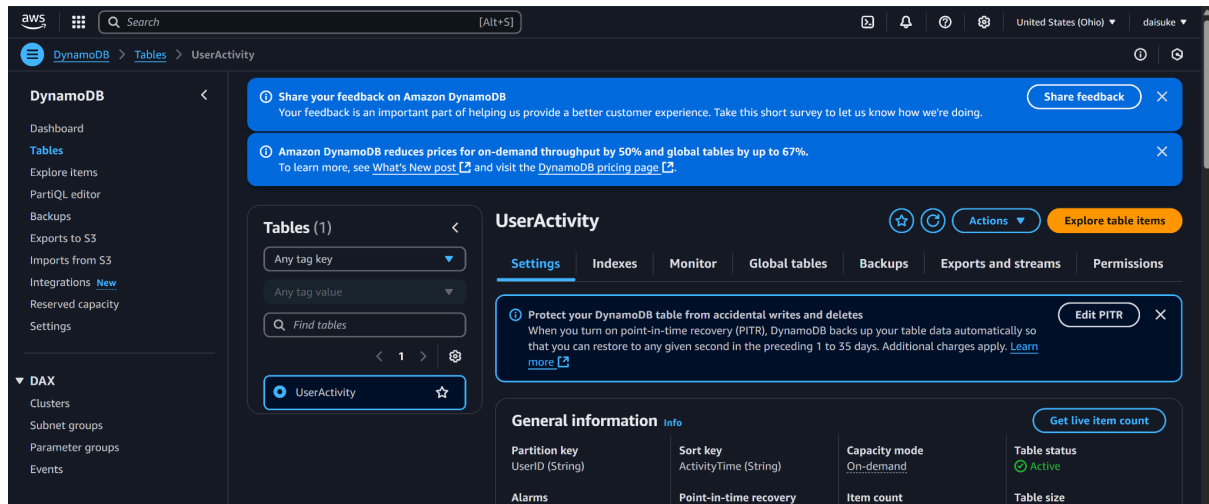
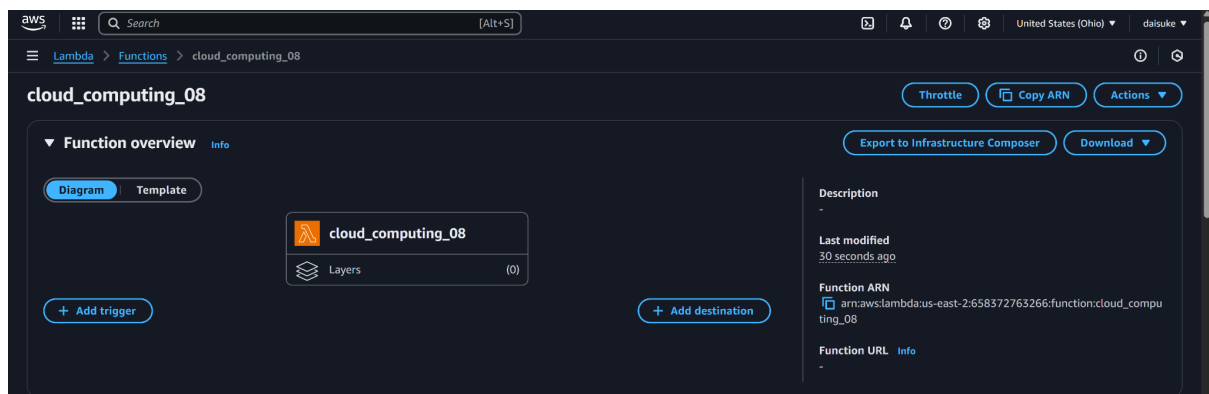


