Lab 8 - Deploy over Digital Ocean hosted Kubernetes

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Introduction

In this lab I will be creating a web app micro service and deploying it over a Digital Ocean hosted Kubernetes cluster. The web app will be a simple chat application that allows you to send messages to a chat room. It will be using a sql database to store the messages and a redis cache to store the users.

1 Creating the app

First I created the app using flask and the code given to me by the professor. I added functions to add messages to the database, update the username and color of the user, and get the list of messages from the database. From this I used AI to create a pretty frontend that allows you to send messages, update your username and color, and see the list of messages. After this I ran the app locally to make sure it was working. Below is a screenshot of the app in action in figure 6.

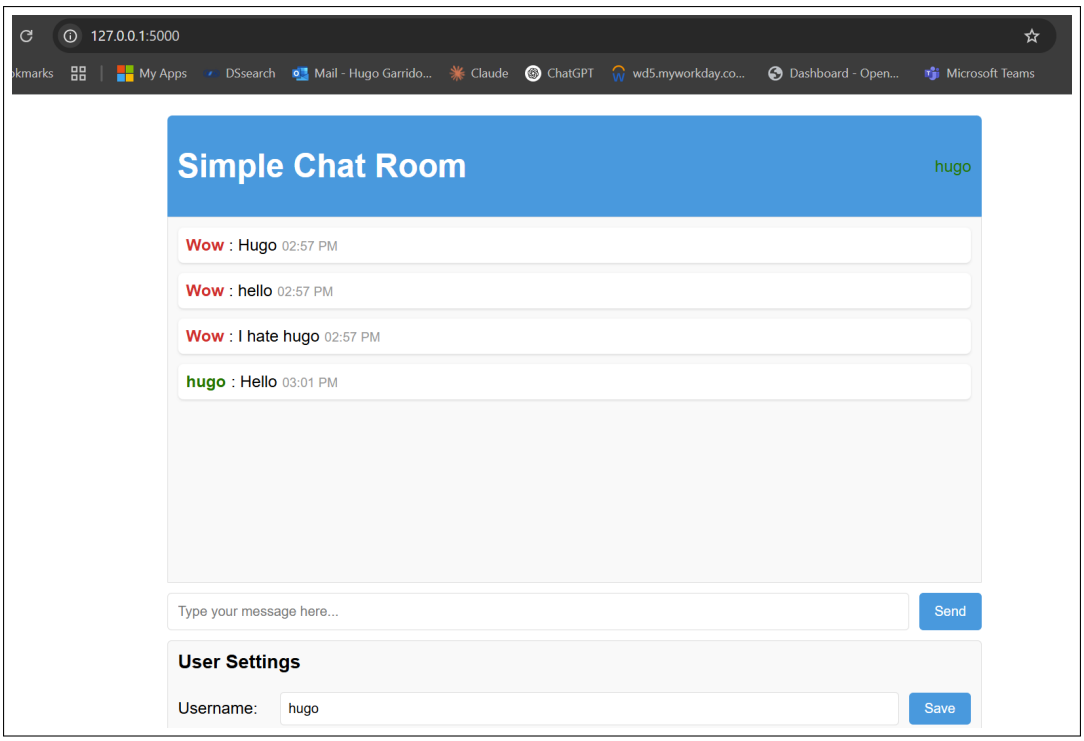

Figure 1: Local testing

2 Pushing to Digital Ocean registry

After this I created a docker file to containerize the app. I went to digital ocean and created a container registry. After setting up the computer to have the correct credentials I was able to push the image to the registry. After this I ran the app from the digital ocean container registry and it worked as expected. Below is a screenshot of the app being ran from the digital ocean container registry in figure 6.

