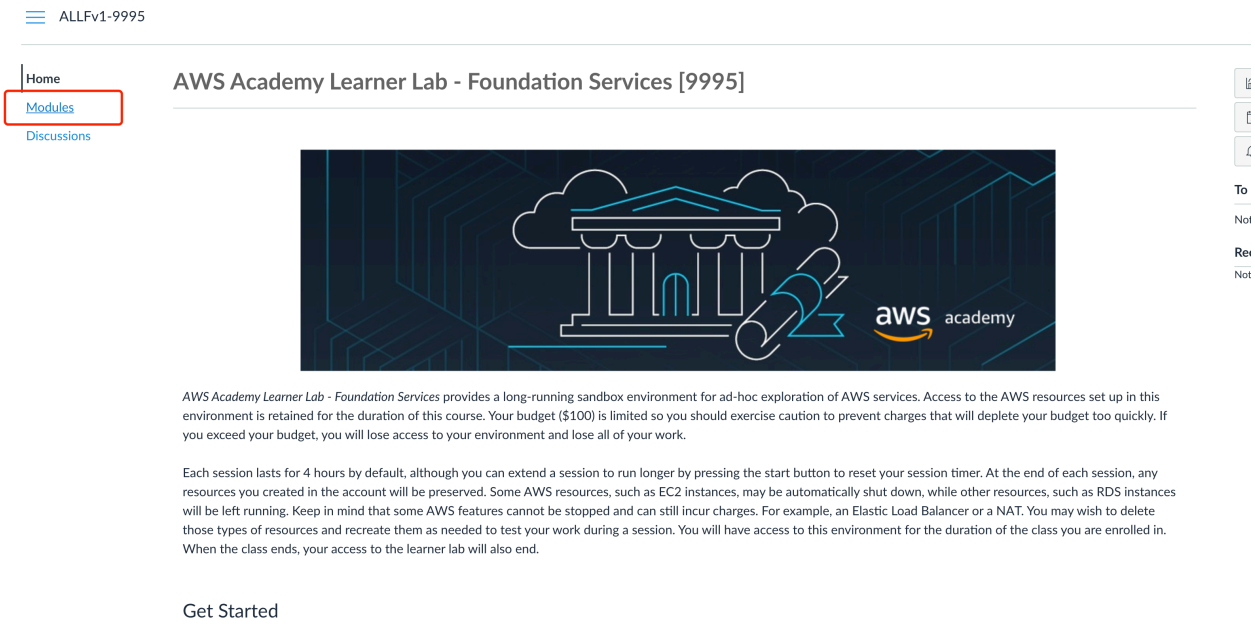
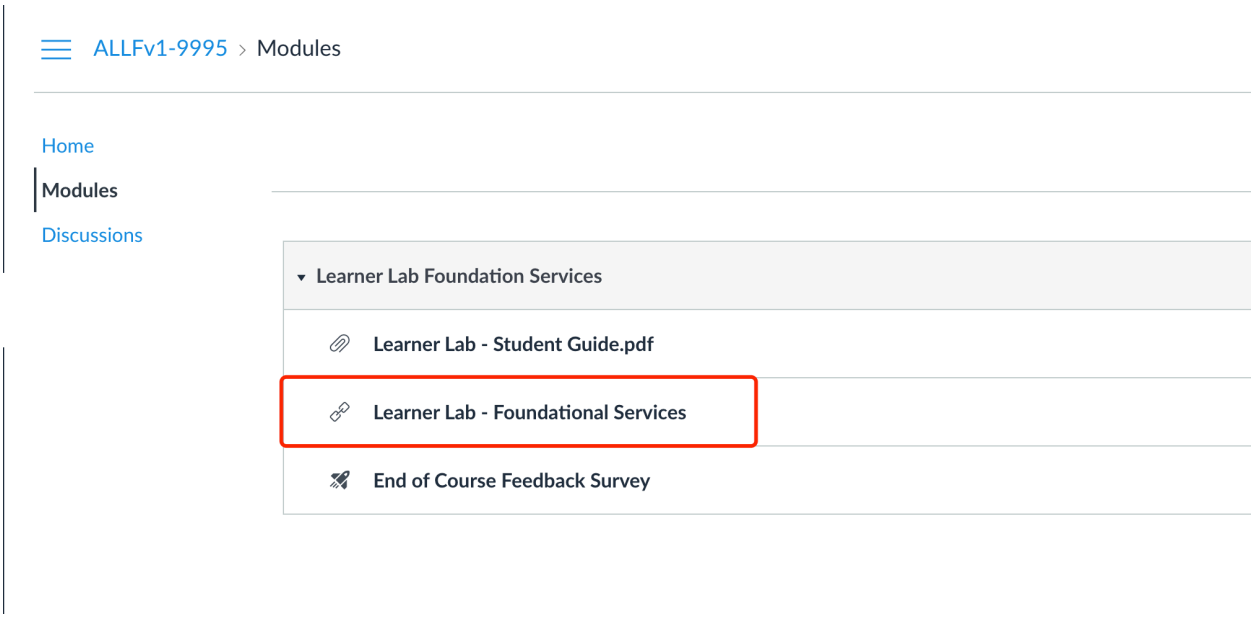
Setting up Souffle in AWS Academy

