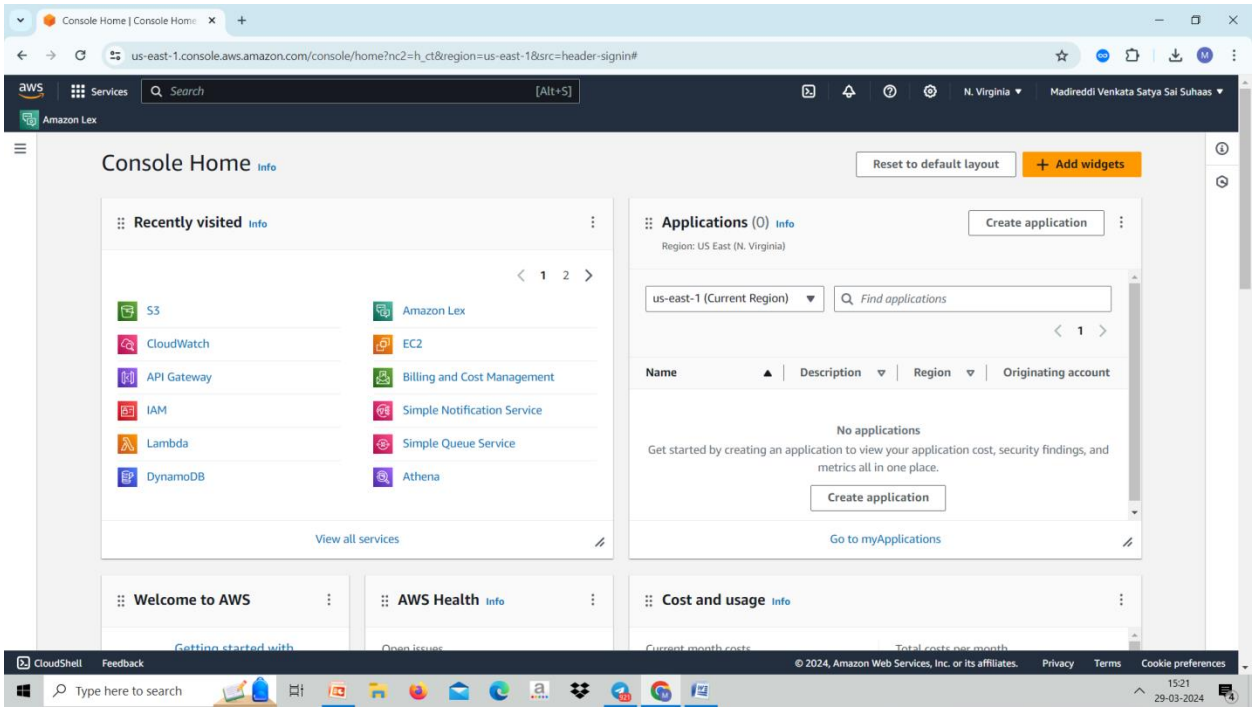
4).AWS Transcribe:

AWS Transcribe, a service offered by Amazon Web Services, converts speech into text accurately using automatic speech recognition technology. It supports various audio formats and languages, making it valuable for tasks like transcribing calls,

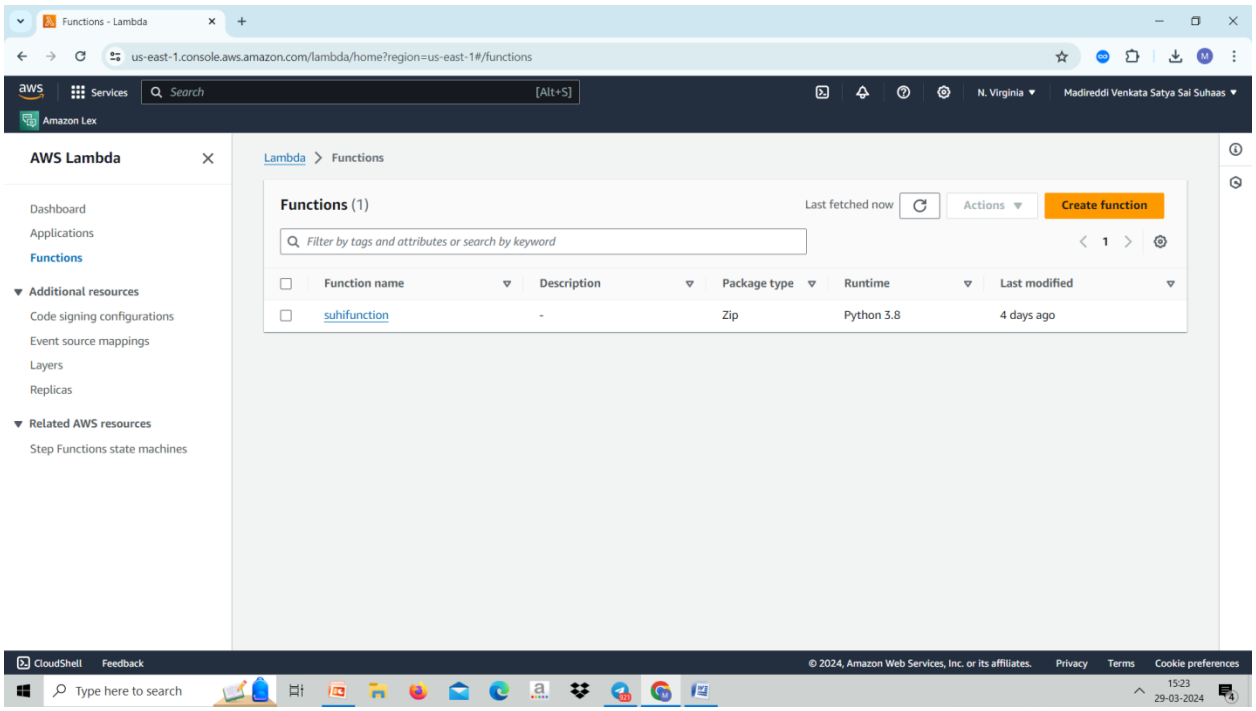
creating video subtitles, and extracting information from recorded meetings or lectures.

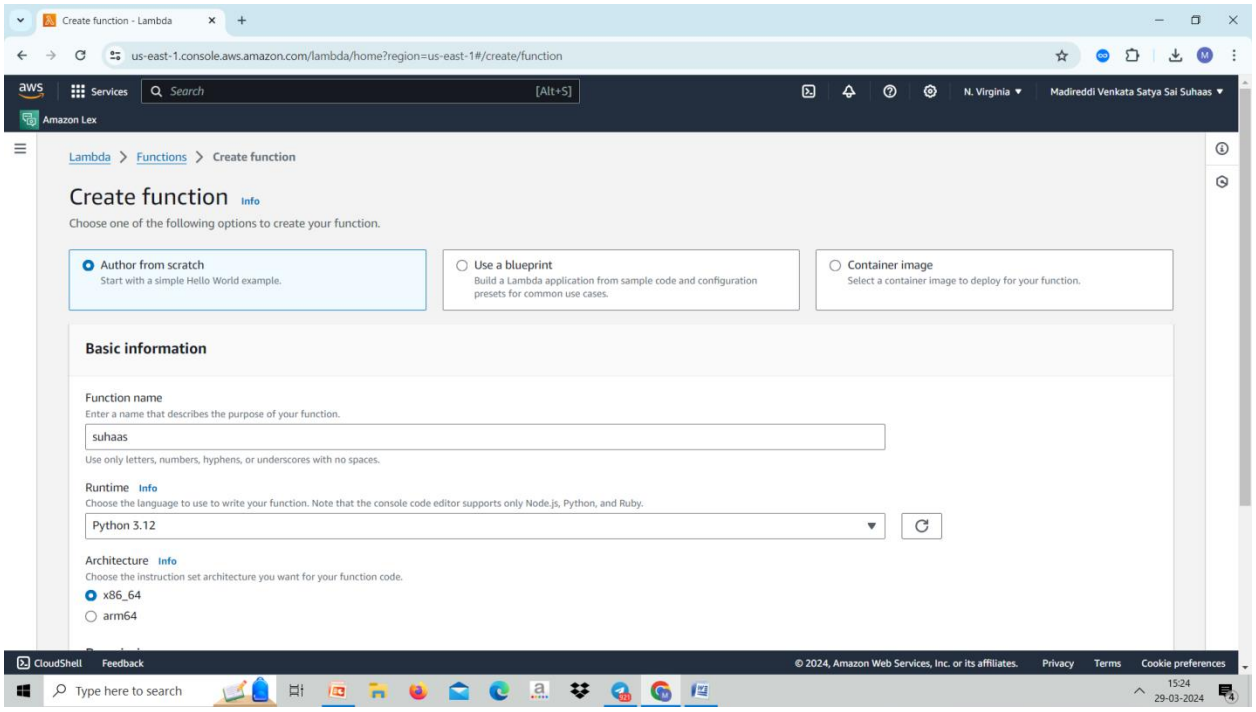
STEP-1:

Go to AWS Management Console



STEP-2 : Go to AWS LAMBDA and click on create function


Functions - Lambda
us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions
Services
Search
[Alt+S]
N. Virginia
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
AWS Lambda
Dashboard
Applications
Functions
Additional resources
Code signing configurations
Event source mappings
Layers
Replicas
Related AWS resources
Step Functions state machines
Lambda > Functions
Functions (1)
Last fetched now
Actions
Create function
Filter by tags and attributes or search by keyword
Function name
Description
Package type
Runtime
Last modified
suhifunction
-
Zip
Python 3.8
4 days ago
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Type here to search
15:23
29-03-2024


