

Metropolitan State University

ICS 432 - 01: Distributed and Cloud Computing

Fall 2021

Lab 02: Virtual Machines

Total points: 25

Out: Saturday, September 11, 2021

Due: 11:59 PM on Friday, September 17, 2021

What to submit?

The objective of this lab is to practice using compute instances on the cloud. To complete this lab:

- Read this lab assignment carefully.
- At various parts of the lab, you are asked to **take screen shots** of your work. Open a word document and paste the screen shots in this document in the same order as mentioned in the lab. Make sure to highlight the screen shot number.
- After you complete all the lab exercises, upload ONE word document to the designated D2L folder by 11:59 PM on Friday, September 17, 2021.

NOTE: On Windows machines, you may consider using [Snip & Sketch](#) for screenshot handling.

NOTE: Make sure your screenshots are clear and the text inside the image is easily readable.

Exercise 1: Virtual Machines in AWS: EC2

In this part, you will complete **Lab 3 from Module 6** of the AWS Academy Cloud Foundations course.

This lab provides you with a basic overview of launching, resizing, managing, and monitoring an Amazon EC2 instance.

- 1- Go to your account on AWS Academy using the following link:
https://www.awsacademy.com/LMS_Login
- 2- Log in using your email address and password.
- 3- In Module 6, Click on **Lab 3: Introduction to Amazon EC2**
- 4- follow the lab instructions.
 - 1- In Task 1:
 - a. (after step 25): take **Lab report screenshot 1** to show the list of EC2 instances and show the status of the newly created instance as 'Running'.
 - 2- In Task 2:
 - a. After step 29, take **Lab report screenshot 2** to show the System log of your instance.

- b. After step 31, take **Lab report screenshot 3** to show your instance screen. Your screen shot should clearly show the instance IP address is displayed at the login prompt.
- 3- In Task 3:
 - a. After step 41, take **Lab report screenshot 4** that shows the web browser tab that is connected to the VM. Make sure to include the URL bar in the screen shot.
- 4- In Task 4:
 - a. After step 49, take **Lab report screenshot 5** to show the EBS volume size you entered.
 - b. After step 55, take **Lab report screenshot 6** to show the list of instances with you instance status Running.
- 5- In Task 5:
 - a. After step 57, take **Lab report screenshot 7** to show the limit on the number of instances.
- 6- In Task 6:
 - a. After step 60, take **Lab report screenshot 8** to show the error message displayed when you tried to terminate the instance.
 - b. After step 65, take **Lab report screenshot 9** to show the list of instances and the status of your instance is Terminated.

Exercise 2: Virtual Machines in GCP: Compute Engine

In this part, you will complete a **Qwiklab titled Creating a Virtual Machine**. The lab can be accessed using the following link: <https://www.qwiklabs.com/focuses/3563?parent=catalog>

Lab objectives are as follows:

- Create a virtual machine with the Cloud Console.
 - Create a virtual machine with gcloud command line.
 - Deploy a web server and connect it to a virtual machine.
- 1- Log in to your Qwiklab account and open the lab using the above link.
- 2- Read this document first. You are asked to take several screenshots while you are working on the lab and you will include these screenshot in your lab submission document.
- 3- Click on Start lab. Take **Lab report screenshot 10** to show your lab credentials.
- 4- In the **Activate Cloud Shell** section, take **Lab report screenshot 11** to shows your cloud shell screen after executing the two commands: `gcloud auth list` and `gcloud config list project`. Make sure the text in your screenshots is readable.
- 5- In Task 1:
 - a. add your last name to the VM name, for example, my VM name will be ghanemgcelab.
 - b. After step 4, take **Lab report screenshot 12** to show the VM list with your virtual machine with status running.
- 6- In Task 2:
 - a. After step 4, take **Lab report screenshot 13** to show that NGINX is running. Make sure your screenshot shows the complete lines.

- b. After step 5, take Lab report screenshot 14 to show the browser output when opening the VM page. Make sure the screenshot includes the URL bar.
- c. Take Lab report screenshot 15 to show the Check my progress bar after you click on the button.

7- In Task 3:

- a. Step 1, append your last name to the VM name. For example, I will run the following command to create the VM:

```
gcloud compute instances create ghanemgcelab2 --machine-type n1-standard-2  
--zone us-central1-f
```

- b. Take Lab report screenshot 16 to show the Check my progress bar after you click on the button.
 - c. After step 4, take Lab report screenshot 17 to show your two running VMs.
- 8- After you complete the lab, take Lab report screenshot 18 to show the time left and your final lab score.