



# Query Data with DynamoDB



Nchindo Boris

```
eu-north-1
$ aws dynamodb get-item
--table-name ContentCatalog
--key '{"Id": "N": "201"}'
--projection-expression "Title, ContentType, Services"
--return-consumed-capacity TOTAL
{
    "Item": {
        "Title": "S: Don't miss out",
        "Summary": "S: Video",
        "ContentType": "Video"
    }
}
$ aws dynamodb get-item
--table-name ContentCatalog
--key {"Id": "N": "202"}
--projection-expression "Title, ContentType, Services"
--return-consumed-capacity TOTAL
{
    "Item": {
        "Title": "S: Don't miss out",
        "Summary": "S: Video",
        "ContentType": "Video"
    }
}
$
```



# Introducing Today's Project!

## What is Amazon DynamoDB?

Amazon DynamoDB is a fully managed NoSQL database service provided by AWS that delivers fast, predictable performance and seamless scalability.

## How I used Amazon DynamoDB in this project

In this project, I used Amazon DynamoDB to query loaded data using partition and sort keys

## One thing I didn't expect in this project was...

One thing I didn't expect in this project is that it would be an easy project

## This project took me...

This project took me 45 minutes to complete



# Querying DynamoDB Tables

A partition key is a filter that DynamoDB will use to split up and find data.

A sort key is a secondary key used to filter your query results again! Sort keys work after the partition key i.e. you still have to use the partition key to split up your data first, and then the sort key partitions your data again.

The screenshot shows the AWS Management Console interface for exploring items in a DynamoDB table named 'Comment'. On the left, a sidebar lists 'DynamoDB' and 'DAX' sections. The main area displays a list of tables: Comment, ContentCatalog, Forum, NextWorkStudents, and Post. The 'Comment' table is currently selected. To the right, a detailed view of the 'Comment' table's configuration is shown, including fields for partition and sort keys, attribute projections, and filtering options. A status bar at the bottom indicates the query completed successfully with one item returned and zero RCU consumed.



# Limits of Using DynamoDB

I ran into an error when I queried for all comments posted by User Abdulrahman. This was because I did not use the Id (Partition key)

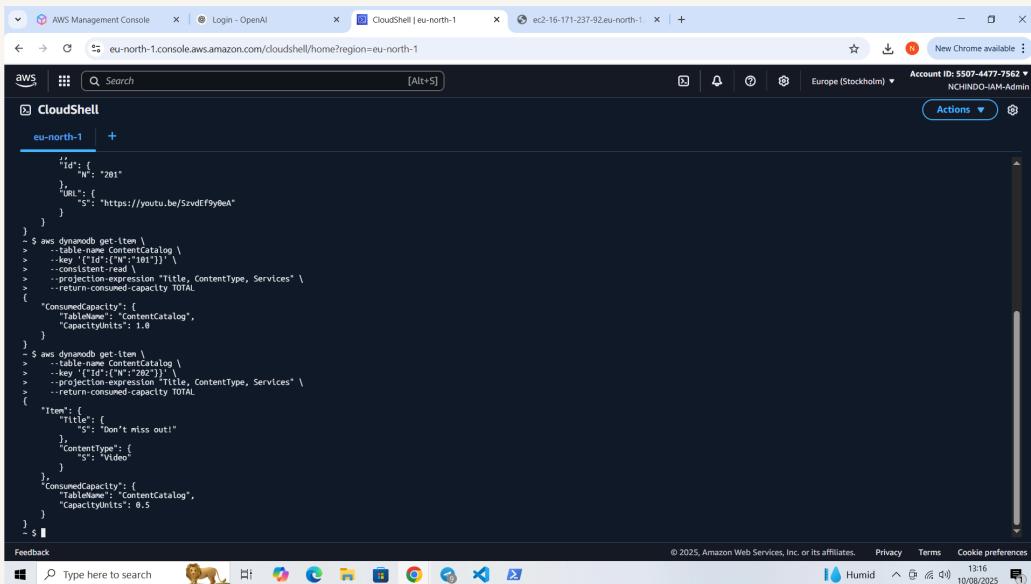
Insights we could extract from our Comment table includes; - Id (String) - CommentDateTime (String) - Message - PostedBy Insights we can't easily extract from the Comment table includes; - ContentType - Price - Services - Title

The screenshot shows the AWS Management Console interface for the DynamoDB service. On the left, there's a navigation sidebar with 'DynamoDB' selected, showing options like Dashboard, Tables, Explore items, and DAX. Under 'Explore items', 'Comment' is selected. The main area displays the 'Comment' table details. It shows a list of 5 tables: Comment, ContentCatalog, Forum, NextWorkStudents, and Post. The 'Comment' table is currently selected. Below the table list, there are two tabs: 'Scan or query items' (selected) and 'View table details'. Under 'Scan or query items', there are sections for 'Partition key: Id' (with a red error message: 'The partition key filter cannot be empty'), 'Sort key: CommentDateTime' (with dropdowns for 'Equal to' and 'Enter sort key value'), and 'Filters - optional' (with a single filter for 'PostedBy' set to 'Equal to' 'User Abdulrahman'). At the bottom of the page, there's a CloudShell search bar and a status bar showing the date and time.

