Metropolitan State University
ICS 432 - 01: Distributed and Cloud Computing
Fall 2021

Lab 01: Getting Started with AWS and GCP
Total points: 25
Out: Saturday, August 28, 2021
Due: 11:59 PM on Friday, September 3, 2021

What to submit?

The objective of this lab is to get started with hands-on exercises on AWS and GCP. To complete this lab:

- Read this lab assignment carefully.
- At various parts of the lab, you are asked to take screenshots of your work. Open a word document and paste the screenshots in this document in the same order as mentioned in the lab. Make sure to highlight the screenshot number.
- After you complete all the lab exercises, upload the word document to the designated D2L folder by 11:59 PM on Friday, September 3, 2021.
- Any submission after September 3 is a late submission and will incur 2 points penalty/day.
- Any submission after 11:59 PM on September 6 will not be graded and will receive ZERO.

NOTE: On Windows machines, you may consider using Snip & Sketch for screenshot handling.

Objectives

This lab consists of four exercises

Part 1: Getting started with AWS

- **Exercise 1:** Getting started with AWS Management Console – AWS Educate.
- **Exercise 2:** Module 4 – Lab 1: Introduction to AWS IAM – AWS Academy.

Part 2: Getting started with GCP

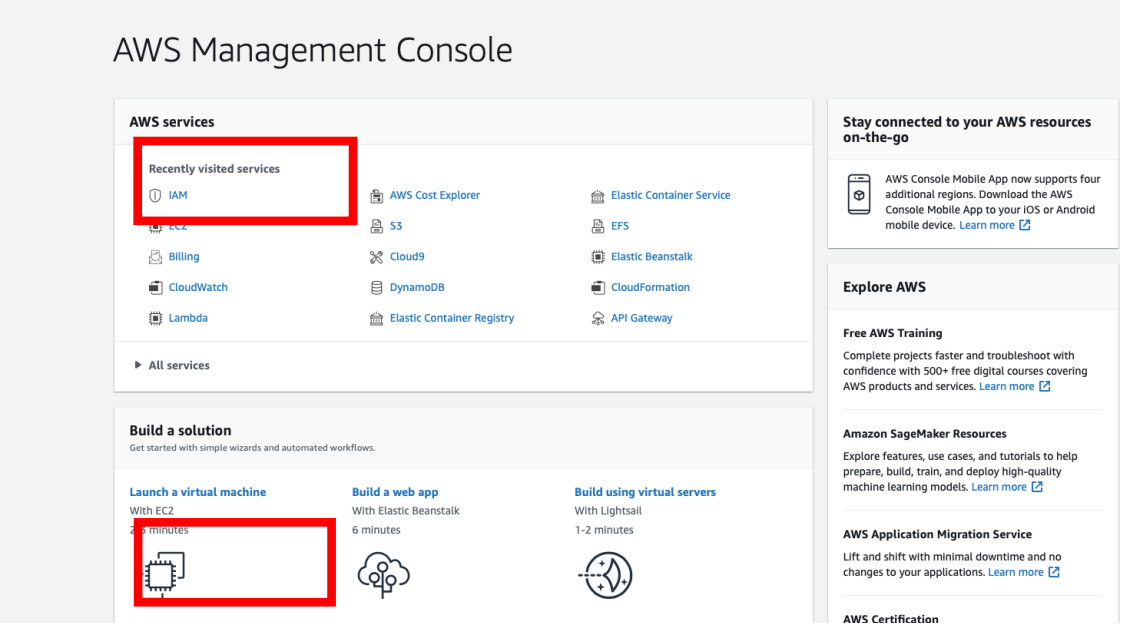
- **Exercise 3:** Qwiklab 1: A tour of Qwiklabs and Google Cloud -- Qwiklabs
- **Exercise 4:** Qwiklab 2: Cloud IAM: QwikStart – Qwiklabs.

Part 1: Getting started with AWS

Exercise 1: Getting Started with AWS Management Console

1- Think of AWS as a programmable data center. Rather than making a phone call or sending email to provision servers or other resources, you can manage all of your resources programmatically, via *application programming interfaces* (APIs). For example, you can provision virtual servers on demand in minutes and pay only for the compute capacity you use. The same is true for de-provisioning those servers; make a single API call to stop paying for resources that you no longer need.

