

# Principles: Cloud Databases

## Technology: DynamoDB

### Assumptions

Students have completed the “AWS SDK” exercise

### Out of class learning activities

AWS DynamoDB is a NoSQL (i.e., non-relational) cloud database. To learn about DynamoDB, read the following portions of the DynamoDB Developer Guide.

Read the “How it Works” section (all sub-sections)

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

Read the “Getting Started with DynamoDB” section (all sub-sections). This section covers basic concepts, and shows you how to perform DynamoDB operations using the AWS web console and AWS command-line interface (CLI).

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

In the “Getting Started with DynamoDB SDK” section, read EITHER the sub-section titled “Java and DynamoDB” OR the sub-section titled “JavaScript and DynamoDB”, depending on which language you want to use for the in-class exercise (Java or Typescript).

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

Read the following page that provides additional information about how to perform DynamoDB queries, including limiting and paginating query result sets.

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

From your reading you should learn about the following:

1. What is DynamoDB?
2. The fundamental DynamoDB data model: Tables, Items, Attributes
3. The data types supported by DynamoDB
4. What is a “partition”?
5. Table primary keys
  - a. What is a “primary key”?

- b. What is a “partition key”? What is it for?
  - c. What is a “sort key”? What is it for?
  - d. What is the difference between a “simple primary key” and a “compound primary key”?
- 6. Secondary indexes
  - a. What is a “secondary index”?
  - b. What are secondary indexes for?
  - c. What is the difference between a “local secondary index” and a “global secondary index”?
- 7. How to perform DyanmoDB operations through the AWS web console and AWS command-line interface (CLI)
- 8. How to perform DynamoDB operations using the AWS SDK
- 9. How do you limit the number of items in a query result set?
- 10. What does it mean to “paginate” query results?
- 11. How do you paginate query results in DynamoDB?

**(Optional)**

In addition to the above reading, if you would like a video course on DynamoDB, the Pluralsight course named “AWS DynamoDB Deep Dive” is pretty good. The first four modules are the most relevant for this class: “Course Overview”, “Introduction”, “Getting Started with DynamoDB”, and “Developing with DynamoDB” [you can stop after the “Implementing Comments (cont.)” section].

<https://app.pluralsight.com/library/courses/aws-dynamodb-deep-dive/table-of-contents>