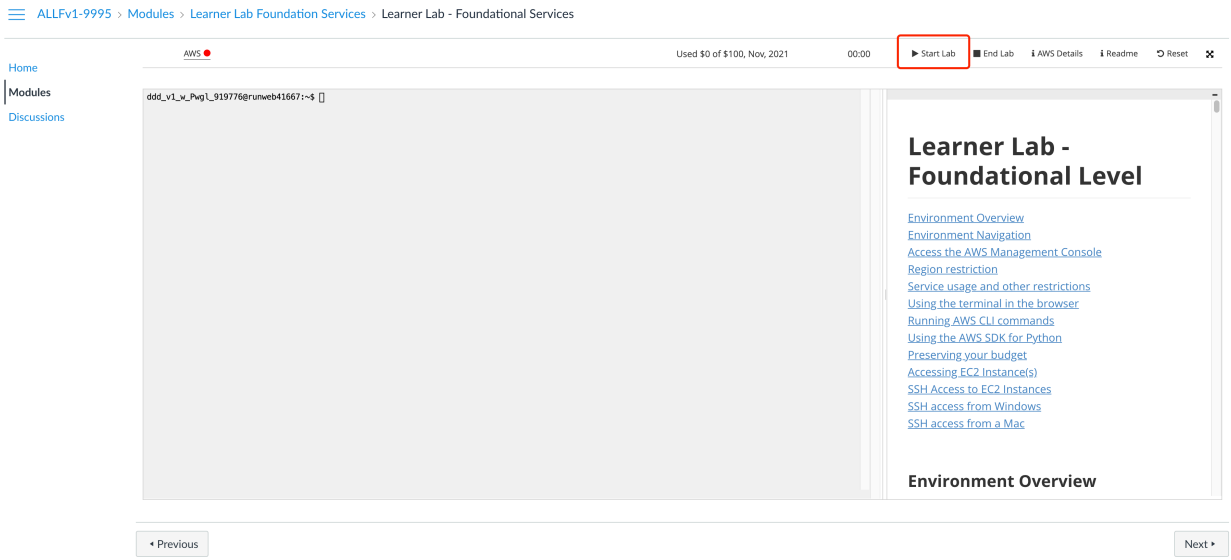
1. Go to https://awsacademy.instructure.com/courses/9995/
2. Click on Modules