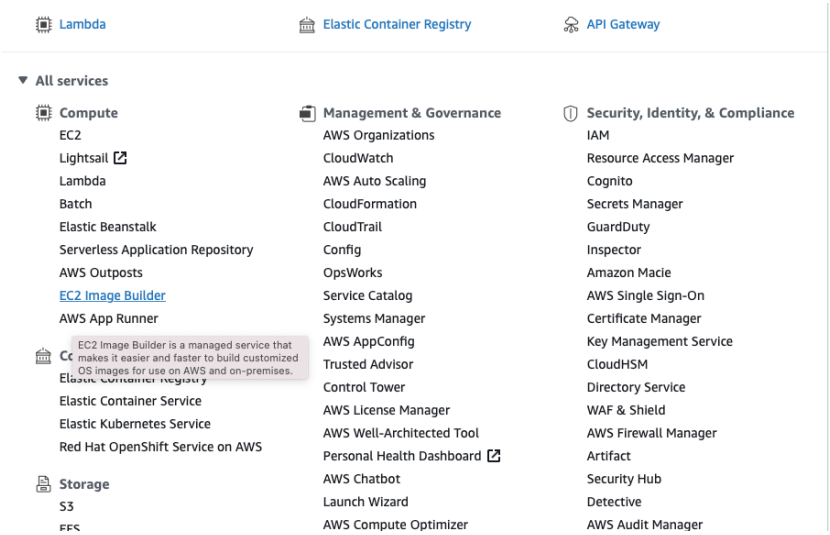
2- The AWS Management console is a web interface where you can create, configure, and monitor AWS resources in your account. You can quickly identify the AWS services that are available to you and explore the functionality of those services. Links are also provided to learning materials to help you get started. Use your AWS Educate account to sign in to the AWS management console. The following figure shows the console's main screen.



3- The Recently visited services sections gives a list of the services that you used. For example, in the previous figure, the list of recently used services include EC2, S3, and Cloud9. Note that your list may be empty if this is the first time to log in to your account.

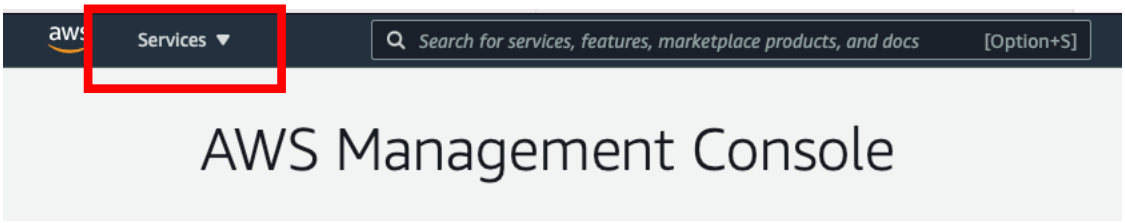
Lab report screenshot #1: log in to the ICS 432 class on **AWS Educate** and open AWS management console. Take a screenshot of your console opening screen. Make sure to include the top bar that shows your id.

4- If you click on All services, you can see a list of all the available AWS services.

