Task 1

Task 1: We were assigned to dockerize our flask app and create an image. After that, we had to push that image to Dockerhub. This link was given to us to help us.
https://runnable.com/docker/python/dockerize-your-flask-application

Step 1:
I first created an ssh key

```
ssh-keygen -t ed25519 -C "Bishajitklodh@gmail.com"
```

Step 2:
Then I copied my ssh public key to Github

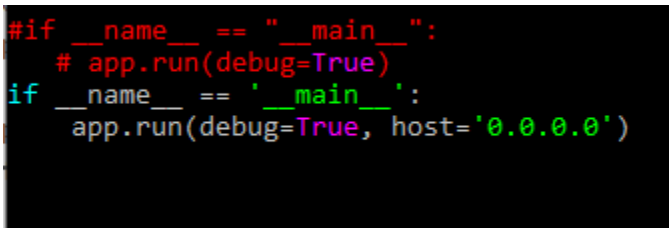
Step 3:
After that, I cloned my repo inside my directory called news-app
Git clone -b test1 git@github.com:Bishajit/News-app.git

Step 4:
Then I removed the readme.md file in the news-app directory
rm readme.md

Step 5:
Created a Docker file with these commands inside it

FROM python:3.6.9
WORKDIR /~
COPY . .
RUN pip install -r requirements.txt
ENV FLASK_APP=application.py
EXPOSE 5000
CMD flask run --host=0.0.0.0

Step 6:
I also added host=0.0.0.0 at the end of my application.py file in the news-app directory.



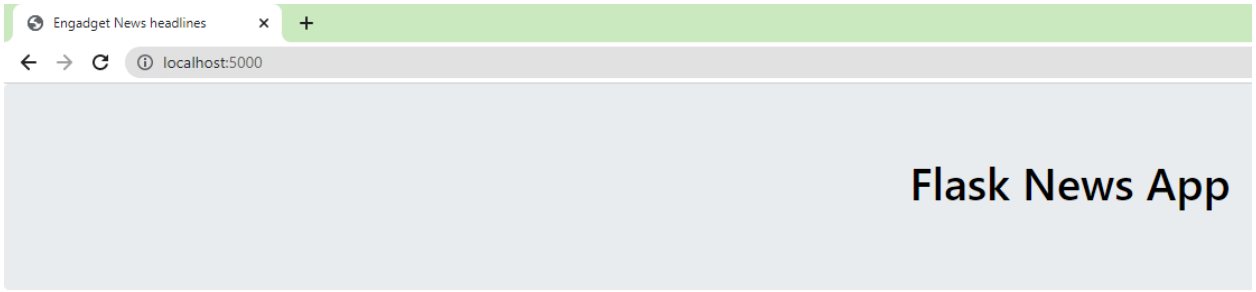
Step 7:
Then I built the image with my docker file.
Docker build -t bishajit/news-app

Step 8:
After that, I logged into docker
docker login

Step 9**:**
And then I pushed my image into docker hub
docker push bishajit/news-app

Step 10:
Then I ran the container
docker run -d -p 5000:5000 bishajit/news-app

Running this command will make sure you are able to see your app on localhost:5000



Task 2

Task 2: Assignment for the task 2 was to deploy our flask app on Kubernetes
To do this we had to

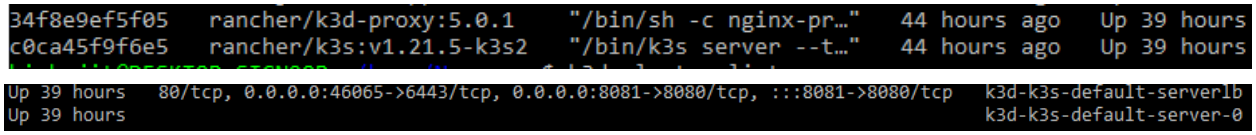
- Create your cluster with a Load Balancer.
- Create a deployment yaml file for your flask app.
- Use the yaml file from yesterday's class to help you create a yaml file for your Flask app.

Before trying to deploy our flask app, we had to make sure the k3d is installed. And you can see if it's installed using the command
curl -s https://raw.githubusercontent.com/rancher/k3d/master/install.sh | bash

Step 1:
Created a default cluster
k3d cluster create -p "8081:8080@loadbalancer"

If you don't want to use a default cluster then type a name after the k3d cluster create command

This creates a default cluster that comes with a load balancer, a server, and a default node



Step 2:
I created the Yaml file with the command **nano news-app.yml a**nd placed these commands inside it

```
# Helloworld application- just the deployment
apiVersion: v1
kind: Service
metadata:
  name: news-app-service
spec:
  type: LoadBalancer
  ports:
  - port: 8080
    protocol: TCP
    targetPort: 80
  selector:
    app: helloworld
```

```
piVersion: apps/v1
kind: Deployment
metadata:
  name: news-app-deployment
spec:
  selector:
    matchLabels:
      app: news-app
  replicas: 1 # tells deployment to run 1 pods matching the template
  template: # create pods using pod definition in this template
    metadata:
      labels:
        app: news-app
    spec:
      containers:
      - name: news-app
        image: bishajit/news-app:latest
        ports:
        - containerPort: 5000
---
apiVersion: v1
kind: Service
metadata:
  name: news-app-service
spec:
  type: LoadBalancer
  ports:
  - port: 5000
    protocol: TCP
    targetPort: 80
  selector:
    app: news-app
```

