NoSQL and Other Database Solutions in AWS

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Today's Takeaways

- DynamoDB
- Redshift
- Elasticache

1 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.**

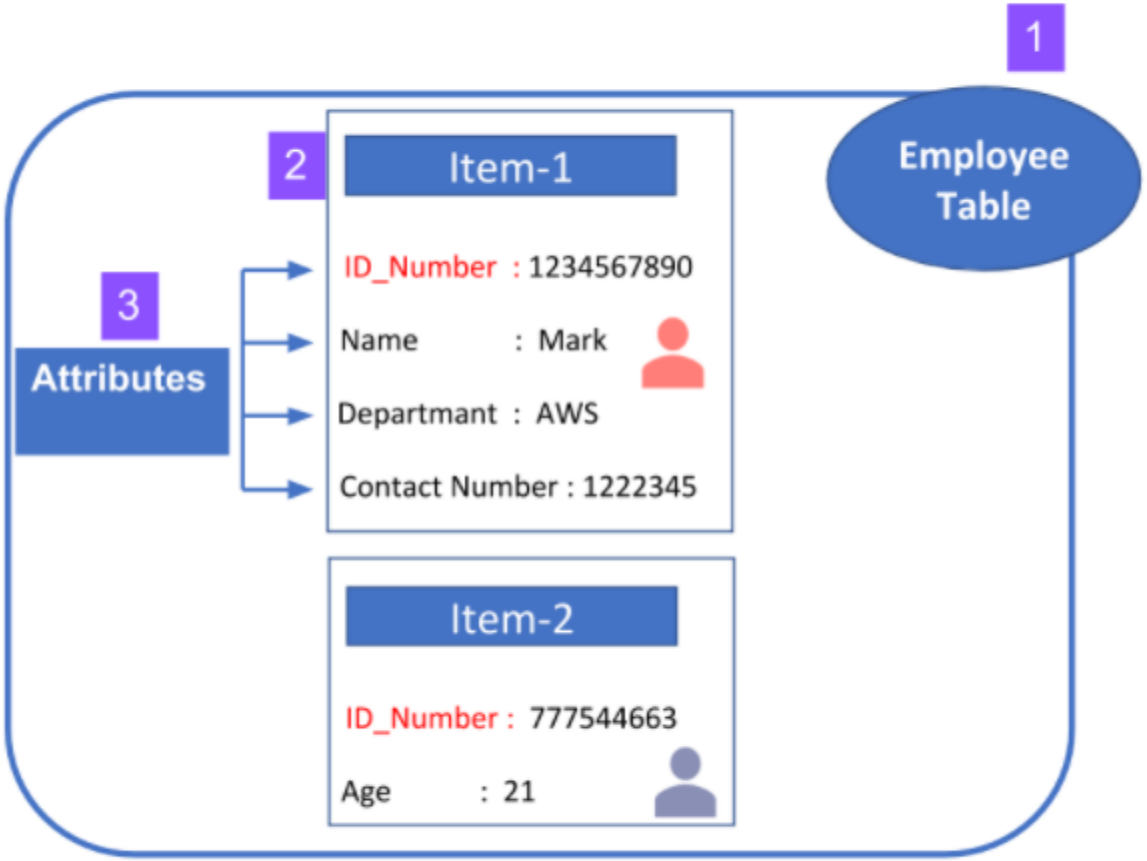
DynamoDB

Structure of DynamoDB?

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.

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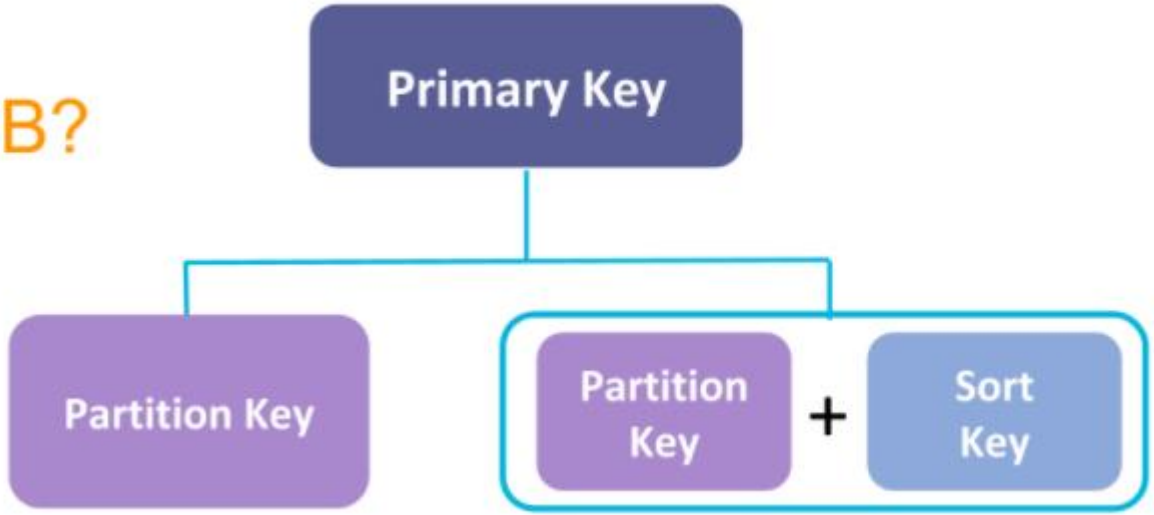
DynamoDB

