**AWS DynamoDB**

1. **What is the difference between Query and Scan operations in DynamoDB?**

DynamoDB offers two ways to access information stored: Query and Scan. A Query will rely on the primary-key to find information. Query can point directly to a particular item (or set ot items) and retrieve them in a fast and efficient way. Scan, as the name suggests, will browse table items from start to finish.

1. **What are projection expressions in DynamoDB?**

In Amazon DynamoDB, you use expressions **to denote the attributes that you want to read from an item**. You also use expressions when writing an item to indicate any conditions that must be met (also known as a conditional update), and to indicate how the attributes are to be updated.

1. **How would you make items in a DynamoDB table expire after a period of time?**

Amazon DynamoDB Time to Live (TTL) allows you to define a per-item timestamp to determine when an item is no longer needed. Shortly after the date and time of the specified timestamp, DynamoDB deletes the item from your table without consuming any write throughput.

**Docker**

1. **How would we map ports in docker using cli command**?
2. **What is the difference between docker stop and docker kill commands?**

To terminate a container, Docker provides the docker stop and docker kill commands. Both the docker kill and docker stop commands look similar, but their internal execution is different. **The docker stop commands issue the SIGTERM signal, whereas the docker kill commands sends the SIGKILL signal**.

**AWS Batch**

1. **What are the states a job can have when submitted to an AWS Batch job queue?**

When you submit a job to an AWS Batch job queue, the job enters the SUBMITTED state. It then passes through the following states until it succeeds (exits with code 0) or fails (exits with a non-zero code). AWS Batch jobs can have the following states:

**SUBMITTED**

A job that's submitted to the queue, and has not yet been evaluated by the scheduler. The scheduler evaluates the job to determine if it has any outstanding dependencies on the successful completion of any other jobs. If there are dependencies, the job is moved to PENDING. If there are no dependencies, the job is moved to RUNNABLE.

**PENDING**

A job that resides in the queue and isn't yet able to run due to a dependency on another job or resource. After the dependencies are satisfied, the job is moved to RUNNABLE.

**RUNNABLE**

A job that resides in the queue, has no outstanding dependencies, and is therefore ready to be scheduled to a host. Jobs in this state are started as soon as sufficient resources are available in one of the compute environments that are mapped to the job's queue. However, jobs can remain in this state indefinitely when sufficient resources are unavailable.

**STARTING**

These jobs have been scheduled to a host and the relevant container initiation operations are underway. After the container image is pulled and the container is up and running, the job transitions to RUNNING.

**RUNNING**

The job is running as a container job on an Amazon ECS container instance within a compute environment. When the job's container exits, the process exit code determines whether the job succeeded or failed. An exit code of 0 indicates success, and any non-zero exit code indicates failure. If the job associated with a failed attempt has any remaining attempts left in its optional retry strategy configuration, the job is moved to RUNNABLE again. For more information, see [Automated job retries](https://docs.aws.amazon.com/batch/latest/userguide/job_retries.html).

**SUCCEEDED**

The job has successfully completed with an exit code of 0. The job state for SUCCEEDED jobs is persisted in AWS Batch for at least 7 days.

**FAILED**

The job has failed all available attempts. The job state for FAILED jobs is persisted in AWS Batch for at least 7 days.

7. What are the main AWS Batch resource types used in a CloudFormation template?

8. How would you pass named arguments with parameterized values in a Batch job definition?