

AWS Solutions Architect Certification Training

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Module 6 - Assignment Database COMPLETED by Nagesha. K.S. **Please check the following screenshots for each question.**

Problem Statement:

You work for XYZ Corporation. Your company has multiple branch offices all over the country.

It wants to deploy its application on AWS that reads data from users' devices and sends reports to all the branches.

The application also requires executing complex relational joins and updates. The company wants high availability for its application.

You are asked to perform the following tasks:

1. Build a highly scalable database; make sure that it is always available and accessible, and manage automated backups for this database with a retention period of 2 days
2. Build a database architecture, which lets your application read data from different regions
3. Establish a database architecture that processes the data collected for near real-time analysis
4. Upload data to a DynamoDB table that you have created
5. Take a backup of the table; delete the table, and then restore it

As the user base of the application increases, your company observes a significant latency in the transfer of data to the branches.

It realizes that most of the time, the same kind of data is being fetched and sent to the branches. Therefore, you are asked to:

6. Find and implement the solution to resolve the latency issues

Kinesis | us-east-1

ElastiCache Management Console

us-east-1.console.aws.amazon.com/kinesis/home?region=us-east-1#/streams/details/mod-6-data-stream/monitoring

aws

Services

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Amazon Kinesis

Dashboard

Data streams

Amazon Data Firehose

Managed Apache Flink

Resources

CloudFormation templates

AWS Glue Schema Registry

Amazon Kinesis > Data streams > mod-6-data-stream

mod-6-data-stream

Delete

Data stream summary

Status

Active

Capacity mode

On-demand

ARN

arn:aws:kinesis:us-east-1:289436155303:stream/mod-6-data-stream

Creation time

August 07, 2024 at 18:32 GMT+5:30

Applications

Monitoring

Configuration

Enhanced fan-out (0)

Data viewer

Data analytics - new

Stream metrics

Alarm recommendations

3h 1d 1w 3h

UTC timezone

Add to dashboard

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Amazon Data Firehose | us-east-1

ElastiCache Management Console

us-east-1.console.aws.amazon.com/firehose/home?region=us-east-1#/details/mod-6-kinesis-firehose/monitoring

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Amazon Data Firehose

Firehose streams

Resources

- What's new
- Developer guide
- API reference

Amazon Data Firehose > Firehose streams > mod-6-kinesis-firehose

mod-6-kinesis-firehose

Delete Firehose stream

Firehose stream details

Status <ul style="list-style-type: none">Active	Destination <ul style="list-style-type: none">Amazon S3	Data transformation <ul style="list-style-type: none">Not enabled	Creation time <ul style="list-style-type: none">August 07, 2024 at 18:40 GMT+5:30
Source <ul style="list-style-type: none">Amazon Kinesis Data Streams	ARN <ul style="list-style-type: none">arn:aws:firehose:us-east-1:289436155303:deliverystream/mod-6-kinesis-firehose	Dynamic partitioning <ul style="list-style-type: none">Not enabled	Error logs status <ul style="list-style-type: none">0 Destination error logs

Test with demo data

Ingest simulated data to test the configuration of your Firehose stream. Standard Amazon Data Firehose charges apply.

Monitoring

Configuration

Destination error logs

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us-east-1

View table | Amazon DynamoDB

ElastiCache Management Console

us-east-1.console.aws.amazon.com/dynamodbv2/home?region=us-east-1#table?name=mod-6-app-data

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Imports from S3

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Reserved capacity

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DynamoDB > Tables > mod-6-app-data

Tables (1)

Any tag key

Any tag value

Find tables

1

mod-6-app-data

mod-6-app-data

Overview

Indexes

Monitor

Global tables

Backups

Exp

General information Info

Partition key

mod-6 (String)

Capacity mode

Provisioned

Alarms

No active alarms

Resource-based policy Info

Not active

Sort key

-

Table status

Active

Point-in-time recovery (PITR) Info

Off

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us-east-1

Backup details | Amazon Dyna

ElastiCache Management Cons

us-east-1.console.aws.amazon.com/dynamodbv2/home?region=us-east-1#backup-details?backupArn=arn%3Aaws%3Abackup%3Aus-east-1%3A289436155303%3Arecovery...

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DynamoDB > Backups > Backup: 211618fb-9a1f-4780-8920-e8559b2dc3

Backup: 211618fb-9a1f-4780-8920-e8559b2dc3

Copy in AWS BackupDelete in AWS BackupRestore

Restore a backup of your DynamoDB table. Backups can not be deleted from DynamoDB. To delete a backup, go to the backup vault in AWS Backup.