Create function - Lambda
us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/create/function
Services
Search
[Alt+S]
N. Virginia
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
Lambda > Functions > Create function
Create function Info
Choose one of the following options to create your function.
Author from scratch
Start with a simple Hello World example.
Use a blueprint
Build a Lambda application from sample code and configuration presets for common use cases.
Container image
Select a container image to deploy for your function.
Basic information
Function name
Enter a name that describes the purpose of your function.
suhaas
Use only letters, numbers, hyphens, or underscores with no spaces.
Runtime Info
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.
Python 3.12
Architecture Info
Choose the instruction set architecture you want for your function code.
x86_64
arm64
CloudShell
Feedback
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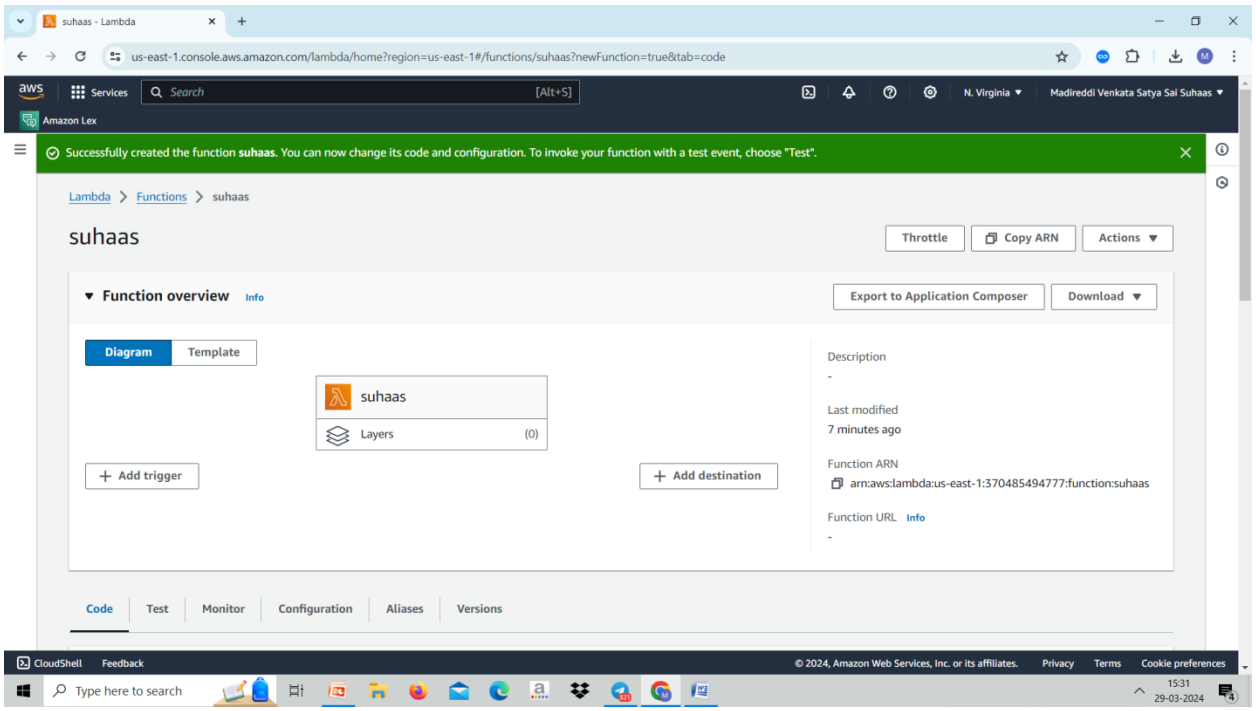
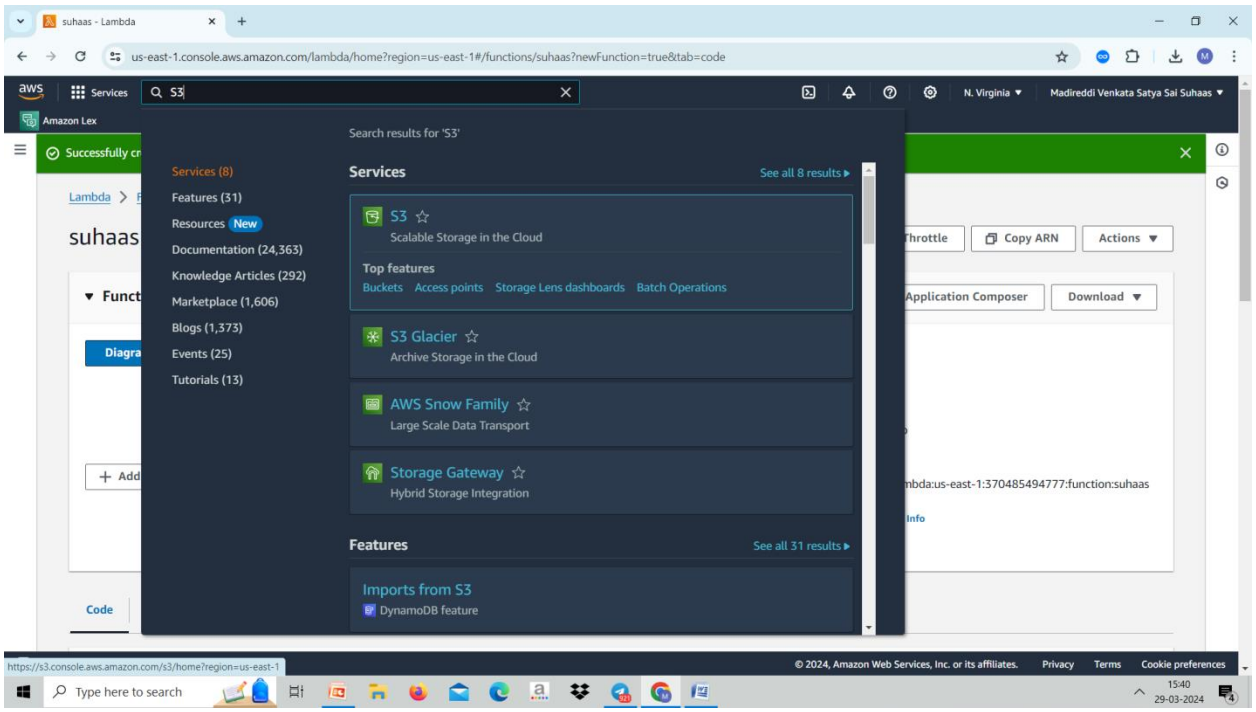
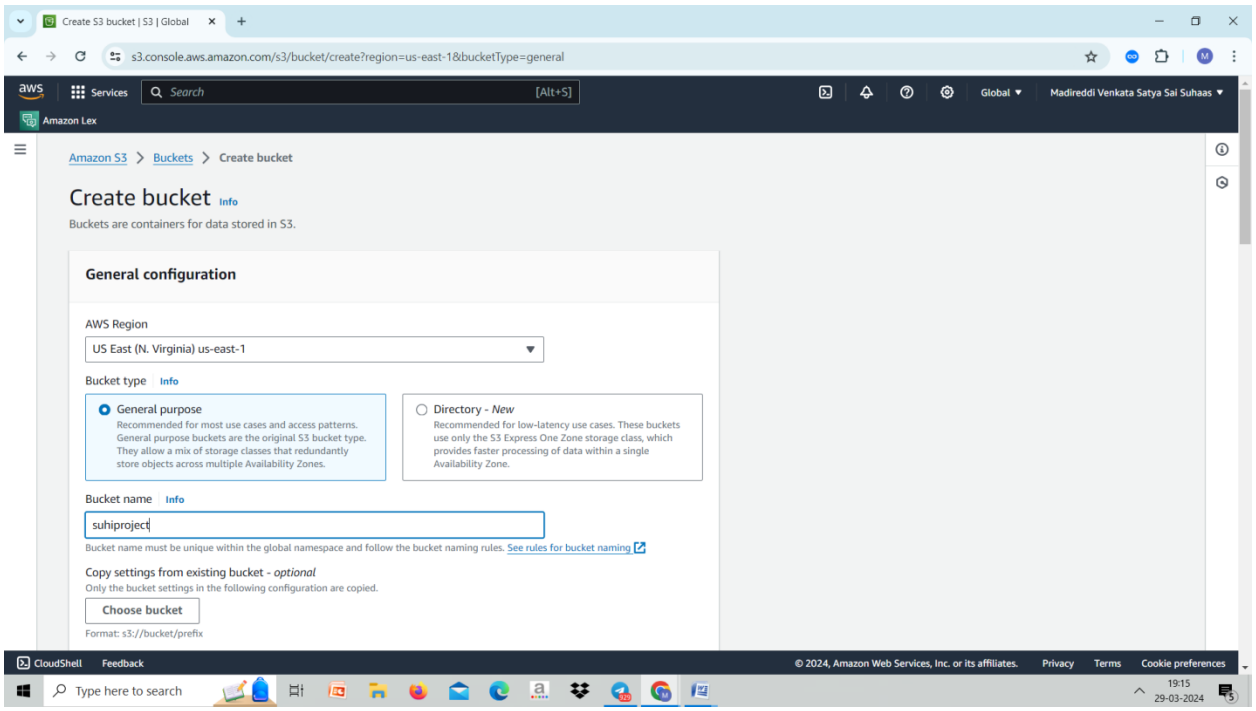
Type here to search
15:24
29-03-2024



STEP-3 :

