Cloud Computing -- Assignment 2

In this assignment, you will write a web API in Flask and launch an EC2 instance to serve it. The learning objectives of this assignment are:

- Practice setting up and launching EC2 instances
- Practice connecting to instances and sending files over SSH
- Practice flask skills
- Understand in practice how APIs can be developed and served from the cloud

> **Assessment**
>
> Below are the four exercises that will make up this assignment. The max number of points is indicated. You have to complete the first 3 exercises and the 4th exercise will be a class exercise in lecture 8.
>
> In coding exercises, the assessment will grade the correctness of the code, but also the quality of the API design, originality, and perceived level of effort, when applicable.

Assignment Exercises

Exercise 1: Basic API (max 2.5 points)

Read this page describing the python module `langdetect`:

- https://pypi.org/project/langdetect/

Make sure you understand the basic usage (how to run the `detect` function to get the language of a given text). Play with it on a Python notebook to complete your understanding.

**Task:

- Using flask, write a python script that implements an API with at least an endpoint to detect the language of a text. The endpoint should take the text as input and return the language of the document.
- Add another endpoint called "instance", that calls this python code:

```
dirs = os.listdir('/var/lib/cloud/instances/')
```

and returns the value of `dirs[0]` (this is needed for assessment).

- Feel free to add other endpoints or improvements you consider appropriate, necessary or interesting.

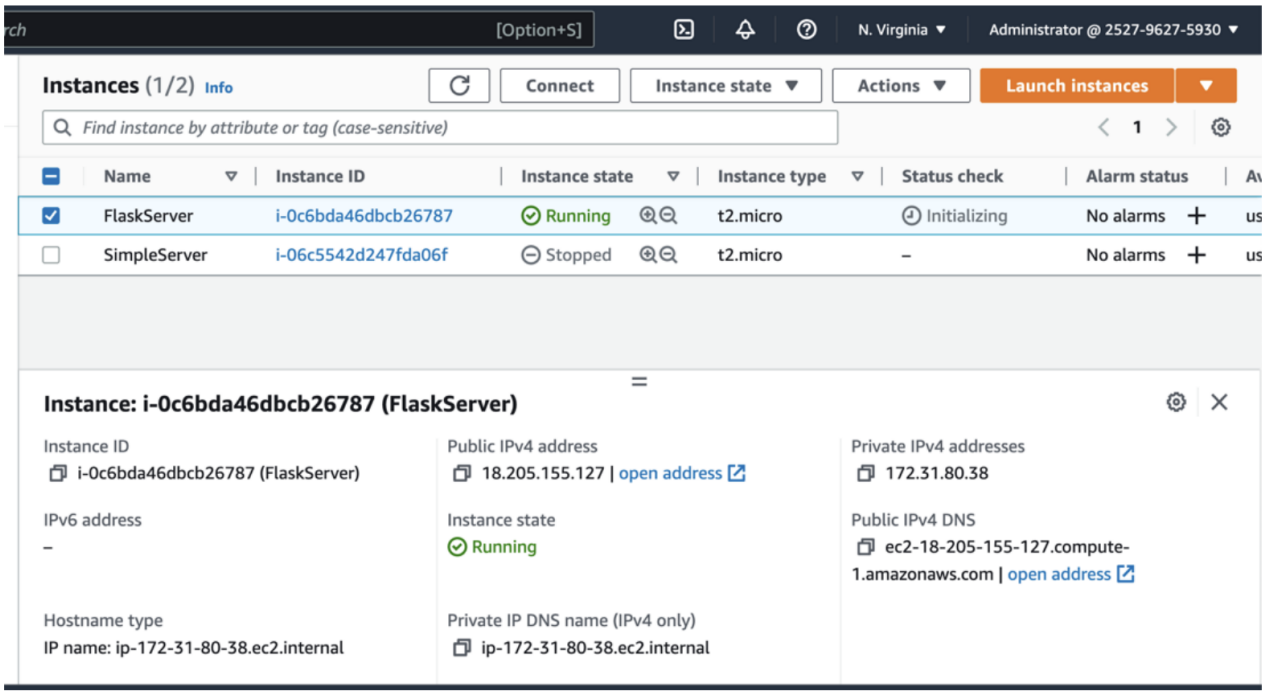
Exercise 1 deliverable

Any file necessary to run the API.

Exercise 2: Making the API Available in AWS (max 2 points)

Make the necessary work in AWS to make this API available publicly though an EC2 instance.

When you have verified the instance is running, go to the AWS console, take a screenshot that contains: the list of instances, with the instance in "Running" state, the public IP and your user name at the top right (example below):



Then, call the /instance endpoint from a browser and take another screenshot, that shows both the URL entered and the result.

Exercise 2 deliverable

- Screenshot of the running instance
- Screenshot of the request to the /instance endpoint

Exercise 3: Write your own API or web application (max 3.5 points)

Create your own API, or web application, that perfoms a task you would find useful or interesting. It should contain at least 2 endpoints (apart from the root endpoint). Be as original as you want. Use the good practices of designing APIs discussed in class.

Exercise 3 deliverable

Any file necessary to run the API.

Exercise 4: In-situ practice (max 1.5 points)

In Lecture 8 (few days after the deadline) you will be asked to perform an additional step "in-situ" with your API and EC2 instance in a slot of 15 minutes.

Exercise 4 deliverable

This will be revealed in class.