Portofino Labs

Backend Engineering Exercise

Overview

Every day at Portofino Labs, you'll be dealing with a range of challenges- some software development, some software engineering, all hopefully fun. You may be asked to pick up technologies or languages you are not necessarily familiar/comfortable with, and you should still able to quickly get things done.

The objective of this exercise is to see how you deal with challenges in a realistic setting.

The process goes like this:

- Thoroughly read the exercise below, and if you have any questions, email connor@portofinolabs.com.
- Complete the exercise within 3 days of receiving this document, and send Connor an email when you do.
- We'll take a look and set up a time to chat.

The main objective here is for you to show us:

- How do you approach a problem?
- How do you manage your work?
- What path do you take?

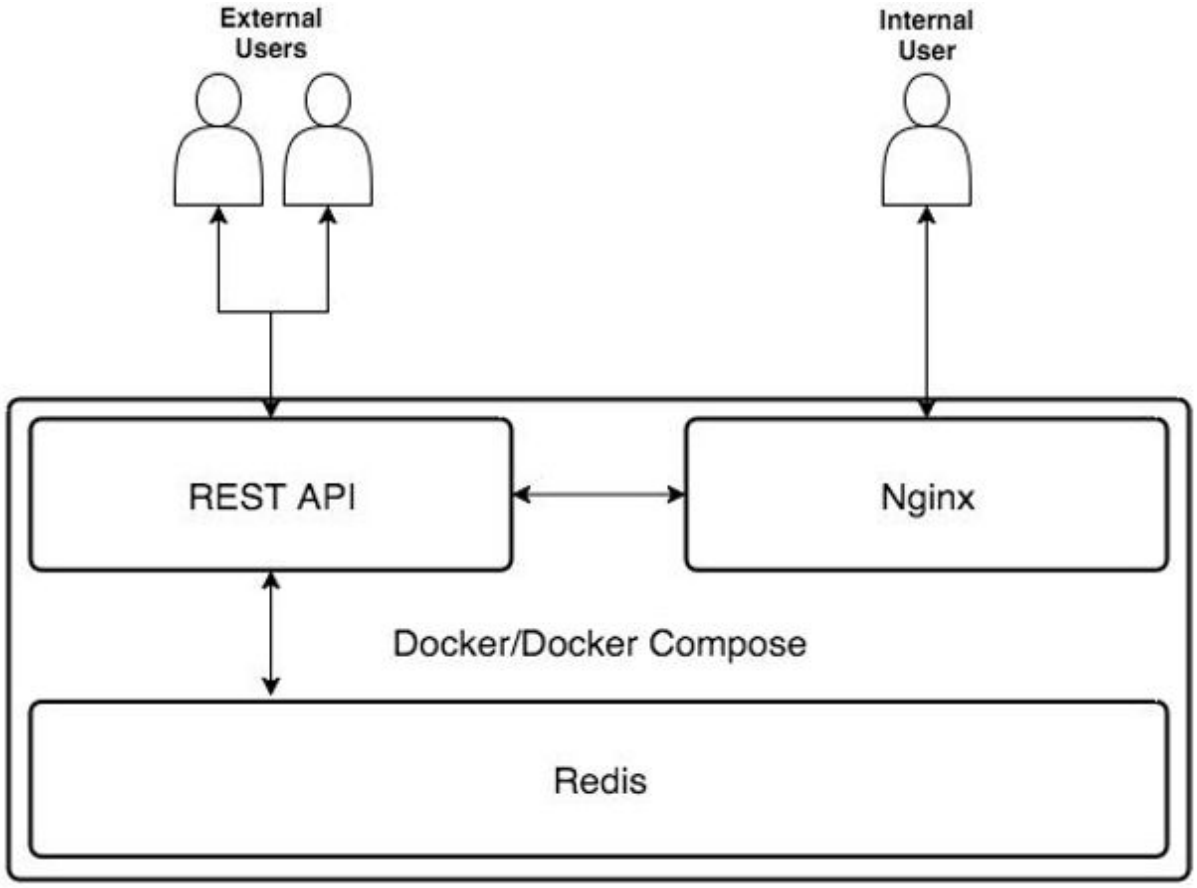
Task

The task is to create a Docker based, stateless RESTlike API **/v1/helloworld** which returns `{"message": "hello world"}`. When this endpoint is called, it logs the IP and unix timestamp of the request into a linked Redis Docker container. All API responses should be valid JSON.

Later, we want to view who and when accessed our new API! We decide to implement two more endpoints **/v1/logs** and **/v1/helloworld/logs** which return all access logs and the helloworld endpoint's logs respectively.

Now we have a pair of endpoints which can quickly retrieve our access logs, but we want an easy way to view them at a glance. Create a static, Nginx served page which calls our API and displays two views in the browser for the **/v1/logs** and **/v1/helloworld/logs** endpoints: each view with a raw log display (table form) and minute level aggregate count of IP addresses we want to see how many requests are coming from each IP every minute. See the diagram and example below for additional information.

Diagram



API Example

```
curl  http://localhost:xxxx/v1/hello-world
> {“message”: “hello world”}  curl  http://localhost:xxxx/v1/logs
> {“logset”: [“endpoint”: “hello-world”, “logs”: [{“ip”:
“xxx.xxx.xxx.xxx”, “timestamp”: xxxxxxxxxxx}]]}

curl  http://localhost:xxxx/v1/hello-world/logs
> {“logs”: [{“ip”: “xxx.xxx.xxx.xxx”, “timestamp”: xxxxxxxxxxx}]}
```

You may use any technologies outside of those specifically listed. However, for the API we highly prefer it built in Python, Go, Node or a JVM language.

When you are finished, send us a link to the code repository Github or BitBucket are great. Remember, we care as much about how you think about the problem as the code itself! Document the code as needed and be ready to discuss your project.

Above all, have fun and reach out if you have any questions. The task is designed to take approximately 4-6 hours to complete with the assumption that you may not have used one or more of the technologies required.

Bonus points (optional)

- Require authentication for the /v1/logs and /v1/helloworld/logs endpoints
- Display /v1/logs in the GUI
- Impress us!

Helpful Links

Nginx https://www.nginx.com/ Redis http://redis.io/ Docker https://www.docker.com/ Docker Compose https://docs.docker.com/compose/