[version_1.0]

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Exercise: Compute

*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.*

For this scenario, you will be creating the employee directory application using user data configured during the EC2 instance set up. Since this is a dry run, you will terminate the instance afterwards to prevent additional costs from occuring.

In this exercise, you will log into the console as the IAM admin user. You will then launch an EC2 instance using the IAM role you created in the previous lab. Finally, once you've created the employee directory application, you will stop and then terminate the instance.

Lab Steps

Stage 1 - Launch EC2 instance using role

1. Search for **EC2** in the search bar at the top. Choose **EC2**.
2. Select **Instances** on the left side panel, and then choose the **Launch instance** button.
3. Choose **Select** next to the first AMI, which should be **Amazon Linux 2 AMI (HVM), SSD Volume Type**.
4. Choose the **t2.micro** (Free tier eligible) as the **Type**. Choose **Next: Configure Instance Details**.
5. Leave the **Network** as the (default). Next to **Subnet**, choose the first subnet in the drop down list.
6. Next to **Auto-assign Public IP** choose **Enable**.
7. Next to **IAM role** choose the **S3DynamoDBFullAccessRole**.
8. Scroll down to **Advanced Details**. Paste in the following into the **User data** box:

```
#!/bin/bash -ex
wget https://aws-tc-largeobjects.s3-us-west-2.amazonaws.com/DEV-AWS-MO-GCNv2/FlaskApp.zip
unzip FlaskApp.zip
cd FlaskApp/
yum -y install python3 mysql
pip3 install -r requirements.txt
amazon-linux-extras install epel
yum -y install stress
export PHOTOS_BUCKET=${SUB_PHOTOS_BUCKET}
export AWS_DEFAULT_REGION=<INSERT REGION HERE>
export DYNAMO_MODE=on
FLASK_APP=application.py /usr/local/bin/flask run --host=0.0.0.0 --port=80
```

Change the following line to match your region:

Note: You can find this at the top right next to your user name.

```
export AWS_DEFAULT_REGION=<INSERT REGION HERE>
```

Example:

Note: US West (Oregon)

```
export AWS_DEFAULT_REGION=us-west-2
```

Note: You will modify this User Data script again to use your Amazon S3 bucket in a later lab. For now, just leave the ${SUB_PHOTOS_BUCKET} in the script.

9. Choose **Next: Add Storage**. Choose **Next: Add Tags**.
10. Choose **Add Tag**. Under **Key** paste in `Name`. Under **Value** paste in `employee-directory-app`.
11. Choose **Next: Configure Security Group**. For **Security group name:** paste in `app-sg`.
12. Choose **Add Rule**. For **Type** choose **HTTP**. For **Source** change to **Anywhere**. Then, next to the **SSH** rule, choose the **X** at the right to remove it as you will not need SSH access to the instance.

    Note: You may get a warning that you will no longer be able to SSH into your instance. This is fine - as you won't need that functionality for this course.
13. Choose **Review and Launch**. Choose **Launch**. Choose **Create a new key pair**. Under **Key pair name** paste in `app-key-pair`. Choose **Download Key Pair**. Finally choose **Launch instances**.
14. Scroll down, and 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**.

    Note: Often, the status checks update and the UI does not. Feel free to refresh the page after a few minutes to minimize waiting.
15. Next to **Name**, choose the checkbox to select the instance. Under the **Details** tab, copy down the **Public IPv4 address**.

Note: do not click the link to open the IPv4 address. Simply just copy the address and paste it into a new tab.

16. 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 our DynamoDB database.

    Congrats! You've successfully created an EC2 instance hosting the employee directory application. After you've finished looking around, it's time to stop and terminate your instance, so that you don't incur future costs.

17. Back in the AWS Management Console, the employee-directory-app should still be selected. Now, choose **Instance state** at the top and choose **Stop instance**. Choose **Stop**. The **Instance state** will eventually go into the **Stopped** state.

18. Next, you will terminate the instance. Again, select the checkbox next to the instance **Name**. Choose **Instance state** and choose **Terminate instance**. Choose **Terminate**.

Lab Complete

Congratulations! You have completed the lab.

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