Assignment 1

Content up until now

At this stage in the class, students will have learned concepts of containerization­­. They will have a concept of the difference between containerization and virtual machines. The security advantages and implications that come along with containerization. They will also have a grasp on the layers of abstraction that it provides. While week one is a general perspective on the use of containers, week two starts to narrow in on Docker as a solution.

Week two introduces Dockerfile’s as the basis of source code driving a docker image. They are exposed to what capabilities these files have, and how to generate images from them. The concept of hosting images on the internet is introduced (docker hub). This also contains a brief introduction to running a container from the image.

Assignment description

Options:

* Write a paper exploring tradeoffs of containerization in production. Explore what experts are saying about security concerns with running Docker in production. What are some security concerns that trip up developers/ops that are new to containerization? In week one, we discussed a case study between Auto Scaling Groups (ASG) and Elastic Container Services (ECS) in AWS. How does ECS compare to Kubernetes? Illustrate advantages/disadvantages one might have over the other.
* Build a hello world application in a language/framework of your choosing using Docker. This will consist mostly of building a Dockerfile. This Dockerfile should print `hello world` to the console via a `docker run` command. Also, publish this image on [Docker hub]( https://hub.docker.com/). This is a free registry, though you will need to create an account. Along with the source code in your submission, include a README on how to run your docker image (this should pretty much consist of `docker run <image>`). In this README, also include a URL to your image in Docker hub.

Submission instructions

Compress all of the files for this assignment (zip/tar) into one file. For a coding assignment, this only includes the source code written by you. Do not include dependencies like binaries or source code install via a package manager (npm/pip/etc.). Name this file LASTNAME\_FIRSTNAME\_ASSIGNMENT1.{extension}.

Grading Information

For coding assignments, these should be testable using only docker (more dependencies may be wrapped in the docker container). Assignments will be graded on an 11 point scale (0-10).

Peer review

Refer to the [peer review guide]() on how to give proper feedback. You will be required to submit four peer reviews after each homework assignment. Each peer review is worth 12.5% of your participation grade.