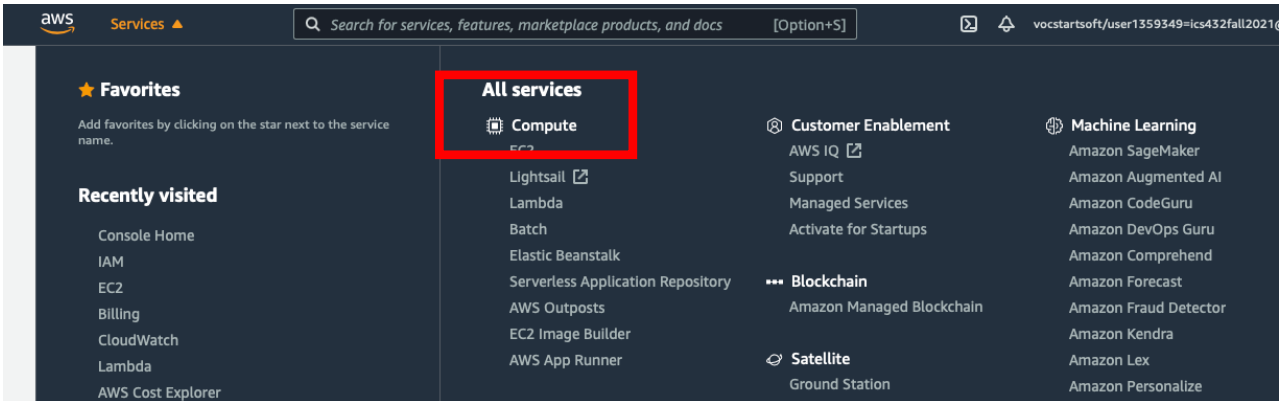


5- The AWS Management Console provides a lot of links to many quick tutorials to help getting started to with AWS services. For example, you can complete the Launch a virtual machine tutorial in 2-5 minutes.

6- There are two other ways to access a service, either use the search bar or use the Services drop down menu from the top left corner of the screen.

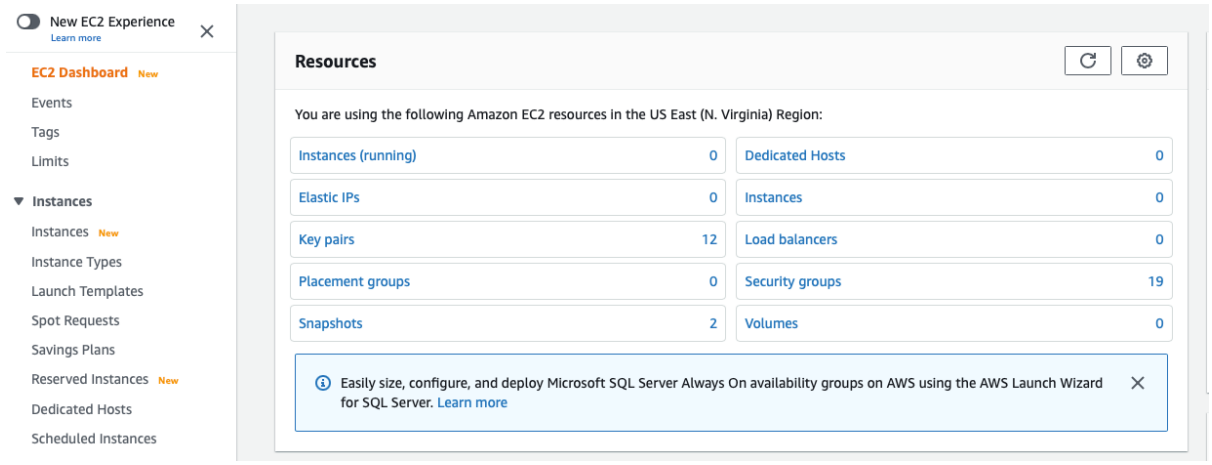


7- The Services menu takes you to the following screen where the left part includes a list of your Recently visited services and this list is updated as you use the console. The main part of the screen includes all groups of supported AWS services. For example, the Compute services group includes EC2, Lambda, and many other compute services.



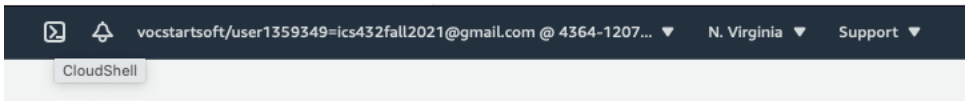
Lab report screenshots #2&3: Take a screenshot to show all **Database** services and another screenshot to show all **Analytics** services.

8- Once you click on any service, a new console window (or also called a dashboard) opens to allow you to interact with this service. For example, the following figure shows the dashboard for EC2. In part 2 of this lab, you will use the IAM service console.



Lab report screenshot #4: pick any AWS service and take a screenshot of the console window for that service.

