

HOMEWORK –KUBERNETES SESSION 10

Use following command to pull the docker images,

\$ docker pull agrigorev/zoomcamp-model:churn-v001

We can rename the image by using the following command

\$ docker image tag agrigorev/zoomcamp-model:churn-v001 churn-model:v001

\$ docker images

```
^C(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$ docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
churn-model	v001	9114c930ca5f	7 days ago	506MB

\$ docker run -it --rm -p 9696:9696 churn-model:v001

Open another terminal and run

\$ python predict-test.py to confirm the container is working fine

Quesion 1: Version of kind

```
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$ kind --version
kind version 0.10.0
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$
```

Question 2: Verifying that everything works

What's CLUSTER-IP of the service that is already running there?

Question 3: Uploading the image to kind

To be able to use the docker image we previously created (churn-model:v001), we need to register it with kind. What's the command we need to run for that?

Question 4: Creating a deployment

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- Create a file in current folder using command

\$ touch deployment.yaml

Input model name(churn-model:v001) and port(9696)

```
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$ kubectl get svc
NAME         TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE
kubernetes   ClusterIP   10.96.0.1    <none>        443/TCP    74s
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$ kind load docker-image churn-model:v001
Image: "churn-model:v001" with ID "sha256:9114c930ca5fe93a530341d3bf5f125861000c0f19b79fdafefbc66c1bfa32c61" not yet present on node "kind-control-plane", loading...
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$ kubectl apply -f deployment.yaml
deployment.apps/churn created
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$ kubectl get pods
NAME                READY   STATUS    RESTARTS   AGE
churn-8449c67c88-jtmpw  1/1     Running   0           10s
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$
```

- Question 5: Pod name

```
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$ kubectl get pods
NAME                READY   STATUS    RESTARTS   AGE
churn-8449c67c88-jtmpw  1/1     Running   0           7m39s
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$
```

```
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$ kubectl apply -f service.yaml
service/churn-service created
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$ kubectl get svc
NAME                TYPE          CLUSTER-IP    EXTERNAL-IP  PORT(S)          AGE
churn-service       LoadBalancer  10.96.122.129  <pending>    80:30523/TCP     7s
kubernetes           ClusterIP     10.96.0.1      <none>       443/TCP          22m
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$
```

Once kubernetes service is up and running

```
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$ kubectl port-forward service/churn 9696:80
Error from server (NotFound): services "churn" not found
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$ kubectl port-forward service/churn-service 9696:80
Forwarding from 127.0.0.1:9696 -> 9696
Forwarding from [::1]:9696 -> 9696
Handling connection for 9696
```

```
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$ python predict-test.py
{'churn': False, 'churn_probability': 0.3257561103397851}
not sending promo email to xyz-123
(tf-cpu) kumar@DESKTOP-00CGLUP:~/mlbookcamp-code/chapter-05-deployment$
```