

cs571-Midterm
19529
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We should create Dockerfile, student_info.js., student.json

```
taherzadeh19529@nested-vm-image1:~$ cat Dockerfile
#Download base image ubuntu 20.04
FROM ubuntu:20.04
# LABEL about the custom image
LABEL maintainer="maryam@webmail.com"
LABEL version="2.0"
LABEL description="This is image for \
the NODEJS."
# Disable Prompt During Packages Installation
ARG DEBIAN_FRONTEND=noninteractive
# Update Ubuntu Software repository
RUN apt update
# Install curl from ubuntu repository
RUN apt install -y curl
# Setup Curl repo on Ubuntu Docker
RUN curl -fsSL https://deb.nodesource.com/setup_10.x
# Install NodeJS and clean up image
RUN apt install -y nodejs && \
    rm -rf /var/lib/apt/lists/* && \
    apt clean
# Copy student_info.js and student.json to the container
COPY student_info.js /student_info.js
COPY student.json /student.json
# Define Default Command to run
CMD node student_info.js 8000
#Expose Application port
EXPOSE 8000
EXPOSE 8080
taherzadeh19529@nested-vm-image1:~$ 
```

```
taherzadeh19529@nested-vm-image1:~$ cat student.json
[{"student_id": "11111", "Student_name": "Bruce Lee", "Score": "84"}, {"student_id": "22222", "Student_name": "Jackie Chen", "Score": "93"}, {"student_id": "33333", "Student_name": "Jet Li", "Score": "88"}]
taherzadeh19529@nested-vm-image1:~$ cat student_info.js
var http = require('http');
const os = require('os');

console.log("Kubia server starting...");

var handler = function(request, response) {
  console.log("Received request from " +
    +request.connection.remoteAddress);
  response.writeHead(200);
  response.end("You've hit " + os.hostname() + "\n");
};

var www = http.createServer(handler);
www.listen(8080);

var student = require('./student.json');
var url = require('url');

http.createServer(function (req, res) {
  res.writeHead(200, {'Content-Type': 'text/json'});
  var q = url.parse(req.url, true).query;
  var txt = q.student_id;
  var data = student.filter(function(item){
    return item.student_id === txt;
  });
  res.end(JSON.stringify(data));
}).listen(8000);
taherzadeh19529@nested-vm-image1:~$ 
```

We should Build docker image: docker build -t kubia

```
taherzadeh19529@nested-vm-image1:~$ sudo docker build -t kubia .
Sending build context to Docker daemon 798.8MB
Step 1/14 : FROM ubuntu:20.04
--> 4dd97cefde62
Step 2/14 : LABEL maintainer="maryam@webmail.com"
--> Using cache
--> 97b6195cf5c2
Step 3/14 : LABEL version="2.0"
--> Using cache
--> 3445dbf2fb3d
Step 4/14 : LABEL description="This is image for the NODEJS."
--> Using cache
--> 58f559b3359a
Step 5/14 : ARG DEBIAN_FRONTEND=noninteractive
--> Using cache
--> 76e5b855df11
Step 6/14 : RUN apt update
--> Using cache
--> adc97f925ecf
Step 7/14 : RUN apt install -y curl
--> Using cache
--> d0f0eff41176
Step 8/14 : RUN curl -fsSL https://deb.nodesource.com/setup_10.x
--> Using cache
--> 4bf3759538ba
Step 9/14 : RUN apt install -y nodejs && rm -rf /var/lib/apt/lists/* && apt clean
--> Using cache
--> 334212867c0d
Step 10/14 : COPY student_info.js /student_info.js
--> Using cache
--> 8592c5f2d507
Step 11/14 : COPY student.json /student.json
--> Using cache
--> 505c97601c5e
Step 12/14 : CMD node student_info.js 8000
--> Using cache
--> 835945d4652e
Step 13/14 : EXPOSE 8000
--> Using cache
--> 80f687cb86d3c
Step 14/14 : EXPOSE 8080
--> Using cache
--> 9949174c10b9
Successfully built 9949174c10b9
Successfully tagged kubia:latest
taherzadeh19529@nested-vm-image1:~$ docker tag kubia tahezadeh19529/exam
The push refers to repository [docker.io/tahezadeh19529/exam]
57cbb6a540d: Pushed
015e71749ce: Pushed
07b3e3f979e: Pushed
18bf305fe90: Pushed
f38dc3bbaab: Pushed
20d459170d8: Mounted from library/ubuntu
b978cae6a05: Mounted from library/ubuntu
eb3f02e9374: Mounted from library/ubuntu
41a1d155e4b256c420251d12074592a15e8e7360c4063241b7760b114004502c987642b1e7252c515ca1002
```

