AWS-Cloud-Cost-Optimization

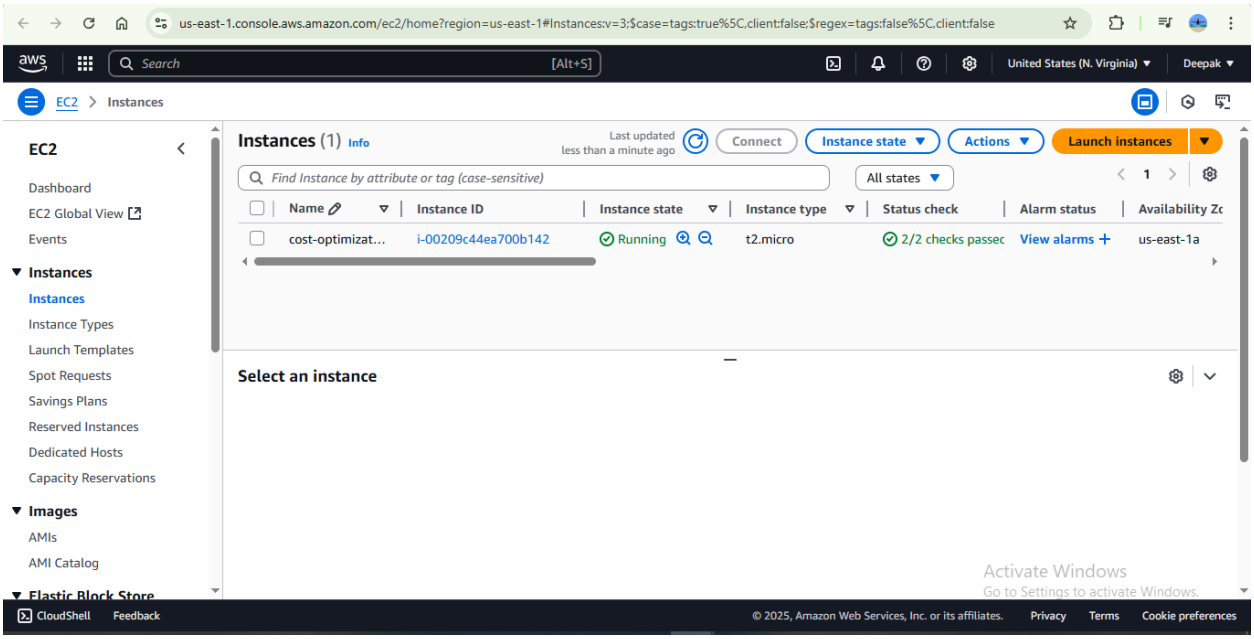
The "Why" of Cloud Migration and the Need for Cost

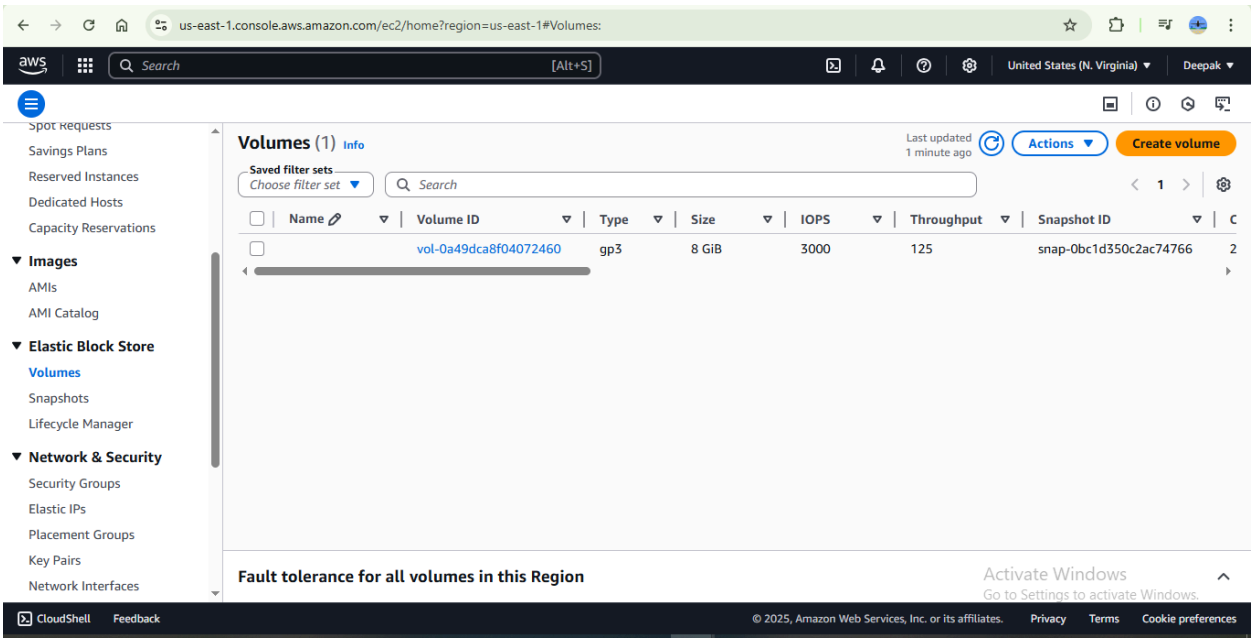
- **Primary Reasons for Cloud Adoption:** Organizations primarily move to the cloud for two reasons:

1. "to reduce the overhead of the infrastructure" (e.g., setting up and maintaining data centers, purchasing servers, managing IT teams).
2. "to optimize their Cloud cost."

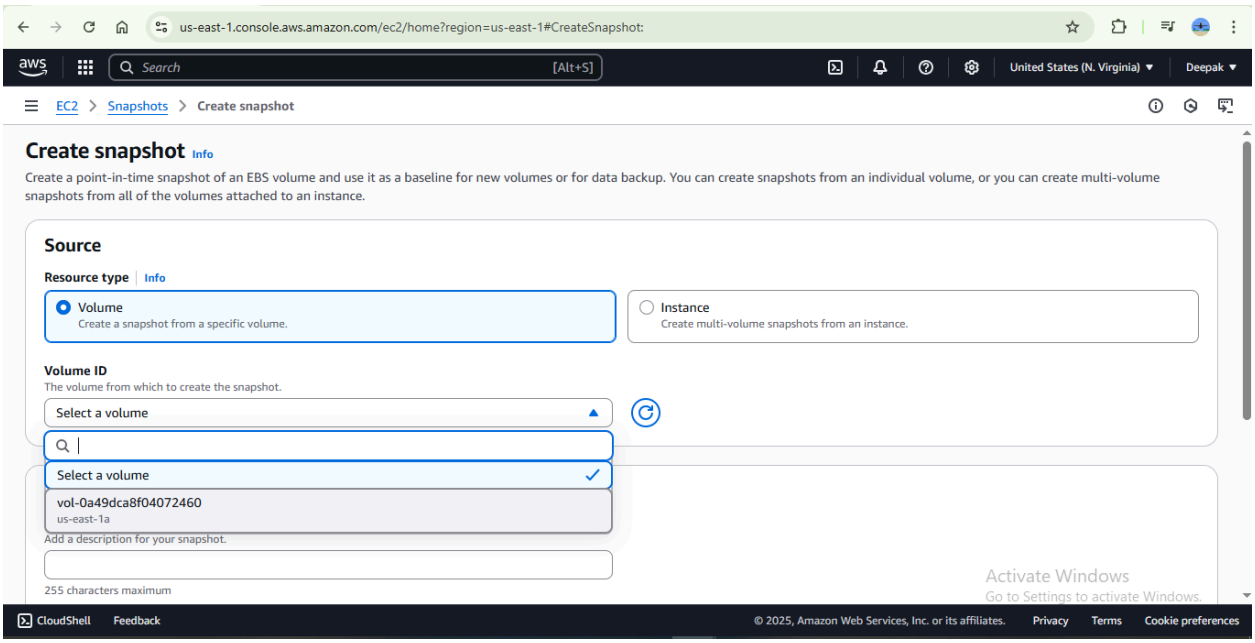
- **On-Premises Challenges:** For startups and mid-scale organizations, establishing and maintaining an on-premises data center involves significant upfront costs (servers, infrastructure) and ongoing operational expenses (team salaries, monitoring). This makes cloud platforms like AWS an "easy gold go to solution."
- **Cloud Efficiency is Key to Cost Reduction:** Simply migrating to the cloud does not automatically guarantee cost savings. "the cloud cost will go down only if you are doing this efficiently." Inefficient use can lead to higher-than-expected cloud costs.

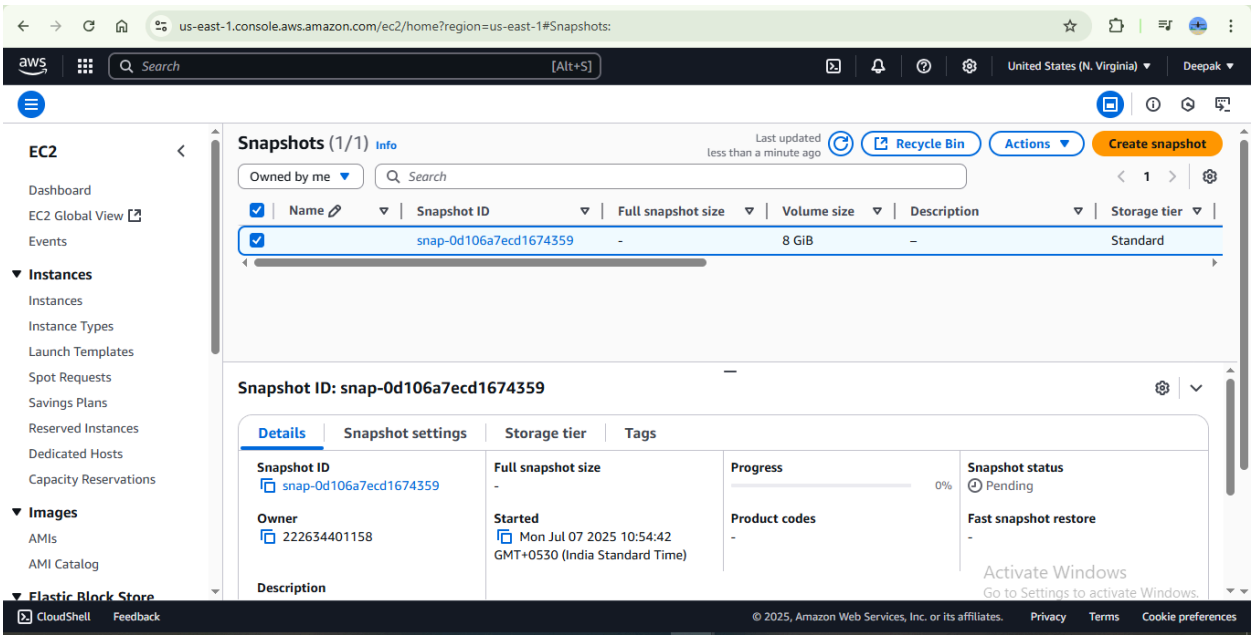
Take a general instance with t2.micro, a volume which comes by default with it.





