

**Assignment -4**  
**Docker and Kubernetes**

Assignment Date	10 October 2022
Student Name	Sunil Kumar Y
Student Roll Number	2127190501310
Maximum Marks	2 Marks

**Question-1:**

pull an image from docker hub and run it in docker playground.

**1) pull an image form docker hub**

```
Command Prompt
Microsoft Windows [Version 10.0.19044.1766]
(c) Microsoft Corporation. All rights reserved.

C:\Users\ADMIN>docker push shabariganesan/docker_with_flask_form
Using default tag: latest
The push refers to repository [docker.io/shabariganesan/docker_with_flask_form]
An image does not exist locally with the tag: shabariganesan/docker_with_flask_form

C:\Users\ADMIN>docker pull shabariganesan/docker_with_flask_form
Using default tag: latest
latest: Pulling from shabariganesan/docker_with_flask_form
1671565cc8df: Pull complete
3e94d13e55e7: Pull complete
fa9c7528c685: Pull complete
53ad072f9cd1: Pull complete
d6b9831117533: Pull complete
d8092d56ded5: Pull complete
c71afc637d59: Pull complete
864a10b3c704: Pull complete
4334b2fe8293: Pull complete
8944570703f4: Pull complete
f885911288d0: Pull complete
080f369ca59f: Pull complete
e113bd27b88e: Pull complete
Digest: sha256:c61f28873bf1c909786ce991b8b60cd976765077f344e34d50e6cce8cf8d95c3
Status: Downloaded newer image for shabariganesan/docker_with_flask_form:latest
docker.io/shabariganesan/docker_with_flask_form:latest

C:\Users\ADMIN>
```

## 2) run it in docker playground

```
Select Command Prompt
Microsoft Windows [Version 10.0.19044.1766]
(c) Microsoft Corporation. All rights reserved.

C:\Users\ADMIN> docker run -d -p 5000:5000 shabariganesan/docker_with_flask_form
cc3e98e68102474e9c89c7674b07ad17a5645a7216d7c854d785197bdb54dee5

C:\Users\ADMIN>
```

Containers

Images

Volumes

Dev Environments BETA

Extensions BETA

Add Extensions

Containers Give Feedback

A container packages up code and its dependencies so the application runs quickly and reliably from one computing environment to another. [Learn more](#)

Showing 2 items

Search

	NAME	IMAGE	STATUS	PORT(S)	STARTED	ACTIONS
<input type="checkbox"/>	<div>funny_shirley</div> <div>8ee929159404</div>	docker/get	Exited	80		<div><div></div><div></div><div></div></div>
<input type="checkbox"/>	<div>determined_m</div> <div>cc3e98e68102</div>	shabarigar	Running	5000	12 seconds ago	<div><div></div><div></div><div></div></div>


