



ondia



# **NoSQL and Other Database Solutions in AWS**



# AGENDA



- ▶ DynamoDB
- ▶ Redshift
- ▶ ElastiCache



# Amazon DynamoDB

# DynamoDB

## What is DynamoDB?



**amazon**  
DynamoDB

- Amazon DynamoDB is a **NoSQL database** service
- Unlike RDS, you don't need to stick pre-determined schema. Instead of Schema, DynamoDB uses **flexible tables**.
- Amazon DynamoDB is a **fully-managed** database.
- DynamoDB doesn't **have Join function**.

# DynamoDB

## Structure of DynamoDB?

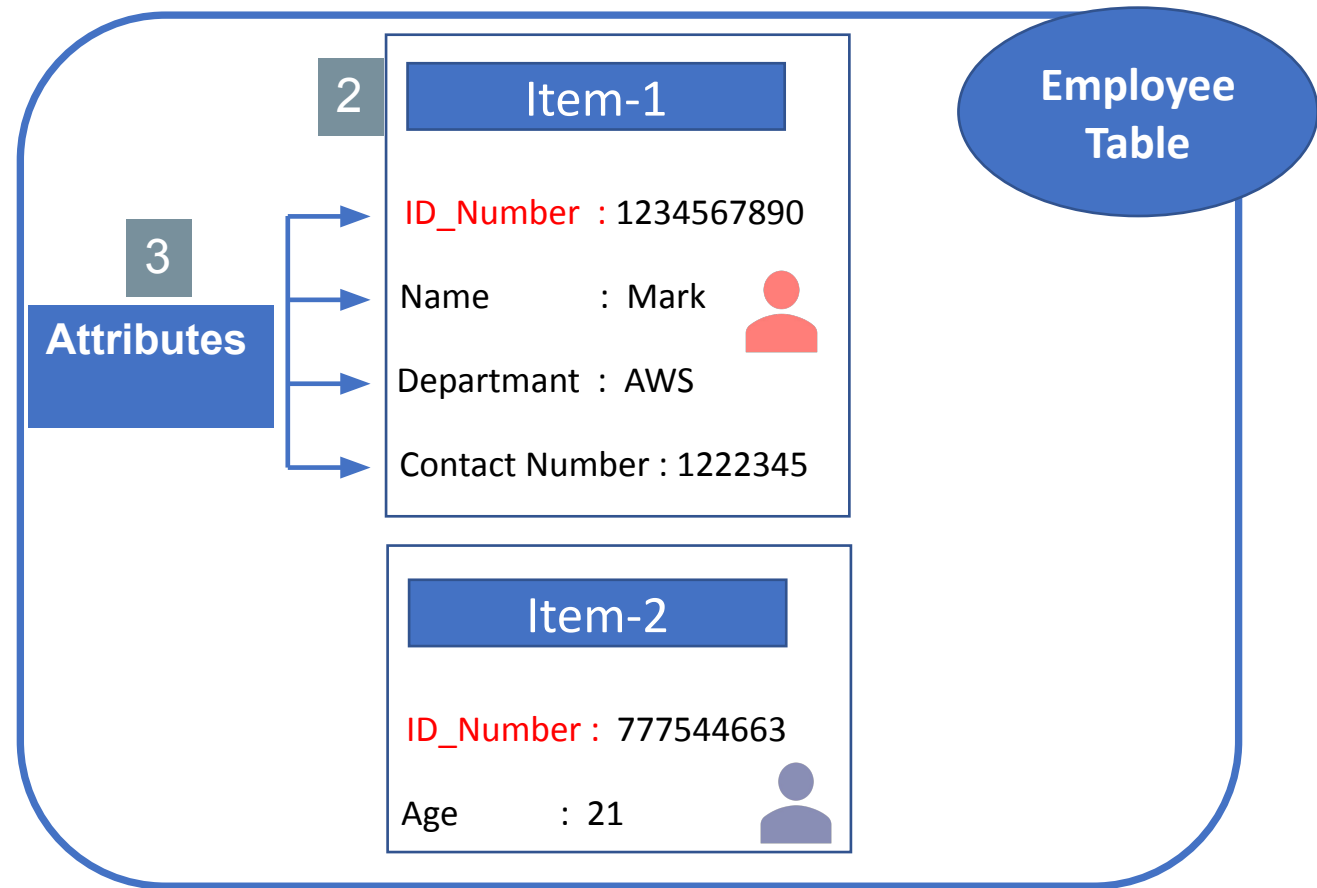


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1- Table is a collection of data.