Creating a snapshot

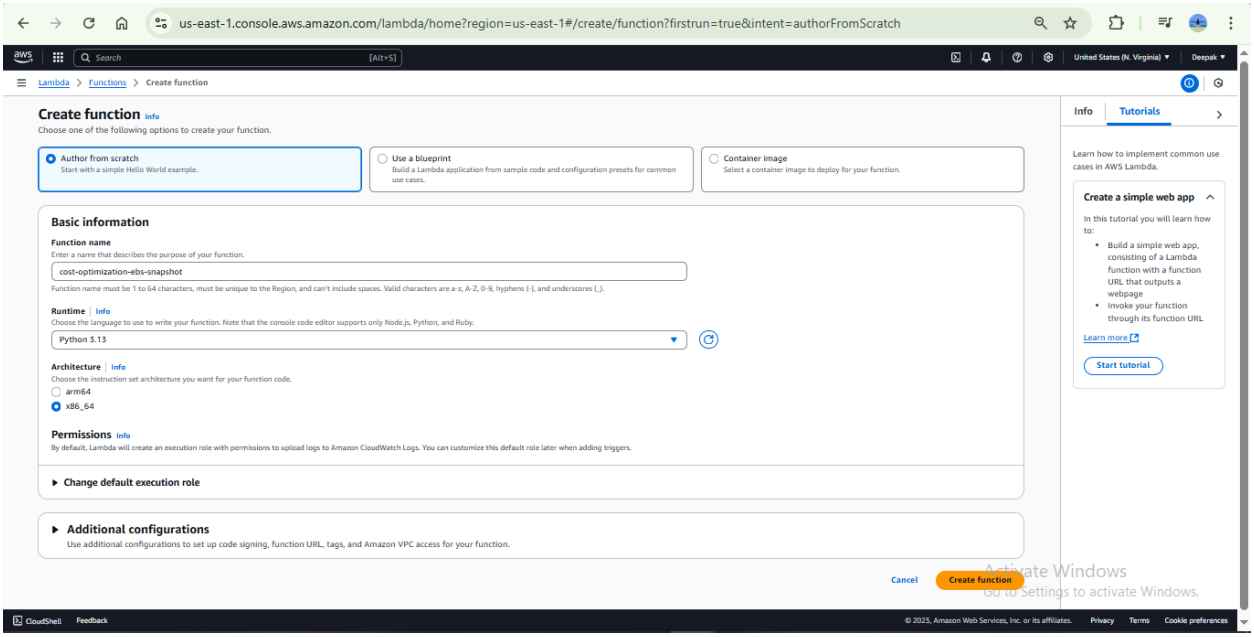


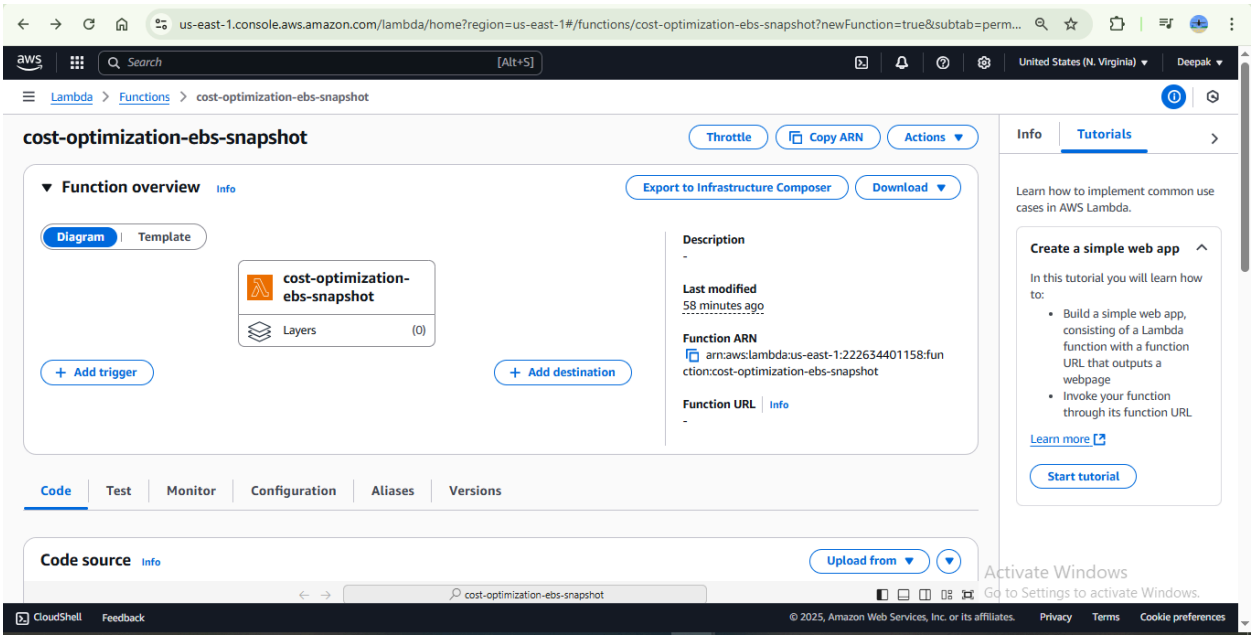


Now let's suppose as a DevOps Engineer, there is a need to delete the instance, volume, and snapshots, but we deleted the instance, automatically the volume got deleted, but the snapshot

stayed back!! For such cases we will use lambda function, We are going to write a lambda function that will help us to do this activity.

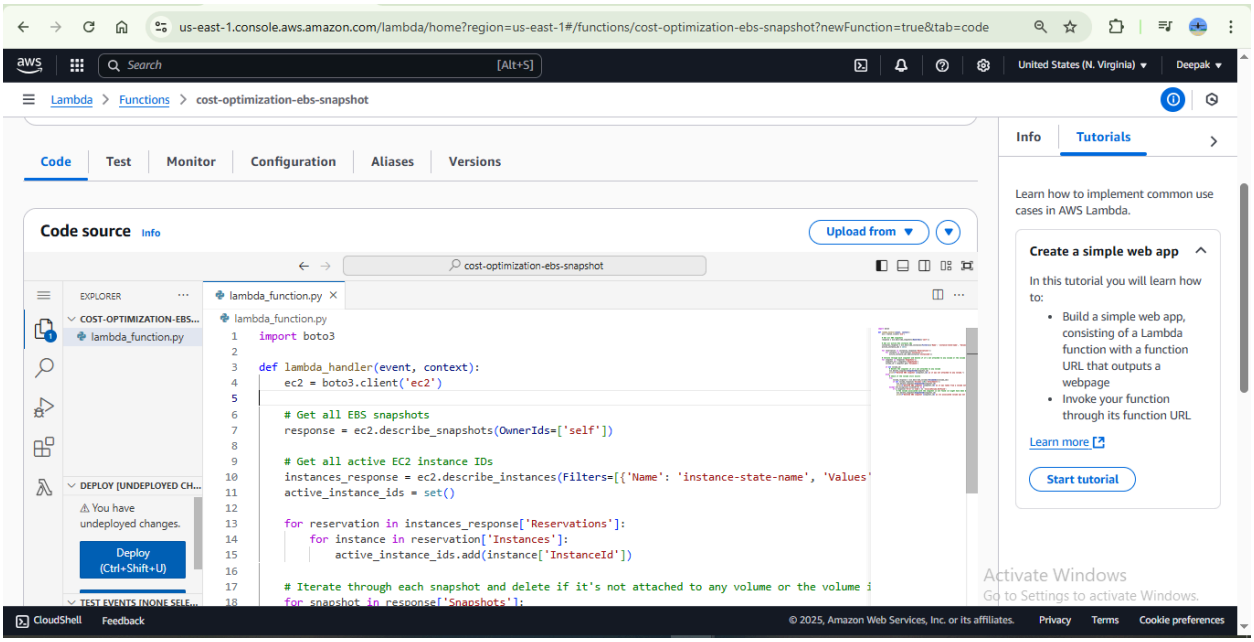
We are taking Python as a runtime and creating it with default permissions, to understand certain things.



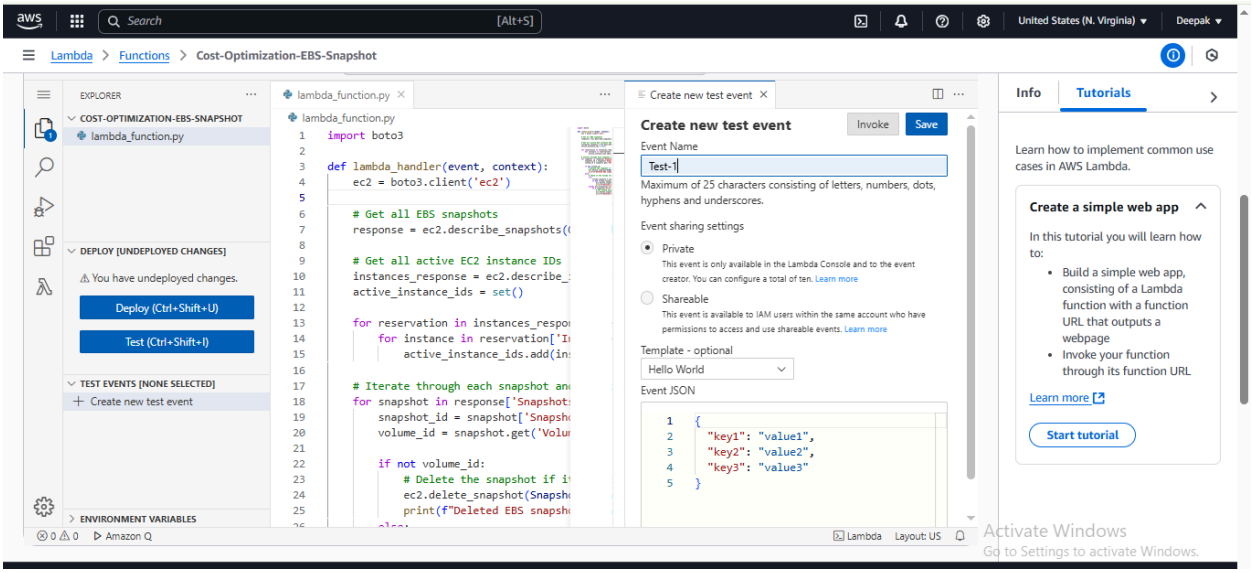


Taking the code from the Abhishek Anna github → https://github.com/iam-veeramalla/aws-devops-zero-to-hero/blob/main/day-18/ebs_stale_snapshosts.py