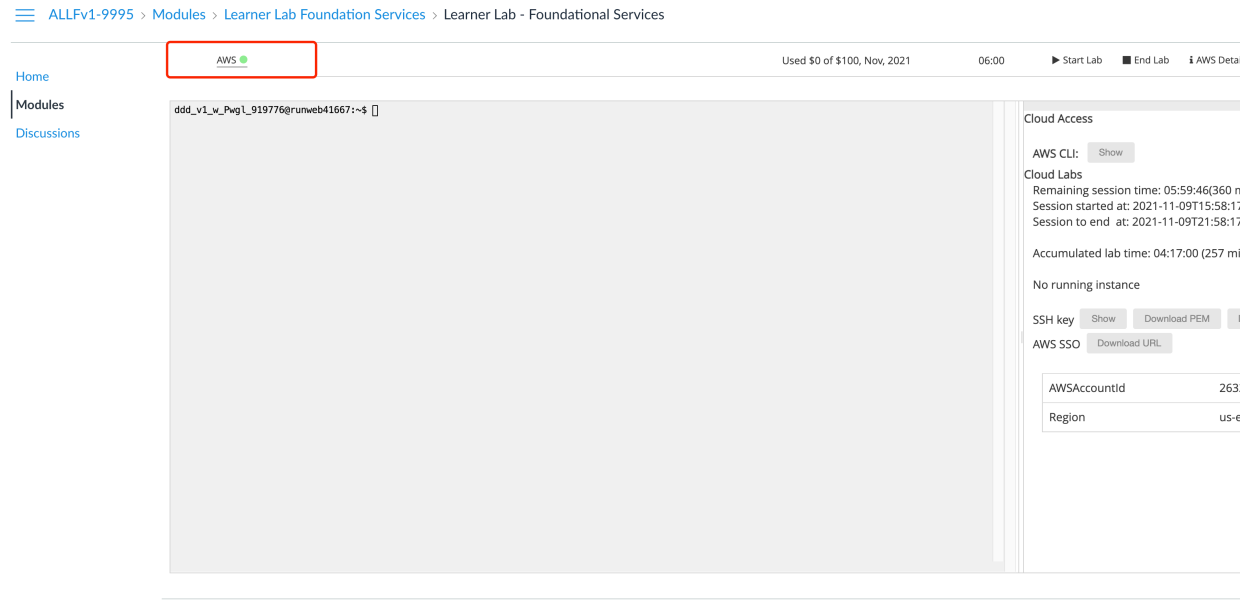
3. Click on Learner Lab - Foundational Services (read Learner Lab - Student Guide.pdf before doing so)



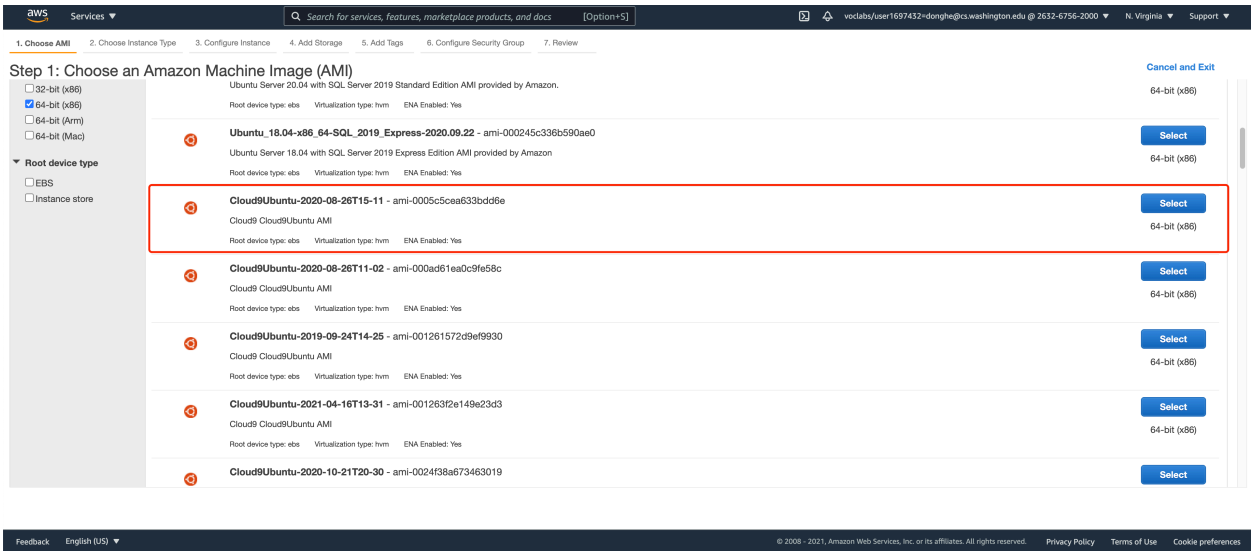
4. Click on Start Lab (you can read more about the usages by clicking on Readme)