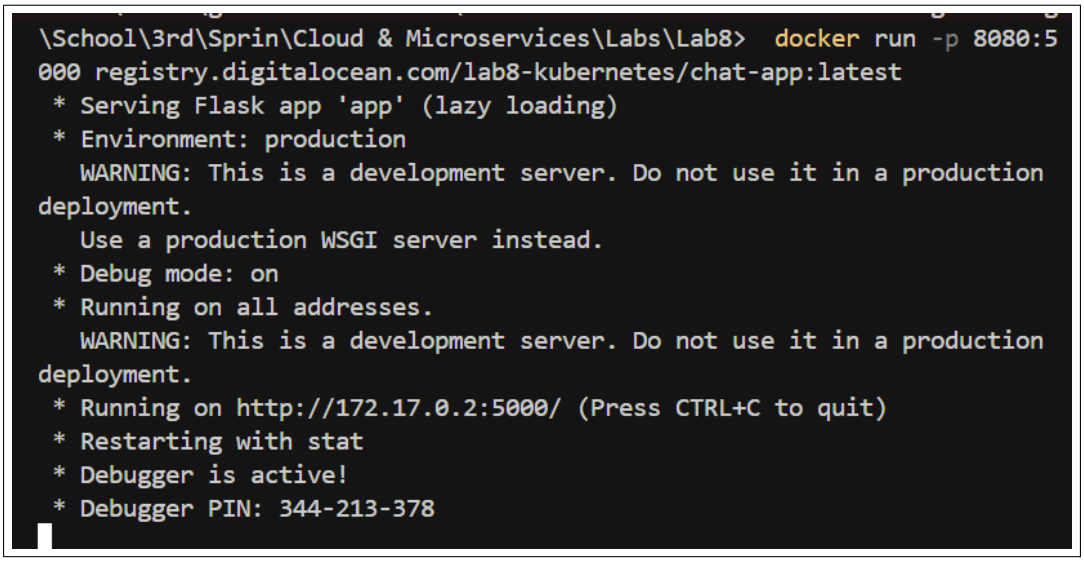

Figure 2: Digital Ocean testing

3 Deploying to Kubernetes

After this I created a kubernetes cluster on digital ocean. I gave the cluster permission to access the container registry. I then created a deployment and a service to deploy the app to the cluster. Below is a screenshot of the app being ran from the kubernetes cluster in figure 6.