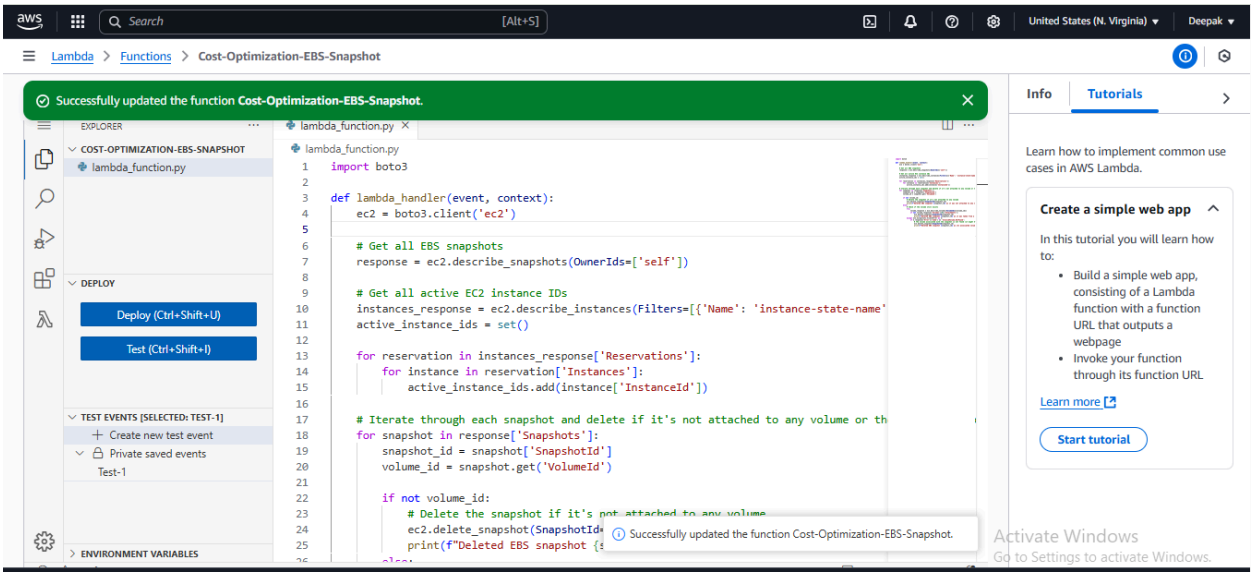
Paste it into the code source



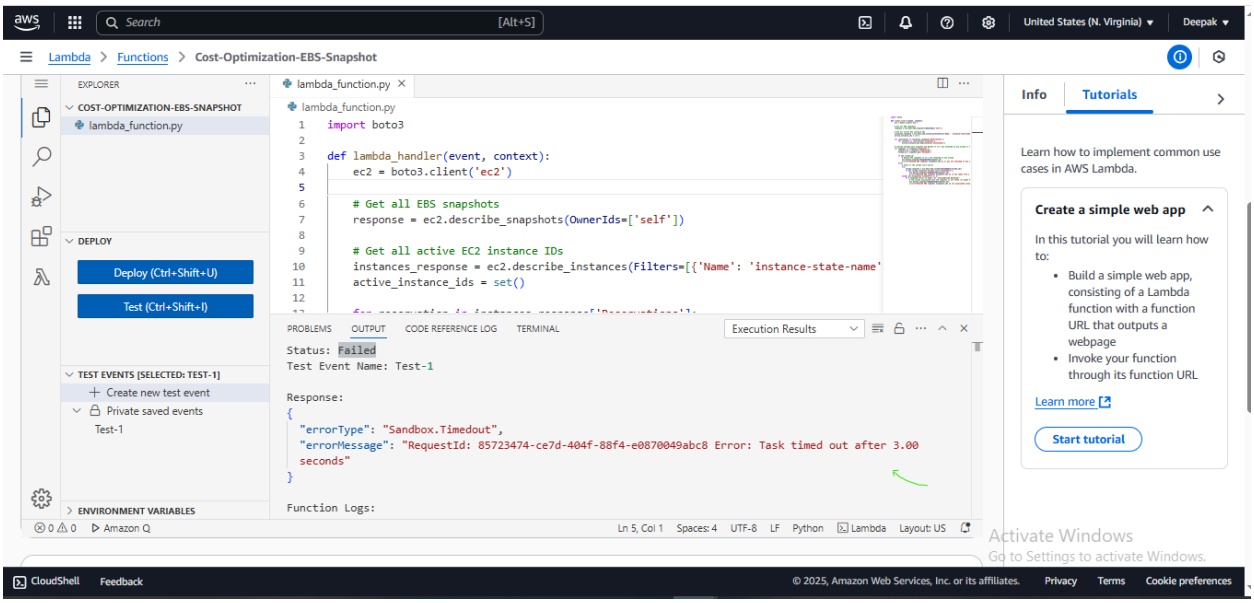
Then create a test event, in the test Template-Optional, you can choose the default one.



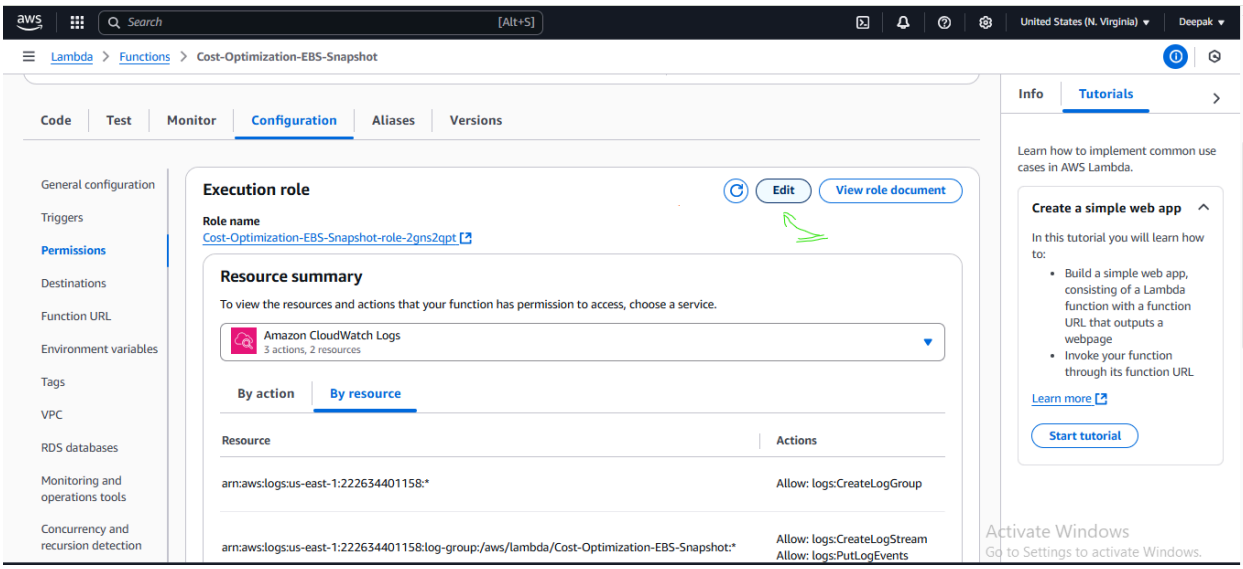
Click on Deploy and then test,

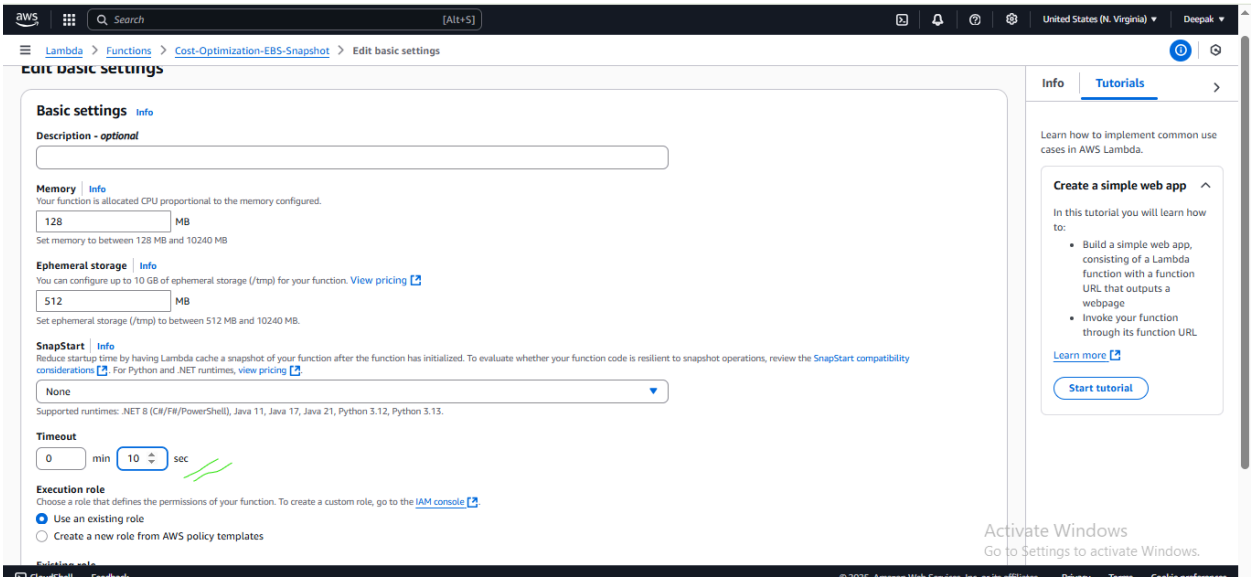


And when clicked test, it given us an error; It gave us an error because of timeout

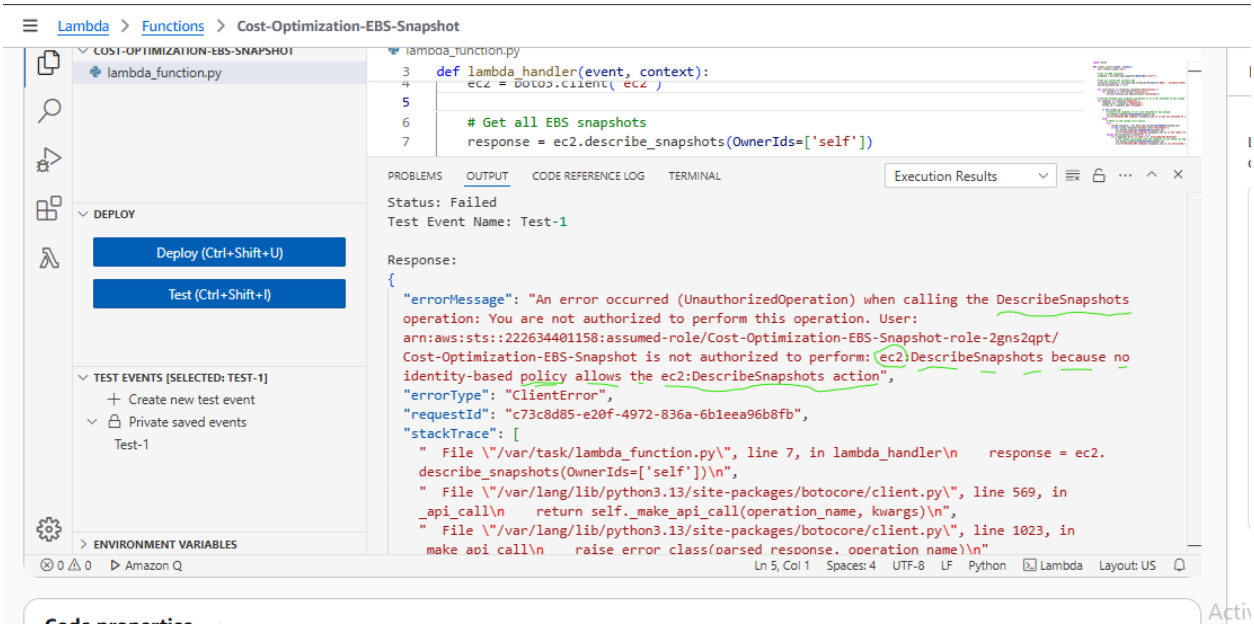


Now lets strecth the time by going to the configuration and then edit and then change it to 10s and then save it...