2- Each table consist of items. In the Picture, **item represents a person.**

3- Attributes are specific feature of the items.



Unlike RDS, you can enter different attributes for each people.

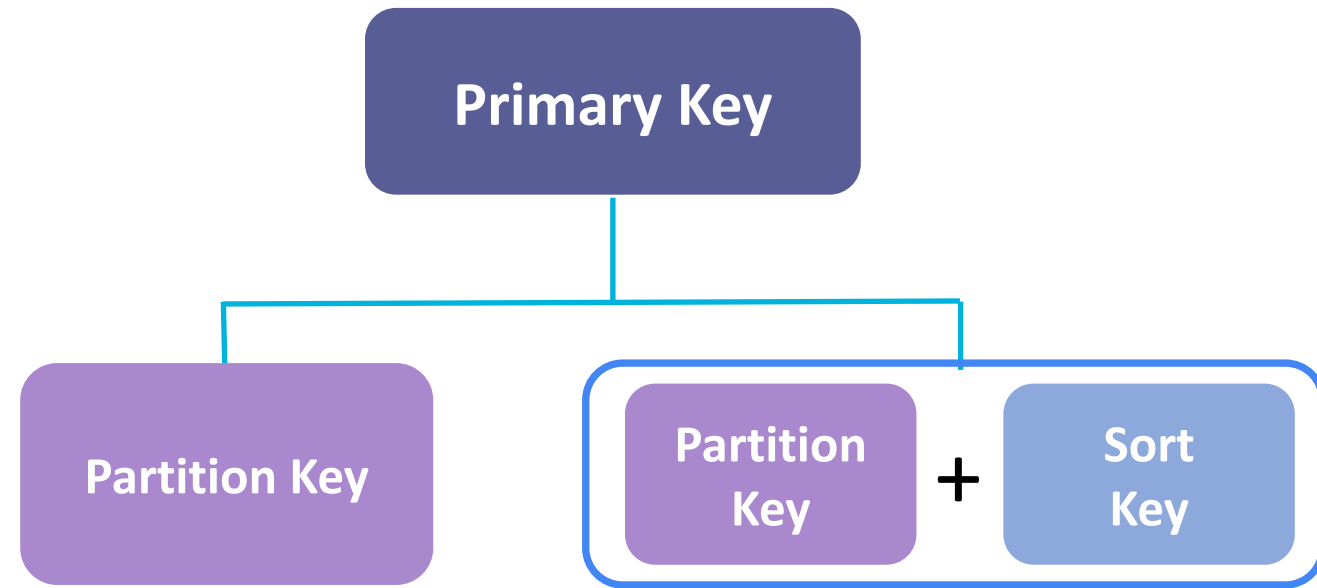
# DynamoDB

## Structure of DynamoDB?



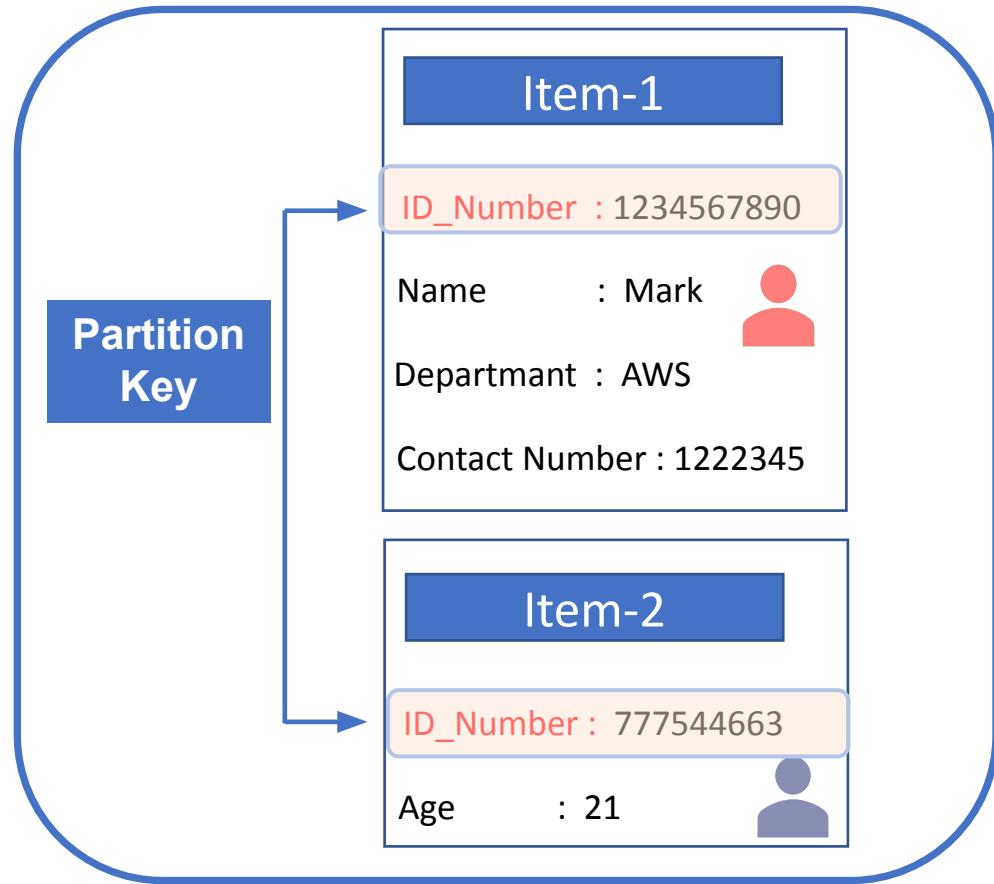
DynamoDB uses **Primary Keys** to **uniquely identify each item** in a table. When you create a table, in addition to the table name, you must specify the primary key of the table.

There are two different kinds of Primary Key model : **Partition Key** and **Partition Key & Sort Key**.

