

NAME – AMAN SINGH
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Lab Assignment 7

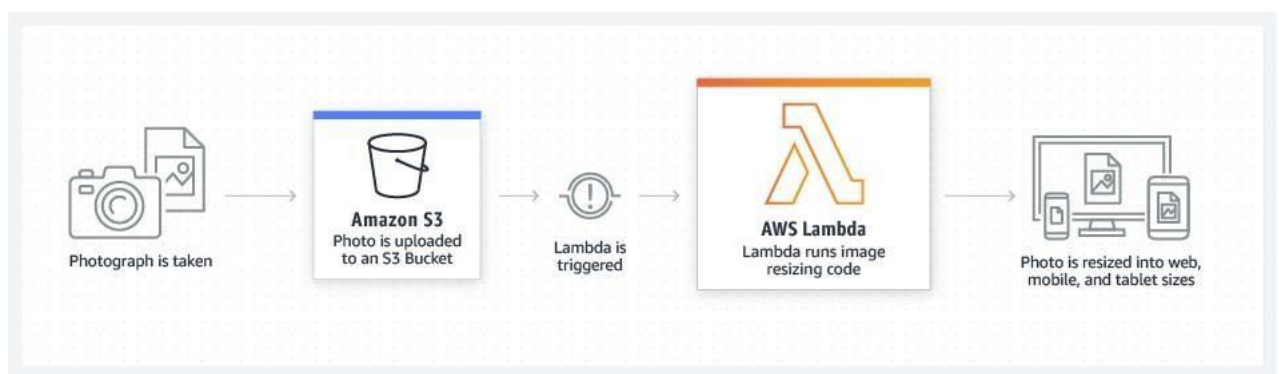
AIM: To understand AWS Lambda functions and create a Lambda function using Python to log “An Image has been added” message, once a file is added to a S3 bucket.

LO6: To engineer a composition of nano services using AWS Lambda and Step Functions with the Serverless Framework.

THEORY:

LAMBDA FUNCTION

AWS Lambda is a serverless, event-driven compute service that lets you run code for virtually any type of application or backend service without provisioning or managing servers. You can trigger Lambda from over 200 AWS services and software as a service (SaaS) applications, and only pay for what you use.