Go to S3 and create an S3 bucket




Create S3 bucket | S3 | Global
s3.console.aws.amazon.com/s3/bucket/create?region=us-east-1&bucketType=general
Services
Search
[Alt+S]
Global
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
Amazon S3 > Buckets > Create bucket
Create bucket Info
Buckets are containers for data stored in S3.
General configuration
AWS Region
US East (N. Virginia) us-east-1
Bucket type Info
General purpose
Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.
Directory - New
Recommended for low-latency use cases. These buckets use only the S3 Express One Zone storage class, which provides faster processing of data within a single Availability Zone.
Bucket name Info
suhiproject
Bucket name must be unique within the global namespace and follow the bucket naming rules. See rules for bucket naming
Copy settings from existing bucket - optional
Only the bucket settings in the following configuration are copied.
Choose bucket
Format: s3://bucket/prefix
CloudShell
Feedback
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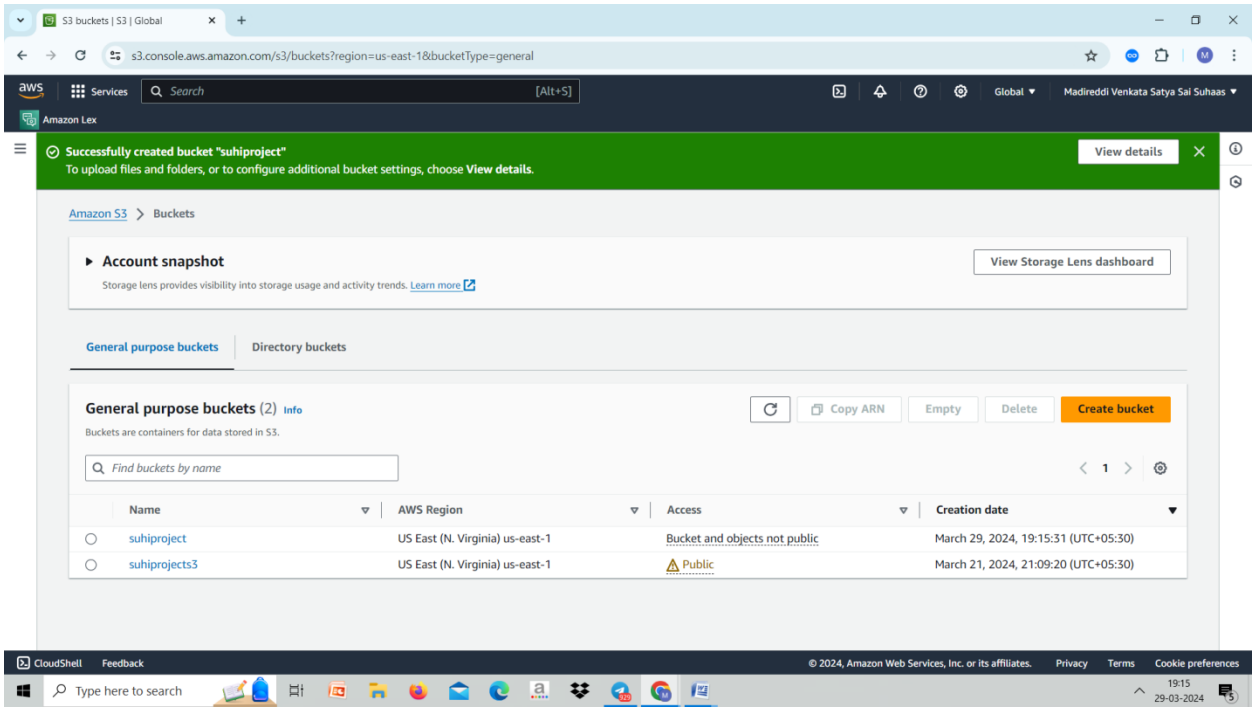
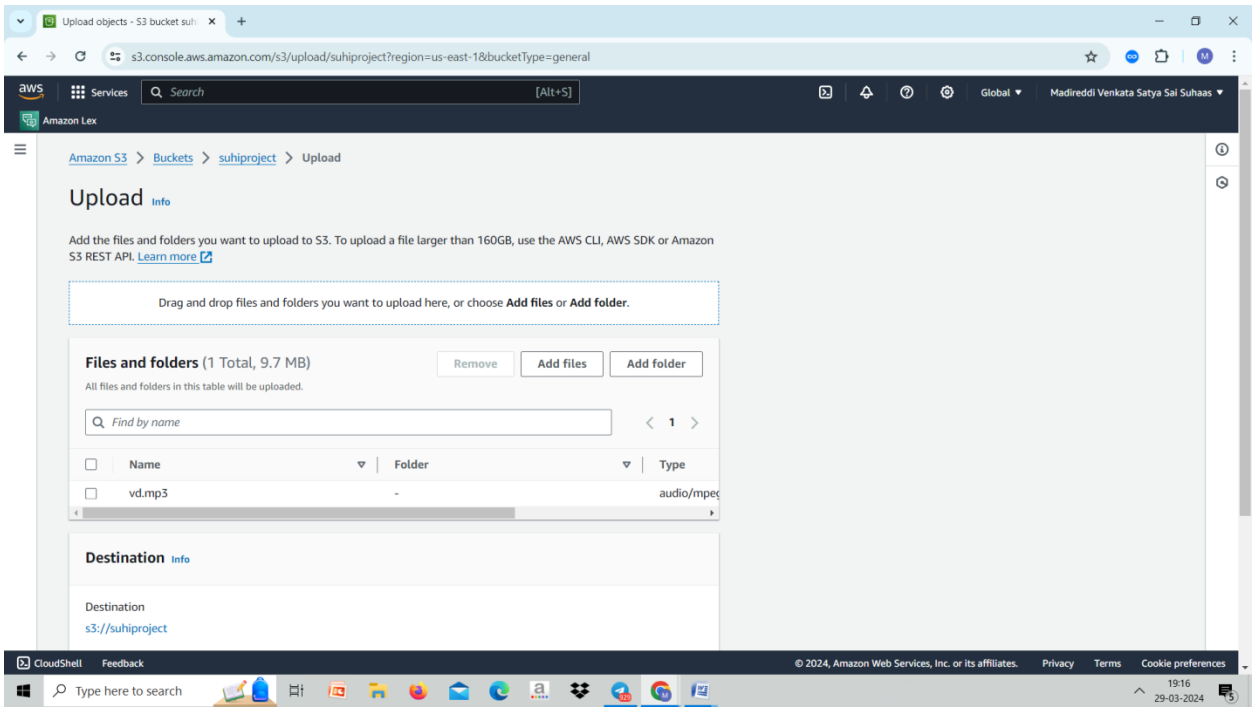
Privacy
Terms
Cookie preferences
Type here to search
19:15
29-03-2024


S3 buckets | S3 | Global
s3.console.aws.amazon.com/s3/buckets?region=us-east-1&bucketType=general
Services
Search
[Alt+S]
Global
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
Successfully created bucket "suhiproject"
To upload files and folders, or to configure additional bucket settings, choose View details.
View details
Amazon S3 > Buckets
Account snapshot
Storage lens provides visibility into storage usage and activity trends. Learn more
View Storage Lens dashboard
General purpose buckets
Directory buckets
General purpose buckets (2) Info
Buckets are containers for data stored in S3.
Copy ARN
Empty
Delete
Create bucket
Find buckets by name
1
Name
AWS Region
Access
Creation date
suhiproject
US East (N. Virginia) us-east-1
Bucket and objects not public
March 29, 2024, 19:15:31 (UTC+05:30)
suhiprojects3
US East (N. Virginia) us-east-1
Public
March 21, 2024, 21:09:20 (UTC+05:30)
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Type here to search
19:15
29-03-2024


Upload objects - S3 bucket suh
s3.console.aws.amazon.com/s3/upload/suhiproject?region=us-east-1&bucketType=general
Services
Search
[Alt+S]
Global
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
Amazon S3 > Buckets > suhiproject > Upload
Upload Info
Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. Learn more
Drag and drop files and folders you want to upload here, or choose Add files or Add folder.
Files and folders (1 Total, 9.7 MB)
Remove
Add files
Add folder
All files and folders in this table will be uploaded.
Find by name
1
Name
Folder
Type
vd.mp3
-
audio/mpeg
Destination Info
Destination
s3://suhiproject
CloudShell
Feedback
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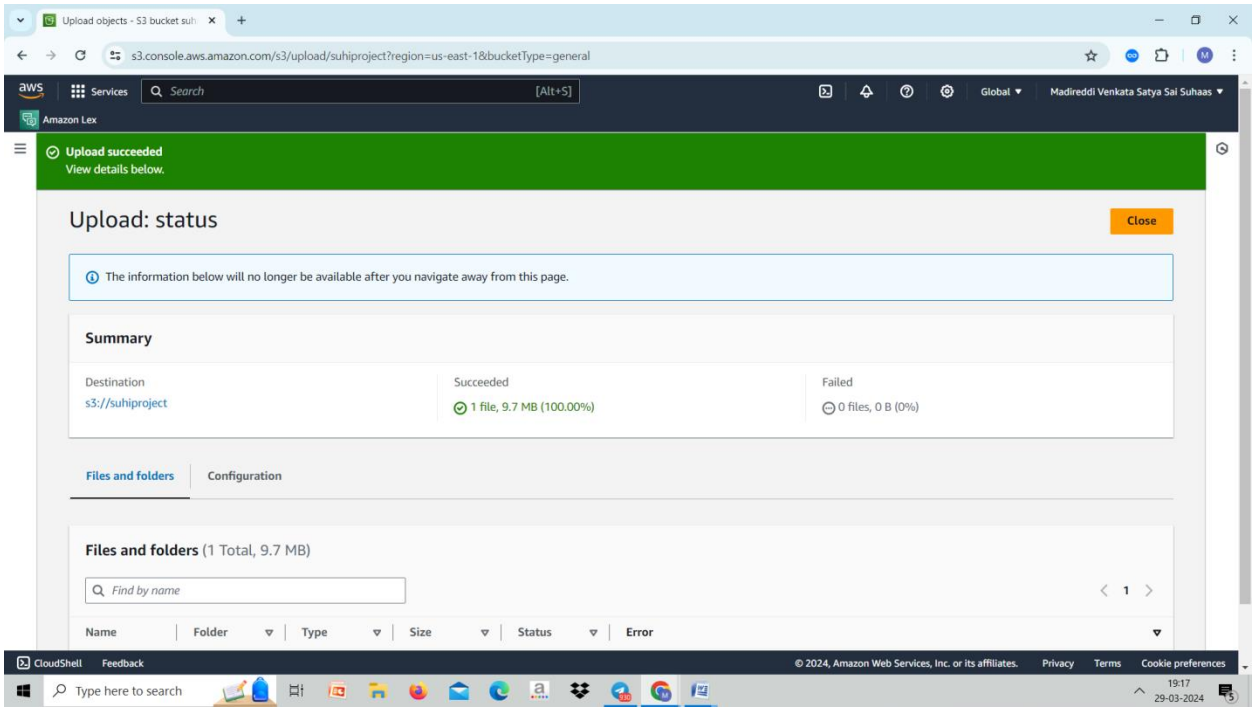
Privacy
Terms
Cookie preferences
Type here to search
19:16
29-03-2024