Task 1

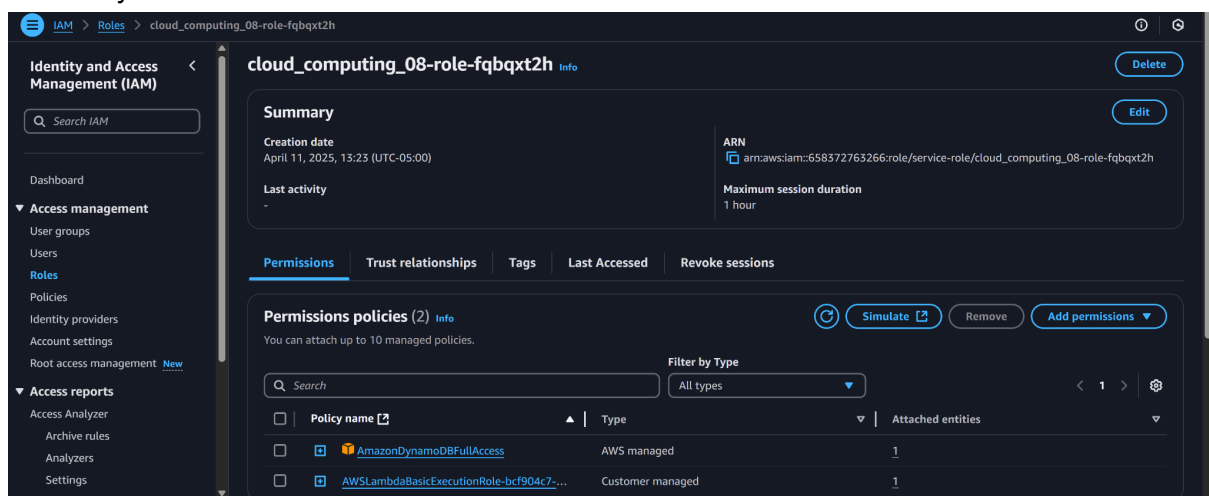
- DynamoDB created



- Lambda created



- dynamodb full access attached to Lambda IAM Role



- source code implemented to insert / fetch data into/from DynamoDB

The screenshot shows the AWS Lambda console for the function 'cloud_computing_08'. The code in 'lambda_function.py' is as follows:

```
1 import simplejson as json
2 import boto3
3 import datetime
4 from boto3.dynamodb.types import TypeSerializer, TypeDeserializer
5 from boto3.dynamodb.conditions import Key, Attr
6
7
8
9
10 def lambda_handler(event, context):
11     # TODO implement
12     dynamodb = boto3.resource('dynamodb')
13     table = dynamodb.Table('UserActivity')
14     response = table.scan()
15     user_activities = response['Items']
16     latest_user = max(user_activities, key=lambda x: int(x['UserID']))
17     response = table.query(KeyConditionExpression=Key('UserID').eq(latest_user['UserID']))
18     new_id = int(latest_user['UserID']) + 1
19     now = datetime.datetime.now().strftime("%I:%M%p on %B %d, %Y")
20     item = {
21         'UserID': f'{new_id}',
```

The screenshot shows the AWS Lambda console for the function 'cloud_computing_08'. The code in 'lambda_function.py' is as follows:

```
10 def lambda_handler(event, context):
11     new_id = int(latest_user['UserID']) + 1
12     now = datetime.datetime.now().strftime("%I:%M%p on %B %d, %Y")
13     item = {
14         'UserID': f'{new_id}',
15         'ActivityTime': now,
16         'type': "Admin",
17         'duration': 101
18     }
19     table.put_item(Item=item)
20     return {
21         'statusCode': 200,
22         'body': json.dumps({"activities": user_activities})
23     }
24
25
26
27
28
29
30
31
32
```