RAM 2.86GB CPU 8.39% Connected to Hub v4.12.0



### Question-2:

**Create a docker file for the jobportal application and deploy it in docker application.**

## 1) Creating a docker file for the jobportal application



The screenshot shows a Notepad++ window with the title "C:\Users\gaur\Desktop\jeb\_gaur\dockerfile - Notepad++". The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Tools, Macro, Run, Plugins, Window, and Help. The toolbar contains various icons for file operations and editing. The text area displays the following Dockerfile content:

```

1 FROM python:3.10.6
2 WORKDIR /app
3 COPY requirements.txt ./
4 RUN pip install -r requirements.txt
5 COPY . .
6 EXPOSE 5000
7 CMD ["python", "./app.py"]
8

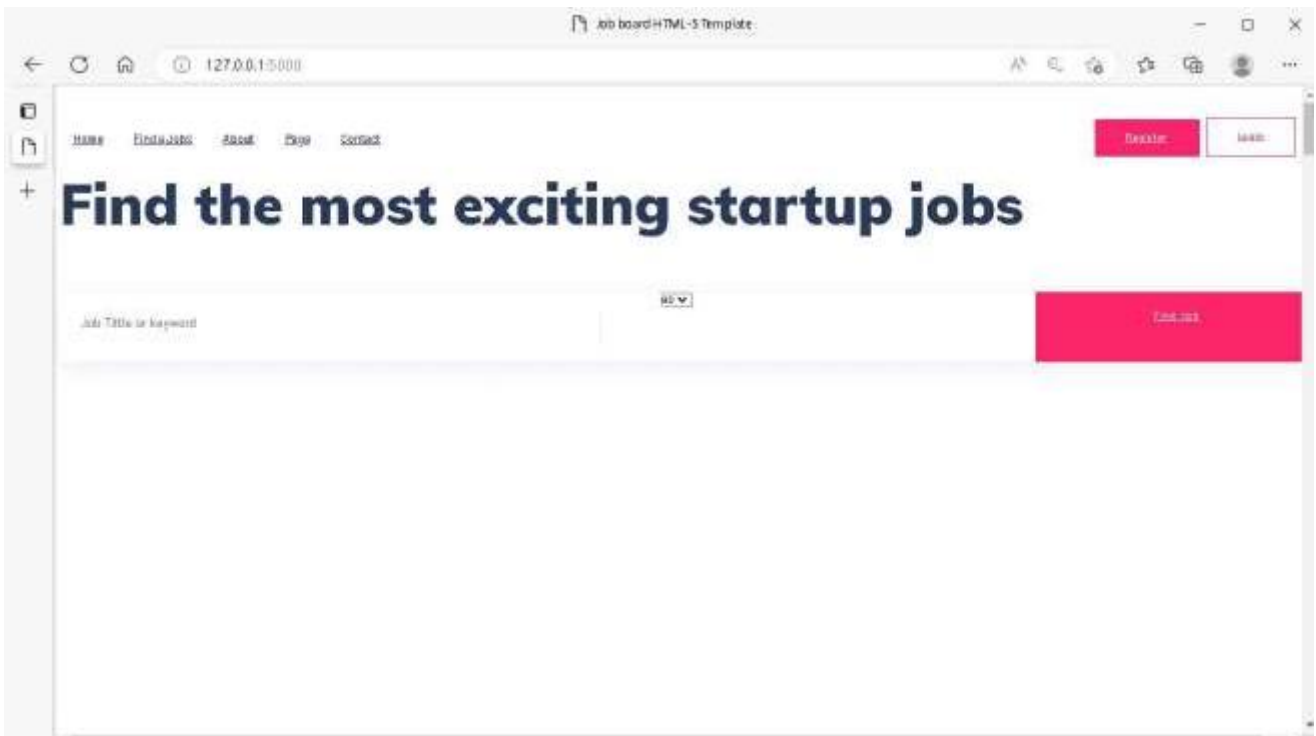
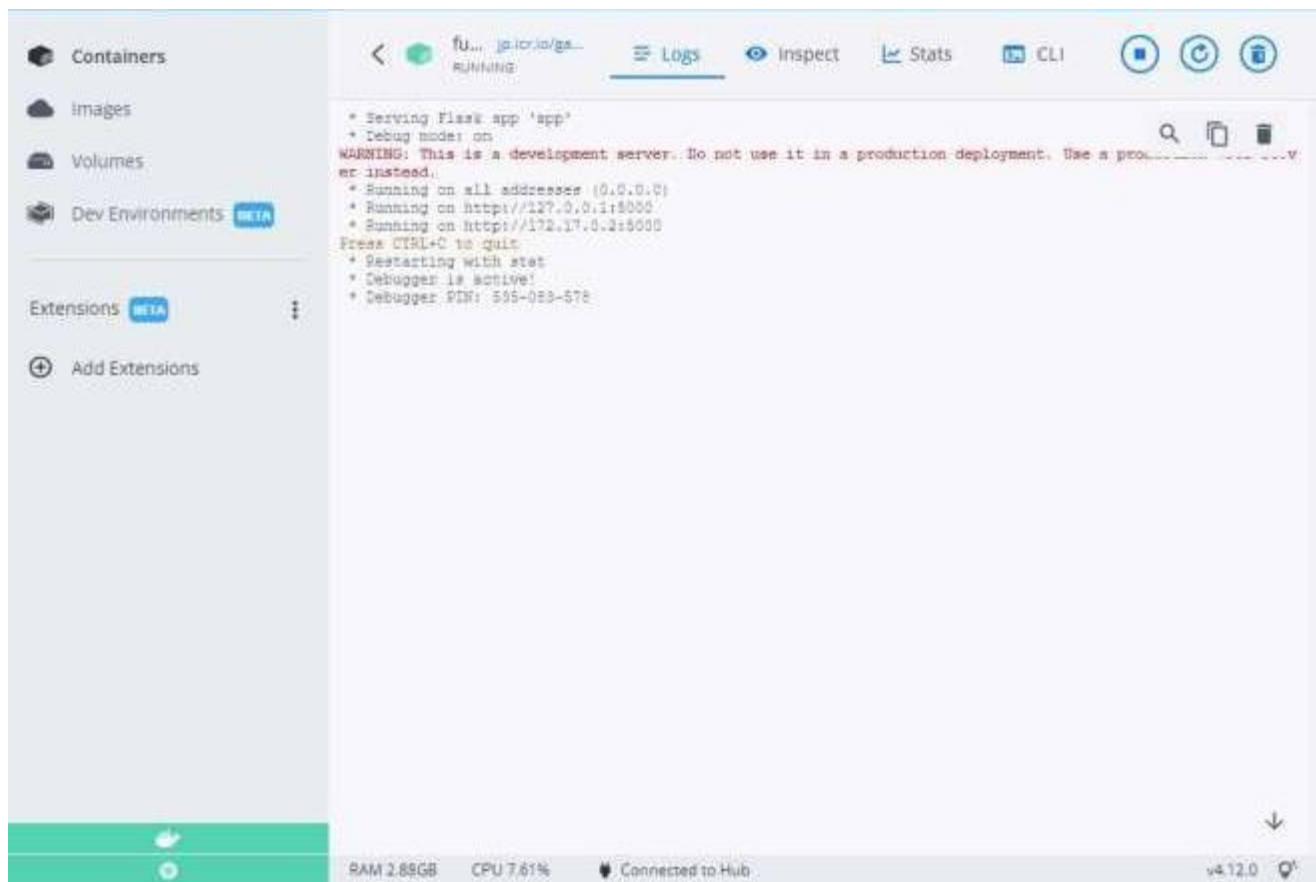
```