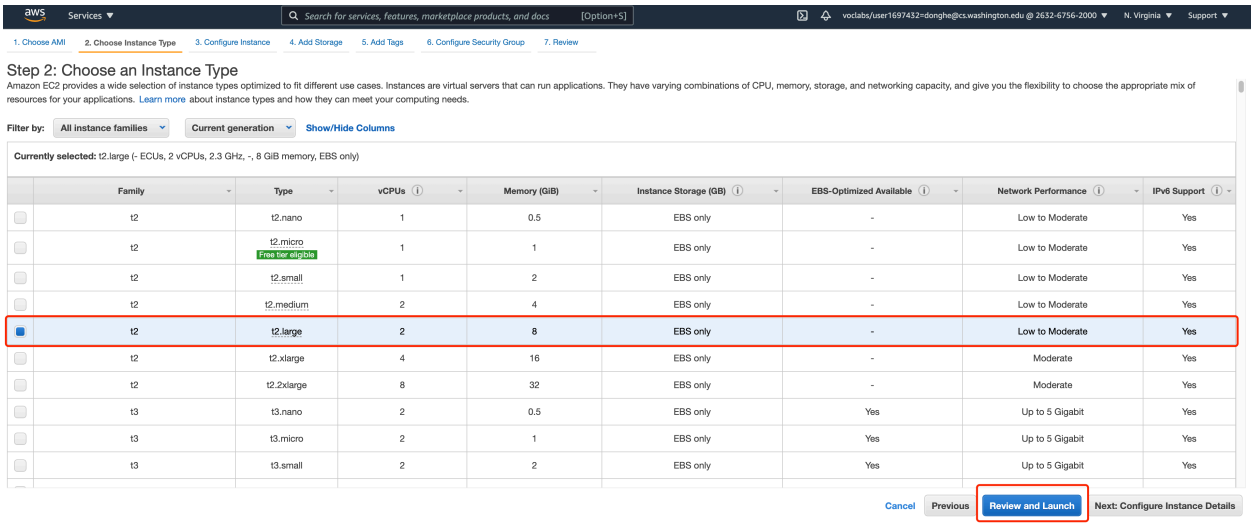
5. When the the circle on the right of AWS becomes green, your lab environment is set up.