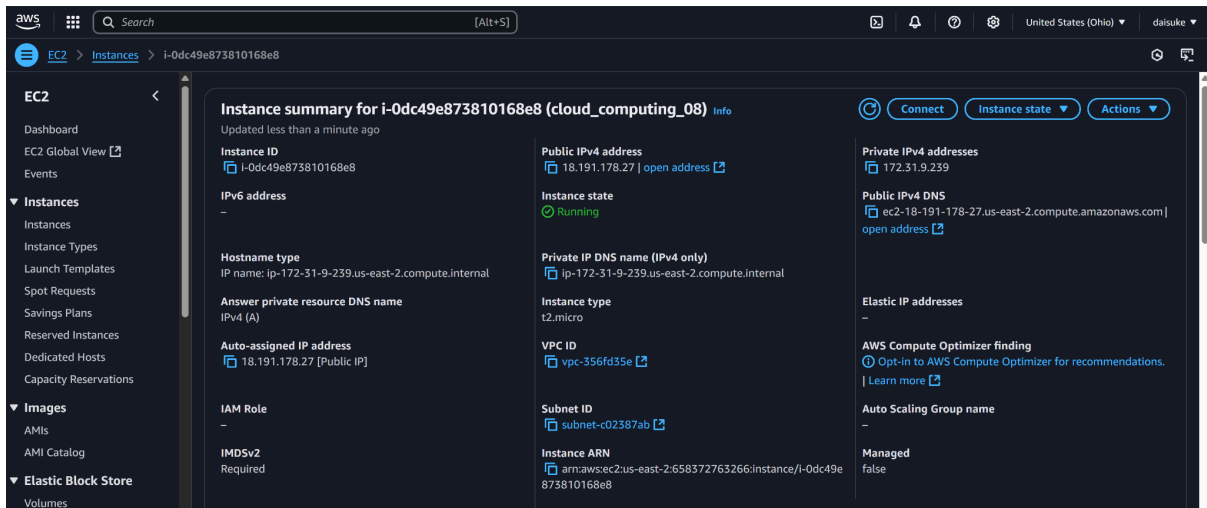
- at least 5 data confirmed

The screenshot shows the AWS DynamoDB console for the 'UserActivity' table. A green banner indicates a successful scan: 'Completed - Items returned: 5 - Items scanned: 5 - Efficiency: 100% - RCUs consumed: 2'. The table contains 5 items.

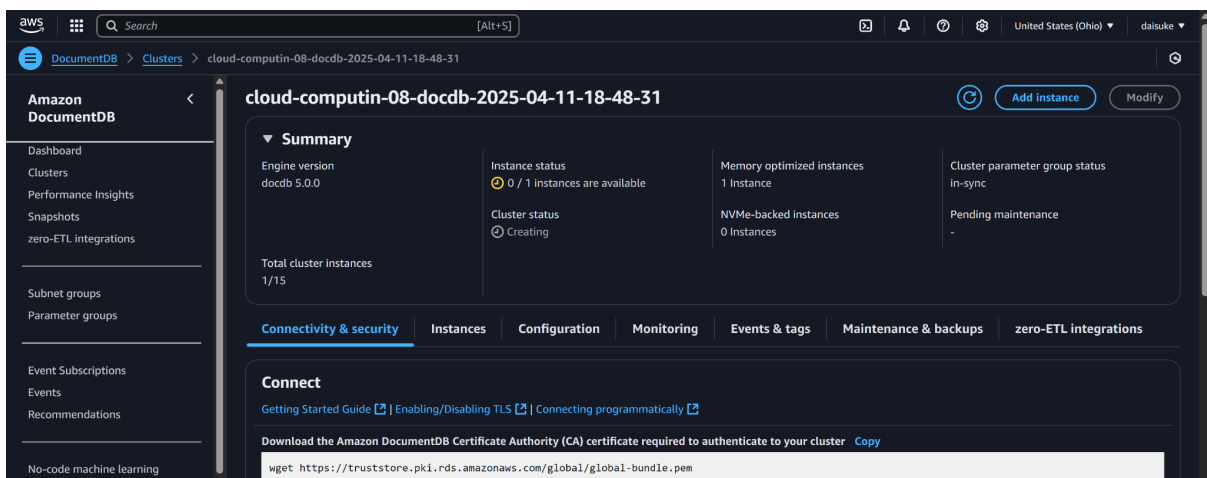
	UserID (String)	ActivityTime (String)	duration	type
<input type="checkbox"/>	2	06:39PM on April 11, 2025	100	Owner
<input type="checkbox"/>	1	06:29PM on April 11, 2025		
<input type="checkbox"/>	5	06:42PM on April 11, 2025	101	Admin
<input type="checkbox"/>	4	06:42PM on April 11, 2025	101	Admin
<input type="checkbox"/>	3	06:41PM on April 11, 2025	100	Owner