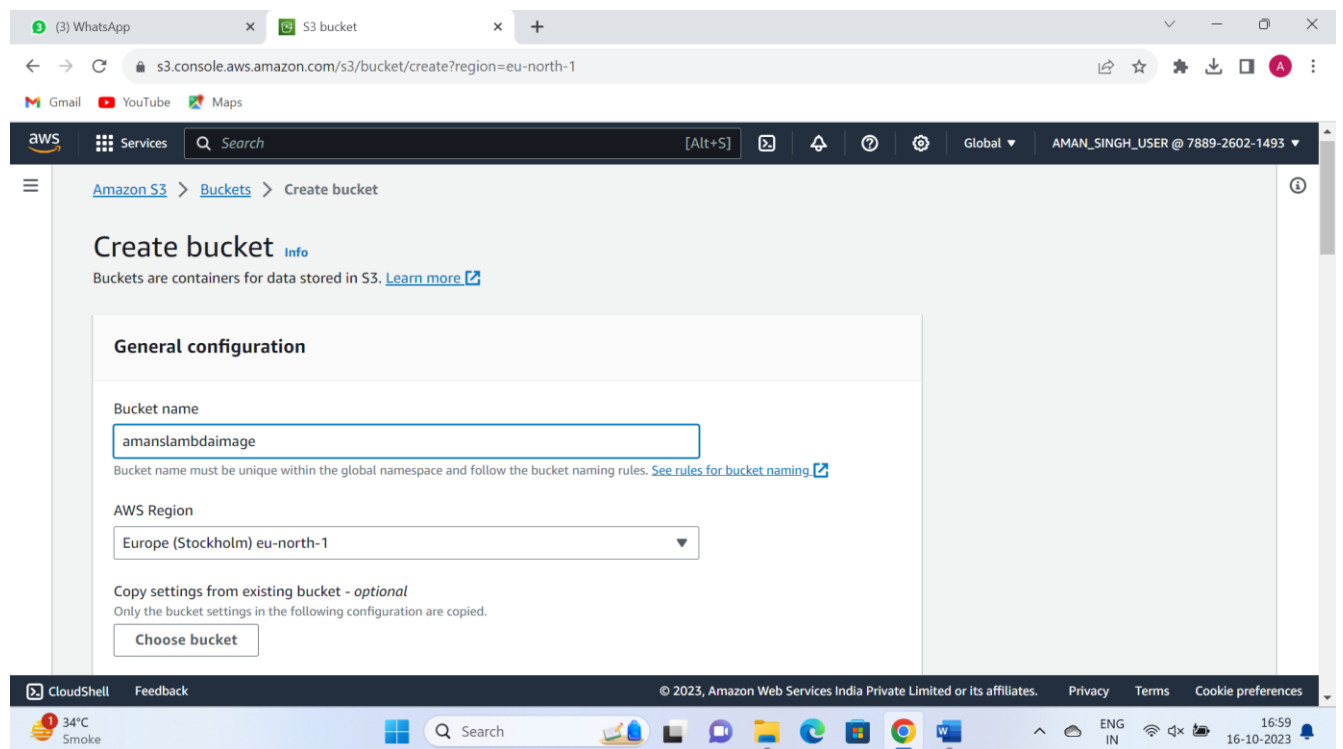