The bottom status bar shows "to search" on the left and "ENG" on the right.

## 2) deploy in in dokcer application

```
C:\Users\ganik\Desktop>cd ..  
C:\Users\ganik\Desktop>cd job_portal  
C:\Users\ganik\Desktop\job_portal>docker build -t job_portal  
"docker build" requires exactly 1 argument.  
See 'docker build --help'.  
  
Usage: docker build [OPTIONS] PATH | URL | -  
  
Build an image from a Dockerfile  
  
C:\Users\ganik\Desktop\job_portal>dir  
Volume in drive C has no label.  
Volume Serial Number is B6431D8B  
  
Directory of C:\Users\ganik\Desktop\job_portal  
  
10/25/2022 04:53 PM <DIR> .  
10/25/2022 04:53 PM <DIR> ..  
10/25/2022 04:11 PM      320 app.py  
10/22/2022 10:48 PM     148 Dockerfile  
10/22/2022 10:48 PM          requirements.txt  
10/25/2022 04:53 PM <DIR> static  
10/25/2022 04:53 PM <DIR> templates  
10/25/2022 04:53 PM <DIR> __pycache__  
                3 File(s)      474 bytes  
                5 Dir(s)    77,947,934 bytes free  
  
C:\Users\ganik\Desktop\job_portal>docker build -t job_portal  
Invalid argument "job_portal:" for "--tag" flag: Invalid reference format  
See 'docker build --help'.  
  
C:\Users\ganik\Desktop\job_portal>docker build -t job_portal .  
[+] Building 0.7s (11/11) FINISHED  
=> [internal] load build definition from Dockerfile  
=> [internal] load Dockerfile...SHELL  
=> [internal] load .dockerignore  
=> [internal] transfer context to Docker daemon  
=> [internal] load metadata for docker.io/library/python:3.9-slim  
=> [stage-1] prepare context for push ([docker.io/library/python:3.9-slim])  
=> [stage-1] push image (push) [docker.io/library/python:3.9-slim]  
=> [stage-1] export layers to local storage  
=> [stage-1] import layers to local storage  
=> [stage-1] commit image updates to repository  
=> [stage-1] push image (push) [docker.io/library/python:3.9-slim]
```





