Team 14
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Assignment 3 Effort Expended

First, we created docker images on VM2 for the different elements of the pipeline. We used the self study slides as a reference. In all, creating these images was not the hard part of the assignment. It took us a total of several hours to complete, especially since we had to rebuild the images a couple times to get them built properly how they should be. If an image did not work or did not build correctly, we would have to destroy it, edit the dockerfile, and create again.

Next, we spent a good amount of time messing with port forwarding to get the containers to talk to each other. We spent several hours on this also, manually editing the dockerfiles and rebuilding the images. We finally got the assignment to work just using docker containers and doing things manually.

We found the part of creating and utilizing the private registry to be very easy, especially with the slide deck we were given.

We then started creating Kubernetes Pods once we were confident in our configuration of the Docker containers. It took several hours to go through the self study slides and kubernetes documentation, plus consult the slack. An estimate for the total amount of time working with Kubernetes, creating deployments, jobs, and services, manually deploying pods and editing YAML files to get them to all stay deployed correctly, is around 10 hours over the course of several days.

Changing ufw rules and modifying security groups was easy enough as we have been doing so for the past 3 assignments.

We found the Kubernetes part to be especially difficult. We found it very challenging to find help online and honestly using Kafka with Kubernetes didn't make much sense to us, especially with how hacky and manual we had to be with the different brokers and such. We struggled most with figuring out communication between pods and with figuring out how to properly implement the hacky solution. We also were a bit confused on how to properly connect outside things to the cluster.

Most of the time spent on this assignment was thinking of solutions and trial and error when deploying to pods. We eventually figured it out, once we fully understood networking between pods it was actually pretty simple. It was just a steep learning curve and a hump we had to get over.