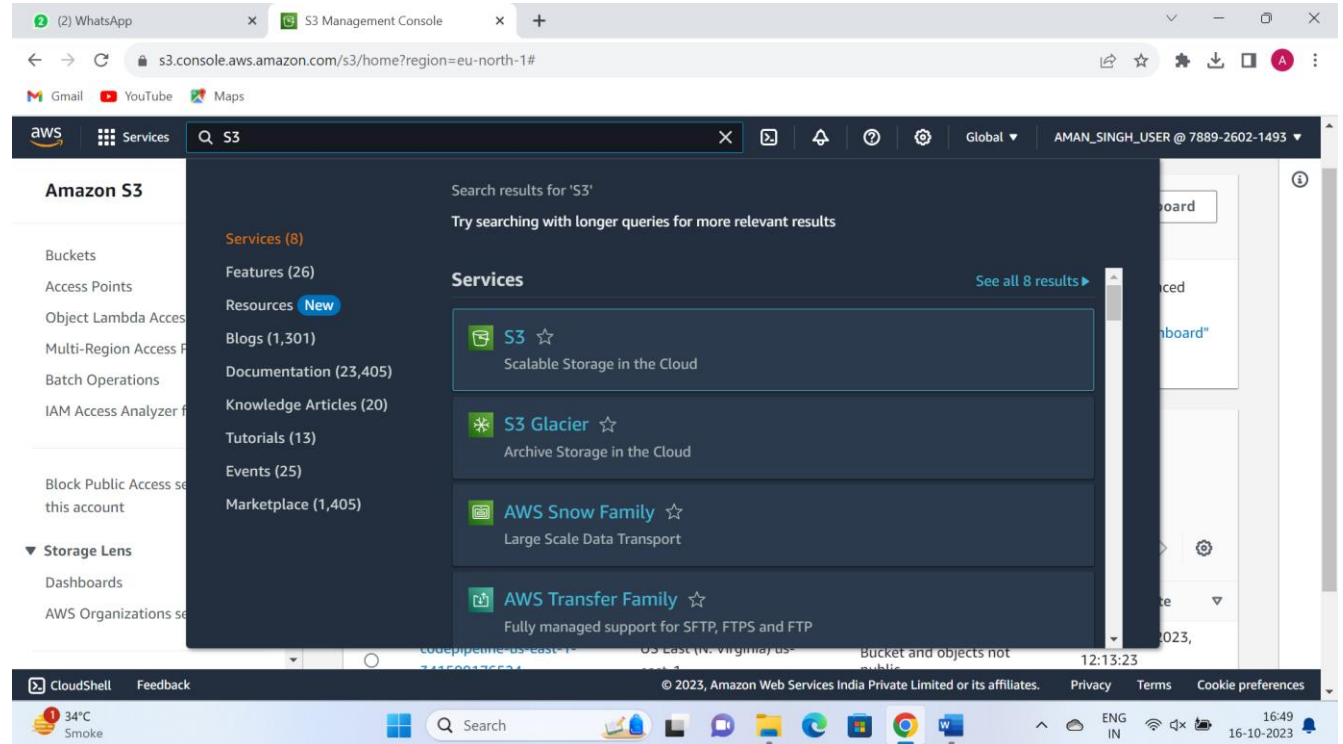