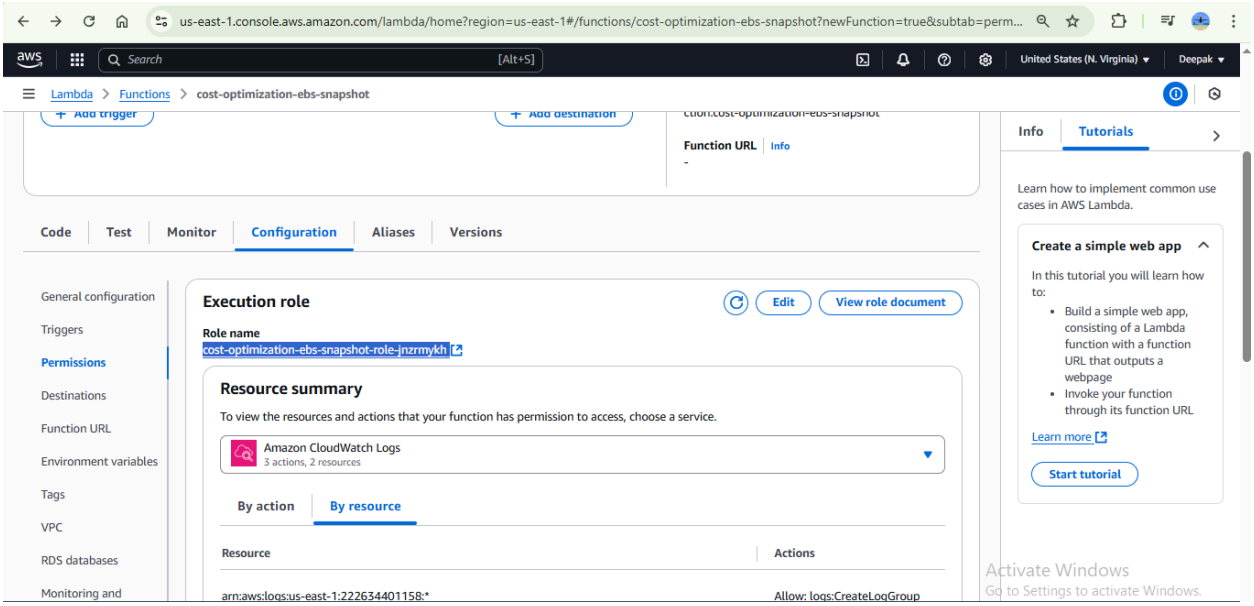




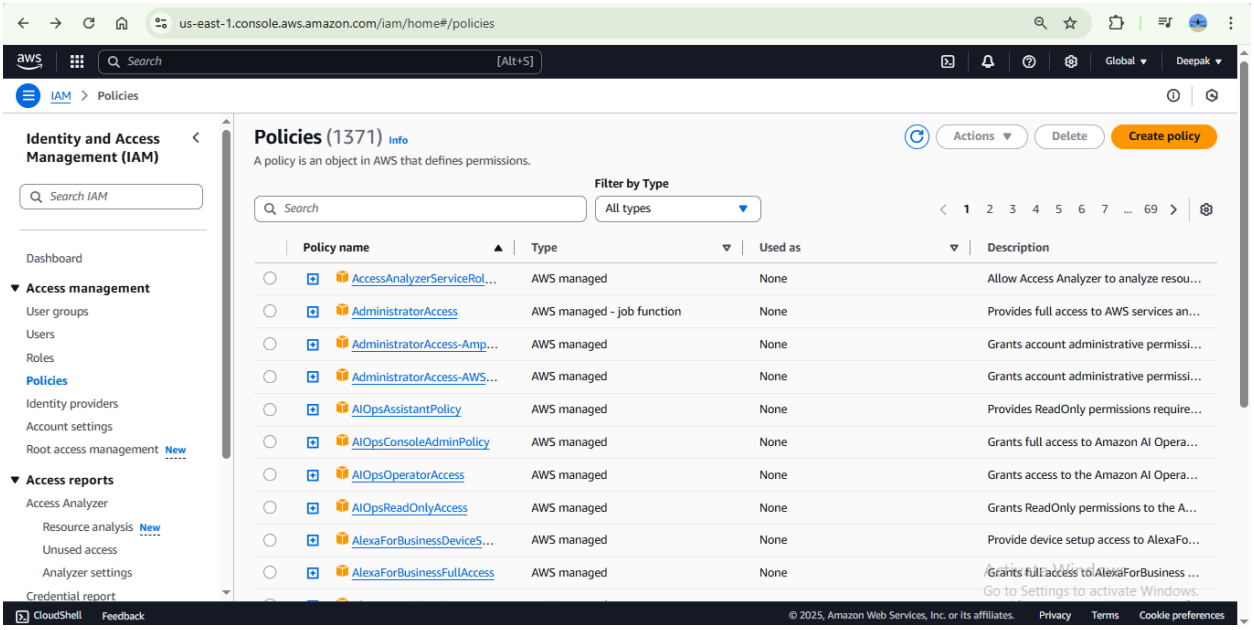
We got again an error because we didn't set permissions



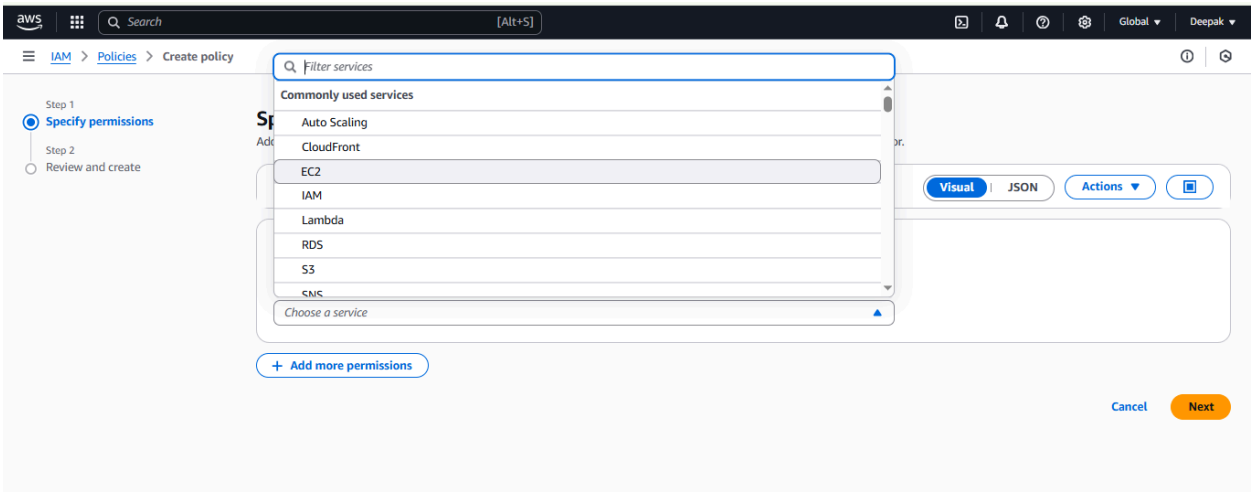
We need to grant permissions, to grant the permissions, we need to know what role is executing these lambda functions.
Go to the configuration → permissions → open the Role link