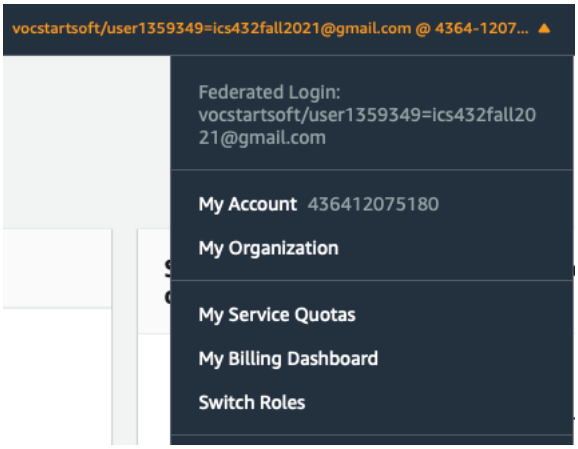
9- The following figure shows the top right menu that includes the following five options:



a) Access to cloud shell using  . The cloud shell service is not enabled for AWS Educate accounts.

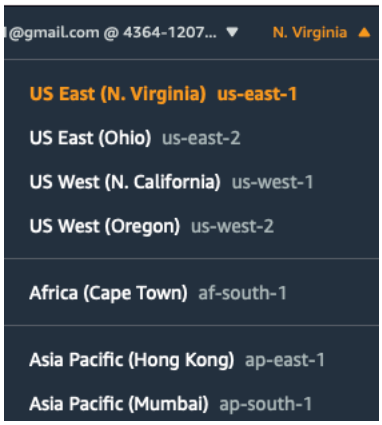
b) Notifications can be accessed using  . Notifications includes all messages that are sent to you while using the various services.

c) Account details. Note that AWS Educate automatically generates account details for you. You may need to use these account details while using some services. The following figure shows an example account details. Note that, AWS Educate accounts will not have access to My Service Quotas or My Billing Dashboard.

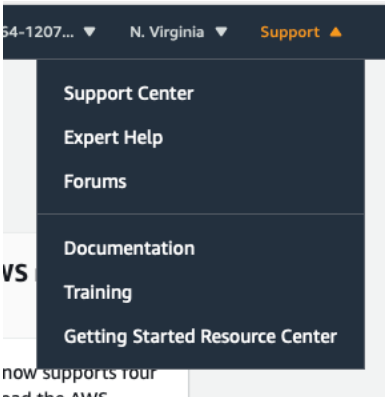


Lab report screenshot #5: take a screenshot of your account details.

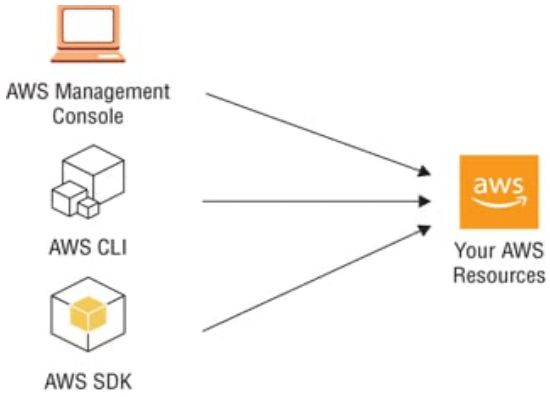
d) Current region. By clicking on the drop-down arrow next to current region, you can switch a different AWS region. Note that it is important to know the current region of your projects because some services are restricted to particular regions. You can also choose another region for your project.



e) The Support includes different resources to seek support while using AWS services. This includes support center, documentation, and Forums.



10- After you become familiar with a service, you can manage AWS resources programmatically through either the AWS Command Line Interface (AWS CLI) or the AWS software development kits (AWS SDKs).



Exercise 2: Complete AWS Academy Course Lab 1

The goals of this first lab are to: (1) practice using the AWS Management Console, and (2) to understand how the security of an AWS account can be controlled using IAM users.