Installation:

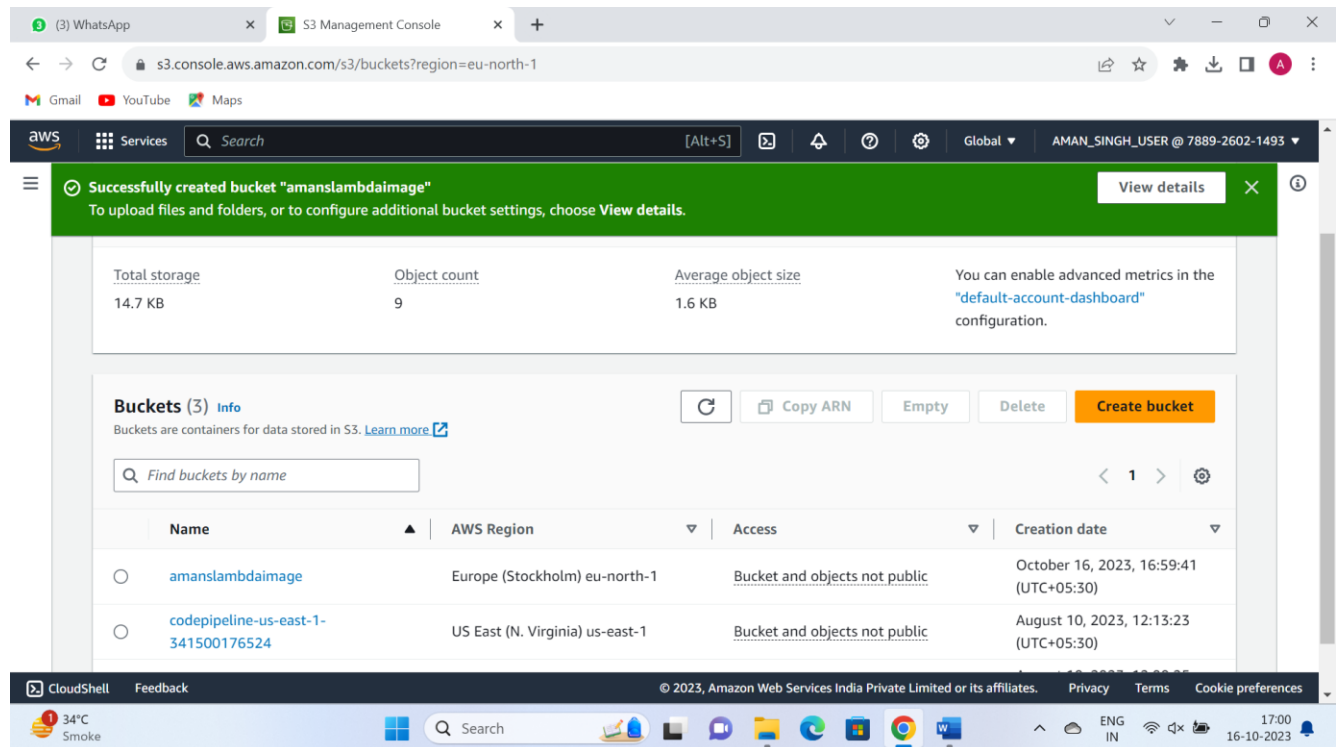
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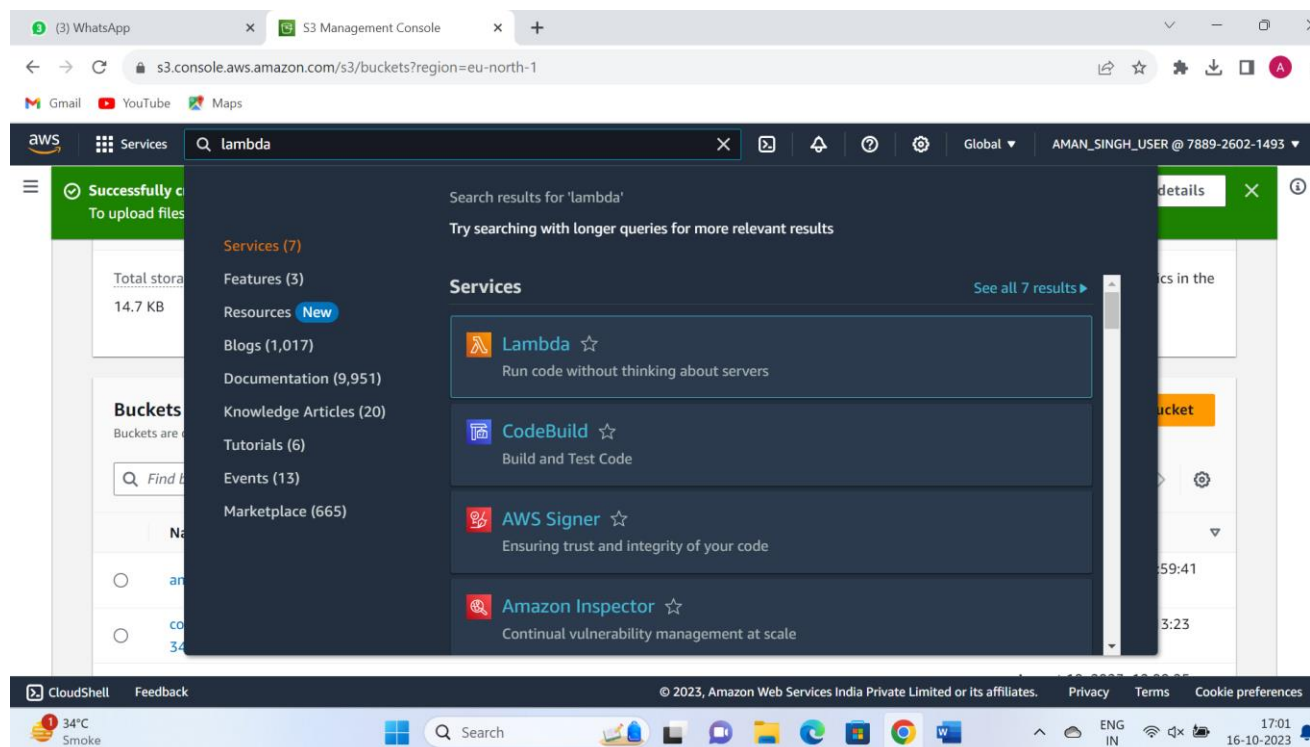
Create a S3 bucket