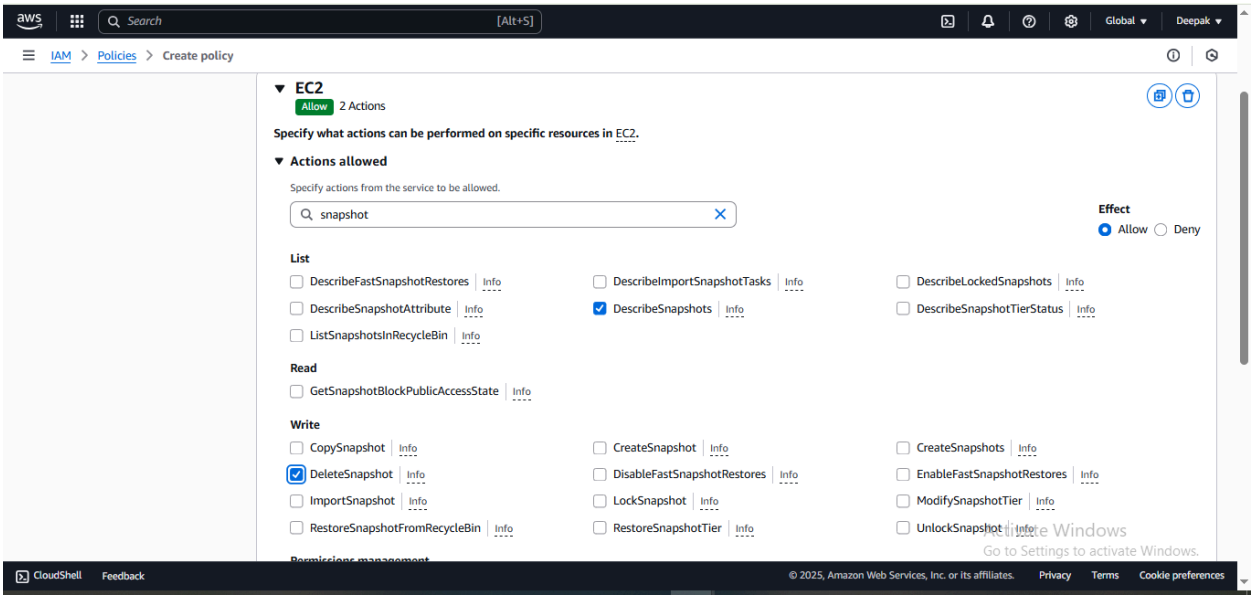
creating a policy

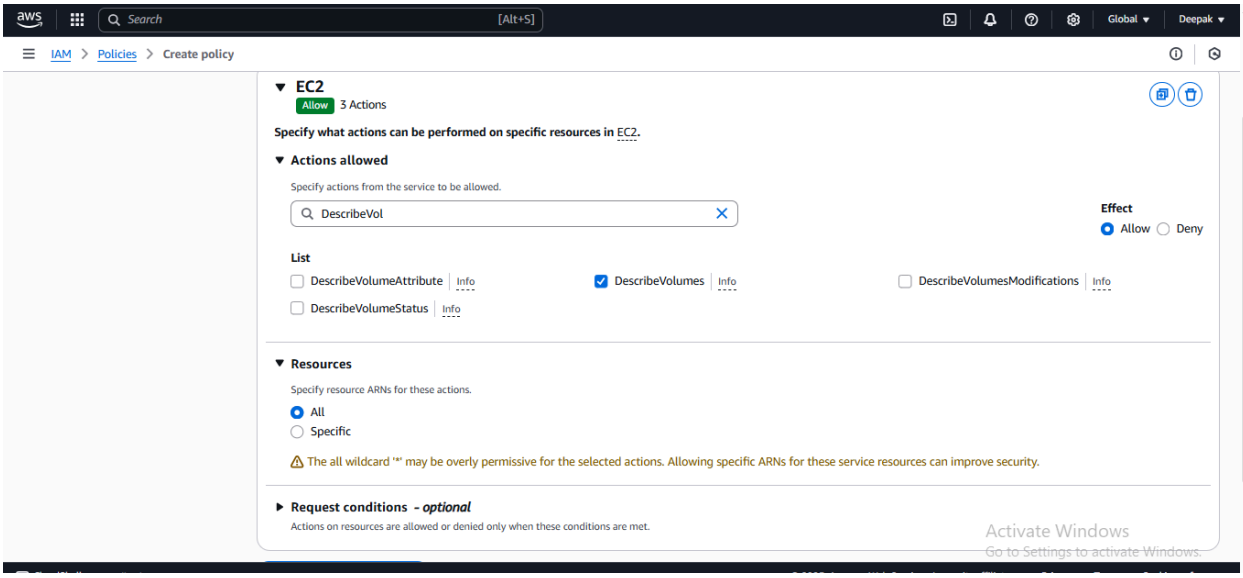


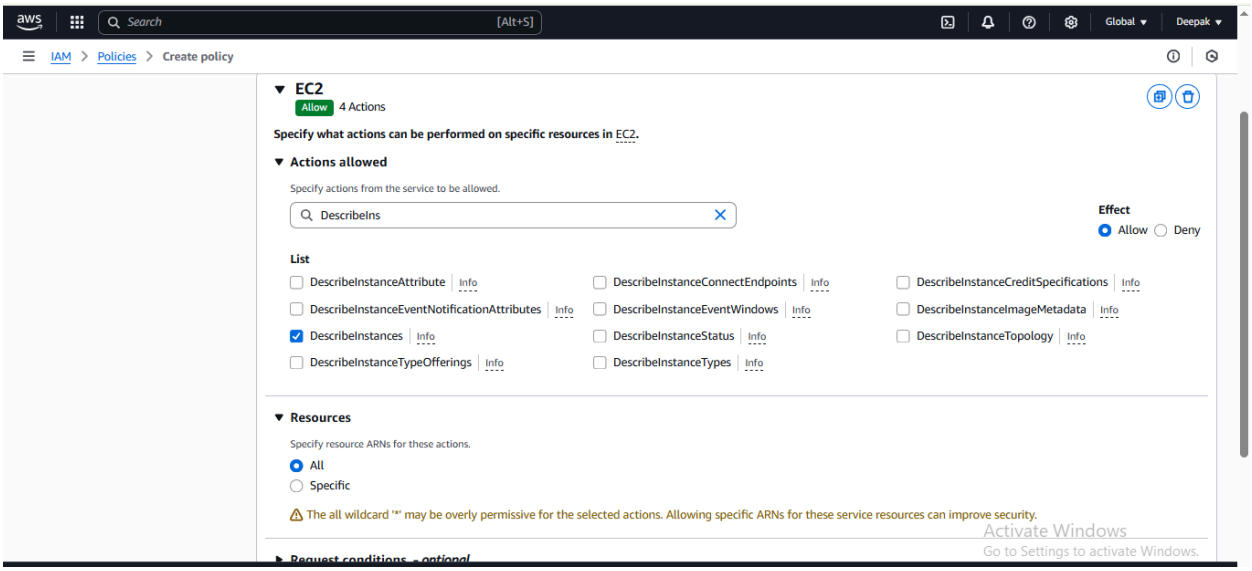
Choose Ec2 then



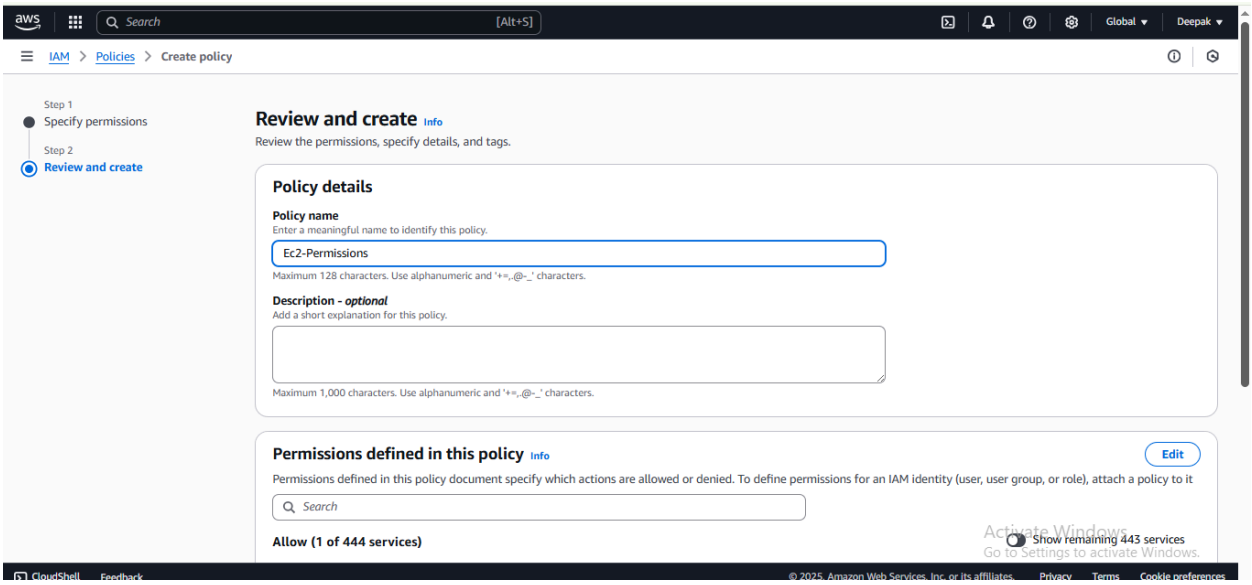
Give permission for snapshot, volumes, instance



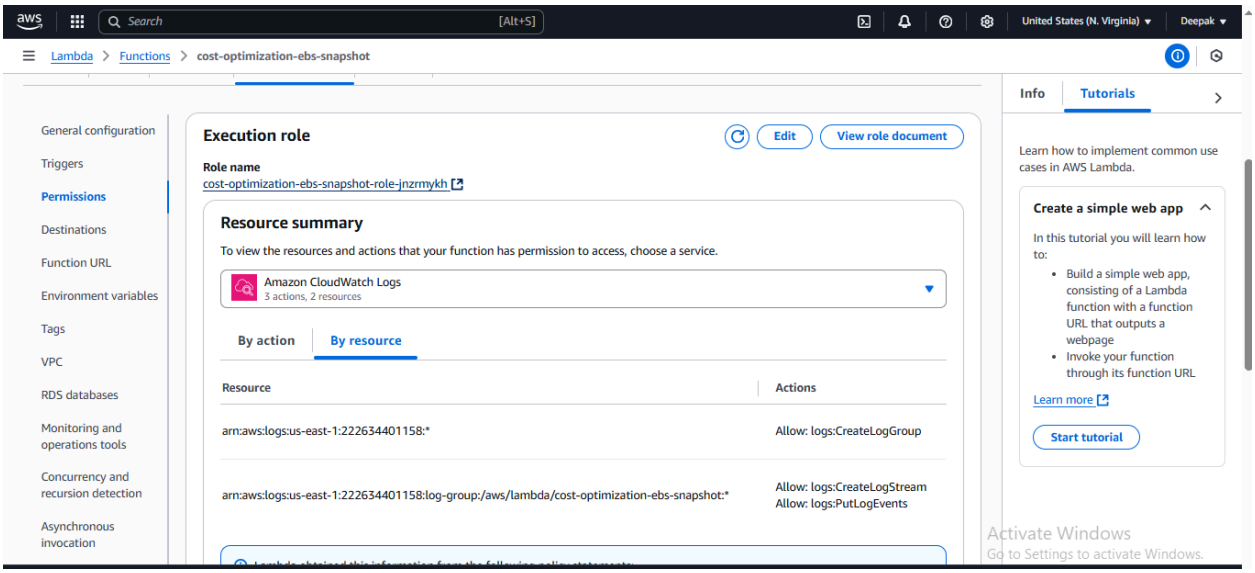


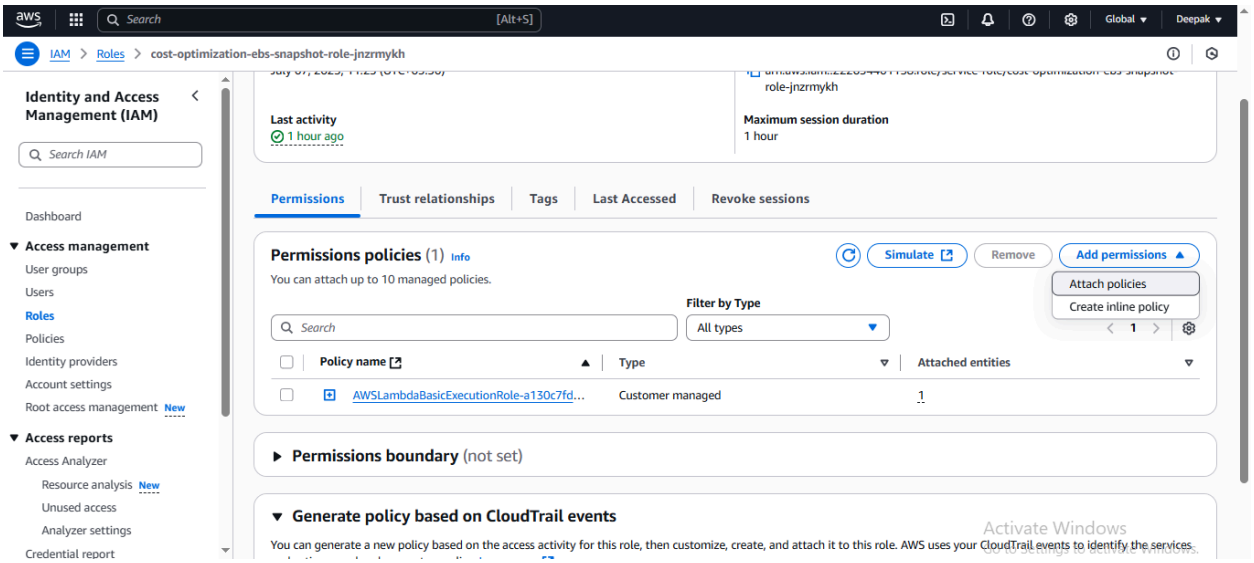


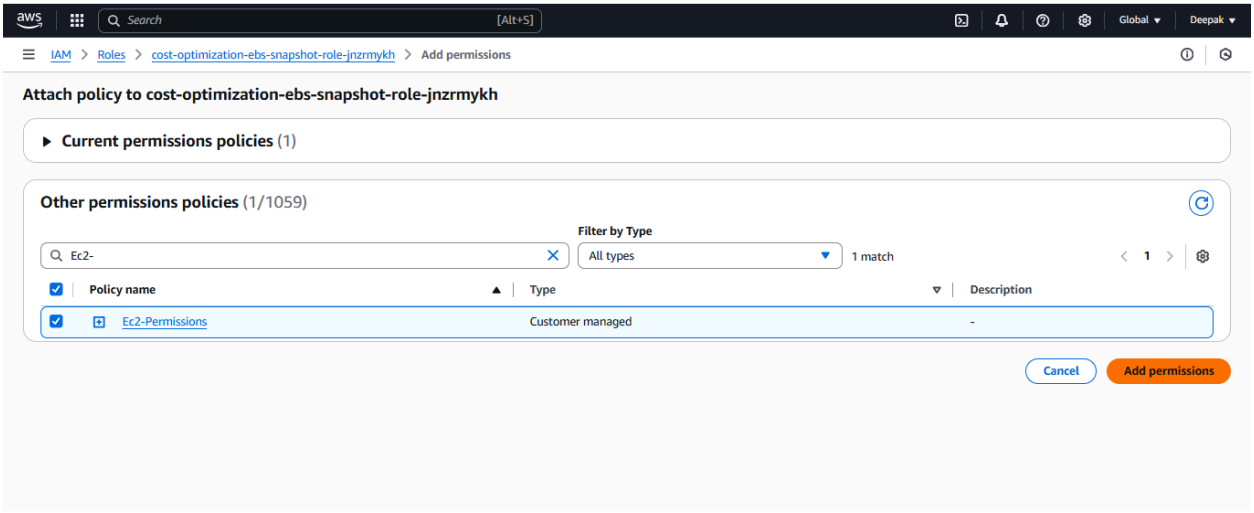
create permission



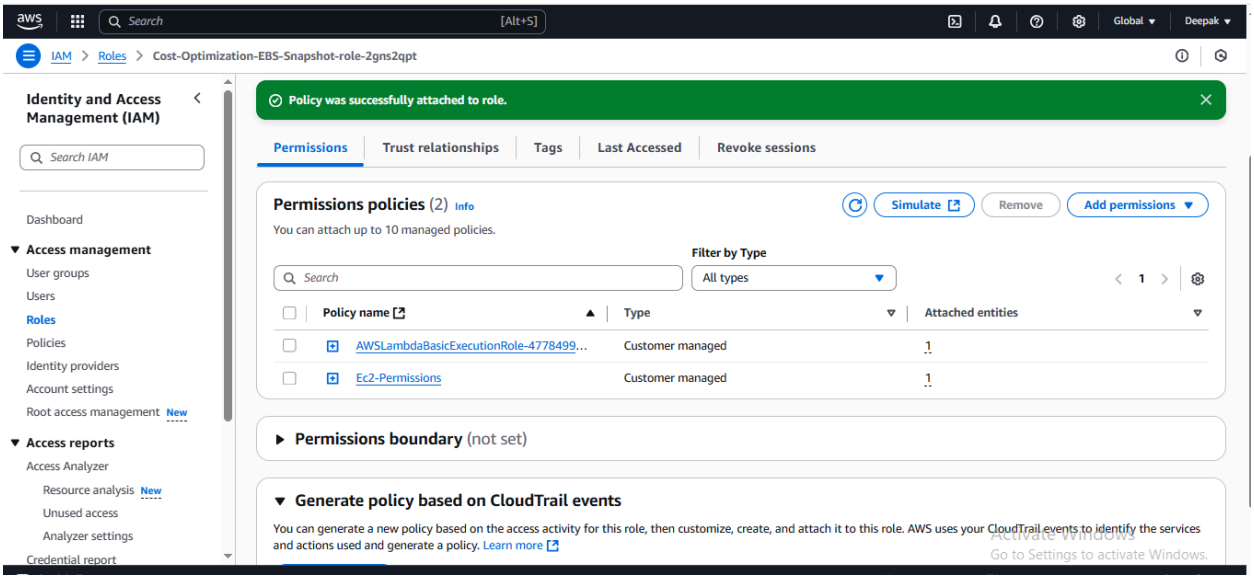
Now, again, going to the Role name link and attaching the policy that we created