running in docker desktop 1

### Question-3: Create albm container registry and deploy helloworld app or jobportalapp

#### 1) create a ibm container registry

```
Command Prompt
Account:      Ganesan S's Account (2a239674b9ba463891acc3c4fcbe0a99)
Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:

New version 2.11.1 is available.
Change logs: https://github.com/IBM-Cloud/ibm-cloud-cli-release/releases/tag/v2.11.1
TIP: use 'ibmcloud config --check-version=false' to disable update check.

Do you want to update? [y/N] > y

Installing version '2.11.1'...
Downloading...
 14.88 MiB / 14.88 MiB [=====] 100.00% 2s
15604696 bytes downloaded
Saved in C:\Users\ADMIN\bluemix\tmp\bx_2625690972\IBM_Cloud_CLI_2.11.1_amd64.exe

C:\Users\ADMIN>ibmcloud plugin install container-registry
Looking up 'container-registry' from repository 'IBM Cloud'...
Plug-in 'container-registry[cr] 1.0.2' found in repository 'IBM Cloud'
Attempting to download the binary file...
 11.90 MiB / 11.90 MiB [=====] 100.00% 1s
12476416 bytes downloaded
Installing binary...
OK
Plug-in 'container-registry 1.0.2' was successfully installed into C:\Users\ADMIN\bluemix\plugins\container-registry. Use 'ibmcloud plugin show container-registry' to show its details.

C:\Users\ADMIN>
```

#### 2) deploy helloworld or jobportal

```
C:\Windows\system32\cmd.exe
54acb5a6fa8b: Retrying in 1 second
8d51c618126f: Retrying in 1 second
9ff6e4d46744: Waiting
e80d1d47b5a1: Waiting
655ed1b74428: Waiting
Failed to lookup host: jp.lcr.io

C:\Users\ganl\Desktop\job_portal>docker push jp.lcr.io/ganeshjob/job_portal
Using default tag: latest
The push refers to repository [jp.lcr.io/ganeshjob/job_portal]
1503b1584025: layer already exists
80e94f05e186: layer already exists
48c2a7a4c12b: layer already exists
9b72c7835466: layer already exists
bfc1deb0130e: layer already exists
1f123106024c: layer already exists
3d5eb1152931: Pushed
180796cdf9b1: Pushed
54acb5a6fa8b: Retrying in 1 second
8d51c618126f: Pushed
9ff6e4d46744: Pushed
e80d1d47b5a1: Pushed
655ed1b74428: Pushing [=====] 89.88MB/134MB
^C

C:\Users\ganl\Desktop\job_portal>docker push jp.lcr.io/ganeshjob/job_portal
Using default tag: latest
The push refers to repository [jp.lcr.io/ganeshjob/job_portal]
1503b1584025: layer already exists
80e94f05e186: layer already exists
48c2a7a4c12b: layer already exists
9b72c7835466: layer already exists
bfc1deb0130e: layer already exists
1f123106024c: layer already exists
3d5eb1152931: layer already exists
180796cdf9b1: layer already exists
54acb5a6fa8b: Pushed
8d51c618126f: layer already exists
9ff6e4d46744: layer already exists
e80d1d47b5a1: layer already exists
655ed1b74428: Pushed
latest: digest: sha256:e93189a7c97eeb893086668454e896cf61a46eda939998c8c7a2147a7961fc207 size: 3852

C:\Users\ganl\Desktop\job_portal>
C:\Users\ganl\Desktop\job_portal>
```