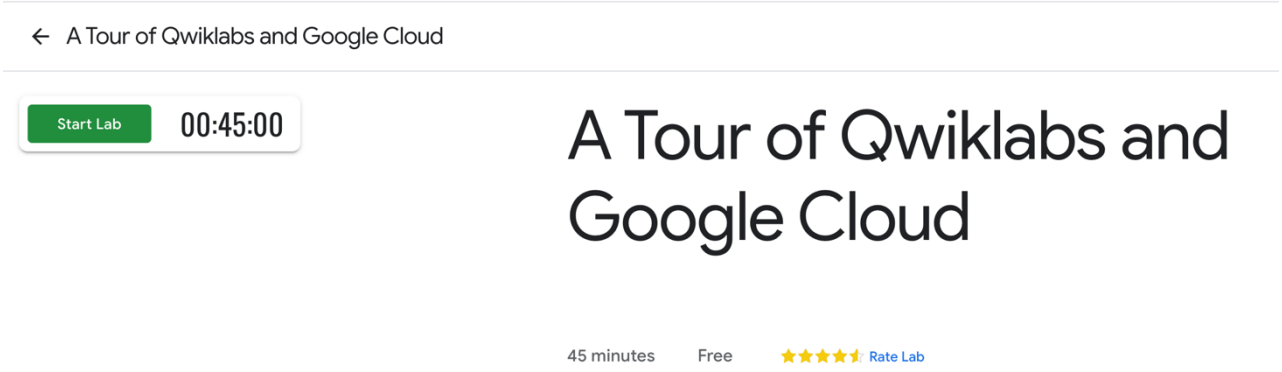
1- Go to your account on AWS Academy using the following link: https://www.awsacademy.com/LMS_Login
2- Log in using your email address and password.
3- In Module 4, Click on Lab 1: Introduction to AWS IAM.
1- Follow the lab steps. You are required to take screenshots while you are working in the lab. You will include these screenshots in your lab submission.
4- In this lab, you are required to submit screenshots after completing the following steps:
    a. Task 2: after completing step 31, take Lab report screenshot #6: that shows the three user groups and shows the number of users is 1 in each group.
    b. Task 3:
        i. after step 38, take **lab report screenshot #7:** that shows the name of the S3 bucket.

ii. After step 45, take **lab report screenshot #8** that shows the list of EC2 instances.
iii. After step 57, take **lab report screenshot #9** that show the instance with status as 'stopping' or 'stopped'.

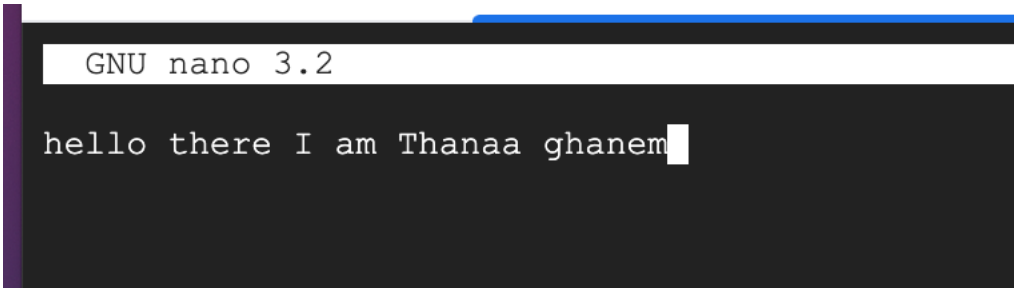
Part 2: Getting started with GCP

Exercise 3: Qwiklab 1: A tour of Qwiklabs and Google Cloud

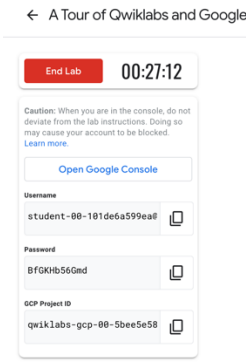
Go to the following link https://www.qwiklabs.com/focuses/2794?parent=catalog.
Click on the Start Lab from the top right corner.