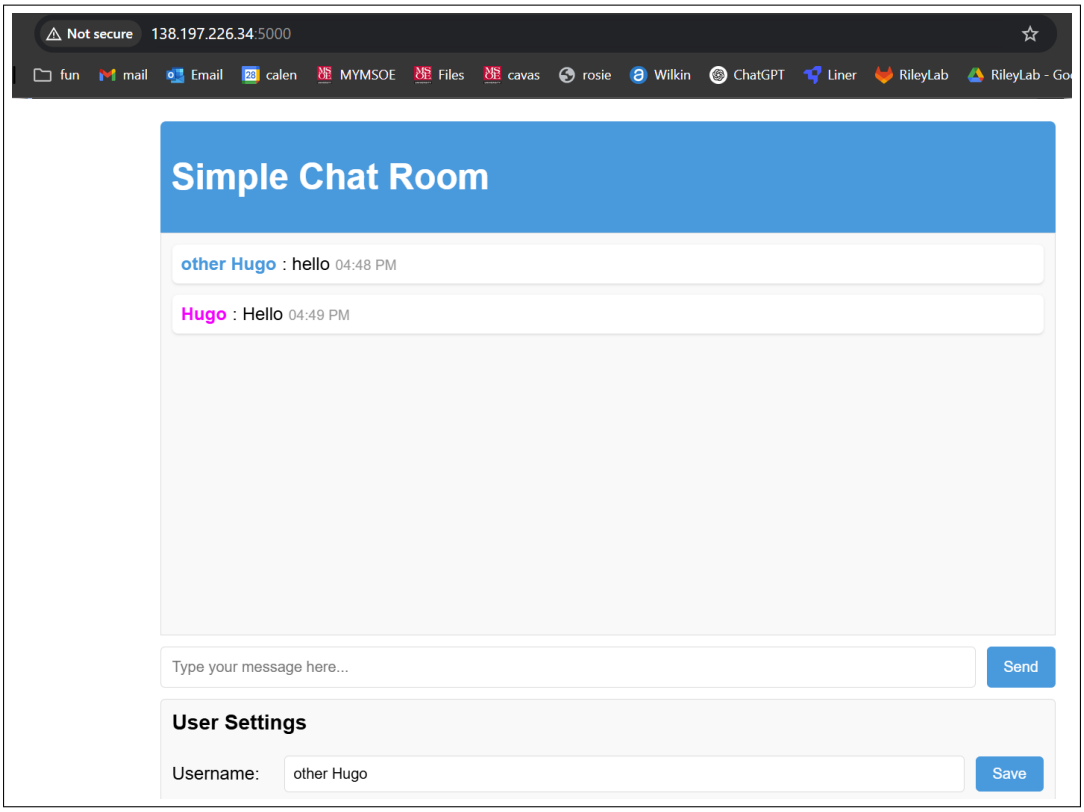

Figure 3: Kubernetes testing

4 Testing the app

After this I tested the app by sending messages and updating the username and color. below is a screenshot of me sending a message in the app in figure 6.

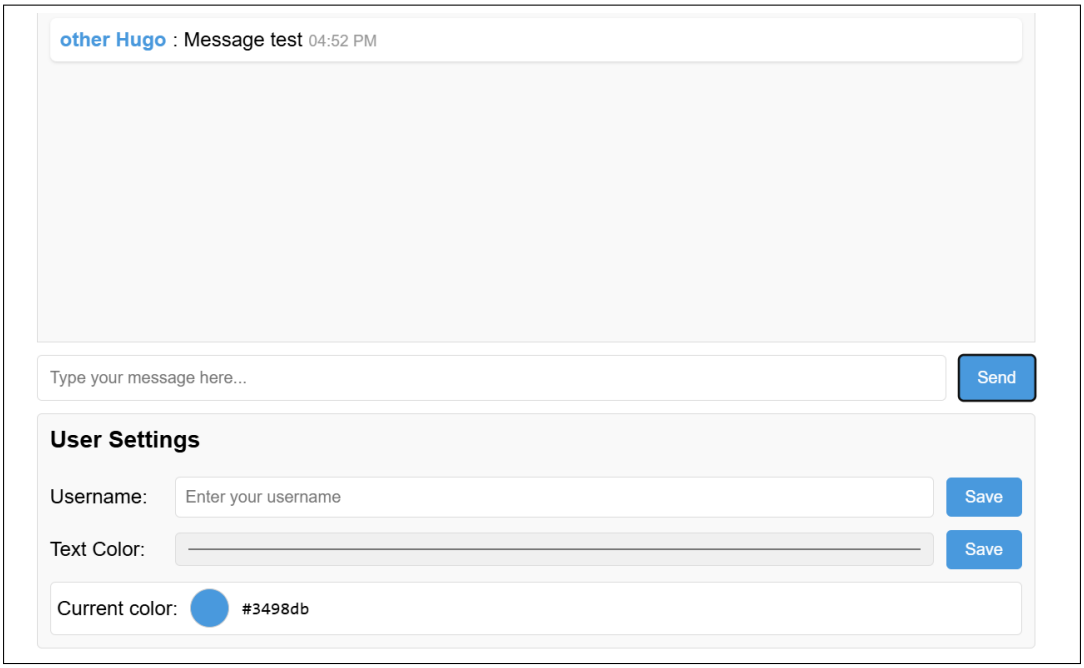

Figure 4: Testing the app

I then changed the username to ensure that it was working. Below is a screenshot of the app with the username changed in figure 6.