Backup details

Backup ID

211618fb-9a1f-4780-8920-e8559b2dc3

Table name

mod-6-app-data

Backup status

Available

Backup ARN

arn:aws:backup:us-east-1:289436155303:recovery-point:211618fb-9a1f-4780-8920-e8559b2dc3

Creation time

August 7, 2024, 18:48:56 (UTC+05:30)

Storage tier

Warm

Backup management

AWS Backup

Backup job summary

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Kinesis | us-east-1

Edit item | Amazon DynamoDB

ElastiCache Management Console

us-east-1.console.aws.amazon.com/dynamodbv2/home?region=us-east-1#edit-item?itemMode=2&pk=mod-6-new&route=ROUTE_ITEM_EXPLORER&sk=&table=mod-6-ap...

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DynamoDB > Explore items: mod-6-app-data > Edit item

Edit item

You can add, remove, or edit the attributes of an item. You can nest attributes inside other attributes up to 32 levels deep. [Learn more](#)

Form

JSON view

Attributes

Add new attribute

Attribute name	Value	Type
mod-6 - Partition key	<input type="text" value="mod-6-new"/>	String

Cancel

Save

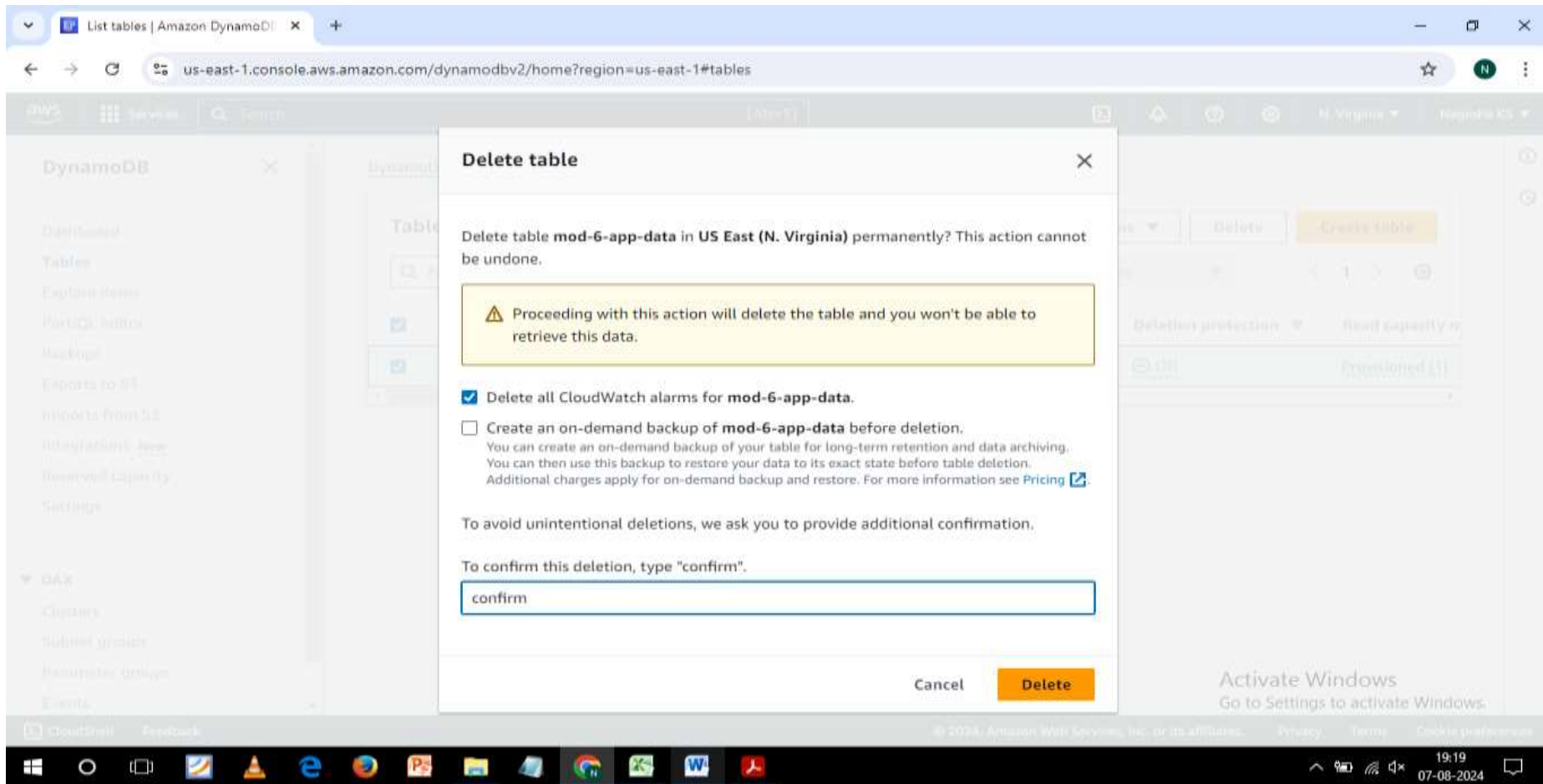
Save and close

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Restore backup | Amazon Dyna