Structure of DynamoDB?

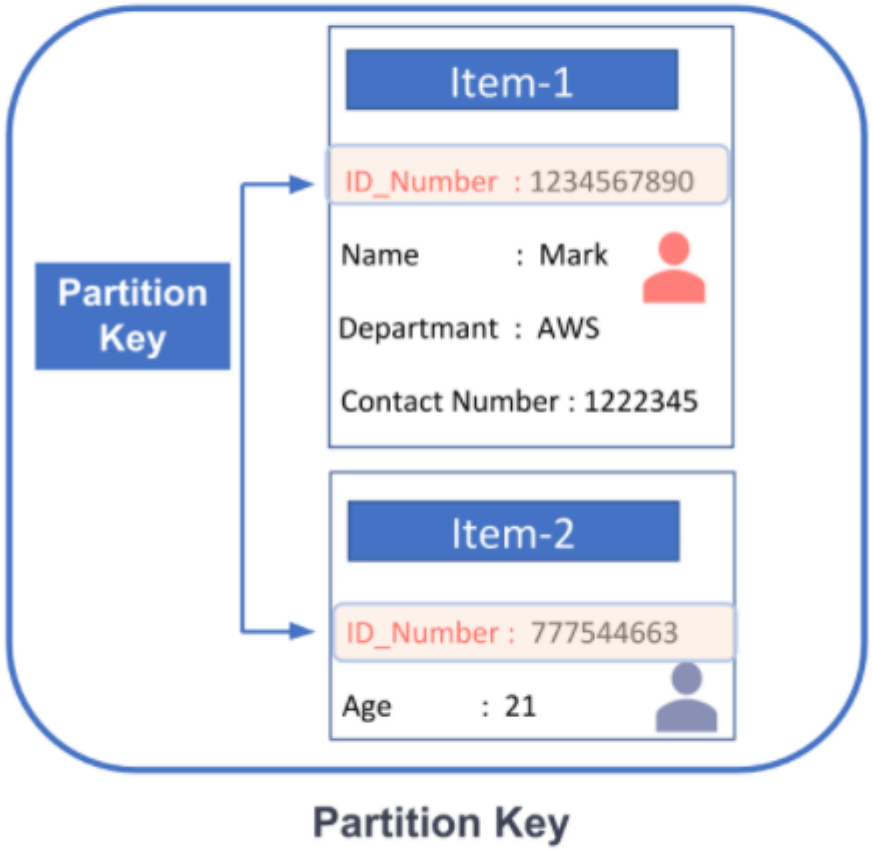


DynamoDB uses **Primary Keys** to **uniquely identify each item** in a table. When you create a table, in addition to the table name, you must specify the primary key of the table.

