



Load Data into DynamoDB



Saish Nar

Items returned (6)						
	<input type="button" value="C"/>	<input type="button" value="Actions ▾"/>	<input type="button" value="Create item"/>			
	<input type="checkbox"/>	Id (Number)	Authors	ContentType	Difficulty	Price
	<input type="checkbox"/>	3	[{"S": "Ne..."}]	Project	Easy peasy	0
	<input type="checkbox"/>	2	[{"S": "Ne..."}]	Project	Easy peasy	0
	<input type="checkbox"/>	203		Video		0
	<input type="checkbox"/>	202		Video		0
	<input type="checkbox"/>	201		Video		0
	<input type="checkbox"/>	1	[{"S": "Nat..."}]	Project	Easy peasy	0



Introducing Today's Project!

What is Amazon DynamoDB?

Amazon DynamoDB is a nonrelational database service with AWS that organises data using key-value pairs.

How I used Amazon DynamoDB in this project

In today's project, I used DynamoDB to create five tables. We used CloudShell and CLI to load data into our tables quickly. We also compared DynamoDB to a relational database by understanding how items and attributes works.

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

One thing I didn't expect in this project was that I could perform a lot of actions using AWS CLI instead of the console e.g. creating tables, loading data, deleting tables.

This project took me...

This project took me 60 minutes to complete.

Saish Nar
NextWork Student

NextWork.org

Create a DynamoDB table

DynamoDB tables organises data using items and attributes. Every single item is recorded with a set of attributes. Items can have any number of attributes (minimum 1, for the partition key value).

An attribute is a peice of data about an item in the DynamoDB table. For example, if an item was a specific NextWorkStudent, attributes could be StudentName, ProjectsComplete, Email, SignupDate the number of attributes for each item is flexible.

Items returned (1)		C	Actions ▾	Create item
		<	1	> ⚙ ✖
<input type="checkbox"/>	StudentName (<i>String</i>) ▾ ProjectsComplete			
<input type="checkbox"/>	Nikko	4		

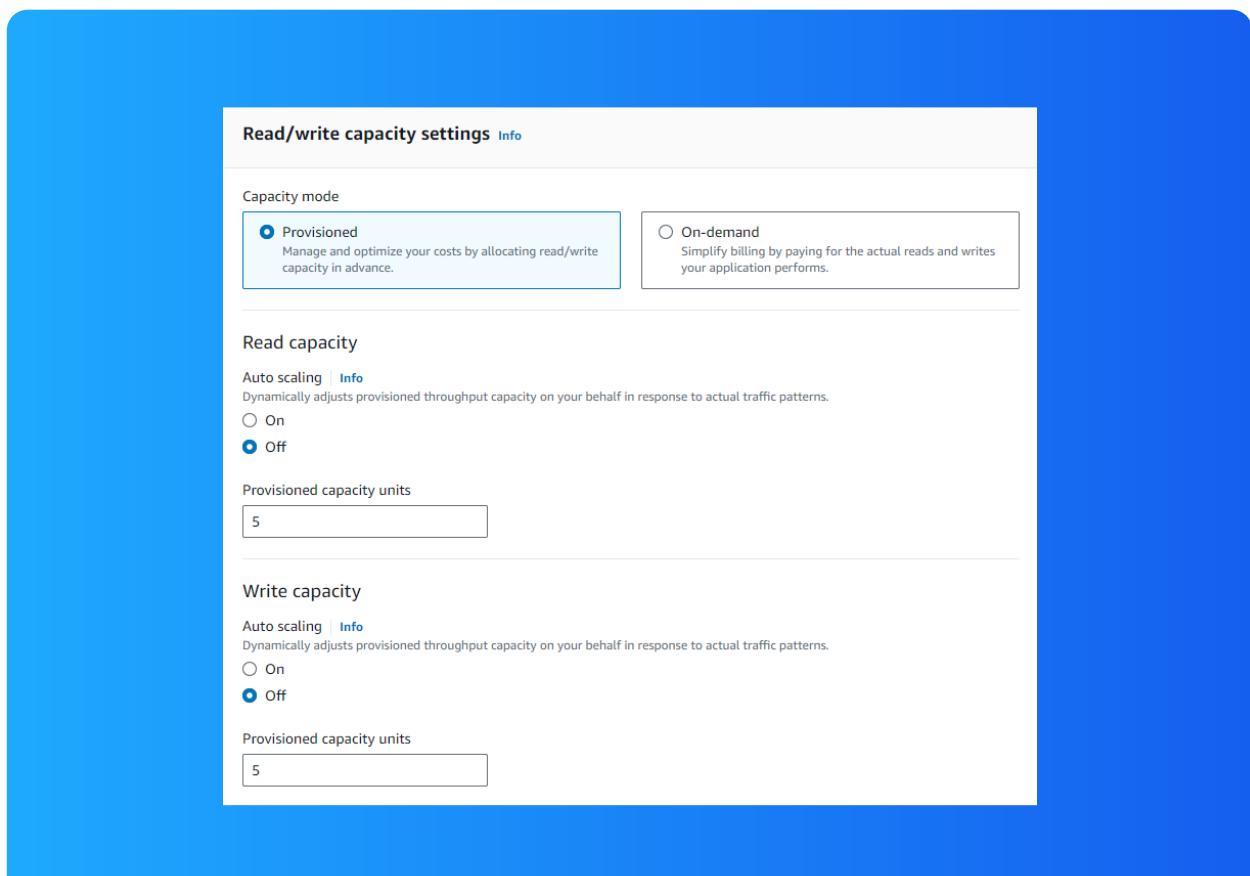
Saish Nar
NextWork Student

NextWork.org

Read and Write Capacity

Read capacity units (RCUs) and write capacity units (WCUs) are units that measure my DynamoDB table's performance. DynamoDB pricing is based on RCUs and WCUs, so the more RCU/WCUs consumed, the more expensive the project.

