LAB 5



Everything-as-a-Service with CITCloud + Heroku + MongoDB Atlas

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Note: screenshots need to be clear and good-looking; submissions must be in PDF format.

CITCloud (http://cloud.cit.ctu.edu.vn/horizon) is a private cloud environment providing infrastructure-as-a-service (IaaS) for CIT students and staff. It is implemented using OpenStack (https://www.openstack.org) which is a free open standard cloud computing platform. In this lab, you will learn about creating and managing virtual servers and other resources with CITCloud.

Log in to CITCloud using credentials provided by your instructor.

1. Ubuntu VM

Create an instance:

- + Instance name: <Your student ID>_Ubuntu
- + Source: UServer18-CloudImg; Select boot source: image; Create new Volume: No
- + Flavor: m1.small
- + Security group: default
- + Networks: Net dtdm
- + Key pair: Create a new key pair, name it <Your student ID> Ubuntu Key
- Launch your VM, then assign it a floating IP.
- SSH to your VM

```
$chmod 600 ./<Your student ID>_Ubuntu_Key.pem
$ssh -i ./<Your student ID> Ubuntu Key.pem ubuntu@<floating IP>
```

- Execute "sudo apt update; uname -a" command (take a screenshot of the console).

```
ubuntu@b1809707-ubuntu:~

ubuntu@b1809707-ubuntu:~

sudo apt update

Hit:1 http://nova.clouds.archive.ubuntu.com/ubuntu bionic InRelease

Get:2 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]

Get:3 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]

Get:4 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]

Fetched 252 kB in 2s (127 kB/s)

Reading package lists... Done

Building dependency tree

Reading state information... Done

234 packages can be upgraded. Run 'apt list --upgradable' to see them.

ubuntu@b1809707-ubuntu:~

uname -a

Linux b1809707-ubuntu 4.15.0-55-generic #60-Ubuntu SMP Tue Jul 2 18:22:20 UTC 2019 x86_64 x86_64 x86_64 GNU/Linux
```

2. Deploying a simple NodeJS + MongoDB application on Ubuntu VM

- Install NodeJs, npm and MongoDB

```
$sudo apt update
$sudo apt install nodejs npm mongodb -y
```

- Clone the source of the application

```
$cd ~
$git clone https://github.com/tmtuanctu/Employee CRUD.git
$cd Employee CRUD
```

- Install required modules using npm

```
$npm init -y
```

- Modify database configuration

```
$nano models/db.js
#Modify the content of db.js file
...
const url = "mongodb://localhost:27017/EmployeeDB";
```

- Start the application

\$node server.js

- Access the website using a web browser:

```
http://<VM floating IP>:3000/employee
```

(Take a screenshot of the website homepage)



3. Deploying a simple NodeJS + MongoDB Atlas application on Ubuntu VM

- Install NodeJs, npm and MongoDB

```
$sudo apt update
$sudo apt install nodejs npm mongodb -y
```

- Clone the source of the application

```
$cd ~ $git clone \underline{\text{https://github.com/tmtuanctu/Employee CRUD.git}}$cd Employee CRUD
```

- Install required modules using npm

```
$npm init -y
```

- Login into MongoDB Atlas using your CTU email address
- Create a database, then get it URL

- Modify database configuration

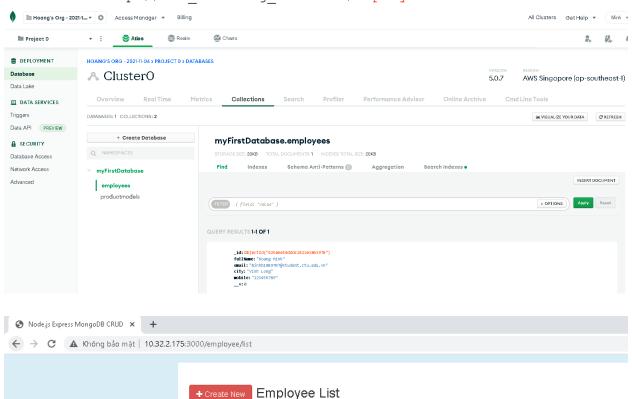
```
$nano models/db.js
#Modify the content of db.js file
...
const url = "[Your MongoDB Atlas database URL]";
```

- Start the application

\$node server.js

- Access the website using a web browser:

http://<VM floating IP>:3000/employee



4. Deploying a simple NodeJS + MongoDB Atlas application to Heroku

- Create a Heroku account
- Create a Heroku application

```
$sudo snap install --classic heroku
$cd Employee_CRUD
$heroku login
```

if the web browser cannot open automatically, please run it manually; then copy the log in link to the address bar.

minhb1809707@student.ctu.edu.vn

Mobile

123456789

City

Vinh Long

\$heroku create app[mssv]

Full Name

Hoang Minh

- Create Heroku application

\$nano Procfile
#The Procfile in the example app you deployed looks like this:
web: npm start

- Push the source code to heroku

\$git add . \$git commit -m "Modify file Procfile" **# Cẩn thận lỗi dấu nháy** \$git push heroku

- Launch your application

\$heroku open

(Take a screenshot of your website homepage + and add your website URL here) Link heroku: https://appb1809707.herokuapp.com/employee