IBM Cloud

## Repositories

Location: Tokyo

Search

Create +

<input type="checkbox"/>	Name	Image count	Namespace	Last update
<input type="checkbox"/>	job_portal jp.icr.io/ganeshjob/job_portal	1	ganeshjob	1 day
<input type="checkbox"/>	docker_with_flask_form jp.icr.io/newnamespace/docker_with_flask_form	1	newnamespace	4 days

Items per page: 25 1-2 of 2 items 1 1 of 1 page

IBM\_Cloud\_CU\_2.1...exe Show all

IBM Cloud

## Images

Location: Tokyo

View by: Digest Search

Create +

<input type="checkbox"/>	Repository@digest	Tags	Manifest type	Created	Size	Security status
<input type="checkbox"/>	ganeshjob/job_portal@sha256:e93189a7097e...	latest	Docker	1 day ago	556 MB	23 issues
<input type="checkbox"/>	newnamespace/docker_with_flask_form@sha256:ce1126873af1...	latest	Docker	4 days ago	556 MB	23 issues

Items per page: 25 1-2 of 2 items 1 1 of 1 page

IBM\_Cloud\_CU\_2.1...exe Show all



**Question-4: Create a kubernetes cluster in ibm cloud and deploy helloworld image or jobportal image and also expose the same app to run in noteport**