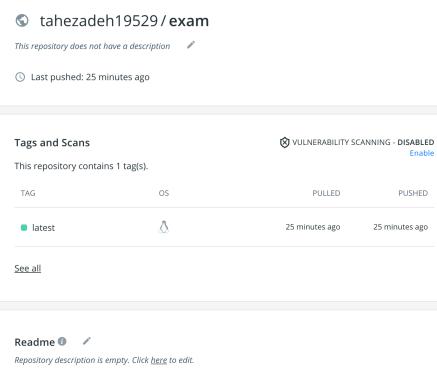
Sudo docker images

Sudo docker login

```
docker tag kubia tahezadeh19529/exam
```

```
sudo docker push tahezadeh19529/ exam
```

```
taherzadeh19529@nested-vm-image1:~$ sudo docker images
REPOSITORY          TAG           IMAGE ID      CREATED        SIZE
kubia              latest        9949174c10b9   46 minutes ago  178MB
tahezadeh19529/exam    latest        9949174c10b9   46 minutes ago  178MB
ubuntu              20.04        4dd97cefde62   6 days ago    72.9MB
taherzadeh19529@nested-vm-image1:~$
```

 tahezadeh19529/exam
This repository does not have a description.
Last pushed: 25 minutes ago

TAG	OS	PULLED	PUSHED
latest		25 minutes ago	25 minutes ago

[See all](#)

 Readme 
Repository description is empty. Click [here](#) to edit.

```
aberzadeh19529@nested-vm-image1:~$ sudo docker tag kubia tahezadeh19529/exam
aberzadeh19529@nested-vm-image1:~$ sudo docker push tahezadeh19529/exam
The push refers to repository [docker.io/tahezadeh19529/exam]
37ccb6a540d: Pushed
015e71749ce: Pushed
07b3e3f979e: Pushed
18bf305fe90: Pushed
f38dc3bbaab: Pushed
20d459170d8: Mounted from library/ubuntu
b978cae6a05: Mounted from library/ubuntu
eb3f02e9374: Mounted from library/ubuntu
41a1d155e4b256c420251d12074592a15e8e7360c4063241b7760b114004502c987642b1e7252c515ca1002
```

Create kubernetes cluster with three nodes - gcloud container clusters create kubia --num-nodes=1 --machine-type=e2-micro -region=us-west1

