AWS DynamoDB

Amazon Database Service- AWS DynamoDB

Case Study



**Introduction to Amazon DynamoDB**

What is Amazon DynamoDB?

Amazon DynamoDB is a serverless NoSQL database service that provides fast and predictable performance with single-digit millisecond latency.

**Key Points**

* It provides a push button scaling feature, signifying that DB can scale without any downtime.
* It is a multi-region cloud service that supports key-value and document data structure.
* It provides high availability and data durability by replicating data synchronously on solid-state disks (SSDs) across 3 AZs in a region.
* It helps to store session states and supports ACID transactions for business-critical application
* It provides the on-demand backup capability of the tables for long-term retention and enables point-in-time recovery from accidental write or delete operations.
* Amazon DynamoDB Accelerator (DAX) is a highly available in-memory cache service that provides data from DynamoDB tables. DAX is not used for strongly consistent reads and write-intensive workloads.
* It supports Cross-Region Replication using DynamoDB Global Tables. Global Tables helps to deploy a multi-region database and provide automatic multi-master replication to AWS regions.

1. **Create Table and add items using AWS management console**

Sign in into AWS management console and select service DynamoDB

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1: Creating DynamoDB Table

1. Make sure you are in the **US East (N. Virginia) us-east-1** Region.
2. Navigate to  page by clicking on the  menu at the top. **DynamoDB** is available under the  section.

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1. Click on  on the dashboard
   * Table Name: Enter ***whizlabs***
   * Partition key: Enter ***Roll No***and select 
   * Keep other options as **defaults**.
   * Scroll down and click on ****.
2. Your table will be created in **2-3 minutes**.
3. You will see the status of the table change to **Active**.

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You can see your bucket is created

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2: Add items to the DynamoDB table

1. Next, let's insert some data into the table we have created.
2. Click on your tables name.  Now click on **Expolere table items** Button.

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1. To add new items to the table, click on  button.

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1. Create Item:

* Roll No : Enter **1**
* Click on **Add new attribute**and select **String**from drop-down menu.
  + Attribute name**:**Enter**Name**
  + Value : Enter **Shubham**
  + **Note: Attribute name of the table is case sensitive i.e., "Name" and "name" will be treated as two different attributes.**

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* Click on  on the bottom right.

1. Similarly, create 2 more items in the table with the names **Srikar**and **Gopa**l.

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1. **Load JSON file to Dynamo table using boto3 session**

1.Open Jupyter Notebook

Import boto3 and json

Provide access\_key and seceret\_access\_key of IAM user to connect to DynamoDB and other service with section

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2.Create Table in Aws DynamoDB

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3.Fill Details like Table Name and Partitions Key, keep other things default.

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4.You can see the following details that table is created and its status you can see

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5. select any JSON format data file to upload.

Json file data should be in list format

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1. You can establish connection between AWS DynamoDB and Jupyter Notebook using Boto3 lib.

You need to select and open that file and using command json.load() read that file

Its list format data in json

Using table .put\_item(Item=i) we can put all data inside AWS DynamoDB

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1. Open thar AWS DynamoDB console dashboard

Goto or clilck on Explore table items

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1. You can see the items is inserted in AWS Dynamo DB table.

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1. **DynamoDB using NoSQL Workbench**
   1. Download and Install NoSQL workbench.

For download it follow the link below.

<https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/workbench.settingup.html>

* 1. Open NoSQL Workbench and click on Launch button of Amazon DynamoDB

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* 1. How it works

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* 1. NoSQL Workbench for Amazon DynamoDB

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* 1. Get started with NoSQL Workbench for Amazon DynamoDB by creating your first data model or importing one. You can also start with one of the sample models below.

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Or you an Import or select sample dataset for practice

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* 1. Data Modeler
     + I have selected sample data model table Forum data table
     + By clicking on + icon you can also create new table as per your need
     + In data modeler you can see how many tables are present there

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* 1. Create new table
     + Click on + icon to add new DynamoDB Table
     + Give Table name
     + Primary key
     + If required give Sort key

Click on Add other attributes

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* 1. You can add needed attributes
     + Like Name, Age , Company, Salary

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* 1. Then click on Add table Defination

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* 1. Your new table is created in model data you can see
     + All attributes like Name, Age, Salary , etc.

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* 1. Now once it created now, we need to connect with Amazon DynamoDB
     + Following the steps
  2. In the left side panel, click on **Operation builder** and click on **Add connection** on the right side

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* 1. Now we need to configure two files in our local Pc to successfully connect to our DynamoDB using NoSQL Workbench.
  2. For **Windows**Users:
  3. Go to the destination ***%USERPROFILE%\.aws***in your local Pc.

You will be able to find **config** and **credentials** files, which we need to edit using notepad.

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* 1. Open the**config** file using notepad and replace the existing content with the one given below.

**[default]  
region=us-east-1  
output=json  
AWS\_SDK\_LOAD\_CONFIG=1**

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* 1. Save the file using **Ctrl+S**.
  2. Now open the **credentials** file using notepad and replace the default **aws\_access\_key\_id** and **aws\_secret\_access\_key** with the **Access Key ID**and **Secret Access Key** present on the left side of the lab interface under **IAM username** and **Password**.

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* 1. Provide access key and secret key to make connections. In respected field.

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* 1. And our new connection is created with connection name 2

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* 1. Select connection and click on connect

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* Open AWS Management Console
* Go to aws DynamoDB there our can see the table presents

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