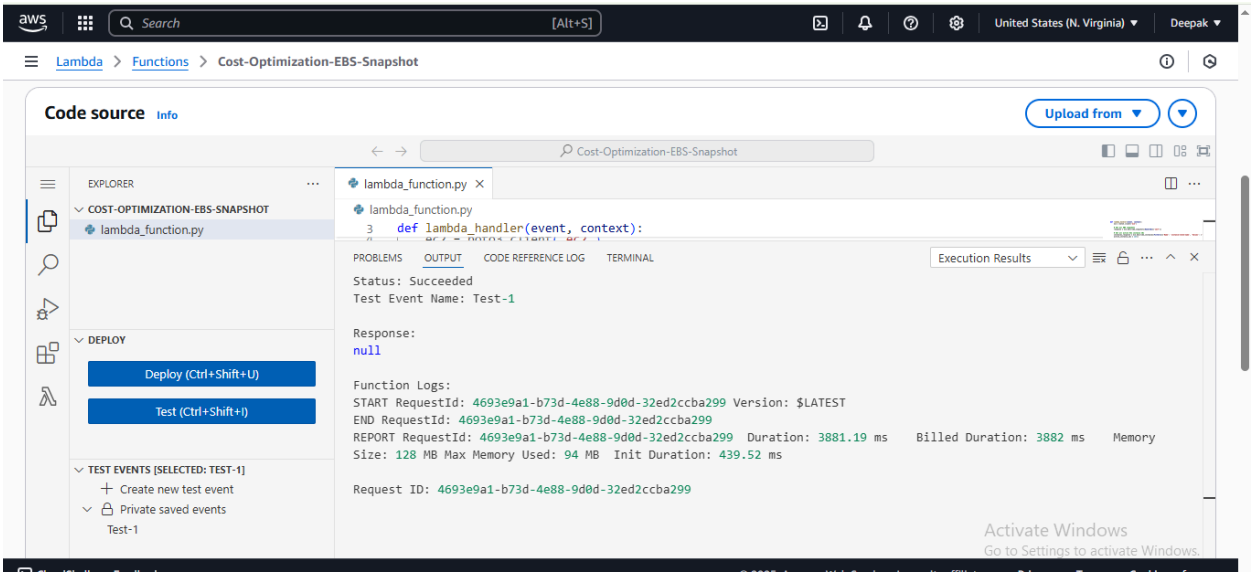


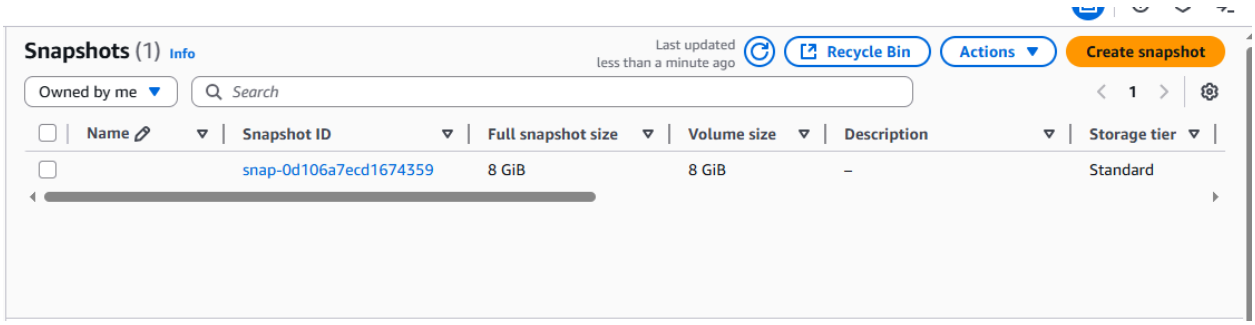


Policies Attached!!



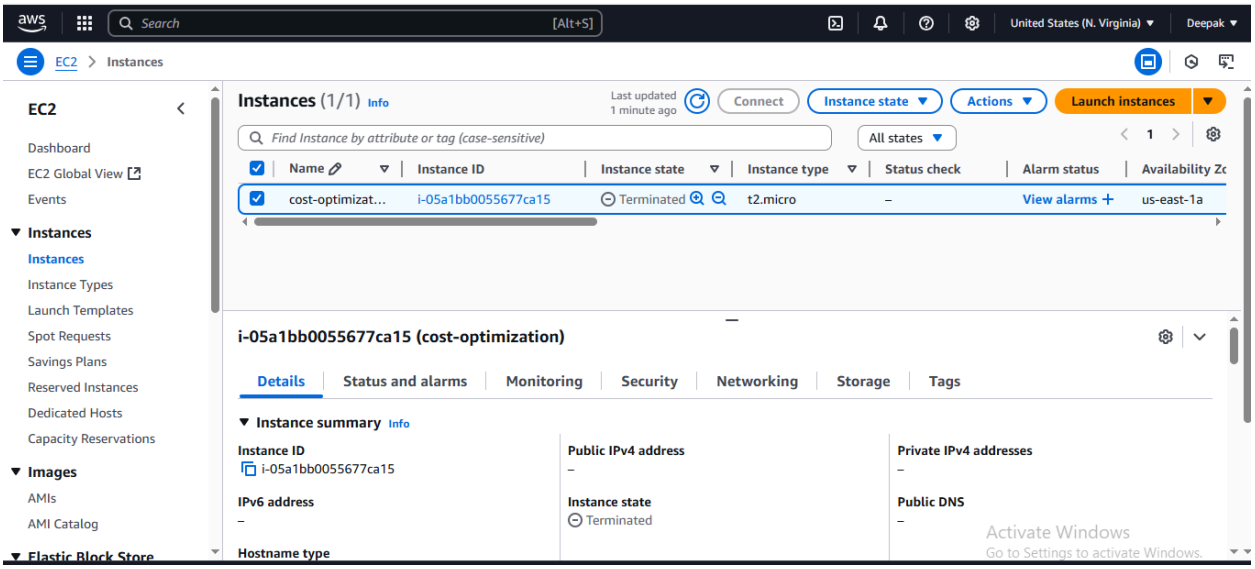
After executing it, you will see that it has succeeded, but the snapshot is not deleted because we wrote the Python function to delete it if it's not attached to any volume or the volume is not attached to a running instance



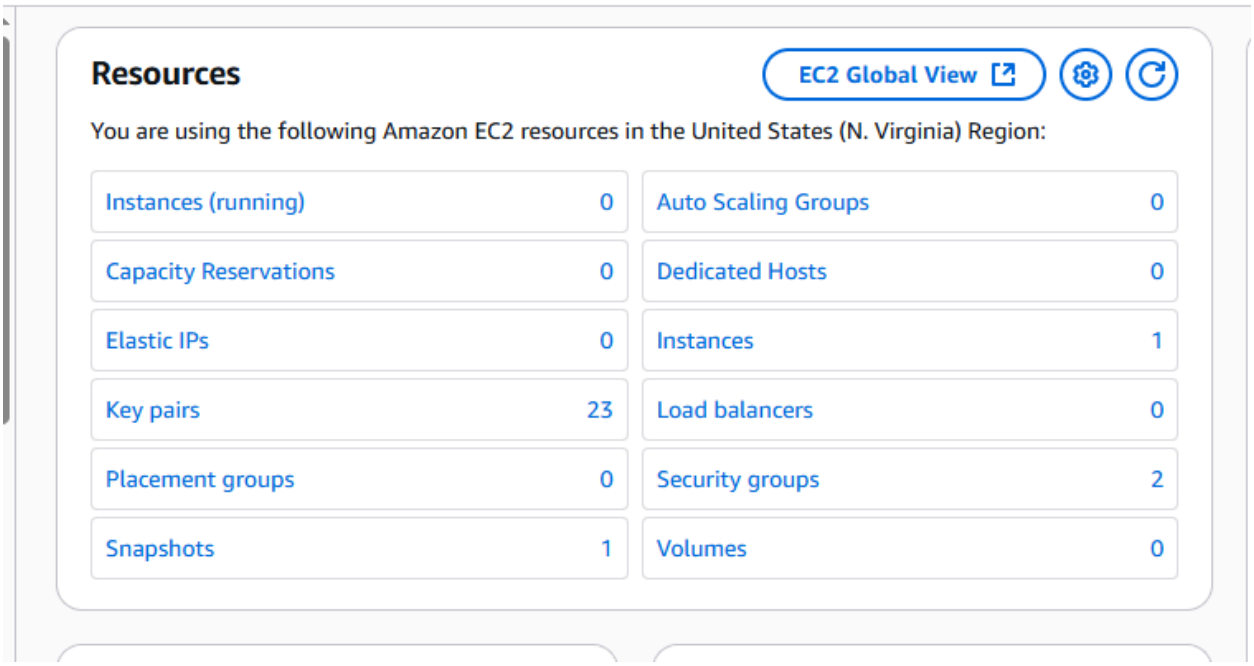


Now, after deleting the instance, the volume will eventually be deleted, and then we will execute the lambda function, which will delete the snapshot when executed, cause there is no instance and volume attached.

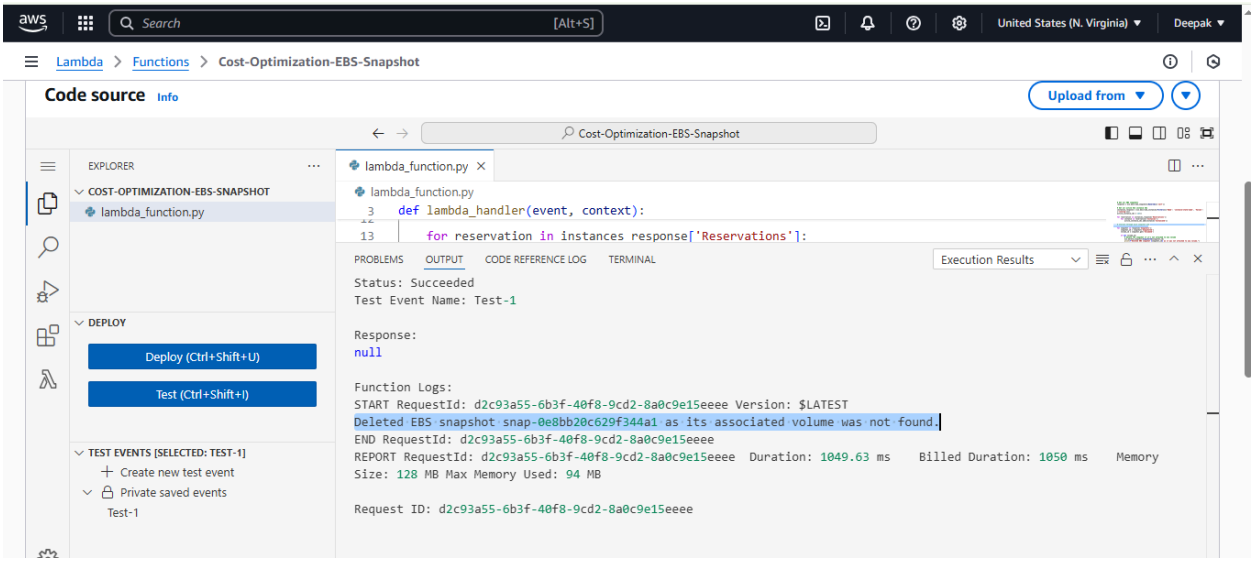
Deleted the instances, volume!!