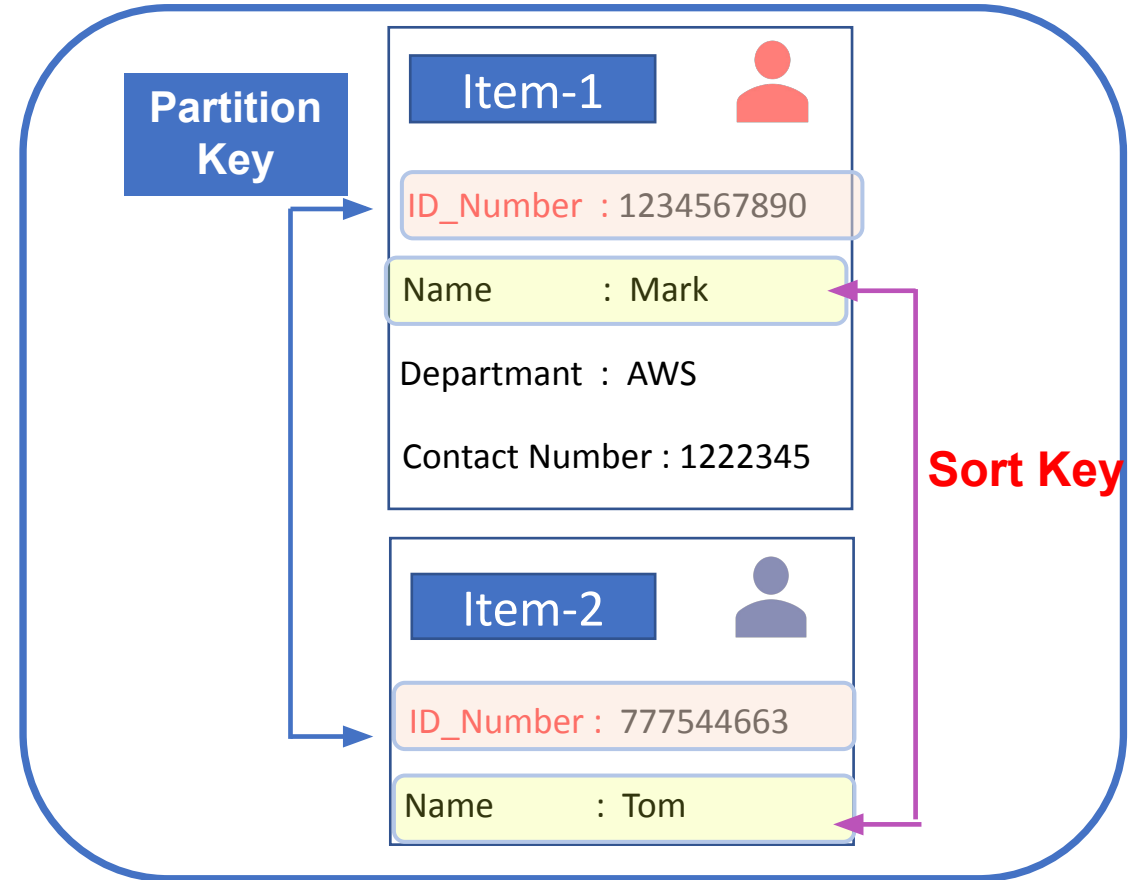


# DynamoDB

## Structure of DynamoDB?



Partition Key



Partition Key & Sort Key


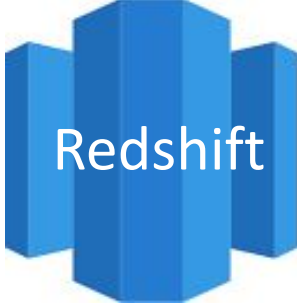




# Amazon Redshift

# Amazon Redshift



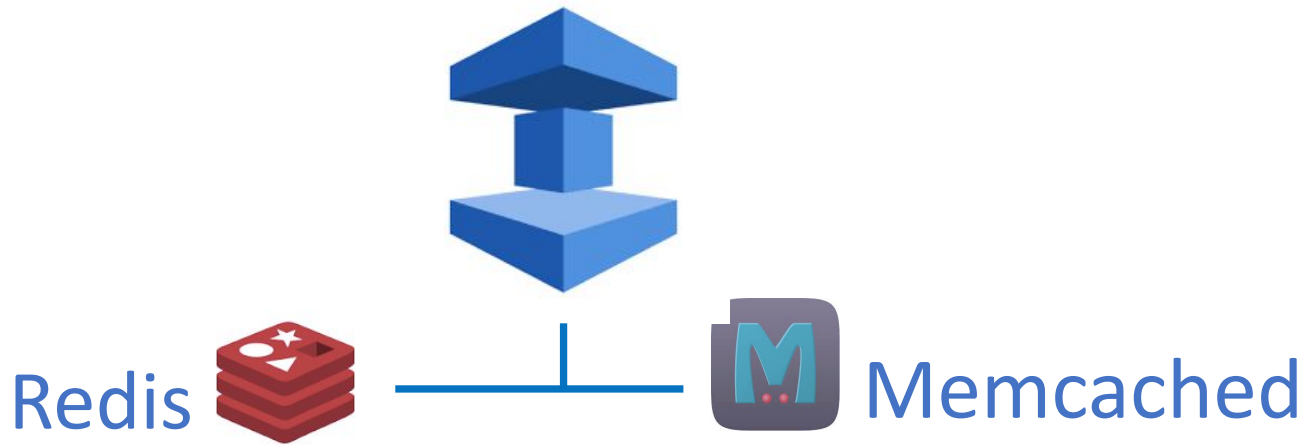
Database	Data Warehouse
 RDS	 Redshift
OLTP (Online Transaction Processing)	OLAP (Online Analytical Processing)
Used for data storing and managing	Used for data analyzing

- Since the analyzing process causes an extra workload on database we prefer to use data warehouse
- Amazon Redshift is a fully managed, cloud-based, petabyte-scale data warehouse service by Amazon Web Services (AWS).
- Amazon Redshift is an efficient solution to collect and store all your data to analyze.

A solid purple triangle is positioned on the left side of the slide, pointing towards the right.

# AWS ElastiCache

# AWS ElastiCache



- ElastiCache is an **In-Memory Cache service of AWS**.
- In-Memory Cache is a **temporary and fast** storage component. These components are used to reduce the workload of the main data storage device such as a database.
- AWS offers Redis and Memcached in-memory cache option which are popular in market.