# Running Queries with CLI

A query I ran in CloudShell aws dynamodb get-item \ --table-name ContentCatalog \ --key '{"Id":{"N":"202"}}' \ --projection-expression "Title, ContentType, Services" \ --return-consumed-capacity TOTAL Gives a strongly consistent read

Query options I added to my query are; --consistent-read : for a strongly consistent read. --projection-expression: to know some of the item's attributes. --return-consumed-capacity : to know how much capacity was consumed by the request.



The screenshot shows a terminal window within the AWS CloudShell interface. The user has run the following command:

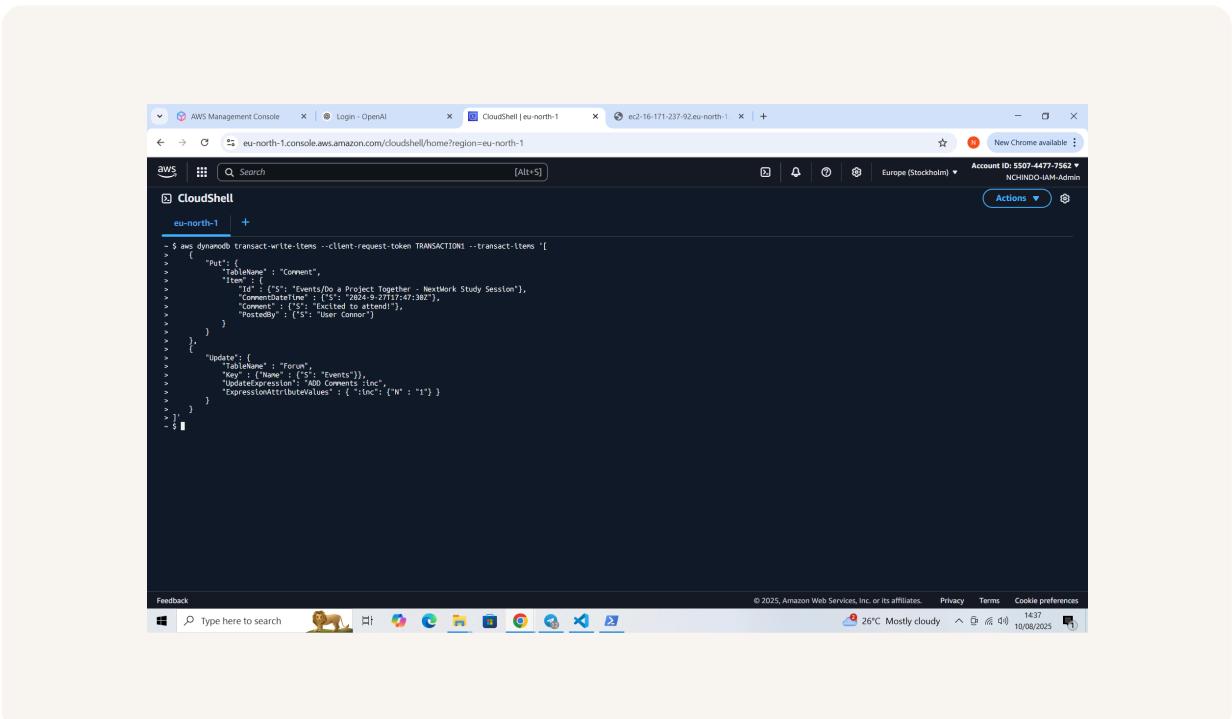
```
$ aws dynamodb get-item \
--table-name ContentCatalog \
--key '{"Id":{"N":"202"}}' \
--projection-expression "Title, ContentType, Services" \
--return-consumed-capacity TOTAL
```

The output of the command is displayed below the command line, showing the item from the ContentCatalog table. The item contains attributes: Title, ContentType, and Services, along with their respective values. It also includes the ConsumedCapacity field, which provides details about the amount of capacity consumed by the query.

# Transactions

A transaction is a group of operations that all have to succeed - if any of the operations in the group fails, none of the changes get applied. This makes sure that any change to your database is consistent across all your tables!

I ran a transaction using a command with CloudShell. This transaction did two things; -  
Update the Comment table and - Update the Forum table



The screenshot shows a CloudShell session in the AWS Management Console. The terminal window displays the following command:

```
- $ aws dynamodb transact-write-items --client-request-token TRANSACTION1 --transact-items '[{"Put": {"TableName": "Comment", "Item": {"Id": {"S": "Events/Do a Project Together - NextWork Study Session"}, "CommentDateTime": {"S": "2024-9-27T17:47:30Z"}, "Content": {"L": [{"S": "Hello to attend"}, {"S": "User Comment"}]}, "PostedBy": {"S": "User Comment"}}}, {"Update": {"Tableberg": "Forum", "Key": {"Name": "Events"}, "UpdateExpression": "ADD Comments :inc", "ExpressionAttributeValues": {":inc": {"N": "1"}}}}]'
```

The CloudShell interface includes tabs for AWS Management Console, Login - OpenAI, CloudShell | eu-north-1, and ec2-16-171-237-92.eu-north-1. The browser address bar shows eu-north-1.console.aws.amazon.com/cloudshell/home?region=eu-north-1. The top right corner shows Account ID: 5507-4477-7562, Europe (Stockholm), and NCHINDO-IA-M-Admin.



[nextwork.org](https://nextwork.org)

# The place to learn & showcase your skills

Check out [nextwork.org](https://nextwork.org) for more projects