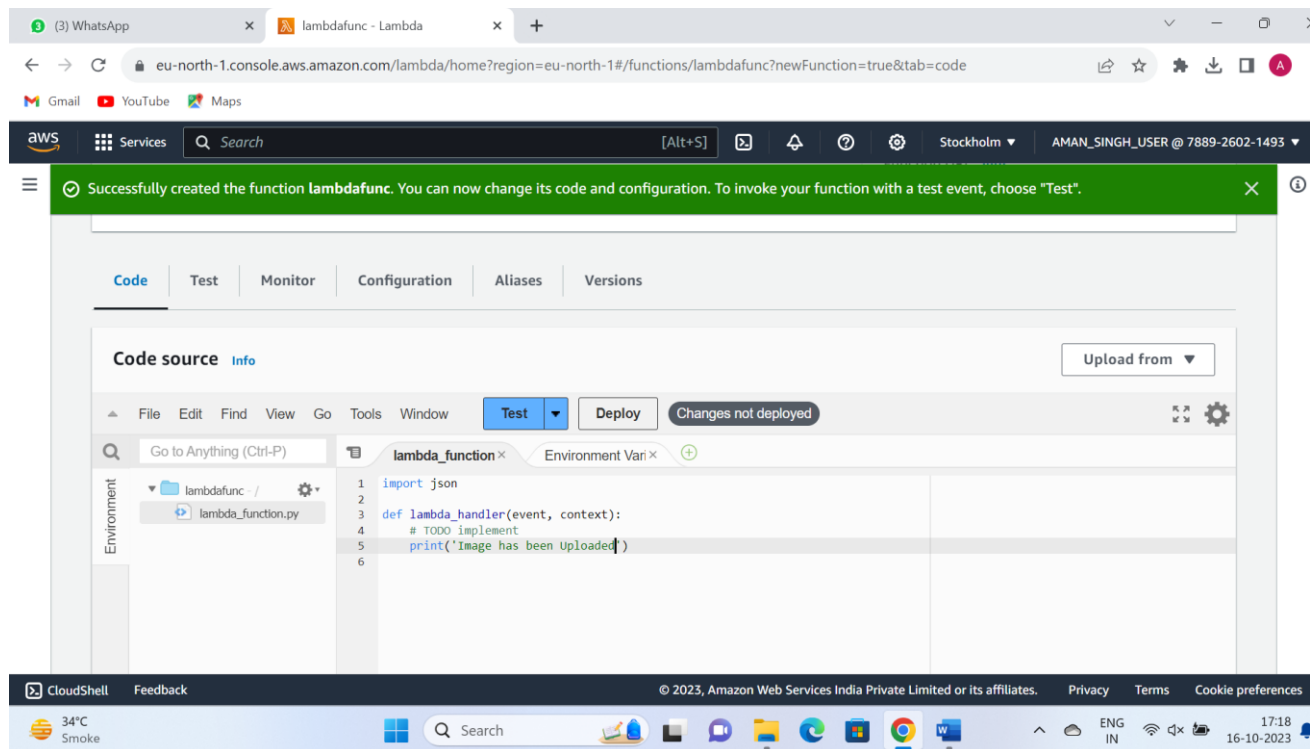
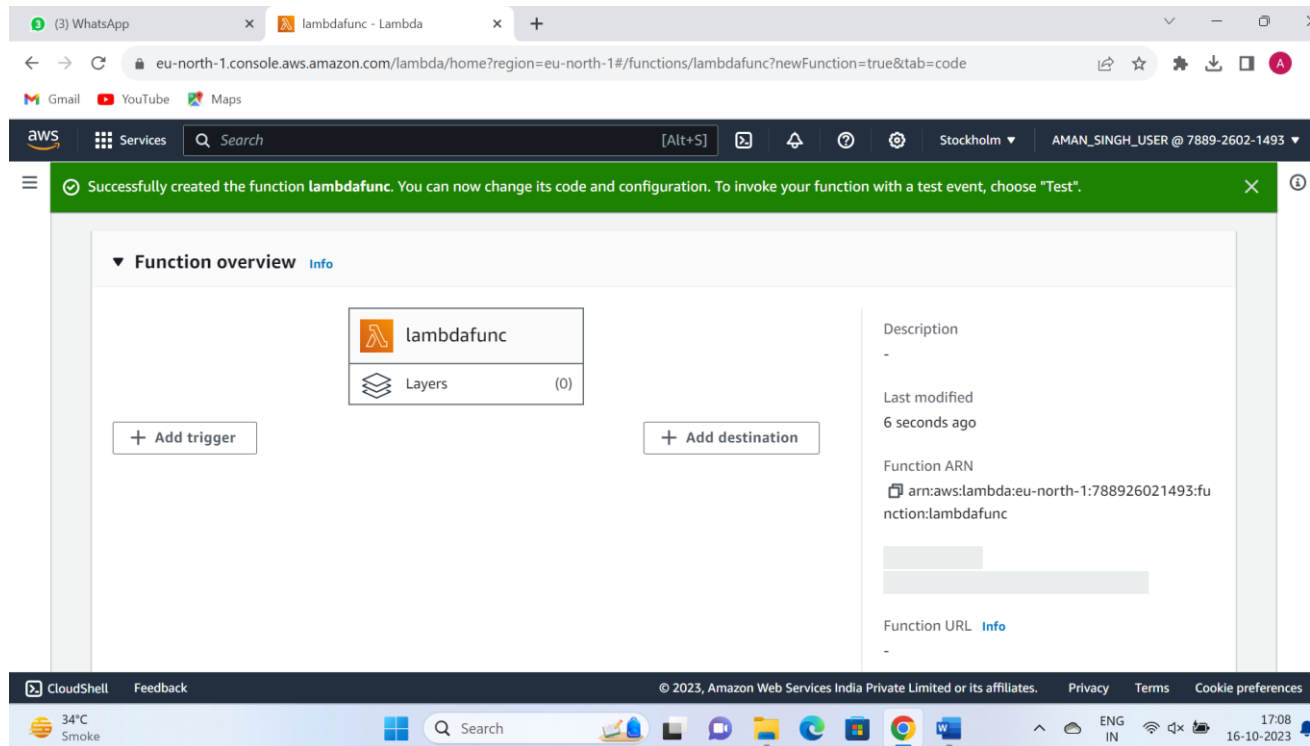
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1. Create a Lambda function.



