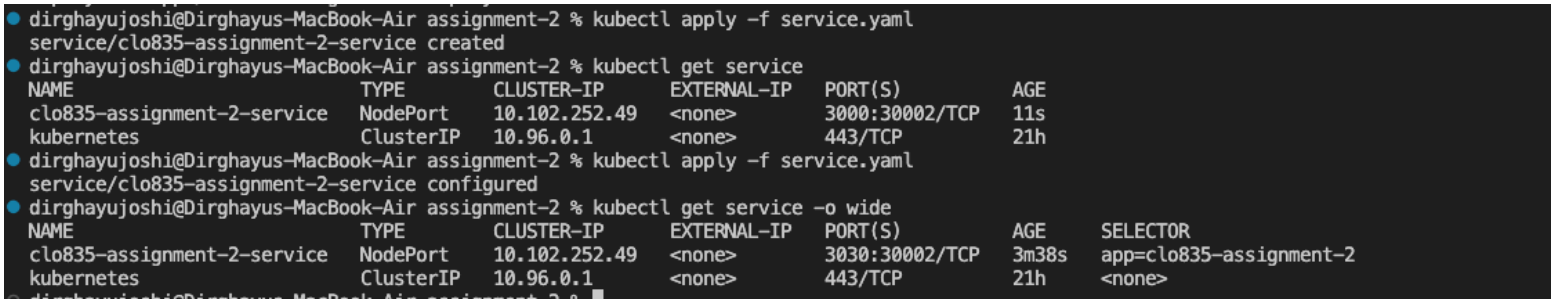
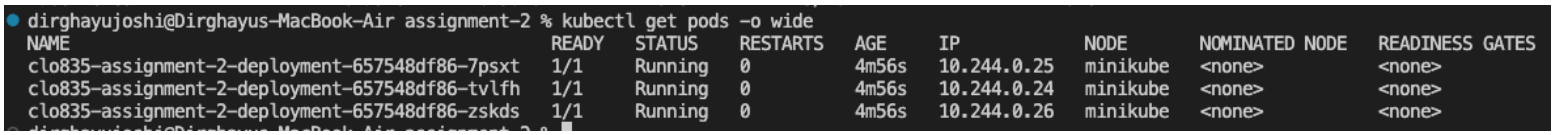
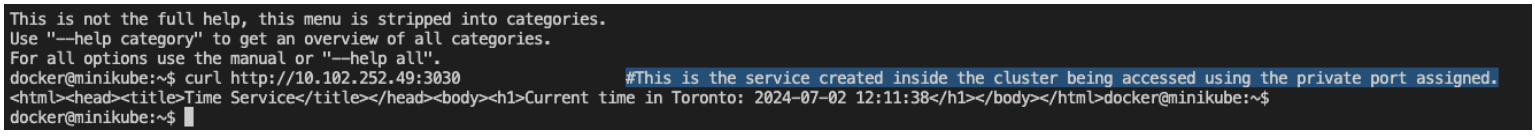
Source Links:

- **Github -** https://github.com/dirghayu101/clo835-assignment2
- **Docker -** https://hub.docker.com/r/dirghayu101/clo835-assignment-2

Screenshots:







```
docker@minikube:~$ curl http://10.244.0.25:3030        # This the first of the three pods created by k8s based on specification in deployment.yaml
<html><head><title>Time Service</title></head><body><h1>Current time in Toronto: 2024-07-02 12:14:23</h1></body></html>docker@minikube:~$
docker@minikube:~$ curl http://10.244.0.24:3030        # This the second of the three pods created by k8s based on specification in deployment.yaml
<html><head><title>Time Service</title></head><body><h1>Current time in Toronto: 2024-07-02 12:14:47</h1></body></html>docker@minikube:~$
docker@minikube:~$ curl http://10.244.0.26:3030        # This is the last of the three pods created by k8s based on specification in deployment.yaml
<html><head><title>Time Service</title></head><body><h1>Current time in Toronto: 2024-07-02 12:15:28</h1></body></html>docker@minikube:~$
docker@minikube:~$
```

```
dirghayujoshi@Dirghayus-MacBook-Air assignment-2 % minikube service clo835-assignment-2-service --url       # This will allow inbound traffic to the service we created
http://127.0.0.1:58052
❗  Because you are using a Docker driver on darwin, the terminal needs to be open to run it.
```

```
dirghayujoshi@Dirghayus-MacBook-Air assignments % curl http://127.0.0.1:58052
<html><head><title>Time Service</title></head><body><h1>Current time in Toronto: 2024-07-02 12:19:38</h1></body></html>%
dirghayujoshi@Dirghayus-MacBook-Air assignments % curl http://127.0.0.1:58052     # Running in my local system.
<html><head><title>Time Service</title></head><body><h1>Current time in Toronto: 2024-07-02 12:20:01</h1></body></html>curl: (3) URL using bad/illegal format or
missing URL
```

minikube

zsh assign

Clone Single File | View Assessmen | dirghayu101 (Dir | ChatGPT | tunnel | minikube | Accessing apps | 127.0.0.1 | Accessing apps | Time Service

127.0.0.1:58052

Current time in Toronto: 2024-07-02 12:20:46

Documentation:

Step 1: Getting files required:

- wget https://raw.githubusercontent.com/sojoudian/clo835_s24/master/project-2/app.py
- git init && git add . && git commit -m "setup." && git remote add origin git@github.com:dirghayu101/clo835-assignment2.git && git push -u origin main

Step 2: Setting up docker

- docker system prune -a —> Delete all the unused resources.
- docker build -t clo835-assignment-2 . —> Build image.
- Write the docker file.
- docker run --name clo835-assignment-2 -d -p 127.0.0.1:3030:3030 clo835-assignment-2 <- Just for testing.
- docker tag clo835-assignment-2 dirghayu101/clo835-assignment-2
- docker push dirghayu101/clo835-assignment-2:latest

Step 3: Kubernetes Setup

- minikube start
- kubectl version —client —> Check if k8s has been installed.
- kubectl cluster-info

Step 4: Kubernetes Manifest file:

- Write k8s file for deployment and services.

Step 5: Kubernetes Deployment:

- kubectl apply -f deployment.yaml
- kubectl apply -f service.yaml

Step 6: Kubernetes Deployment Verification and getting metadata:

- kubectl get pods -o wide
- kubectl get services -o wide
- kubectl get nodes

Step 7: Kubernetes testing:

- minikube ssh -> For testing from inside the cluster as the services won't be exposed.
- curl <serviceIP>:<servicePort> —> You can test the pod and the service.

Step 8: Exposing service locally

- minikube service clo835-assignment-2-service --url <- expose the services created in minikube cluster.

Other helpful

- docker kill $(docker ps -q) && docker rm -f $(docker ps -a -q) —> can remove f flag, or can use just the second half.
- kubectl run -i --tty --rm debug --image=busybox --restart=Never -- sh\n. —> This creates a pod which you can also use for testing.
- kubectl get service

- kubectl get pods
- kubectl delete deployment <name>
- kubectl delete service <name>

Challenges:

Exposing service on my local system was a major challenge. Apparently to expose a service running in your cluster, you have to create a tunnel.
[1] helped me in setting it up.

References:
[1]: https://minikube.sigs.k8s.io/docs/handbook/accessing/ <- Accessing application running within minikube.
[2]: https://docs.oracle.com/en/operating-systems/olcne/1.1/orchestration/kubectl-delete.html