*[version_1.0]*



# Exercise: Databases

*The exercises are designed to be completed in your AWS account, and **will have an associated cost.** For this reason, in addition to the written instructions, this course includes video recordings of the exercises. If you intend to attempt the exercises, familiarize yourself with AWS pricing, specifically Amazon EC2 pricing, Amazon S3 pricing, and Amazon DynamoDB pricing and the AWS Free Tier.*

Part of your responsibility is to keep the employee database up to date. To do this, you will create the DynamoDB table for the employee directory application.

In this exercise, you will relaunch your EC2 instance. Then, you will create a DynamoDB table and test the EC2 application. Finally, you will verify the data shows up in DynamoDB.

## Lab Steps

### Stage 1 - Launch an EC2 instance

1. Search for **EC2** in the search bar at the top. Choose **EC2**.
2. Choose **Instances** under **Instances** at the left side panel.
3. Select the `employee-directory-app-s3` instance. Which should be in the **Stopped** state.
4. Choose **Actions**. **Image and templates** and **Launch more like this**.
5. At the top, choose **3. Configure instance**.
6. Next to **Auto-assign Public IP**, choose **Enable**.
7. At the top, choose **5. Add Tags**. Remove `s3` at the end of the **value** and append `lab6` instead.

   Example:

   ```
   employee-directory-app-lab6
   ```

8. Choose **Review and Launch**. Choose **Launch**.
9. Leave the `app-key-pair` selected under **Select a key pair**. Select the acknowledgement.
10. Choose **Launch Instances**.
11. Choose **View Instances**. The instance should now show up under **Instances**. Wait for the **Instance state** to change to **Running** and the **Status check** to change to **2/2 checks passed**.
12. Next to **Name**, choose the checkbox to select the `employee-directory-app-lab6` instance. Under the **Details** tab copy down the **Public IPv4 address**.

13. Paste it into a new browser tab/window. You should see a **Employee Directory** placeholder. Right now you will not be able to interact with it as it's not currently connected to the database.

## Stage 2 - Create DynamoDB table

To connect the app to a database, you first need to create one! To do this, you'll use DynamoDB.

1. Search for **DynamoDB** in the search bar at the top. Choose **DynamoDB**.
2. At the left choose **Tables**. Choose **Create table**.
3. For the **Table name** paste in `Employees`. For the **Primary key** paste in `id`.
4. Choose **Create**.

## Stage 3 - Test the application

1. Search for **EC2** in the search bar at the top. Choose **EC2**.
2. Under **Instances (running)** select the `employee-directory-app-lab6` instance.
3. Under the **Details** tab copy down the **Public IPv4 address**.
4. Choose **Add**. Create a new employee entry by typing in a name, location and job title, as well as selecting attributes. Then, choose **Choose File**. Feel free to upload a picture of your choice. Choose **Save**.

   **Note:** Feel free to create a few entries, as well as edit and delete entries.

   You should now be seeing the list of employees you added on the employee directory application! Great job.

## Stage 4 - View the item in the database

Let's see how these employees are stored in DynamoDB.

1. Back in the AWS Mangement Console, search for **DynamoDB** in the search bar at the top. Choose **DynamoDB**.
2. Choose **Tables**. Choose the **Employees** table.
3. Choose the **Items** tab. You can now see the entries in the database made from the EC2 application. Hooray!

## Stage 5 - Stop your EC2 instance

Congrats! You've launched an EC2 instance that uses the S3 bucket and DynamoDB table you created. To prevent future costs, you will now stop the instance. (Note: do not terminate it, as the next lab will use this instance.)

1. Search for **EC2** in the search bar at the top. Choose **EC2**.
2. Choose **Instances** in the left side panel and select the `employee-directory-app-lab6`.
3. Choose **Instance state** and **Stop instance**. Choose **Stop**. The **Instance state** will eventually go into the **Stopped** state.

## Lab Complete

Congratulations! You have completed the lab.

For feedback, suggestions, or corrections, please contact us at:https://support.aws.amazon.com/#/contacts/aws-training