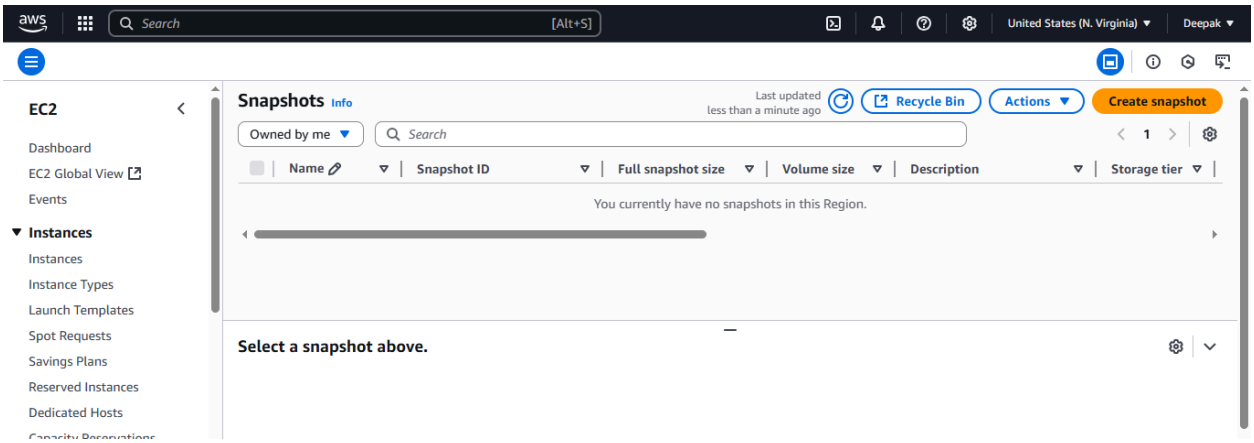


We can see only Snapshots as 1 here;

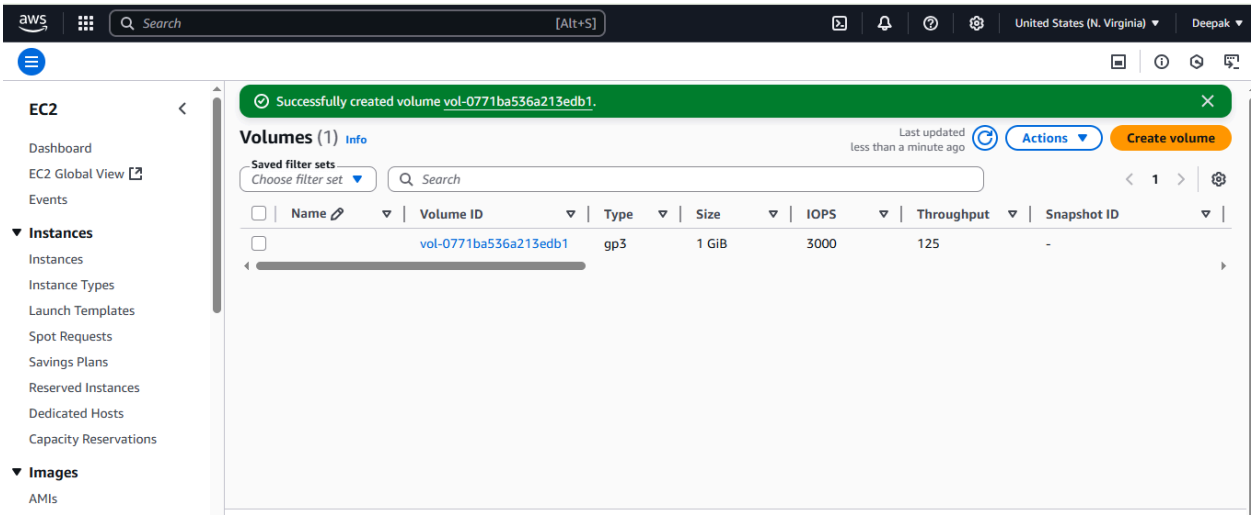


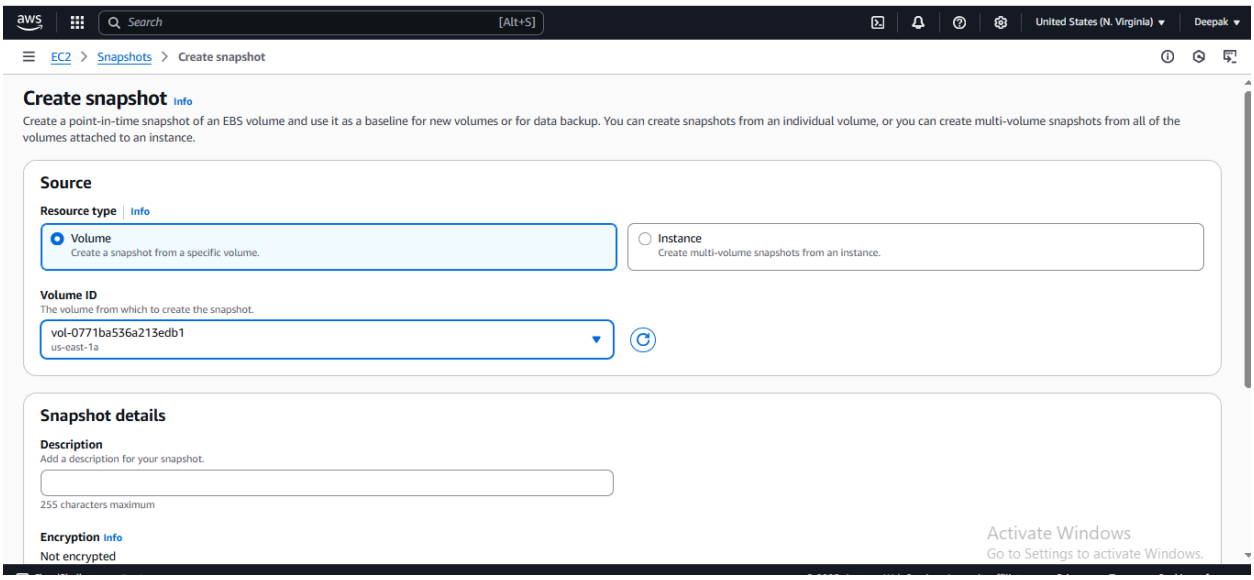
After executing the lambda function, we can see in the output that snapshot is deleted as no volume is associated.

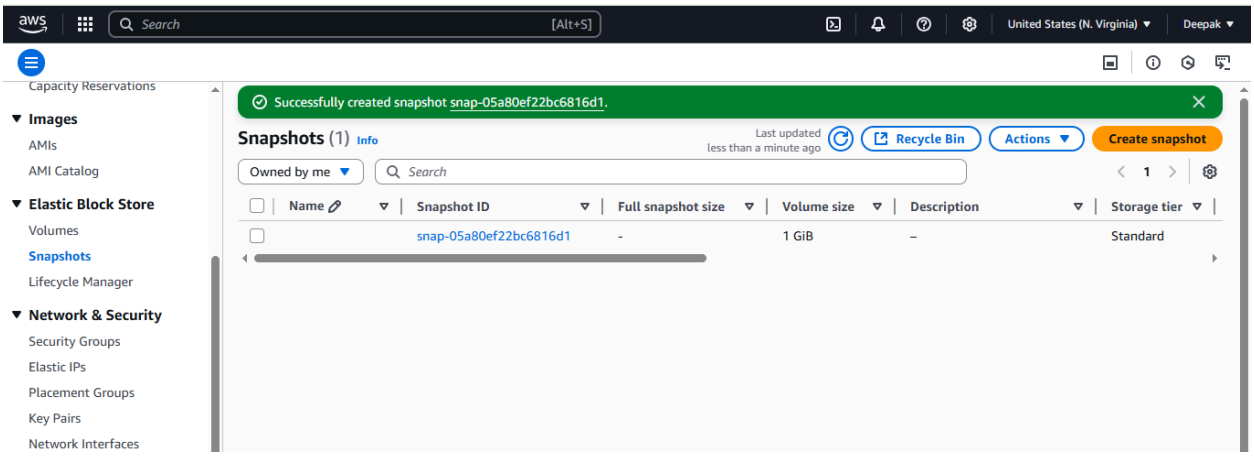


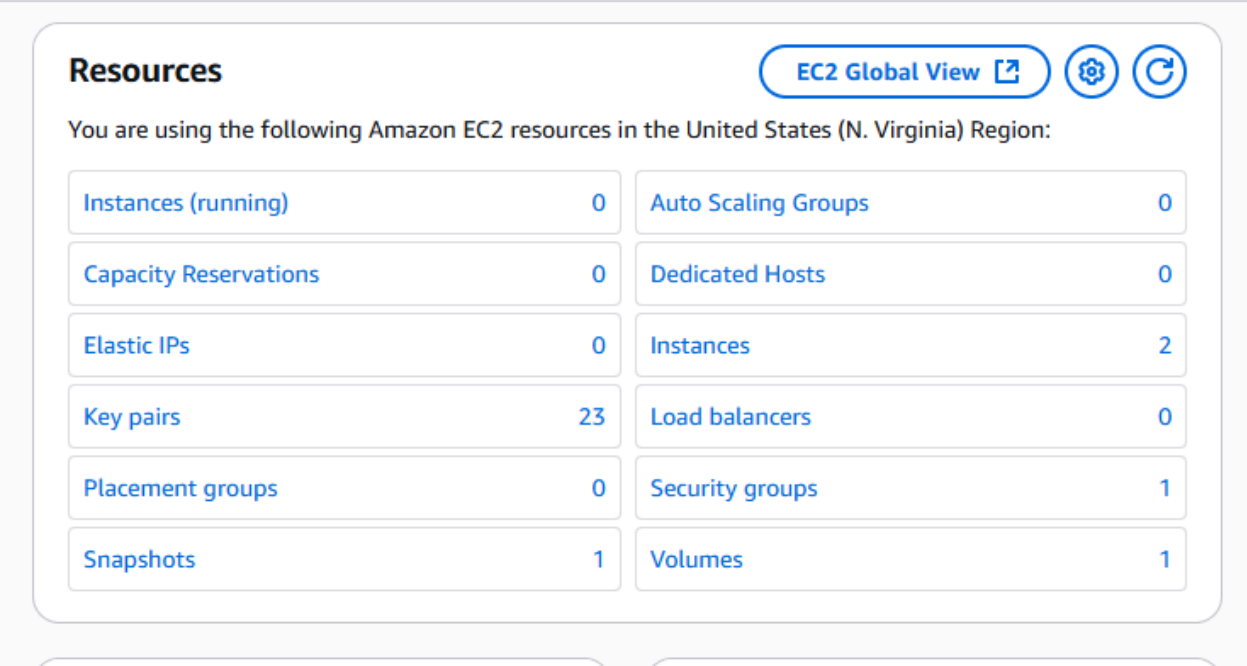


Example- creating a volume and snapshot to see how the lambda functions will behave;