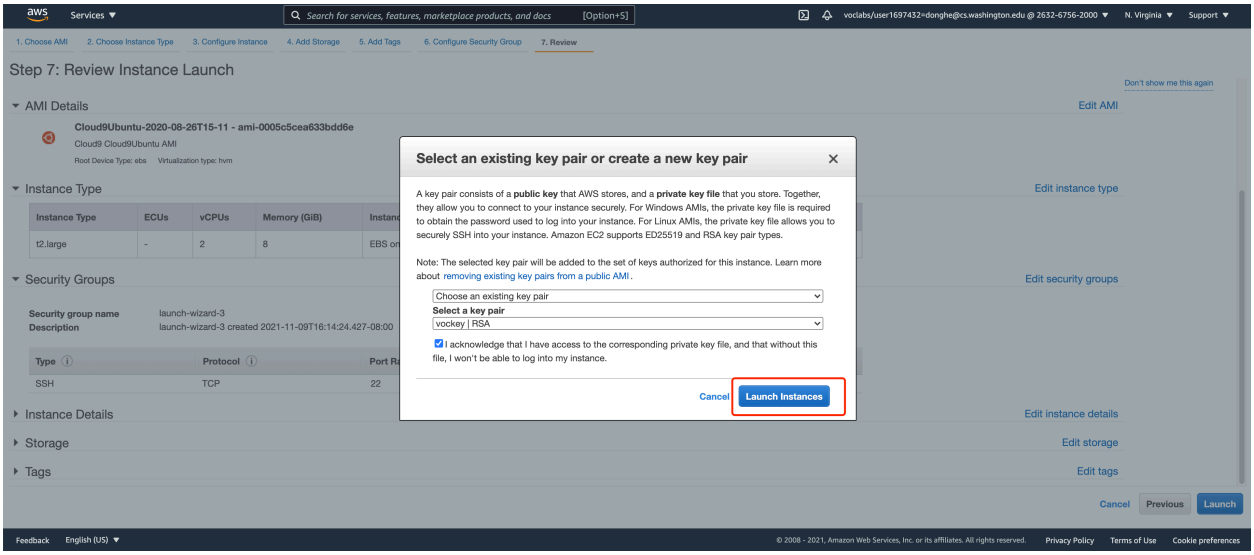
6. Click on AWS. Your lab AWS console will pop up as a new tab.
7. Now we will to start an EC2 instance to install souffle.
8. Go to EC2 in your AWS console and click on Launch instances.
9. Select Community AMIs and choose Ubuntu and 64-bit (x86) and input amazon in the search bar.



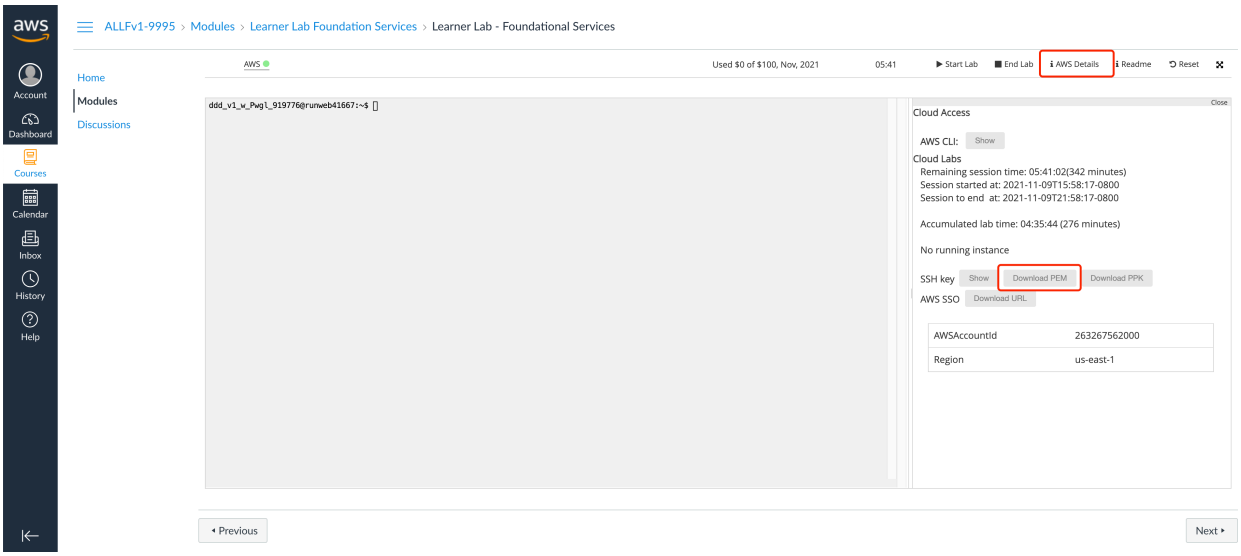
10. Select one of the latest Cloud9Ubuntu AMI.
11. Choose t2.large as the instance type and click on Review and Launch.