Upload objects - S3 bucket suh
s3.console.aws.amazon.com/s3/upload/suhiproject?region=us-east-1&bucketType=general
Services
Search
[Alt+S]
Global
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
Upload succeeded
View details below.
Upload: status
Close
The information below will no longer be available after you navigate away from this page.
Summary
Destination
s3://suhiproject
Succeeded
1 file, 9.7 MB (100.00%)
Failed
0 files, 0 B (0%)
Files and folders
Configuration
Files and folders (1 Total, 9.7 MB)
Find by name
1
Name
Folder
Type
Size
Status
Error
CloudShell
Feedback
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Cookie preferences
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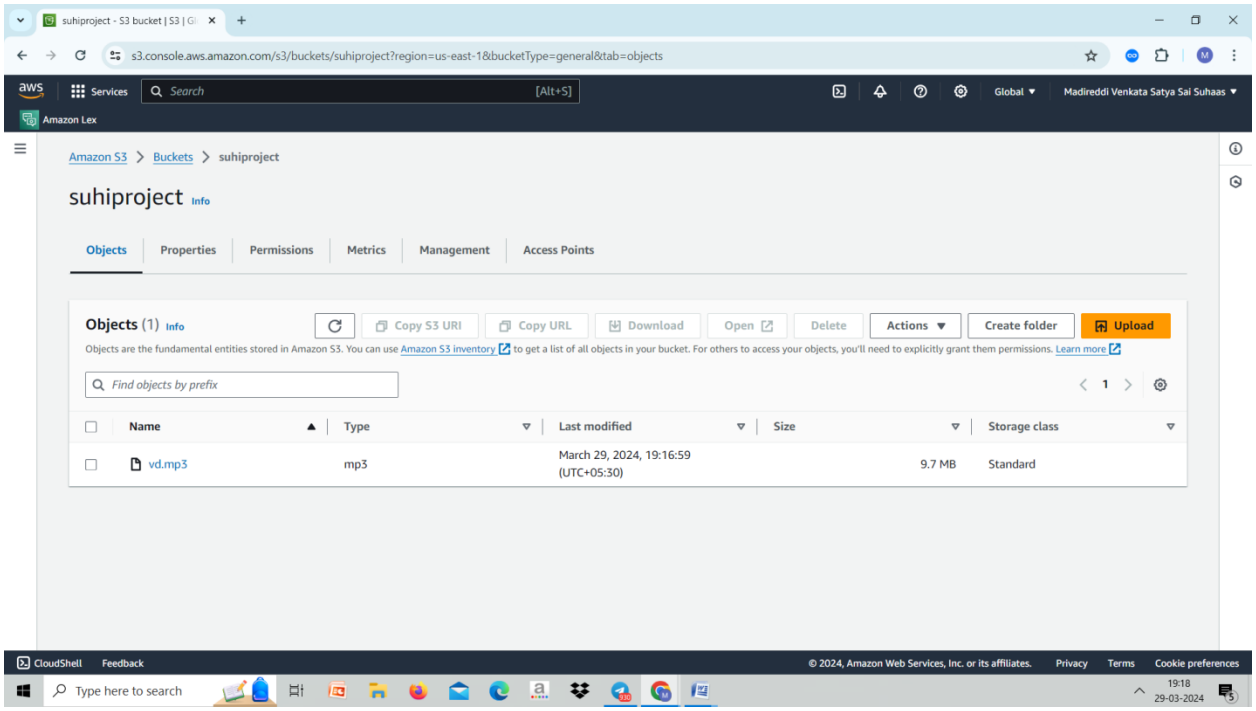
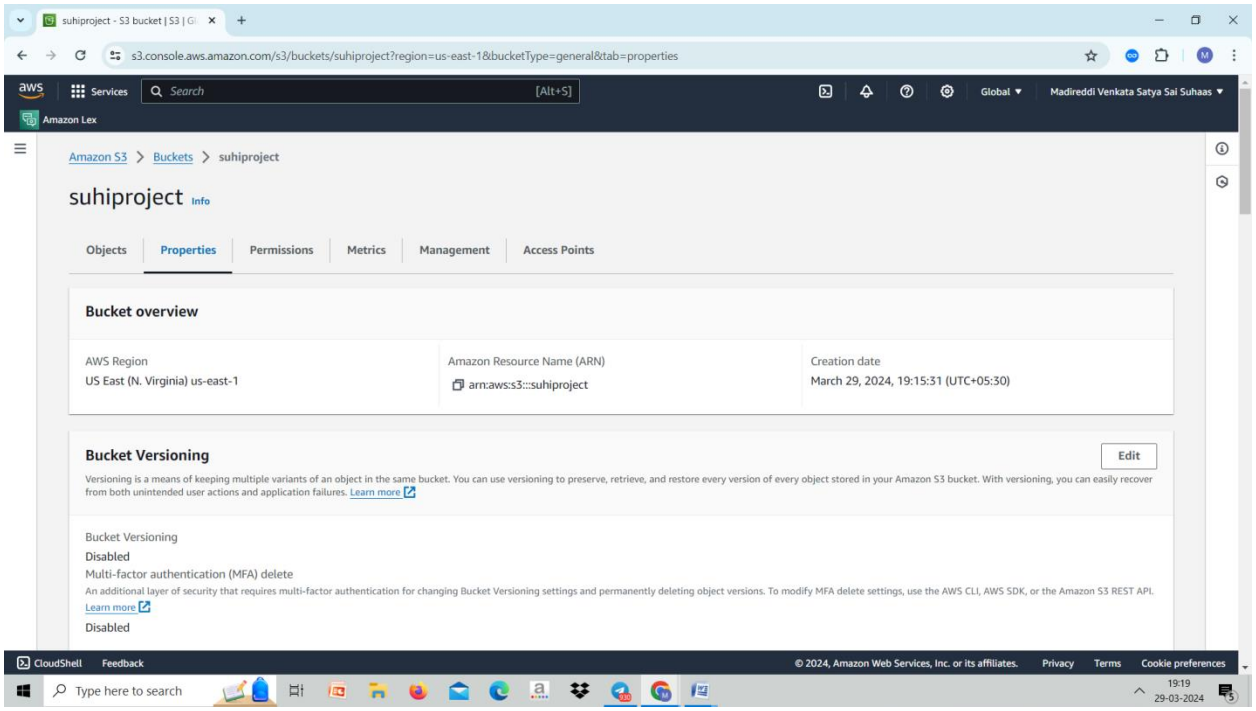
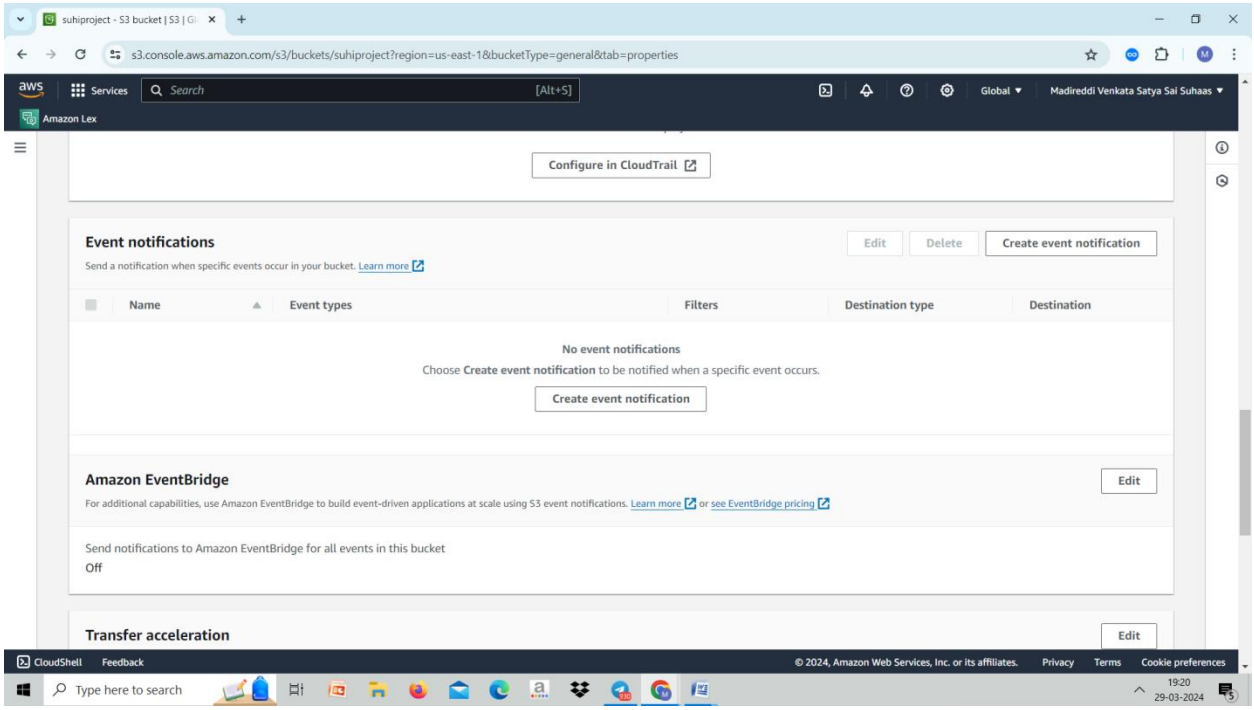
19:17
29-03-2024

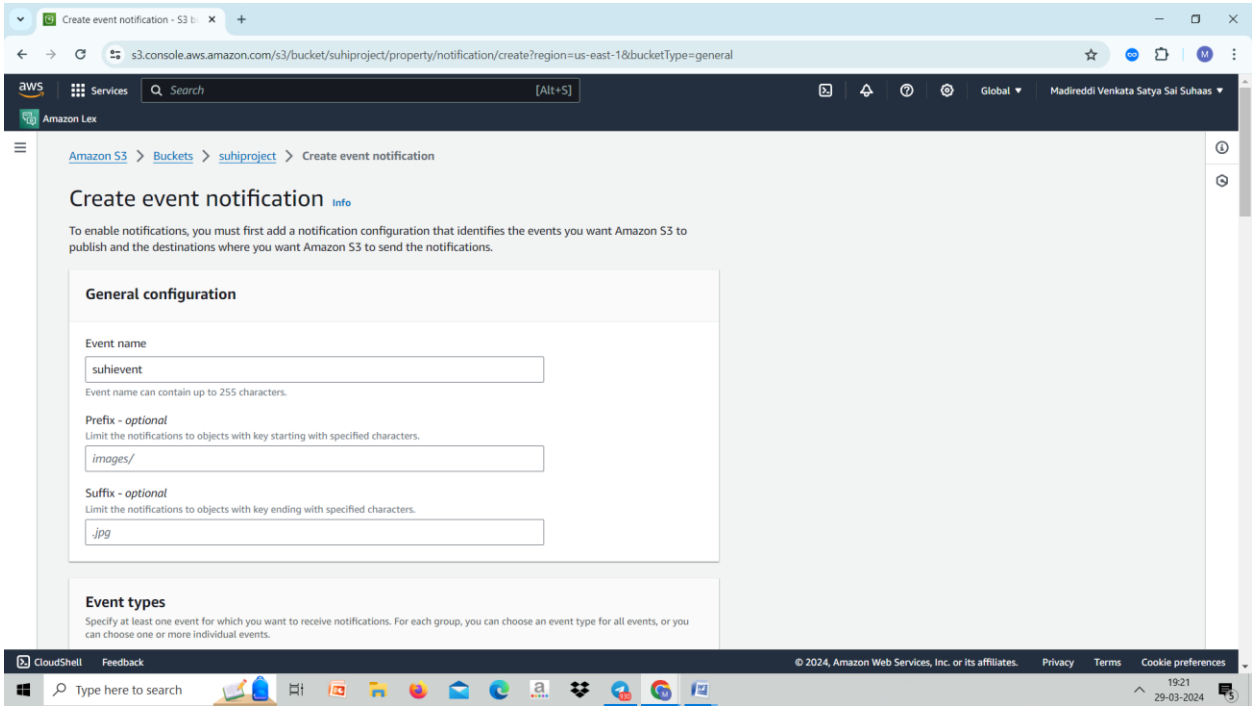
STEP – 4 : Upload mp3 file in the S3 bucket