Task 2

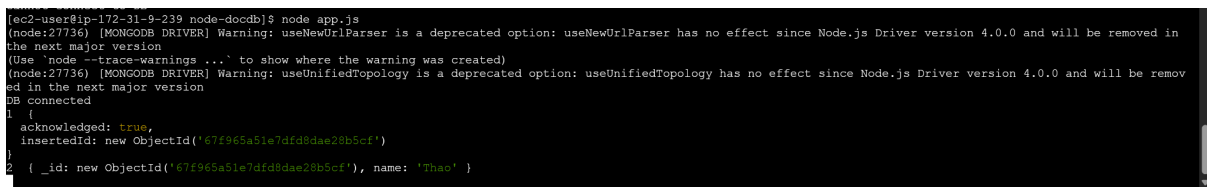
- EC2 created



- DocumentDB created



- Node.js app launched



Task 3

- ElastiCache created

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ElastiCache > **Redis OSS caches** > cloud-computing-08

cloud-computing-08 info Upgrade to Valkey Modify Actions

Cluster details

Cluster name cloud-computing-08	Description -	Node type cache.t2.small	Status Creating
Engine Redis	Engine version 7.1.0	Global datastore -	Global datastore role -
Update status Up to date	Cluster mode Disabled	Shards 0	Number of nodes 1
Data tiering Disabled	Multi-AZ Disabled	Auto-failover Disabled	Encryption in transit Disabled
Encryption at rest Enabled	Parameter group default.redis7	Outpost ARN -	Configuration endpoint -
Primary endpoint -	Reader endpoint -	ARN arn:aws:elasticache:us-east-2:658372763266:replicationgroup:cloud-computing-08	Data migration No active migrations

- EC2 for redis created

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

EC2 > **Instances** > i-0674913453d717542

EC2 Dashboard EC2 Global View Events Instances Instance Types Launch Templates Spot Requests Savings Plans Reserved Instances Dedicated Hosts Capacity Reservations Images AMIs AMI Catalog

Instance summary for i-0674913453d717542 (cloud_computing_08_redis) info Connect Instance state Actions

Updated less than a minute ago

Instance ID i-0674913453d717542	Public IPv4 address 3.148.250.81 open address	Private IPv4 addresses 172.31.15.93
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-3-148-250-81.us-east-2.compute.amazonaws.com open address
Hostname type IP name: ip-172-31-15-93.us-east-2.compute.internal	Private IP DNS name (IPv4 only) ip-172-31-15-93.us-east-2.compute.internal	Elastic IP addresses -
Answer private resource DNS name IPv4 (A)	Instance type t2.micro	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations. Learn more
Auto-assigned IP address 3.148.250.81 [Public IP]	VPC ID vpc-356fd35e	Auto Scaling Group name -
IAM Role -	Subnet ID subnet-c02387ab	Managed -
IMDSv2 Enabled	Instance ARN arn:aws:ec2:us-east-2:658372763266:instance/i-0674913453d717542	

- EC2 connected to redis

```
[ec2-user@ip-172-31-15-93 redis-stable]$ redis-cli -h cloud-computing-08.ruz9zw.ng.0001.use2.cache.amazonaws.com
cloud-computing-08.ruz9zw.ng.0001.use2.cache.amazonaws.com:6379> set hello world
OK
cloud-computing-08.ruz9zw.ng.0001.use2.cache.amazonaws.com:6379> get hello
"world"
cloud-computing-08.ruz9zw.ng.0001.use2.cache.amazonaws.com:6379>
```