us-east-1.console.aws.amazon.com/dynamodbv2/home?region=us-east-1#restore-backup?backupArn=arn%3Aaws%3Abackup%3Aus-east-1%3A289436155303%3Arecover...

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Restore table from backup

Info

Restoring a table from a backup will restore it as a new table.

Restore settings

Name of restored table

This name will identify your restored table.

mod-6-app-data-restored

Between 3 and 255 characters in length. Only A–Z, a–z, 0–9, underscore characters, hyphens, and periods allowed.

Encryption key

Info

Choose the encryption key to encrypt the table created after the backup is restored.

Encryption key management

☒ Owned by Amazon DynamoDB

The AWS KMS key is owned and managed by DynamoDB. You are not charged an additional fee for using this key.

☐ AWS managed key

Key alias: aws/dynamodb. The key is stored in your account and is managed by AWS Key Management Service (AWS KMS). AWS KMS charges apply.

☐ Stored in your account, and owned and managed by you

Choose a key that is owned and managed by you, and stored in AWS KMS.

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us-east-1.console.aws.amazon.com/dynamodbv2/home?region=us-east-1#list-backups

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DynamoDB > Backups

Backups Info

Backup settings Info

Turn off

Settings apply to new backups in this account and Region.

Advanced features with AWS Backup

Activated

Allow options for cross-Region and cross-account copy, cost allocation tags, and cold storage tiering for backups.

Backups (1) Info

View details

Restore

Copy

Delete

Create backup

Schedule automatic backups and view backup job details in AWS Backup

Find backups by ARN or name

	Name	Table	Status	Creatio...	ARN	Size
	211618fb-9a1f-4780-...	mod-6-app-data	Available	August 7, ...	arn:aws:backup:us-east-	

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List tables | Amazon DynamoDB

us-east-1.console.aws.amazon.com/dynamodbv2/home?region=us-east-1#tables

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DynamoDB > Tables

Tables (1) Info

Actions

Delete

Create table

Find tables

Any tag key

Any tag value

< 1 >

	Name	Status	Partition key	Sort key	Indexes	Deletion protection	Read
<input type="checkbox"/>	mod-6-app-data-restored	Creating	mod-6 (S)	-	0	Off	Provi

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us-east-1.console.aws.amazon.com/dynamodbv2/home?region=us-east-1#tables

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Tables (1) Info

Find tables

Any tag key

Any tag value

< 1 >

Name

Status

Partition key

Sort key

Indexes

Deletion protection

Read capacity

[mod-6-app-data-restored](#)

Active

mod-6 (5)

-

0

Off

Provisioned

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View table | Amazon DynamoDB

us-east-1.console.aws.amazon.com/dynamodbv2/home?region=us-east-1#table?name=mod-6-app-data-restored

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DynamoDB > Tables > mod-6-app-data-restored

Tables (1)

Any tag key

Any tag value

Find tables

1

mod-6-app-data-restored

mod-6-app-data-restored

Actions

Explore table items

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Protect your DynamoDB table from accidental writes and deletes

When you turn on point-in-time recovery (PITR), DynamoDB backs up your table data automatically so that you can restore to any given second in the preceding 35 days. Additional charges apply. [Learn more](#)

Edit PITR

General information

Partition key

mod-6 (String)

Sort key

-

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ElastiCache Management Console

us-east-1.console.aws.amazon.com/elasticache/home?region=us-east-1#/redis

aws

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ElastiCache

Redis OSS caches

Redis OSS caches (1)

Info

View details

Actions

Create Redis OSS cache

Find Redis caches

Cache name	Status	Description	Engine version	Configuration	Created
mod-6-cache	Available	Easy created demo cluster on 2024-08...	7.1.0	cache.t4g.micro	August

mod-6-cache

Cluster name

mod-6-cache

Description

Easy created demo cluster on 2024-08-07T13:33:19.916Z

Node type

cache.t4g.micro

Status

Creating

Engine

Redis

Engine version

7.1.0

Global datastore

-

Global datastore role

-

Update status

Up to date

Cluster mode

Enabled

Shards

0

Number of nodes

1

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