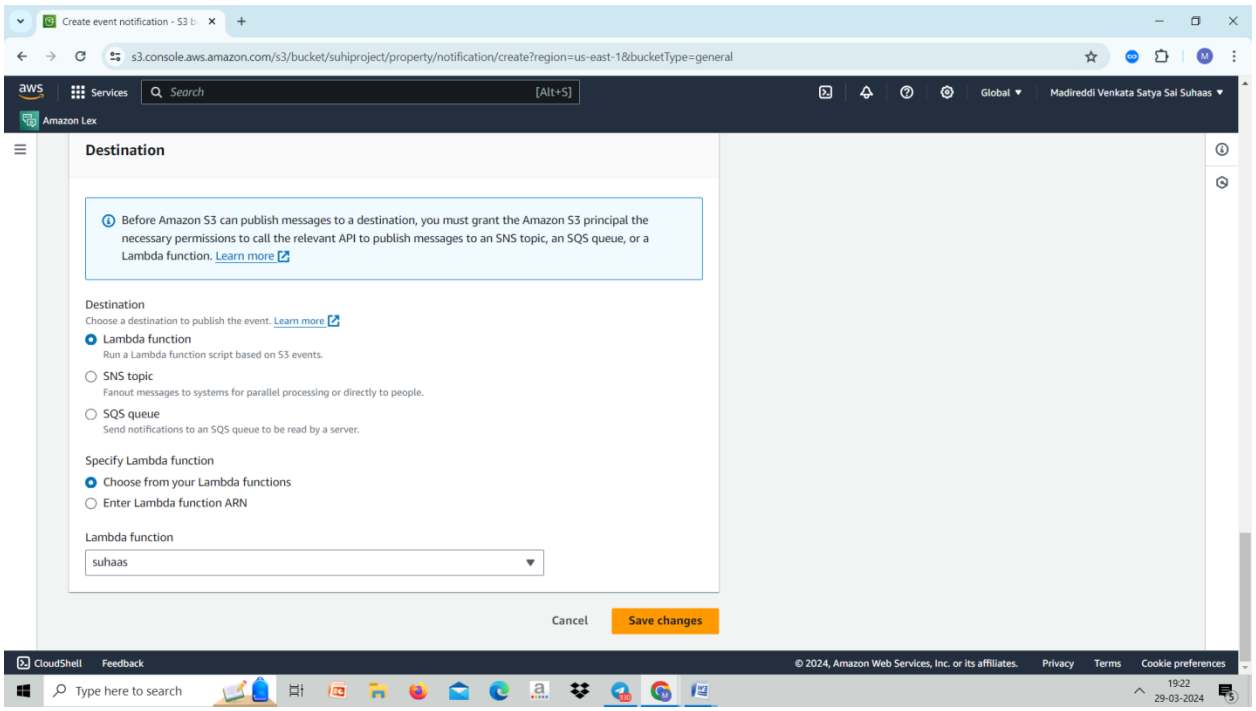




STEP-5 : Click on create event notification and integrate with the lambda service






Create event notification - S3 b
s3.console.aws.amazon.com/s3/bucket/suhiproject/property/notification/create?region=us-east-1&bucketType=general
aws
Services
Search
[Alt+S]
Global
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
Destination
Before Amazon S3 can publish messages to a destination, you must grant the Amazon S3 principal the necessary permissions to call the relevant API to publish messages to an SNS topic, an SQS queue, or a Lambda function. Learn more
Destination
Choose a destination to publish the event. Learn more
Lambda function
Run a Lambda function script based on S3 events.
SNS topic
Fanout messages to systems for parallel processing or directly to people.
SQS queue
Send notifications to an SQS queue to be read by a server.
Specify Lambda function
Choose from your Lambda functions
Enter Lambda function ARN
Lambda function
suhaas
Cancel
Save changes
CloudShell
Feedback
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Privacy
Terms
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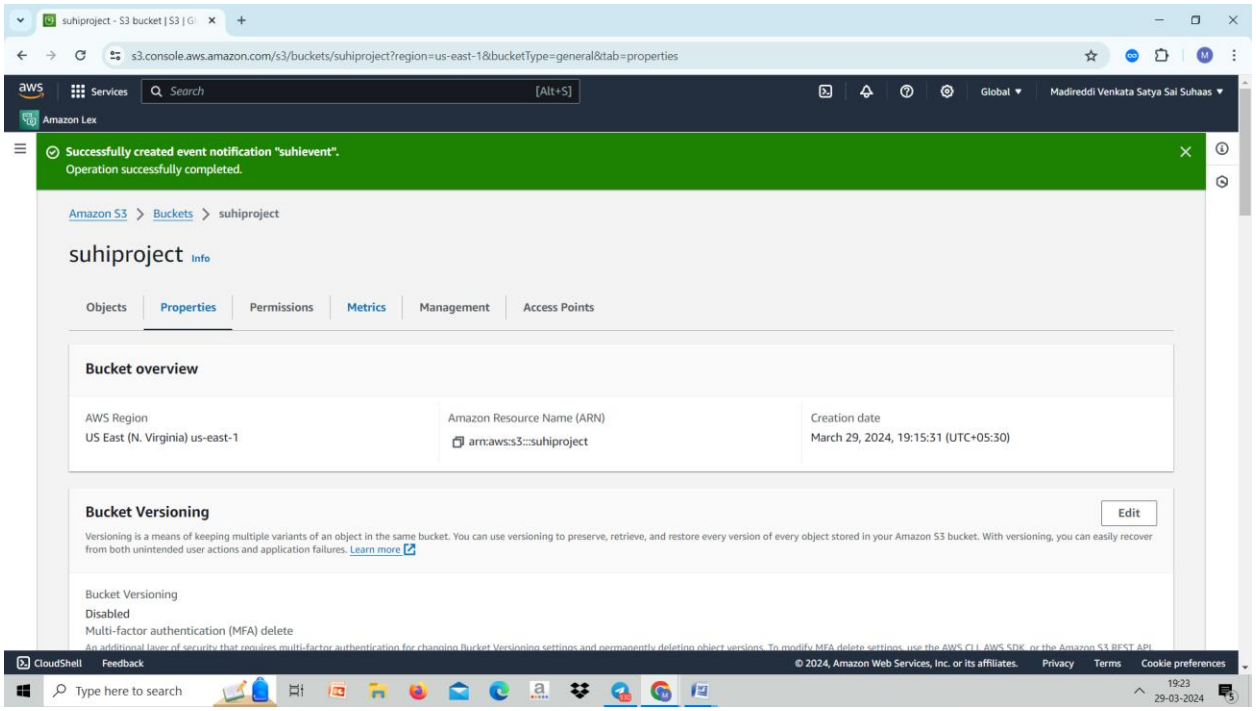
Type here to search
19:22
29-03-2024


suhiproject - S3 bucket | S3 | Gl
s3.console.aws.amazon.com/s3/buckets/suhiproject?region=us-east-1&bucketType=general&tab=properties
aws
Services
Search
[Alt+S]
Global
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
Successfully created event notification "suhievent".
Operation successfully completed.
Amazon S3 > Buckets > suhiproject
suhiproject Info
Objects
Properties
Permissions
Metrics
Management
Access Points
Bucket overview
AWS Region
US East (N. Virginia) us-east-1
Amazon Resource Name (ARN)
arn:aws:s3:::suhiproject
Creation date
March 29, 2024, 19:15:31 (UTC+05:30)
Bucket Versioning
Edit
Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. Learn more
Bucket Versioning
Disabled
Multi-factor authentication (MFA) delete
CloudShell
Feedback
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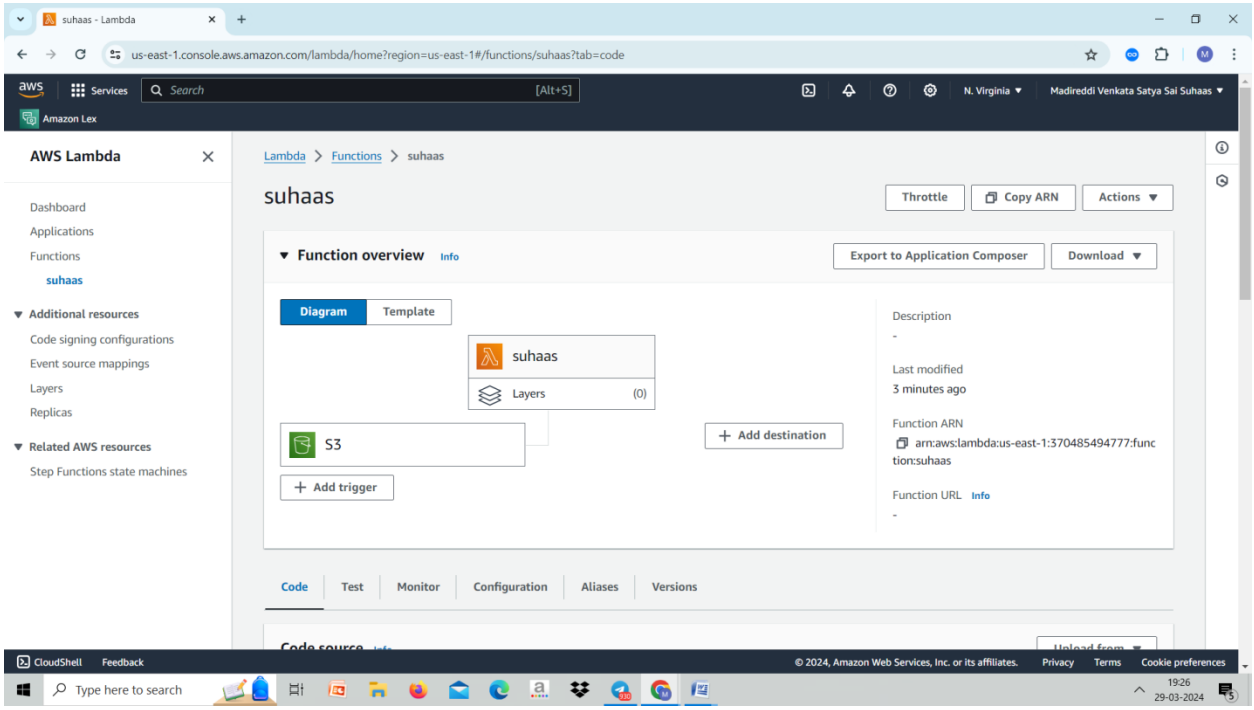
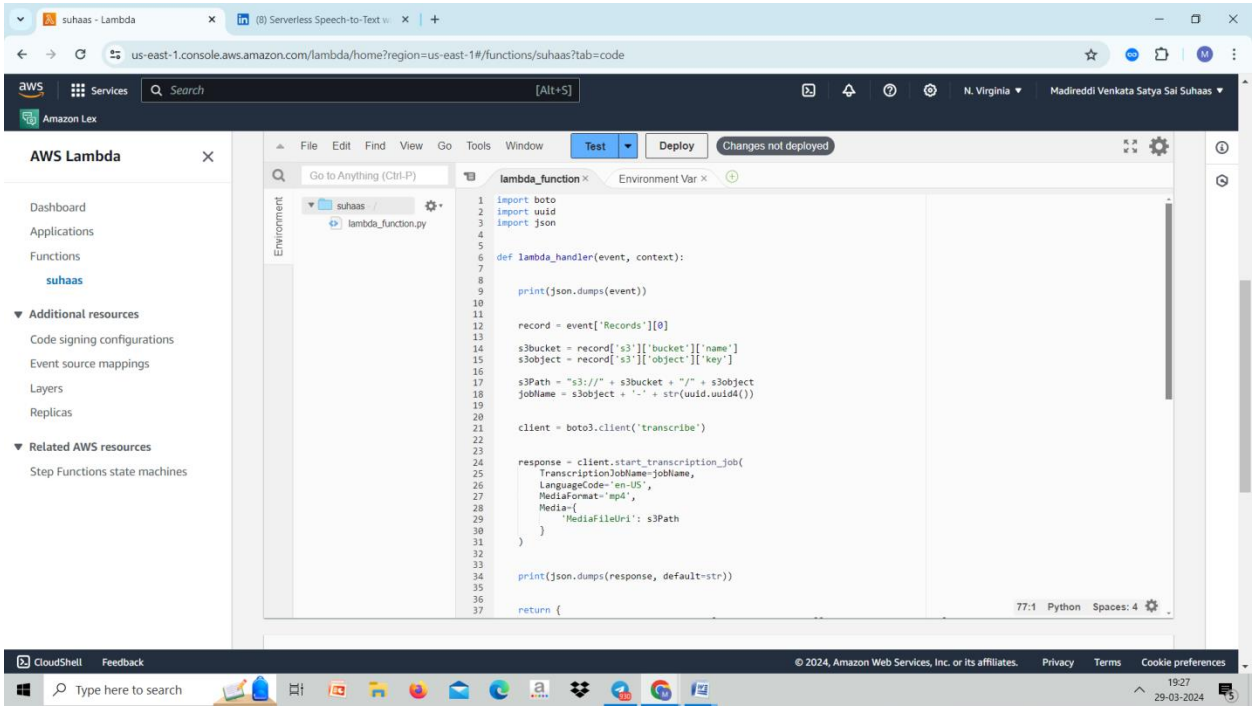
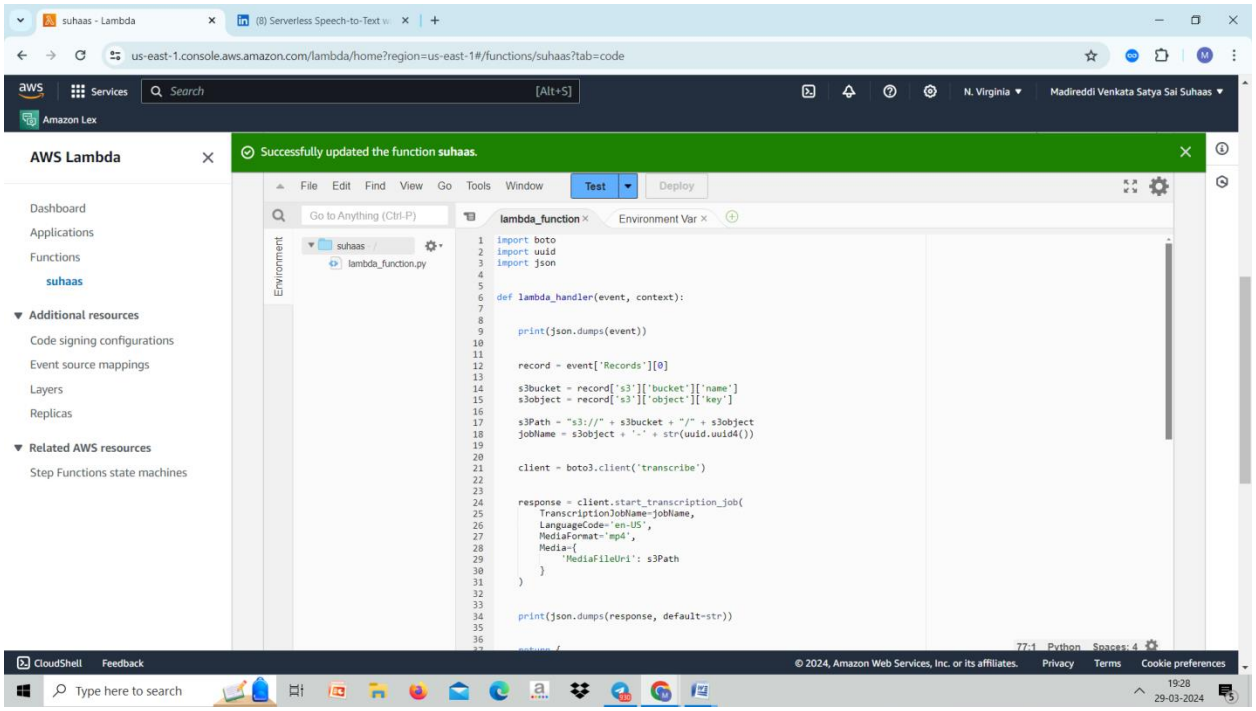
19:23
29-03-2024