**1) Creating a kubernetes cluster in ibm cloud**



**2) deploy helloworld image or jobportal image and also expose the same app to run in noteport**

```
C:\Windows\System32\cmd.exe
10/16/2022 12:28 PM 3,721 windows shortcut.txt
08/25/2022 08:40 PM 2,897 YouTube.lnk
24 File(s) 804,677,196 bytes
9 Dir(s) 79,221,886,976 bytes free

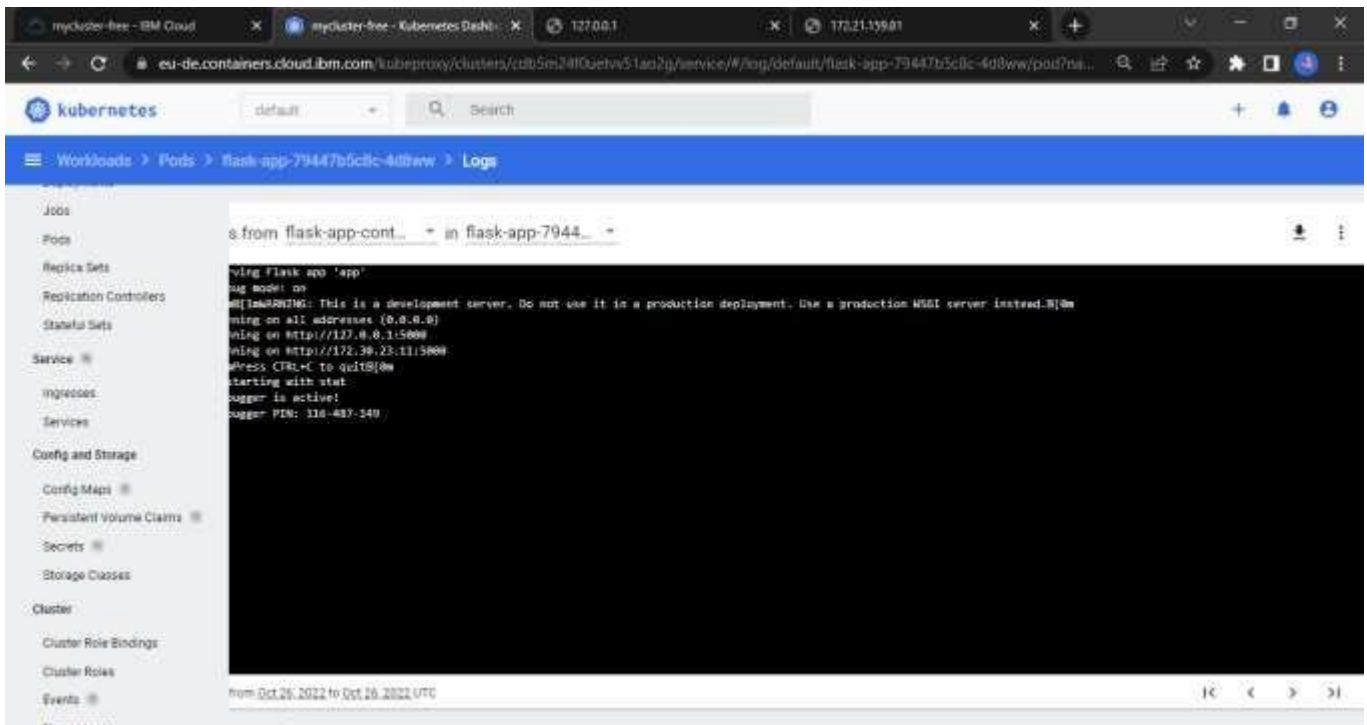
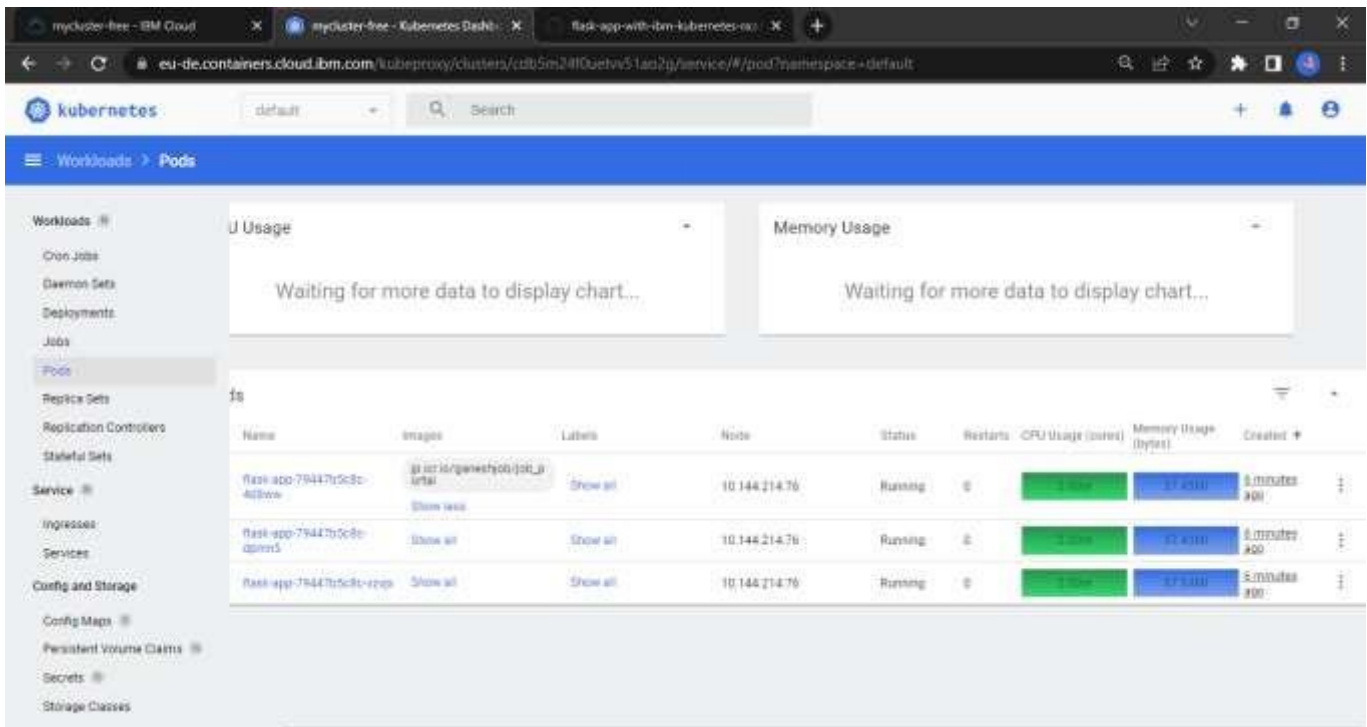
C:\Users\gani\Desktop>cd deploy
The system cannot find the path specified.

C:\Users\gani\Desktop>kubectl apply -f kubernetes/depoly.yaml
error: the path "kubernetes/depoly.yaml" does not exist

C:\Users\gani\Desktop>kubectl apply -f depoly.yaml
error: the path "depoly.yaml" does not exist

C:\Users\gani\Desktop>kubectl apply -f C:\Users\gani\Desktop\deploy.yaml
deployment.apps/flask-app created

C:\Users\gani\Desktop>
```