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2. Create a trigger

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Trigger configuration [Info](#)

S3
aws asynchronous storage

Bucket
Please select the S3 bucket that serves as the event source. The bucket must be in the same region as the function.
Q s3/amanslambdaimage X [Refresh](#)
Bucket region: eu-north-1

Event types
Select the events that you want to have trigger the Lambda function. You can optionally set up a prefix or suffix for an event. However, for each bucket, individual events cannot have multiple configurations with overlapping prefixes or suffixes that could match the same object key.
All object create events X

Prefix - optional
Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters.
e.g. images/

Prefix - optional
Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters.
e.g. images/

Suffix - optional
Enter a single optional suffix to limit the notifications to objects with keys that end with matching characters.
e.g. .jpg

Recursive invocation
If your function writes objects to an S3 bucket, ensure that you are using different S3 buckets for input and output. Writing to the same bucket increases the risk of creating a recursive invocation, which can result in increased Lambda usage and increased costs. [Learn more](#)

☒ I acknowledge that using the same S3 bucket for both input and output is not recommended and that this configuration can cause recursive invocations, increased Lambda usage, and increased costs.

Lambda will add the necessary permissions for AWS S3 to invoke your Lambda function from this trigger. [Learn more](#) about the Lambda permissions model.

Cancel **Add**

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The screenshot shows the 'Add triggers' dialog box in the AWS Lambda console. The dialog is titled 'Add triggers - Lambda' and is open over the 'eu-north-1.console.aws.amazon.com/lambda/home?region=eu-north-1#/add/relation?focus=aws%2Flambda&target=arn%3Aaws%3Alambda...' URL. The dialog contains the following sections:

- Prefix - optional**: A text input field with the placeholder 'e.g. images/'.
- Suffix - optional**: A text input field with the placeholder 'e.g. .jpg'.
- Recursive invocation**: A section explaining that if the function writes objects to an S3 bucket, it should use different buckets for input and output to avoid recursive invocations. It includes a checkbox that is checked, stating: 'I acknowledge that using the same S3 bucket for both input and output is not recommended and that this configuration can cause recursive invocations, increased Lambda usage, and increased costs.'
- Permissions**: A note stating 'Lambda will add the necessary permissions for AWS S3 to invoke your Lambda function from this trigger.'

At the bottom of the dialog are 'Cancel' and 'Add' buttons. The background shows the AWS console interface with the user 'AMAN_SINGH_USER @ 7889-2602-1493' and the region 'Stockholm'.

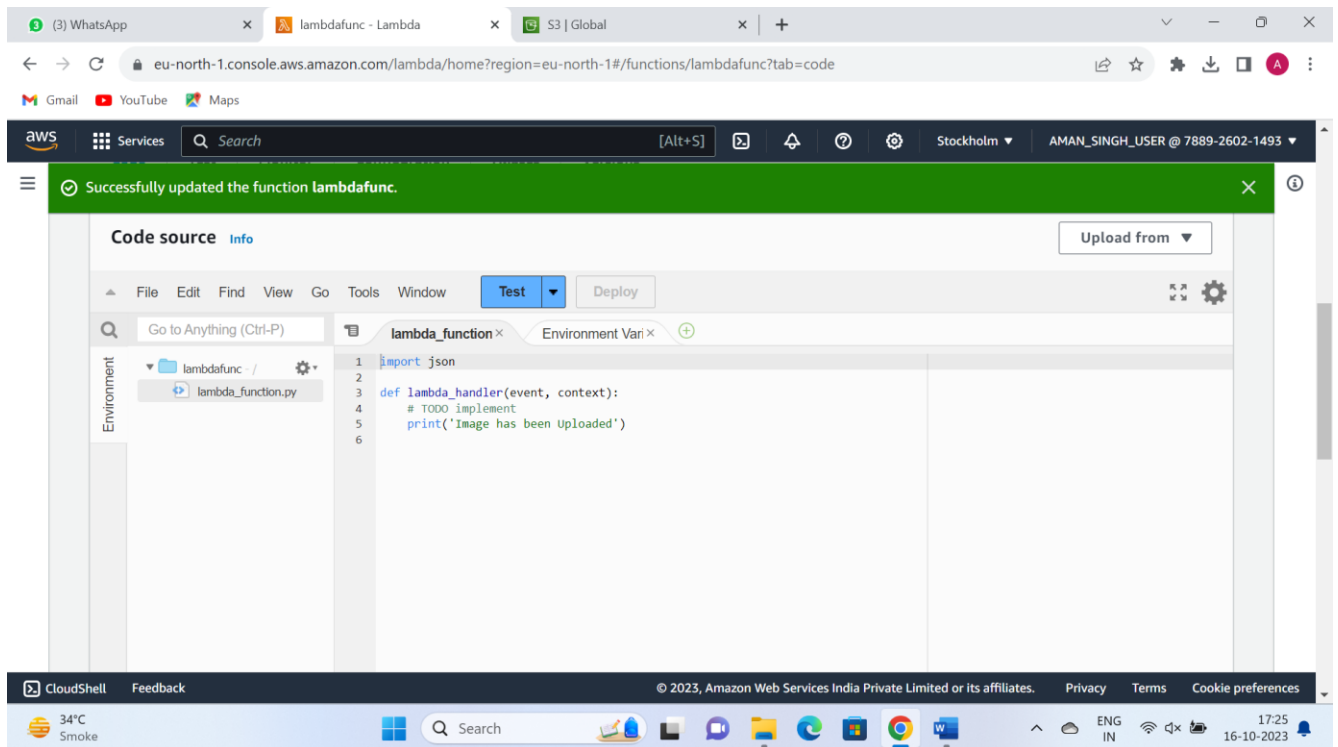
The screenshot shows the 'lambdafunc' configuration page in the AWS Lambda console. The page title is 'lambdafunc' and it includes buttons for 'Throttle', 'Copy ARN', and 'Actions'. A green notification banner at the top states: 'The trigger amanslambdaimage was successfully added to function lambdafunc. The function is now receiving events from the trigger.'