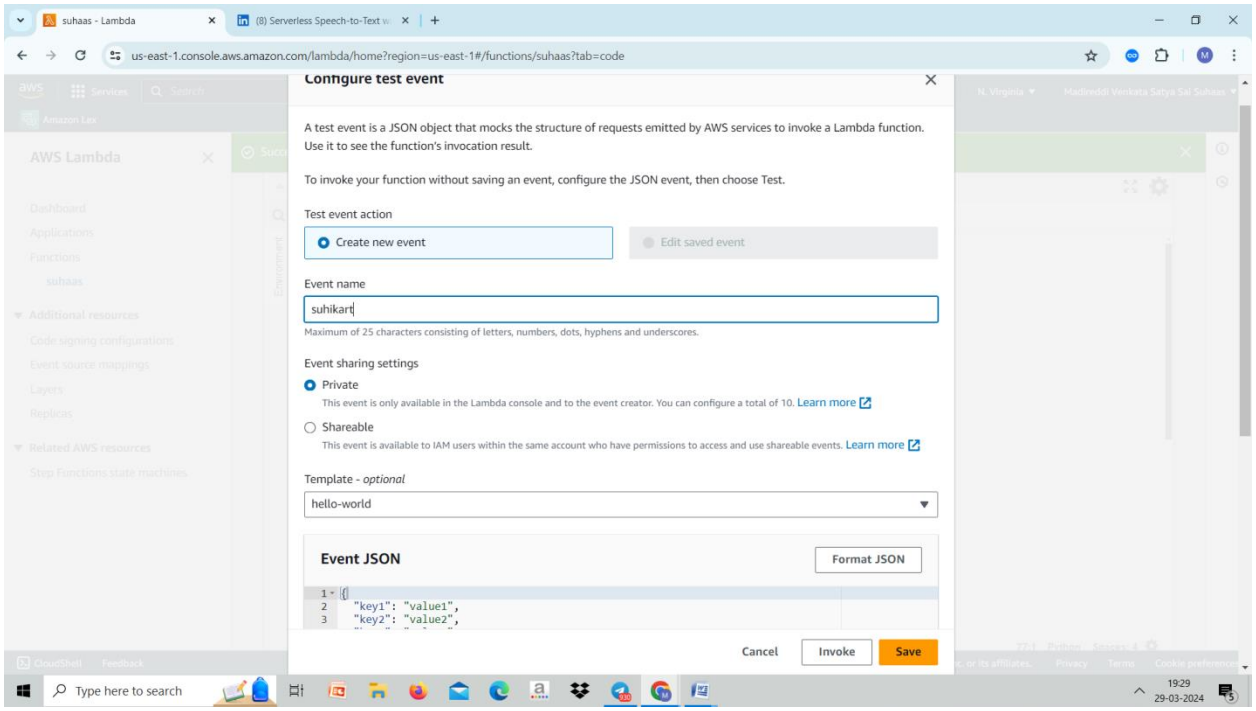
STEP-6 : Now you can observe the s3 bucket in the lambda service you created