1- Take **Lab report screenshot #10** of Google Console and make sure that the project ID is visible and clear in your screenshot. Copy the project ID and paste it in your submitted document.
2- **Lab report screenshot #11:** show that you answered the multiple choice questions.
3- **Lab report screenshot #12:** show your Project info screen.
4- After opening the IAM screen, take **Lab report screenshot #13:** that shows all the members and their roles.
5- **Lab report screenshot #14:** show your activated cloud shell after running the commands:
   a. `gcloud auth list.`
   b. `touch text.txt`
   c. `ls`
6- **Lab report screenshot #15:** show the command window screen after you execute the command `nano test.txt` and write your name in the file as follows:

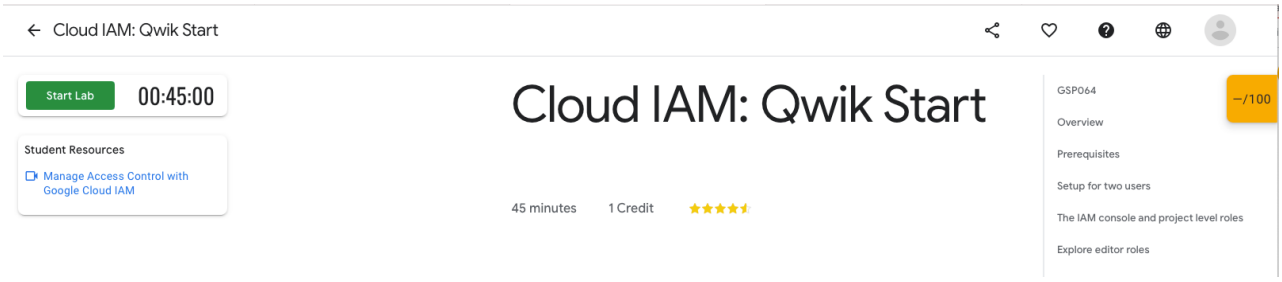


7- **Lab report screenshot #16:** show the remaining time after you complete the lab as follows.



Exercise 4: Qwiklab Lab 2: Cloud IAM: Qwik Start

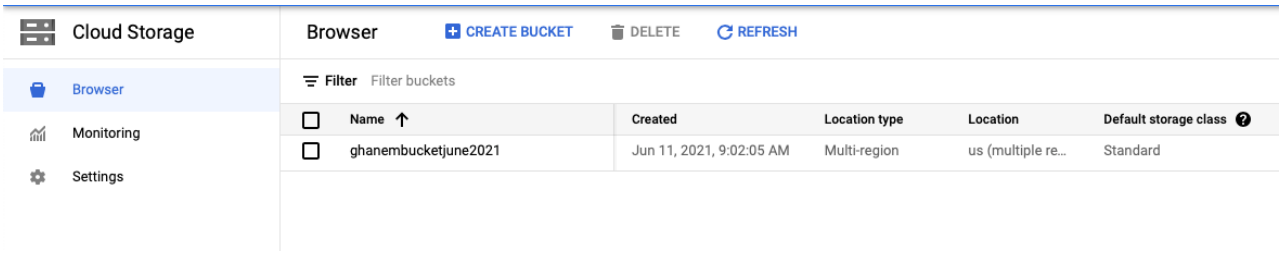
1- Go to the following link: https://www.qwiklabs.com/focuses/551?catalog_rank=%7B%22rank%22%3A1%2C%22num_filters%22%3A0%2C%22has_search%22%3Atrue%7D&parent=catalog&search_id=11516721
2- Click on Start Lab from the top right corner



In this lab, you will assign a role to a user and remove assigned roles associated with cloud IAM. The lab objective are: 1) explore editor roles, prepare a resource for access testing, 3) remove project access, 4) add storage permissions, and 5) verify access.

This lab is not Free. It costs one Credit. I assigned credits for the class so that each student can have up to three trials. Please contact me if you need to run the lab more than three times.

3- In the ‘View or reset the user in a browser tab’ section
   a. **Lab report screenshot #17:** show the user name in the first lab consoles.
   b. **Lab report screenshot #18:** show the user name in the second lab console.
4- In Explore Editor roles section, after step 2, **Lab report screenshot #19** show the table that show the two users along with the Roles assigned to them.
5- In the ‘Create a bucket’ section, choose a bucket name that includes your last name. After step 4, **Lab report screenshot # 20** shows the created bucket same to the following figure.



6- In Remove Project Viewer role section, after step 2, **Lab report screenshot #21** shows of the permissions table to show that viewer 2 is removed.
7- After completing the lab, **Lab report screenshot #22** shows the remining time and your lab score similar to the following figure. Make sure username 1 and Username 2 appear in the screen shot.