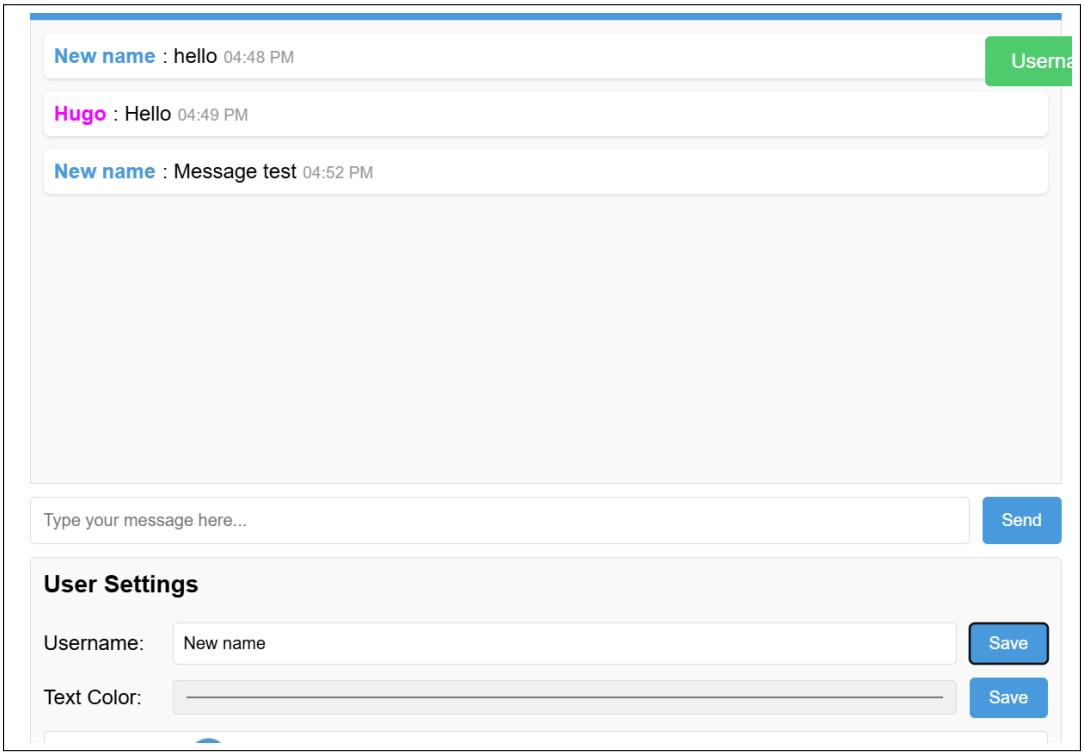

Figure 5: Username change

After that I changed the color of the user to ensure that it was working. Below is a screenshot of the app with the color changed in figure 6.

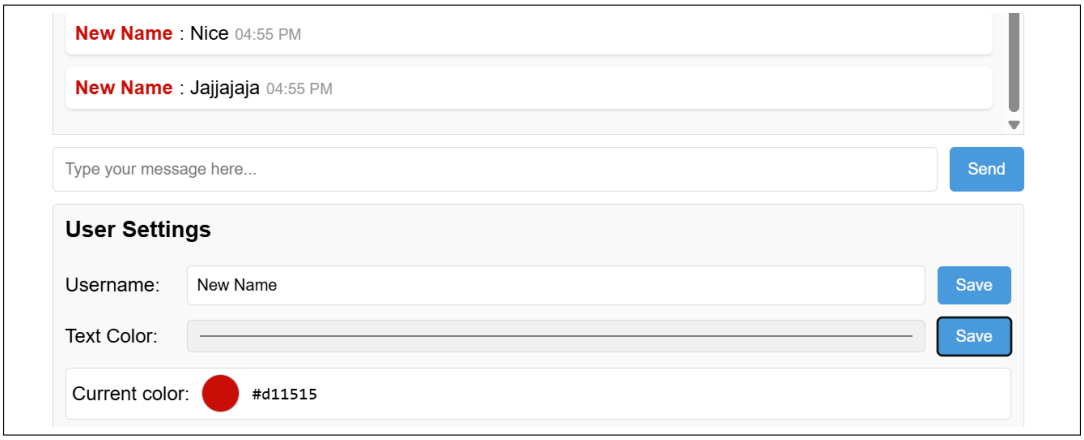

Figure 6: Color change

I then send the link to my friends and we all were able to have a conversation together which was fun.

feedback

This lab was fun and intresting for learning how to deploy a flask app to a kubernetes cluster. I think the instructions were good and built on the previous labs to help us understand the concepts better. I had issues pushing the image and running the kubernetes cluster, I found that storing the my digital ocean key to the enviroment vairables seemed to fix the issue. Despite this I think the lab was very good. Going forward I would consider giving labs with less direction allowing us to research and figure out the methods on our own. This might be challenging for some students but I think being able to figure out the methods on our own would be very helpful.

Repo Link

https://github.com/Hugogales/lab8-kubernetes