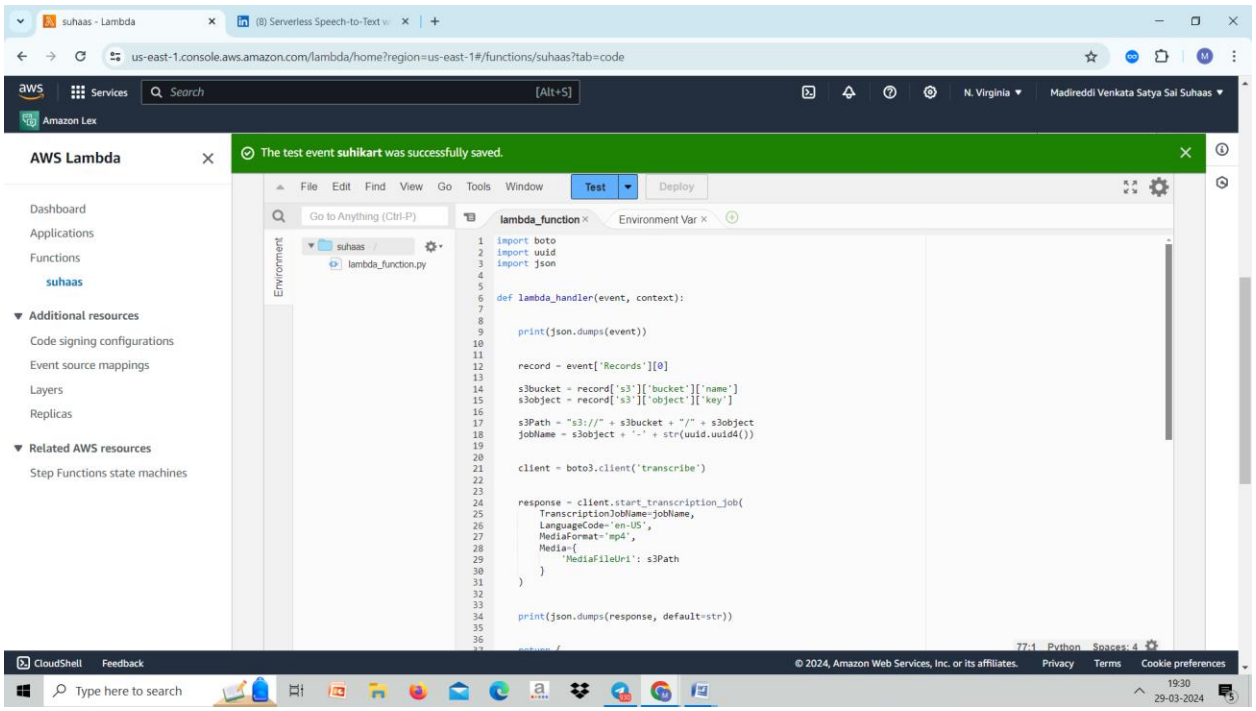




STEP-7 : Click on configure test






suhaas - Lambda
(8) Serverless Speech-to-Text
us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/suhaas?tab=code
Services
Search
[Alt+S]
N. Virginia
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
AWS Lambda
Dashboard
Applications
Functions
suhaas
Additional resources
Code signing configurations
Event source mappings
Layers
Replicas
Related AWS resources
Step Functions state machines
The test event suhikart was successfully saved.
File Edit Find View Go Tools Window
Test
Deploy
Go to Anything (Ctrl-P)
lambda_function
Environment Var
Environment
suhaas
lambda_function.py
import boto
import uuid
import json
def lambda_handler(event, context):
print(json.dumps(event))
record = event['Records'][0]
s3bucket = record['s3']['bucket']['name']
s3object = record['s3']['object']['key']
s3Path = "s3://" + s3bucket + "/" + s3object
jobName = s3object + '-' + str(uuid.uuid4())
client = boto3.client('transcribe')
response = client.start_transcription_job(
TranscriptionJobName=jobName,
LanguageCode='en-US',
MediaFormat='mp4',
Media={
'MediaFileUri': s3Path
}
)
print(json.dumps(response, default=str))
77:1 Python Spaces: 4
CloudShell
Feedback
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Privacy
Terms
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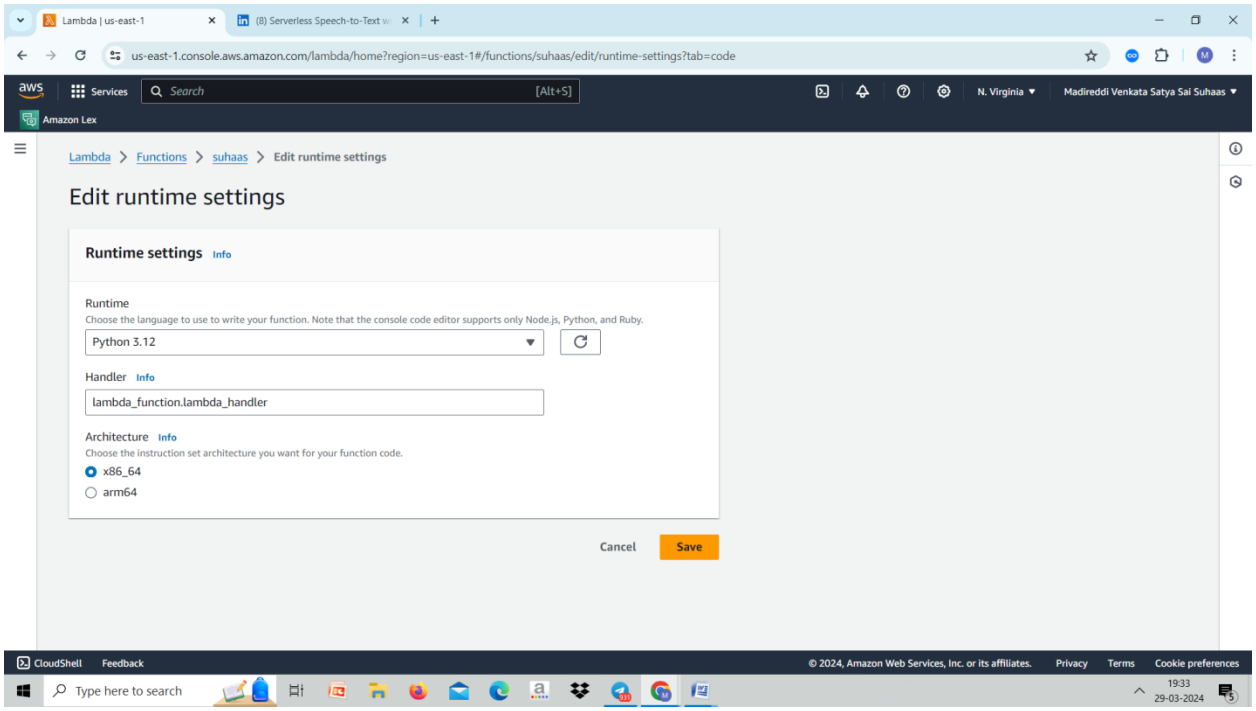
Type here to search
19:30
29-03-2024


Lambda | us-east-1
(8) Serverless Speech-to-Text
us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/suhaas/edit/runtime-settings?tab=code
Services
Search
[Alt+S]
N. Virginia
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
Lambda > Functions > suhaas > Edit runtime settings
Edit runtime settings
Runtime settings Info
Runtime
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.
Python 3.12
Handler Info
lambda_function.lambda_handler
Architecture Info
Choose the instruction set architecture you want for your function code.
x86_64
arm64
Cancel
Save
CloudShell
Feedback
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Privacy
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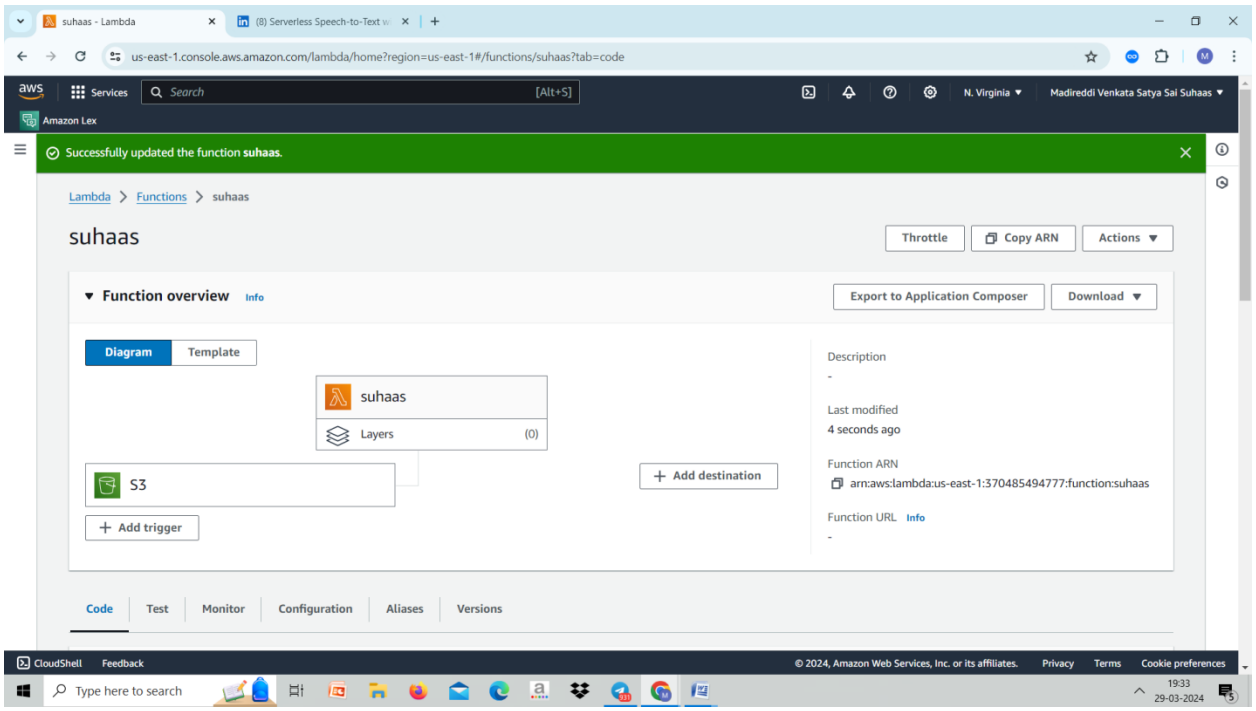
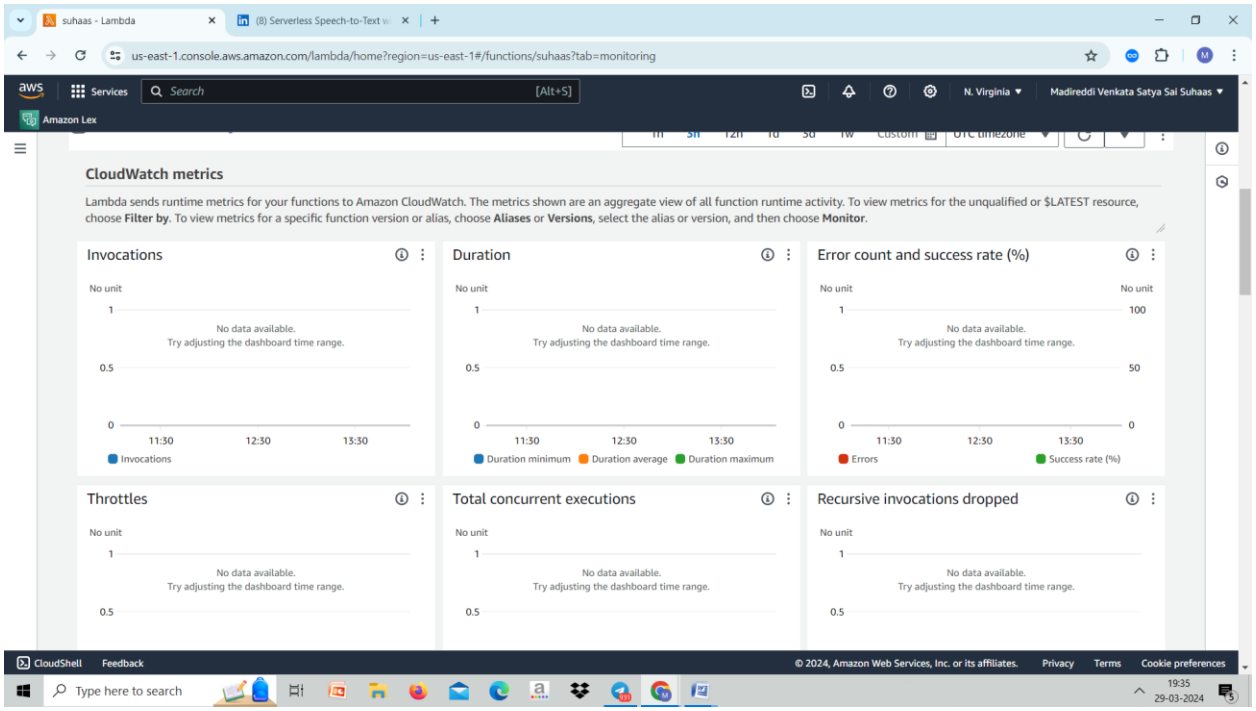
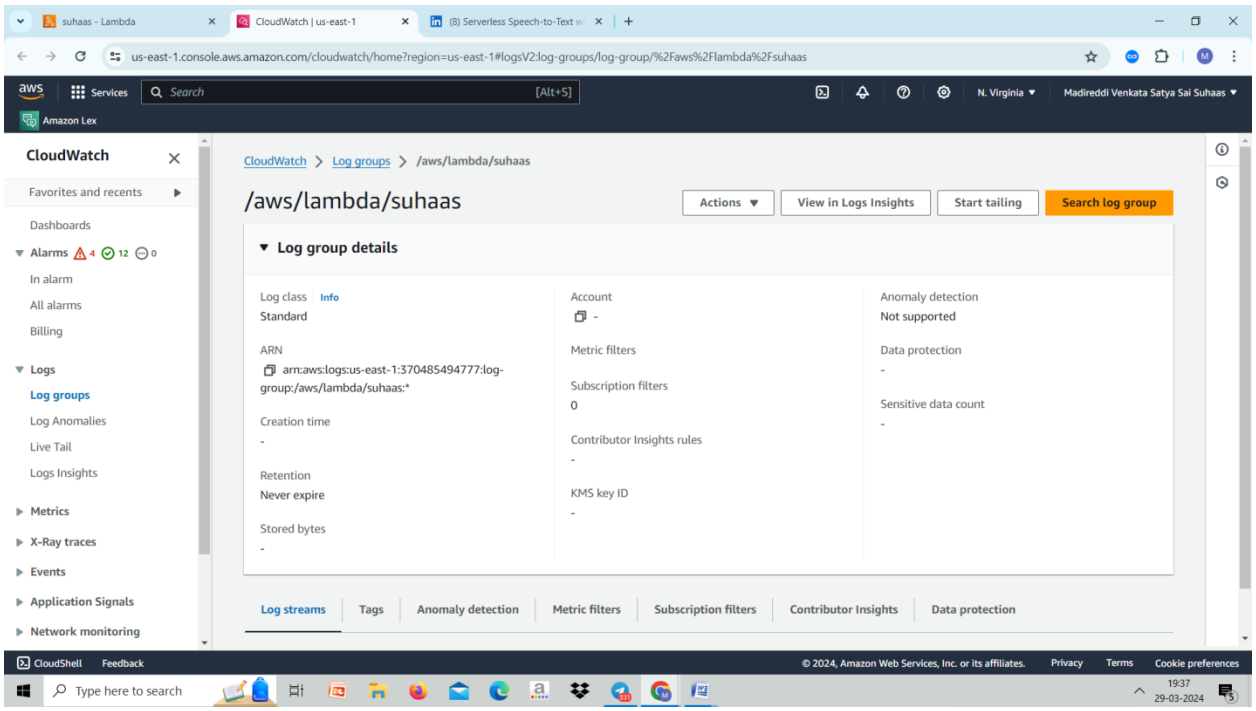
Type here to search
19:33
29-03-2024