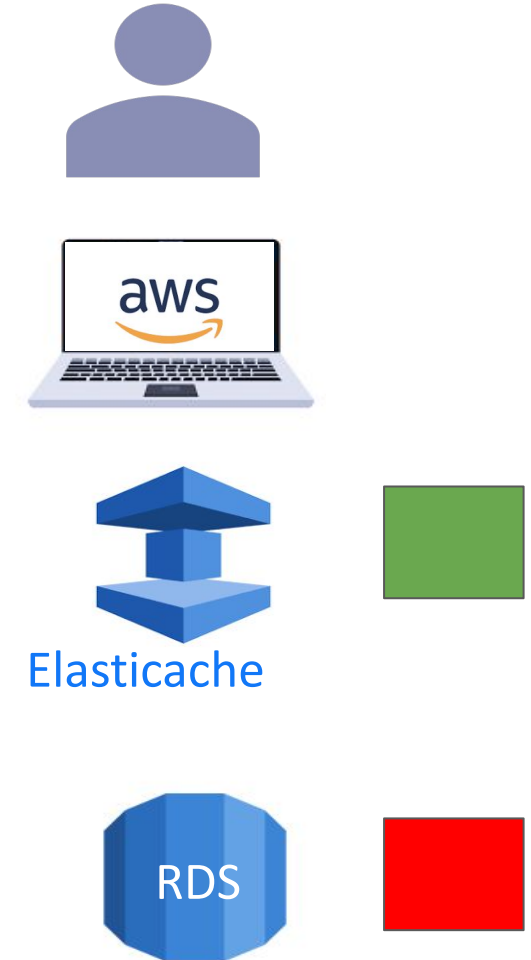
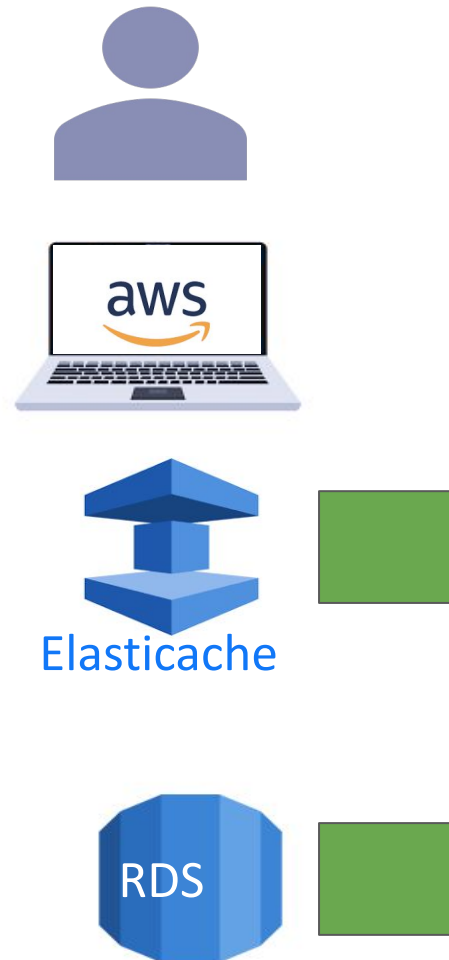
# AWS ElastiCache



After ElastiCache - **First Query**



After ElastiCache - **Second Query**

Before ElastiCache



# AWS ElastiCache



Redis 			 Memcached
Sub-millisecond latency	+	+	Sub-millisecond latency
User friendly syntax	+	+	User friendly syntax
It supports many different programming languages C, C++, java, python, etc.	+	+	It supports many different programming languages C, C++, java, python, etc.
Redis supports <b>strings</b> , <b>lists</b> , <b>sets</b> , <b>sorted sets</b> , <b>hashes</b> , <b>bit arrays</b> , and <b>hyperloglogs</b> .	+	-	Memcached supports <b>only strings</b>
It <b>doesn't support multithreaded</b> architecture	-	+	It <b>supports multithreaded</b> architecture. It means that it has multiple processing cores. This allows you to <b>handle multiple operation</b> .
It <b>supports Snapshot</b>	+	-	It <b>doesn't support Snapshot</b>
It <b>supports Replica</b>	+	-	It <b>doesn't support Replica</b>

## Let's get our hands dirty!

- Create a DynamoDB table



# THANKS!

**Any questions?**