The screenshot shows the Google Cloud Platform (GCP) interface for the Kubernetes Engine. On the left, there's a sidebar with 'Clusters' selected. The main area displays a table for 'Kubernetes clusters'. A single row is shown for 'kubia', which was created in 'us-west1' with 3 nodes, 6 vCPUs, and 3 GB of memory. A note says 'No clusters selected' and 'Labels help organize your resources (env:prod). Learn more'. Below the table is a terminal window titled '(cs571-new-homework)' showing the creation of a replication controller 'kubia' and its pods, followed by exposing the service 'kubia' to port 8000.

```
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ kubectl create -f kubia-rc.yaml
replicationcontroller/kubia created
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ kubectl get pods
NAME READY STATUS RESTARTS AGE
kubia-74wnk 0/1 ContainerCreating 0 11s
kubia-bh26b 0/1 ContainerCreating 0 11s
kubia-bjcw 0/1 ContainerCreating 0 11s
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ kubectl expose rc kubia-rc --type=LoadBalancer --port 8080
Error from server (NotFound): replicationcontrollers "kubia-rc" not found
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ kubectl expose rc kubia-rc --type=LoadBalancer --port 8080
Error from server (NotFound): replicationcontrollers "kubia-rc" not found
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ kubectl get pods
NAME READY STATUS RESTARTS AGE
kubia-74wnk 1/1 Running 0 2m
kubia-bh26b 1/1 Running 0 2m
kubia-bjcw 1/1 Running 0 2m
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ kubectl expose rc kubia --type=LoadBalancer --port 8080
service/kubia exposed
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ kubectl expose rc kubia --name=student --type=LoadBalancer --port 8000
service/student exposed
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ kubectl get service
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
student LoadBalancer 10.3.244.143 <pending> 8000:31232/TCP 20s
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ kubectl get service
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
kubernetes ClusterIP 10.3.240.1 <none> 443/TCP 9m19s
kubia LoadBalancer 10.3.255.52 35.233.227.116 8080:31158/TCP 60s
student LoadBalancer 10.3.244.143 <pending> 8000:31232/TCP 30s
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ kubectl get service
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
kubernetes ClusterIP 10.3.240.1 <none> 443/TCP 9m34s
kubia LoadBalancer 10.3.255.52 35.233.227.116 8080:31158/TCP 75s
student LoadBalancer 10.3.244.143 35.247.50.140 8000:31232/TCP 45s
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ curl 35.247.50.140:8000/api(score?student_id=11111
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ curl 35.247.50.140:8000/api(score?student_id=22222
[{"student_id": "22222", "Student_name": "Jackie Chen", "Score": "93"}]taherzadeh19529@cloudshell:~ (cs571-new-homework)$ curl 35.247.50.140:8000/api(score?student_id=22222
[{"student_id": "22222", "Student_name": "Jackie Chen", "Score": "93"}]taherzadeh19529@cloudshell:~ (cs571-new-homework)$
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ curl 35.247.50.140:8000/api(score?student_id=33333
[{"student_id": "33333", "Student_name": "Jet Lin", "Score": "88"}]taherzadeh19529@cloudshell:~ (cs571-new-homework)$
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ cat student_info.js
cat: student_info.js: No such file or directory
```

You should first kubectl create -f kubia-rc.yaml

- kubectl get pods
- kubectl expose rc kubia-rc --type=LoadBalancer --port 8080
- kubectl expose rc kubia-rc --name=student --type=LoadBalancer --port 8000
- kubectl get service
- curl <35.247.50.140>:8000/api/score?student_id=11111
- curl <35.247.50.140>:8000/api/score?student_id=22222
- curl <35.247.50.140>:8000/api/score?student_id=33333
- curl <external ip>:8080

My external is different from others.

```
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ curl 35.247.50.140:8000/api/score?student_id=11111
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ curl 35.247.50.140:8000/api/score?student_id=22222
("student_id": "22222", "Student_name": "Jackie Chen", "Score": "93"})
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ curl 35.247.50.140:8000/api/score?student_id=22222
("student_id": "22222", "Student_name": "Jackie Chen", "Score": "93"})
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ curl 35.247.50.140:8000/api/score?student_id=33333
("student_id": "33333", "Student_name": "Jet Li", "Score": "88"))
taherzadeh19529@cloudshell:~ (cs571-new-homework)$
```

```
^C
taherzadeh19529@cloudshell:~ (cs571-new-homework)$ curl 35.233.227.116:8080
You've hit kubia-74wnk
```

On client side you can see the result like below:

Not Secure | 35.247.50.140:8000/api/score?student_id=22222

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```
[{"student_id": "22222", "Student_name": "Jackie Chen", "Score": "93"}]
```

Not Secure | 35.247.50.140:8000/api/score?student_id=33333

Apps TV Log On Pharma NPU Course List Google Cloud Plat... Dashboard - Hom... Login

```
[{"student_id": "33333", "Student_name": "Jet Li", "Score": "88"}]
```

Not Secure | 35.247.50.140:8000/api/score?student_id=11111

Apps TV Log On Pharma NPU Course List Google Cloud Plat... Dashboard - Hom... Login

```
[{"student_id": "11111", "Student_name": "Bruce Lee", "Score": "84"}]
```