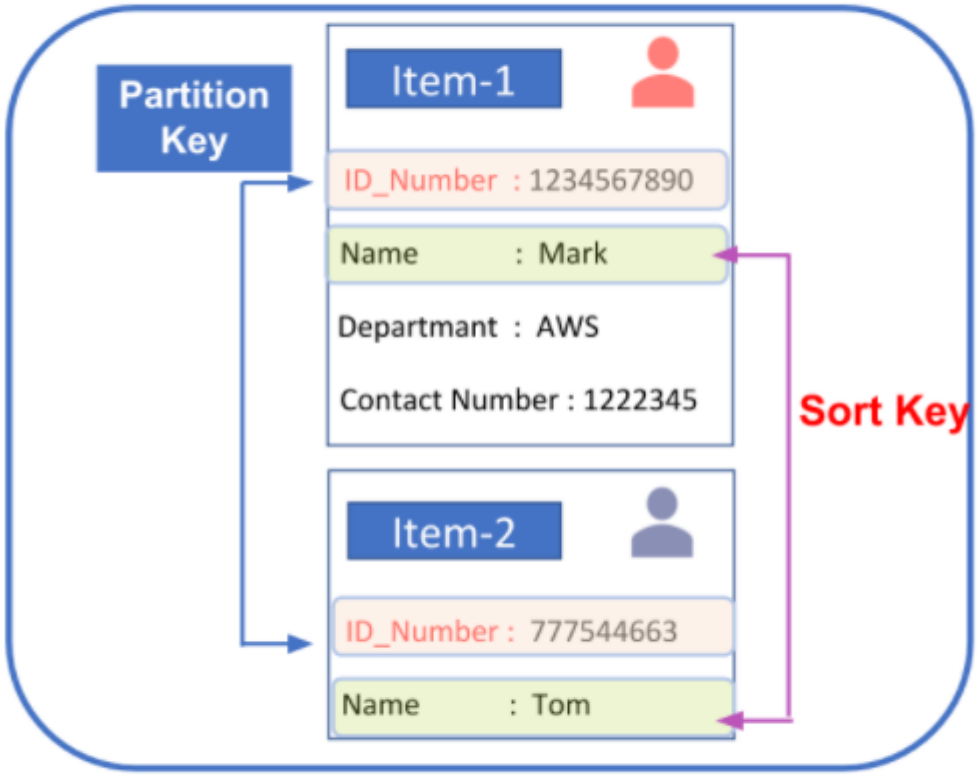
There are two different kinds of Primary Key model : **Partition Key** and **Partition Key&Sort Key**.

DynamoDB

Structure of DynamoDB?



Partition Key



Partition Key&Sort Key

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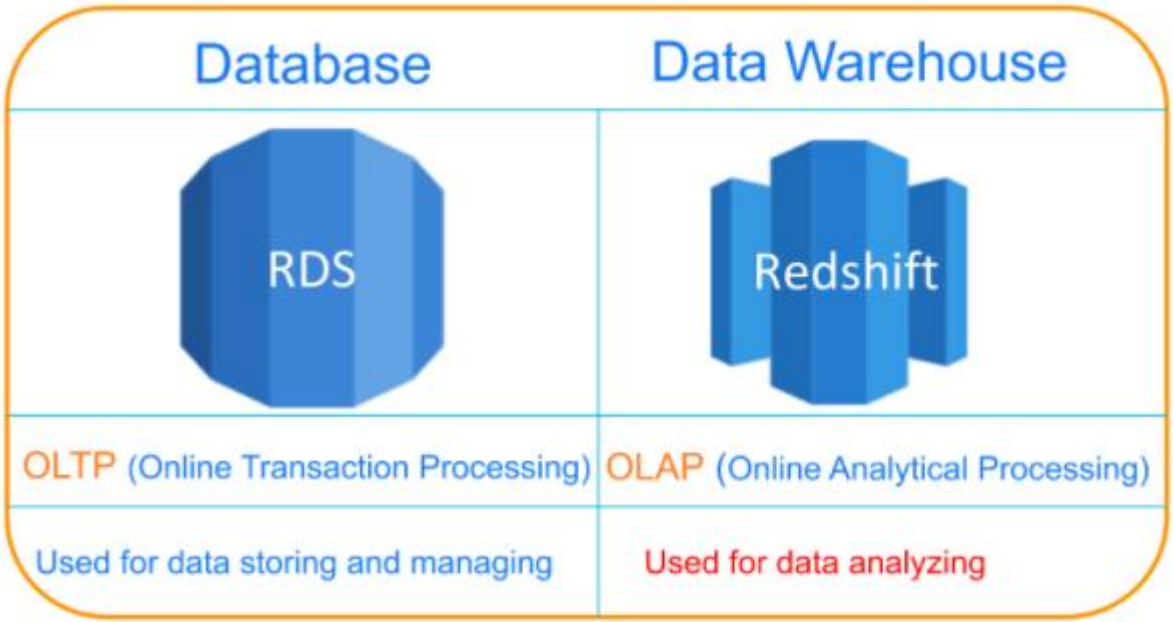
2 Amazon Redshift

Amazon Redshift



- 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.

3 AWS Elasticache

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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

Before Elasticache

After Elasticache - First Query

After Elasticache - Second Query

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 strings ,lists, sets, sorted sets, hashes, bit arrays, and hyperloglogs.	+	-	Memcached supports only strings
It dosen't support multithreaded architecture	-	+	It supports multithreaded architecture. It means that it has multiple processing cores. This allows you to handle multiple operation.
It supports Snapshot	+	-	It dosen't supports Snapshot
It supports Replica	+	-	It dosen't supports Replica

DynamoDB

Let's get our hands dirty!

- Create a DynamoDB table