Step 4:

Ran the yml file using this command
kubectl create -f news-app.yml

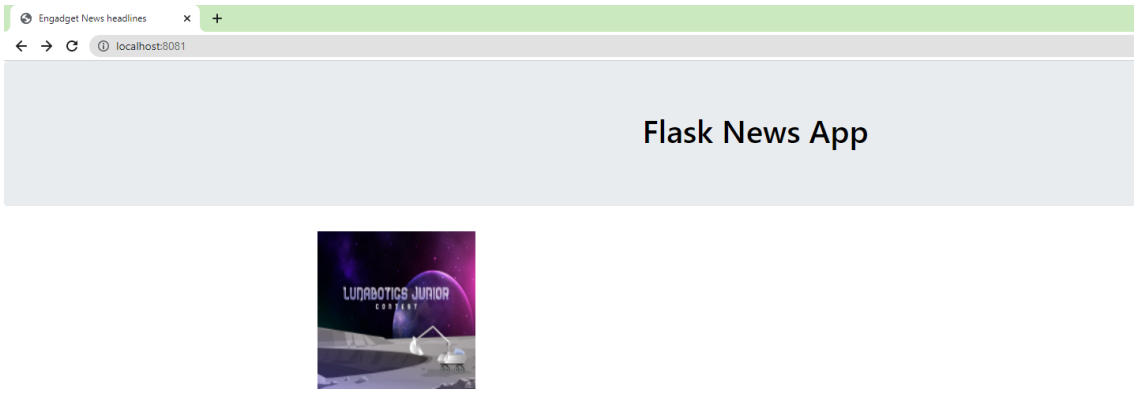
Step 5

Then expose port 8080 and target port 80.

kubectl expose deployment news-app-deployment --port 8080 --target-port 80 --type=LoadBalancer

```
bishajit@DESKTOP-SIGN9OP:~/kura/News-app$ kubectl expose deployment helloworld-deployment --port 8080 --target-port 80 --type=LoadBalancer
Error from server (NotFound): deployments.apps "helloworld-deployment" not found
bishajit@DESKTOP-SIGN9OP:~/kura/News-app$ kubectl expose deployment news-app-deployment --port 8080 --target-port 80 --type=LoadBalancer
service/news-app-deployment exposed
bishajit@DESKTOP-SIGN9OP:~/kura/News-app$ kubectl get all
NAME                                      READY   STATUS    RESTARTS   AGE
pod/svclb-news-app-service-2c4wl          1/1     Running   0          14m
pod/news-app-deployment-6d5cf656c7-6t4w6  1/1     Running   0          14m
pod/svclb-news-app-deployment-t6tpf       0/1     Pending   0          20s

NAME                          TYPE           CLUSTER-IP     EXTERNAL-IP   PORT(S)          AGE
service/kubernetes            ClusterIP      10.43.0.1      <none>        443/TCP          45h
service/news-app-service      LoadBalancer   10.43.79.193   172.18.0.3    8080:32668/TCP   14m
service/news-app-deployment   LoadBalancer   10.43.31.224   <pending>     8080:31113/TCP   20s

NAME                                    DESIRED   CURRENT   READY   UP-TO-DATE   AVAILABLE   NODE SELECTOR   AGE
daemonset.apps/svclb-news-app-service   1         1         1       1            1           <none>          14m
daemonset.apps/svclb-news-app-deployment   1         1         0       1            0           <none>          20s

NAME                                  READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/news-app-deployment   1/1     1            1           14m

NAME                                            DESIRED   CURRENT   READY   AGE
replicaset.apps/news-app-deployment-6d5cf656c7   1         1         1       14m
bishajit@DESKTOP-SIGN9OP:~/kura/News-app$
```

After exposing those ports, going to localhost:8081 will show us our flask app



And this is what should be seen when using the command **kubectl get all**

```
bishajit@DESKTOP-SIGN9OP:~$ kubectl get all
NAME                                      READY   STATUS    RESTARTS   AGE
pod/svclb-news-app-service-2c4wl          1/1     Running   0          7h37m
pod/news-app-deployment-6d5cf656c7-6t4w6  1/1     Running   0          7h37m
pod/svclb-news-app-deployment-t6tpf       0/1     Pending   0          7h22m

NAME                          TYPE           CLUSTER-IP     EXTERNAL-IP   PORT(S)          AGE
service/kubernetes            ClusterIP      10.43.0.1      <none>        443/TCP          2d4h
service/news-app-service      LoadBalancer   10.43.79.193   172.18.0.3    8080:32668/TCP   7h37m
service/news-app-deployment   LoadBalancer   10.43.31.224   <pending>     8080:31113/TCP   7h22m

NAME                                      DESIRED   CURRENT   READY   UP-TO-DATE   AVAILABLE   NODE SELECTOR   AGE
daemonset.apps/svclb-news-app-service     1         1         1       1            1           <none>          7h37m
daemonset.apps/svclb-news-app-deployment  1         1         0       1            0           <none>          7h22m

NAME                                  READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/news-app-deployment   1/1     1            1           7h37m
```