The 'Function overview' section displays a diagram of the function configuration:

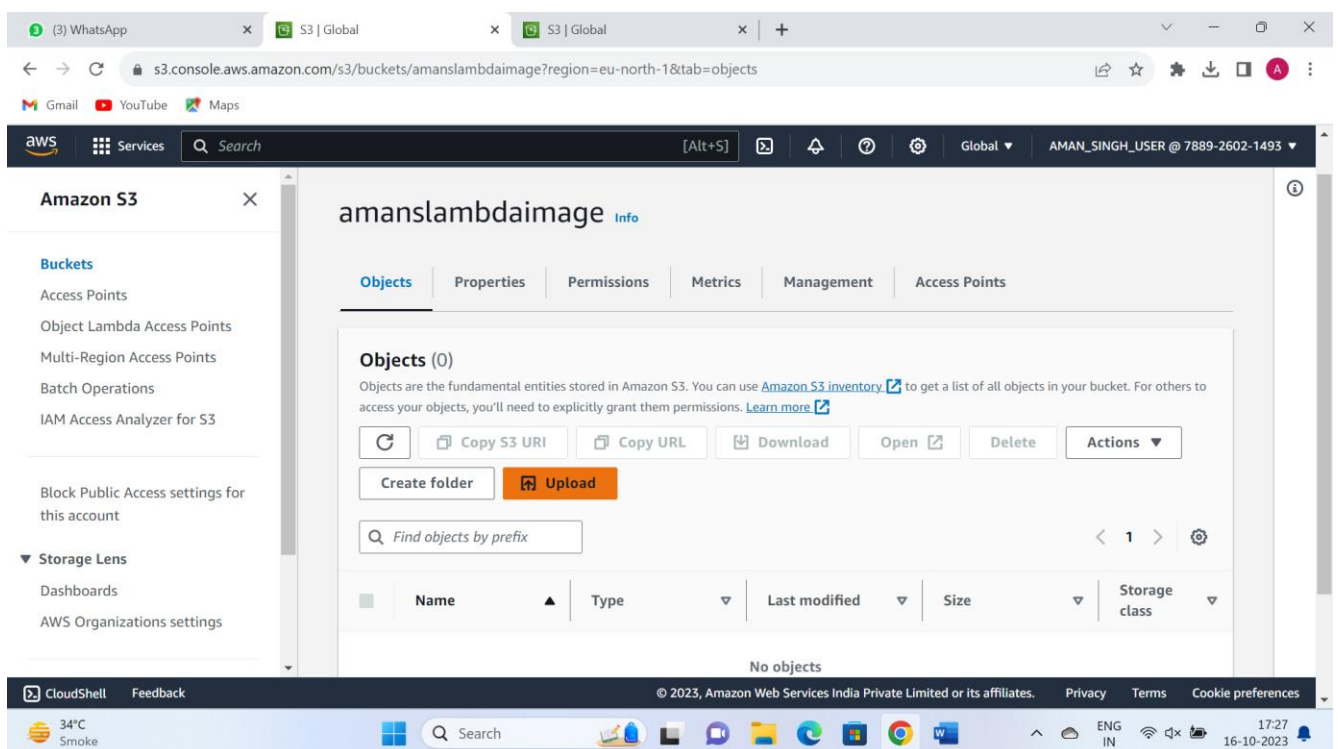
- Function overview**: A diagram showing the 'lambdafunc' function connected to an 'S3' bucket. The function has 'Layers (0)' and an 'Add destination' button.
- Function details**: A sidebar on the right containing the following information:
 - Description**: -
 - Last modified**: 13 minutes ago
 - Function ARN**: arn:aws:lambda:eu-north-1:788926021493:fu nction:lambdafunc
 - Function URL**: Info