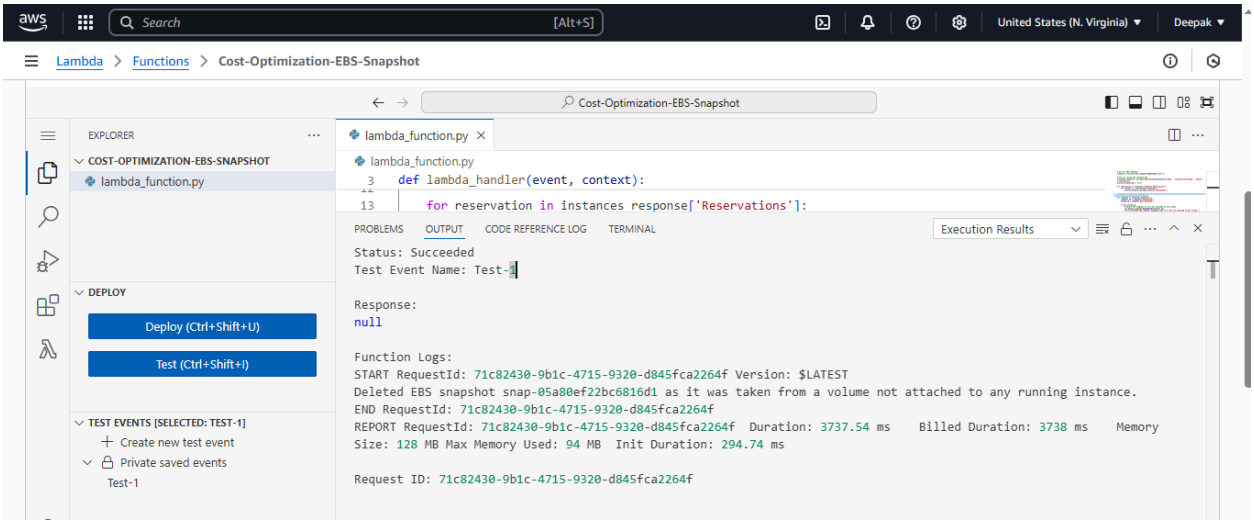



Search
[Alt+S]
United States (N. Virginia)
Deepak
EC2 > Snapshots > Create snapshot
Create snapshot Info
Create a point-in-time snapshot of an EBS volume and use it as a baseline for new volumes or for data backup. You can create snapshots from an individual volume, or you can create multi-volume snapshots from all of the volumes attached to an instance.
Source
Resource type Info
Volume
Create a snapshot from a specific volume.
Instance
Create multi-volume snapshots from an instance.
Volume ID
The volume from which to create the snapshot.
vol-0771ba536a213edb1
us-east-1a
Snapshot details
Description
Add a description for your snapshot.
255 characters maximum
Encryption Info
Not encrypted
Activate Windows
Go to Settings to activate Windows.

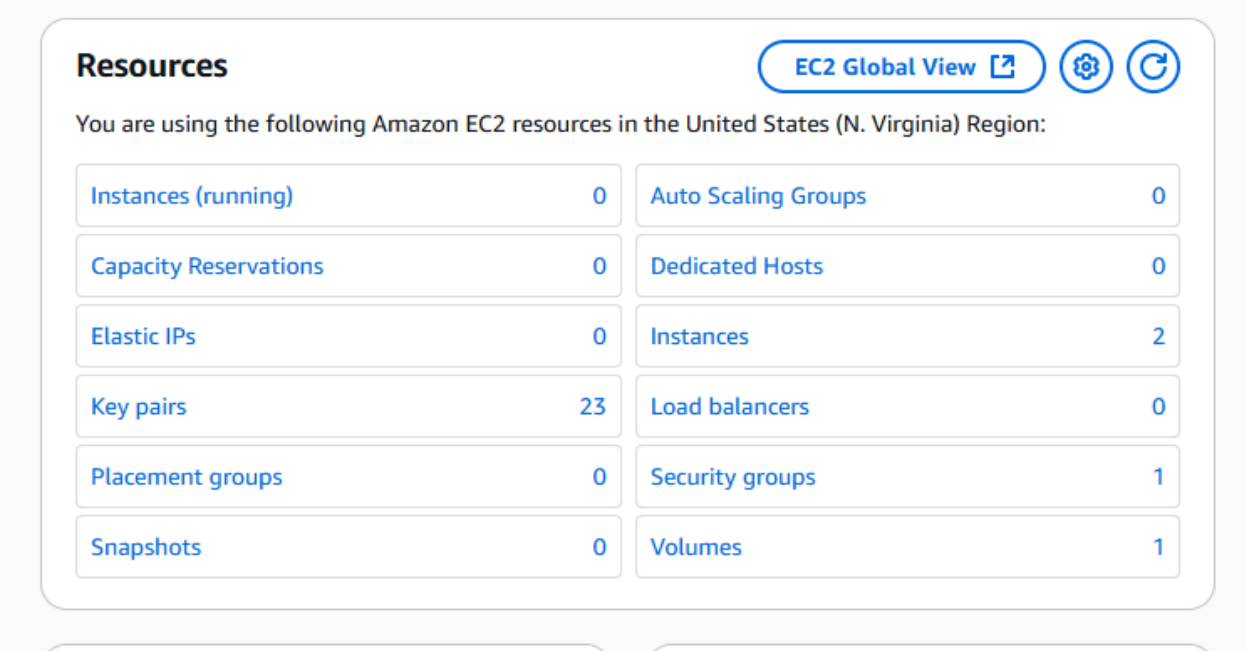

Search
[Alt+S]
United States (N. Virginia)
Deepak
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
Successfully created snapshot snap-05a80ef22bc6816d1.
Snapshots (1) Info
Last updated
less than a minute ago
Recycle Bin
Actions
Create snapshot
Owned by me
Search
1
Name
Snapshot ID
Full snapshot size
Volume size
Description
Storage tier
snap-05a80ef22bc6816d1
-
1 GiB
–
Standard



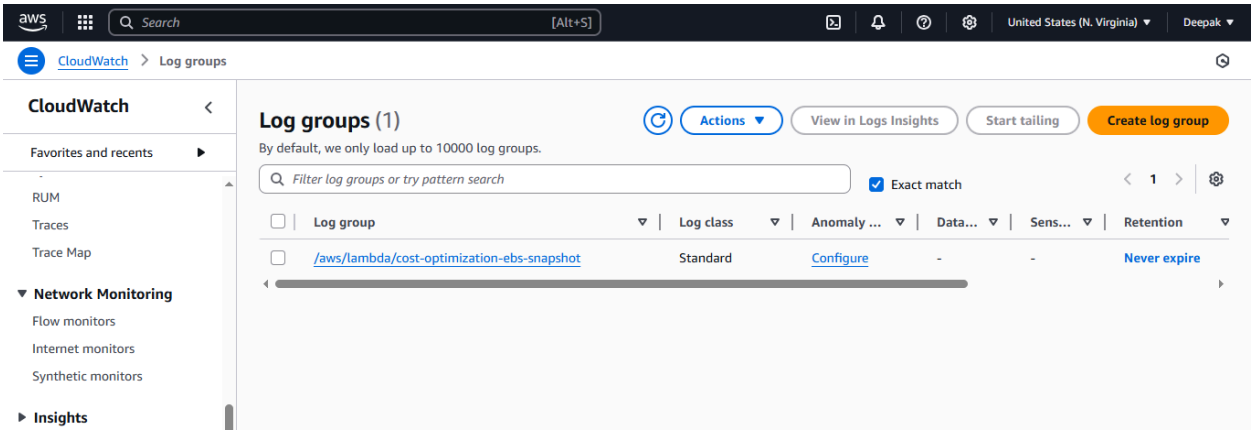
Executing the code;

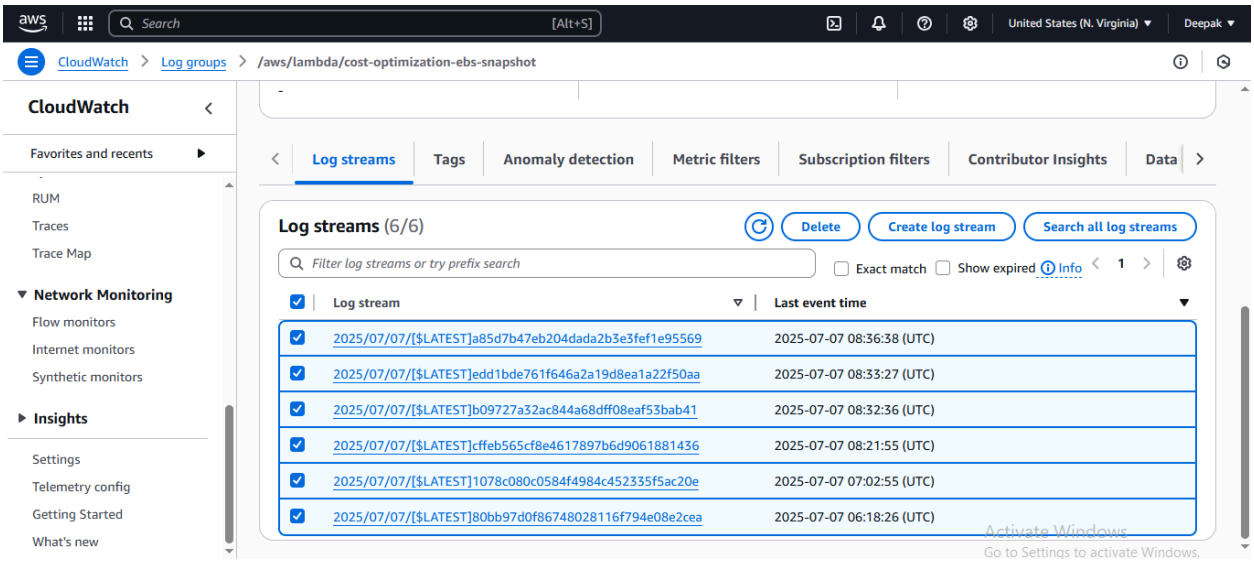


And it has deleted the snapshot, because we have written the function as delete if it's not attached to any volume or the volume is not attached to a running instance, *and here the volume is not attached to any instance.*



Deleting the logs from Cloud Watch




aws
Search
[Alt+S]
United States (N. Virginia)
Deepak
CloudWatch
Log groups
/aws/lambda/cost-optimization-ebs-snapshot
CloudWatch
Favorites and recents
RUM
Traces
Trace Map
Network Monitoring
Flow monitors
Internet monitors
Synthetic monitors
Insights
Settings
Telemetry config
Getting Started
What's new
Log streams
Tags
Anomaly detection
Metric filters
Subscription filters
Contributor Insights
Data
Log streams (6/6)
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
2025/07/07/[$LATEST]a85d7b47eb204dada2b3e3fef1e95569
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2025-07-07 08:21:55 (UTC)
2025/07/07/[$LATEST]1078c080c0584f4984c452335f5ac20e
2025-07-07 07:02:55 (UTC)
2025/07/07/[$LATEST]80bb97d0f86748028116f794e08e2cea
2025-07-07 06:18:26 (UTC)
Activate Windows
Go to Settings to activate Windows.