12. Click on Launch.
13. By default it will select vockey | RSA as the key pair. We will stick with vockey. Click on Launch Instance.



14. To connect to your instance, you need to download the key. Go back to AWS Academy canvas page and click on AWS details and click on Download PEM (for Linux and Mac).



For Windows users, Click on download PPK instead (read more in Readme)

Accessing EC2 Instance(s)

When launching EC2 instances in the default us-east-1 Region in this environment, choose the option to use the existing key pair named ***vockey*** at the time of launch. Then:

- Choose the **AWS Details** link above these instructions.
    - If you are using a Windows desktop or laptop, choose the **Download PPK** button and save the **labsuser.ppk** file. You can use this file to connect via SSH to a Linux EC2 instance or Windows EC2 instance, typically using a tool such as PuTTY.
    - If you are using a MacOS desktop or laptop, choose the **Download PEM** button and save the **labsuser.pem** file. You can use this file to connect via SSH to a Linux EC2 instance or Windows EC2 instance, typically using a terminal window.

15. In your terminal, run chmod 400 labuser.pem for the key file you just downloaded before connecting to your EC2 instance by SSH, e.g.,
ssh -i labsuser.pem ubuntu@ec2-35-170-202-157.compute-1.amazonaws.com (replace ec2-35-170-202-157.compute-1.amazonaws.com with your own EC2 instance Public IPv4 DNS)

16. Download souffle 2.0.0 deb file by running,
wget https://github.com/souffle-lang/souffle/releases/download/2.0.0/souffle_2.0.0-1_amd64.deb

17. Then run,
sudo apt-get install ./souffle_2.0.0-1_amd64.deb

And proceed with the installation by typing ‘Y’ when asked.

If you see errors like,

E: Could not get lock /var/lib/dpkg/lock-frontend - open (11: Resource temporarily unavailable)
E: Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontend), is another process using it?

Refer to https://askubuntu.com/questions/1109982/e-could-not-get-lock-var-lib-dpkg-lock-frontend-open-11-resource-temporari.

305

This may happen if

1. 'Synaptic Package Manager' or 'Software Updater' is open.
2. Some apt command is running in Terminal.
3. Some apt process is running in background.

For above wait for the process to complete. If this does not happen run in terminal:

```
sudo killall apt apt-get
```

If none of the above works, remove the lock files. Run in terminal:

```
sudo rm /var/lib/apt/lists/lock
sudo rm /var/cache/apt/archives/lock
sudo rm /var/lib/dpkg/lock*
```

then reconfigure the packages. Run in terminal:

```
sudo dpkg --configure -a
```

and

```
sudo apt update
```

That should do the job.

Then try running again,

sudo apt-get install ./souffle_2.0.0-1_amd64.deb

18. To verify souffle is installed, try an example datalog program.

```
.decl edge(n: symbol, m: symbol)
edge("a", "b"). /* facts of edge */
edge("b", "c").
edge("c", "b").
edge("c", "d").
.decl reachable (n: symbol, m: symbol)
.output reachable // output relation reachable
reachable(x, y):- edge(x, y). // base rule
reachable(x, z):- edge(x, y), reachable(y, z). // inductive
rule
```

In the example below, we consider a directed graph, where edges define relations, and a tuple is in the transitive closure (the `reachable` relation) if it satisfies either of the two rules below.

Save the above code to a file named example.dl on your EC2 instance (you can do this with vim).

Then run,

souffle example.dl

And output file named reachable.csv should appear in your current directory.

Note: save your work in progress to your local machine every time after a Learner Lab. Stop your instances after use to save your budgets.