Amazon DynamoDB's Free Tier covers 25 RCUs and WCUs monthly. I turned off auto scaling because this can result in higher charges if DynamoDB automatically scales up my operations (which charges for more RCUs and WCUs).





Saish Nar
NextWork Student

NextWork.org

Using CLI and CloudShell

AWS CloudShell is an environment that lets us run code to interact with our AWS resources/services. Using AWS Cloudshell is handy because AWS CLI is already installed, so we can run commands right away.

AWS CLI is a software that lets you interact with resources using commands instead of clicks in the console. This is a very practical software that is preferred over using the AWS Management Console in day to day engineering ops in the real world.

I ran a CLI command in AWS CloudShell that created four new DynamoDB tables. The command is called aws dynamodb create-table and I could even define the table name and its attributes all within the command.

```
[cloudshell-user@ip-10-134-63-216 ~]$ aws dynamodb create-table \
> --table-name Forum \
> --attribute-definitions \
>   AttributeName=Name,AttributeType=S \
> --key-schema \
>  AttributeName=Name,KeyType=HASH \
>   ProvisionedThroughput \
>     ReadCapacityUnits=1,WriteCapacityUnits=1 \
>   .query "TableDescription.TableStatus"
"CREATING"
[cloudshell-user@ip-10-134-63-216 ~]$ aws dynamodb create-table \
> --table-name Post \
> --attribute-definitions \
>   AttributeName=forumName,AttributeType=S \
>   AttributeName=subject,AttributeType=S \
> --key-schema \
>  AttributeName=forumName,KeyType=HASH \
>   AttributeName=subject,KeyType=RANGE \
>   ProvisionedThroughput \
>     ReadCapacityUnits=1,WriteCapacityUnits=1 \
>   .query "TableDescription.TableStatus"
"CREATING"
[cloudshell-user@ip-10-134-63-216 ~]$ aws dynamodb create-table \
> --table-name Comment \
> --attribute-definitions \
>   AttributeName=id,AttributeType=S \
>   AttributeName=CommentDate,AttributeType=S \
> --key-schema \
>  AttributeName=id,KeyType=HASH \
>   AttributeName=CommentDate,KeyType=RANGE \
>   ProvisionedThroughput \
>     ReadCapacityUnits=1,WriteCapacityUnits=1 \
>   .query "TableDescription.TableStatus"
"CREATING"
```



Loading Data with CLI

I ran a CLI command in AWS CloudShell that load multiple pieces of data (i.e. load multiple items) into the DynamoDB tables I set up in the previous step. This AWS CLI Command is structured as 'aws dynamodb batch-write-item --request-items file://x'

```
[cloudshell-user@ip-10-134-63-216 nextworksampleddata]$ aws dynamodb batch-write-item --request-items file://Forum.json
{
    "UnprocessedItems": {}
}
[cloudshell-user@ip-10-134-63-216 nextworksampleddata]$ aws dynamodb batch-write-item --request-items file://Post.json
{
    "UnprocessedItems": {}
}
[cloudshell-user@ip-10-134-63-216 nextworksampleddata]$ aws dynamodb batch-write-item --request-items file://Comment.json
{
    "UnprocessedItems": {}
}
```



Saish Nar
NextWork Student

NextWork.org

Observing Item Attributes

Attributes			Add new attribute ▾
Attribute name	Value	Type	
Id - Partition key	1	Number	<button>Remove</button>
Authors	Insert a field ▾	List	<button>Remove</button>
ContentType	Project	String	<button>Remove</button>
Difficulty	Easy peasy	String	<button>Remove</button>
Price	0	Number	<button>Remove</button>
ProjectCategory	Storage	String	<button>Remove</button>
Published	<input checked="" type="radio"/> True <input type="radio"/> False	Boolean	<button>Remove</button>
Title	Host a Website on Amazon S3	String	<button>Remove</button>
URL	aws-host-a-website-on-s3	String	<button>Remove</button>

I checked a ContentCatalog item, which had the following attributes: Id, Authors, ContentType, Difficulty, Price, ProjectCategory, Published, Title, and URL.

'I checked another ContentCatalog item, which had a different set of attributes: Services, Title, VideoType etc.

Benefits of DynamoDB

A benefit of DynamoDB over relational databases is flexibility, because items can have their own set of attributes. This is great for scenarios where a table has different types of data, and some attributes don't apply to all data in that table.

Another benefit over relational databases is speed, because DynamoDB can quickly partitions data to narrow down a search using partition keys. This is faster than relational databases, which need to scan entire tables to find specific pieces of data.

Items returned (6)						
	<input type="checkbox"/> Id (Number)	Authors	ContentType	Difficulty	Price	P
	3	[{"S": "Ne..."}]	Project	Easy peasy	0	A
	2	[{"S": "Ne..."}]	Project	Easy peasy	0	A
	203		Video		0	
	202		Video		0	
	201		Video		0	
	1	[{"S": "Nat..."}]	Project	Easy peasy	0	S



NextWork.org

Everyone should be in a job they love.

Check out nextwork.org for
more projects