The background shows the AWS console interface with the user 'AMAN_SINGH_USER @ 7889-2602-1493' and the region 'Stockholm'.

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Upload image in your bucket



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The screenshot shows the AWS S3 console interface. At the top, a green banner indicates "Upload succeeded" with a link to "View details below". Below this, a summary bar shows "1 file, 1.3 MB (100.00%)" and "0 files, 0 B (0%)". The "Files and folders" tab is selected, displaying a table with one file: "Screenshot (87).png", which is 1.3 MB in size and has a status of "Succeeded". The console also shows the AWS logo, search bar, and navigation menu. The bottom of the screen displays the Windows taskbar with the date 16-10-2023 and time 17:28.

Name	Folder	Type	Size	Status	Error
Screenshot (87).png	-	image/png	1.3 MB	Succeeded	-

Check for the trigger of lambda function

The screenshot shows the AWS Lambda console interface. The "Monitor" tab is selected, displaying "CloudWatch metrics". The metrics are filtered by "Function". The metrics shown are "Invocations", "Duration", and "Error count and success rate (%)". The "Invocations" metric shows a count of 2. The "Duration" metric shows a value of 1.52 milliseconds. The "Error count and success rate (%)" metric shows a count of 1 and a success rate of 99.5%. The console also shows the AWS logo, search bar, and navigation menu. The bottom of the screen displays the Windows taskbar with the date 16-10-2023 and time 17:31.

Metric	Value
Invocations	2
Duration	1.52
Error count and success rate (%)	1 (99.5%)

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The screenshot shows the AWS CloudWatch console for a log group named `group:/aws/lambda/lambdafunc:*`. The left sidebar contains navigation links for Dashboards, Alarms, Logs, Metrics, X-Ray traces, Events, Application monitoring, and Insights. The main content area displays the log group configuration, including creation time (4 minutes ago), retention (Never expire), and subscription filters (0). Below the configuration, the 'Log streams' tab is active, showing a single log stream with the name `2023/10/16/[$LATEST]2b992152ba7a4f4badd68554feb18...` and its last event time (2023-10-16 17:28:25 UTC+05:30).

The screenshot shows the AWS CloudWatch console for a specific log stream. The breadcrumb navigation indicates the path: `CloudWatch > Log groups > /aws/lambda/lambdafunc > 2023/10/16/[$LATEST]2b992152ba7a4f4badd68554feb18e1c`. The 'Log events' section is active, displaying a table of log events. The table has two columns: 'Timestamp' and 'Message'. The events are as follows:

Timestamp	Message
2023-10-16T17:28:24.956+05:30	INIT_START Runtime Version: python:3.11.v14 Runtime Version ARN: arn:aws:lambda:eu-nor...
2023-10-16T17:28:25.052+05:30	START RequestId: 9a110e8f-4385-441b-b016-c85e270490b0 Version: \$LATEST
2023-10-16T17:28:25.052+05:30	Image has been Uploaded
2023-10-16T17:28:25.053+05:30	END RequestId: 9a110e8f-4385-441b-b016-c85e270490b0

The 'Image has been Uploaded' message is highlighted in blue. A 'Copy' button is visible next to the last event. The bottom of the console shows the footer with copyright information and links to Privacy, Terms, and Cookie preferences.

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Conclusion: We have successfully created a lambda functions that gets trigger when an image is added in S3 bucket.