STEP-8 : Here the Cloud Watch logs to confirm that the lambda function was triggered and started a transcription job in the AWS Transcribe




suhaas - Lambda
CloudWatch | us-east-1
(8) Serverless Speech-to-Text w
us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#logsV2:log-groups/log-group/%2Faws%2Flambda%2Fsuhaas
Services
Search
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N. Virginia
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
CloudWatch
Favorites and recents
Dashboards
Alarms 4 12 0
In alarm
All alarms
Billing
Logs
Log groups
Log Anomalies
Live Tail
Logs Insights
Metrics
X-Ray traces
Events
Application Signals
Network monitoring
CloudWatch > Log groups > /aws/lambda/suhaas
/aws/lambda/suhaas
Actions
View in Logs Insights
Start tailing
Search log group
Log group details
Log class Info
Standard
ARN
arn:aws:logs:us-east-1:370485494777:log-group:/aws/lambda/suhaas:*
Creation time
-
Retention
Never expire
Stored bytes
-
Account
-
Metric filters
Subscription filters
0
Contributor Insights rules
-
KMS key ID
-
Anomaly detection
Not supported
Data protection
-
Sensitive data count
-
Log streams
Tags
Anomaly detection
Metric filters
Subscription filters
Contributor Insights
Data protection
CloudShell
Feedback
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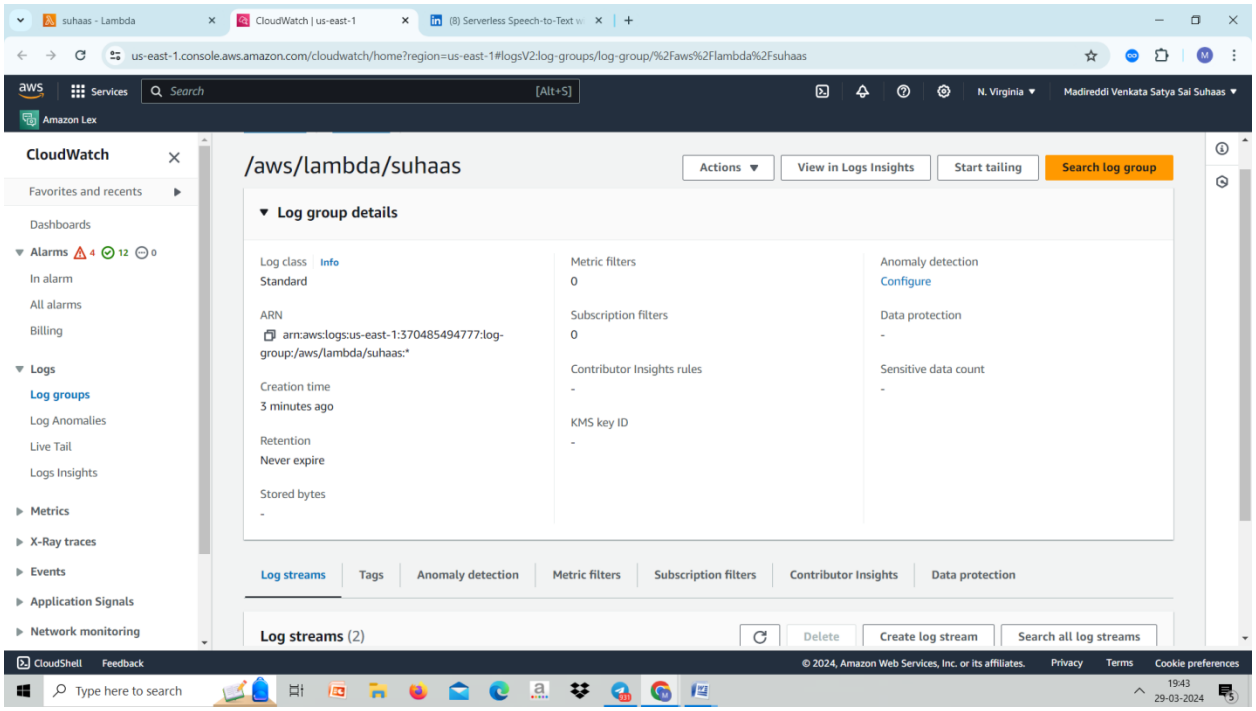
Privacy
Terms
Cookie preferences
Type here to search
19:37
29-03-2024


suhaas - Lambda
CloudWatch | us-east-1
(8) Serverless Speech-to-Text w
us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#logsV2:log-groups/log-group/%2Faws%2Flambda%2Fsuhaas
Services
Search
[Alt+S]
N. Virginia
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
CloudWatch
Favorites and recents
Dashboards
Alarms 4 12 0
In alarm
All alarms
Billing
Logs
Log groups
Log Anomalies
Live Tail
Logs Insights
Metrics
X-Ray traces
Events
Application Signals
Network monitoring
/aws/lambda/suhaas
Actions
View in Logs Insights
Start tailing
Search log group
Log group details
Log class Info
Standard
ARN
arn:aws:logs:us-east-1:370485494777:log-group:/aws/lambda/suhaas:*
Creation time
3 minutes ago
Retention
Never expire
Stored bytes
-
Metric filters
0
Subscription filters
0
Contributor Insights rules
-
KMS key ID
-
Anomaly detection
Configure
Data protection
-
Sensitive data count
-
Log streams
Tags
Anomaly detection
Metric filters
Subscription filters
Contributor Insights
Data protection
Log streams (2)
Delete
Create log stream
Search all log streams
CloudShell
Feedback
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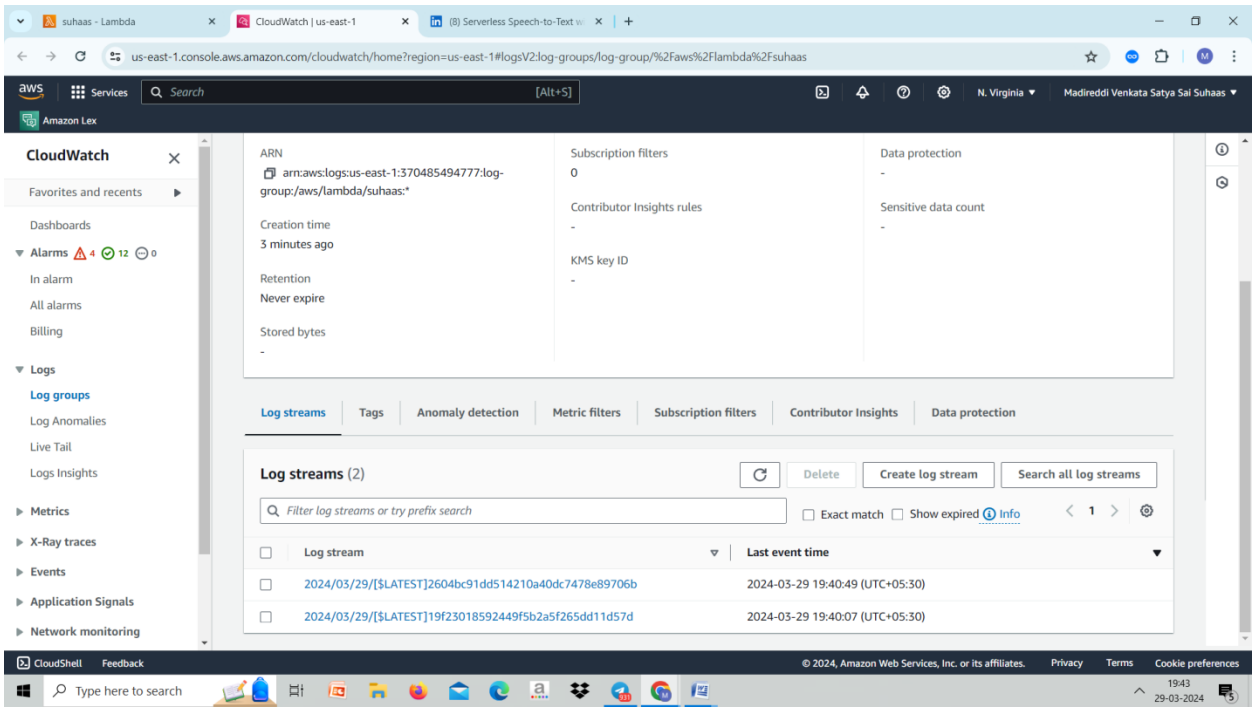
Privacy
Terms
Cookie preferences
Type here to search
19:43
29-03-2024


suhaas - Lambda
CloudWatch | us-east-1
(8) Serverless Speech-to-Text w
us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#logsV2:log-groups/log-group/%2Faws%2Flambda%2Fsuhaas
aws
Services
Search
[Alt+S]
N. Virginia
Madireddi Venkata Satya Sai Suhaas
Amazon Lex
CloudWatch
Favorites and recents
Dashboards
Alarms 4 12 0
In alarm
All alarms
Billing
Logs
Log groups
Log Anomalies
Live Tail
Logs Insights
Metrics
X-Ray traces
Events
Application Signals
Network monitoring
ARN
arn:aws:logs:us-east-1:370485494777:log-group:/aws/lambda/suhaas:*
Creation time
3 minutes ago
Retention
Never expire
Stored bytes
-
Subscription filters
0
Contributor Insights rules
-
KMS key ID
-
Data protection
-
Sensitive data count
-
Log streams
Tags
Anomaly detection
Metric filters
Subscription filters
Contributor Insights
Data protection
Log streams (2)
Delete
Create log stream
Search all log streams
Filter log streams or try prefix search
Exact match
Show expired
Info
1
Log stream
Last event time
2024/03/29/[$LATEST]2604bc91dd514210a40dc7478e89706b
2024-03-29 19:40:49 (UTC+05:30)
2024/03/29/[$LATEST]19f23018592449f5b2a5f265dd11d57d
2024-03-29 19:40:07 (UTC+05:30)
CloudShell
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29-03-2024