C:\Windows\System32\cmd.exe

```
C:\Windows\system32\kubectl expose deployment flask-app --type=NodePort --name=flask-service
The Service "flask-service" is invalid: metadata.name: Invalid value: "flask-service": a DNS-1035 label must consist of lower case alphanumeric characters or '-', start with an alphabetic character, and end with an alphanumeric character (e.g. "my-name", or "abc-123", regex used for validation is "[a-z]([-a-z0-9]*[a-z0-9])?")

C:\Windows\system32\kubectl expose deployment flask-app --type=NodePort --name=flask-service
The Service "flask-service" is invalid: metadata.name: Invalid value: "flask-service": a DNS-1035 label must consist of lower case alphanumeric characters or '-', start with an alphabetic character, and end with an alphanumeric character (e.g. "my-name", or "abc-123", regex used for validation is "[a-z]([-a-z0-9]*[a-z0-9])?")

C:\Windows\system32\kubectl expose deployment flask-app --type=NodePort --name=flask-service
The Service "flask-service" is invalid: metadata.name: Invalid value: "flask-service": a DNS-1035 label must consist of lower case alphanumeric characters or '-', start with an alphabetic character, and end with an alphanumeric character (e.g. "my-name", or "abc-123", regex used for validation is "[a-z]([-a-z0-9]*[a-z0-9])?")

C:\Windows\system32\kubectl expose deployment flask-app --type=NodePort --name=flask-service
error from server (AlreadyExists): services "flask-service" already exists

C:\Windows\system32>
C:\Windows\system32\kubectl -n kubernetes-dashboard get deploy
^C
C:\Windows\system32\kubectl -n kubernetes-dashboard get deploy
No resources found in kubernetes-dashboard namespace.

C:\Windows\system32\kubectl -n kubernetes-dashboard get deploy
No resources found in kubernetes-dashboard namespace.

C:\Windows\system32\kubectl proxy
Starting to serve on 127.0.0.1:8001
^C
C:\Windows\system32\kubectl -n kubernetes-dashboard get deploy
^C
C:\Windows\system32\kubectl -n kubernetes-dashboard get deploy
No resources found in kubernetes-dashboard namespace.

C:\Windows\system32\kubectl -n kubernetes-dashboard get pods
No resources found in kubernetes-dashboard namespace.

C:\Windows\system32\kubectl expose deployment flask-app --type=NodePort --name=flask-service
error from server (AlreadyExists): services "flask-service" already exists

C:\Windows\system32\kubectl get ing
NAME          CLASS    HOSTS      ADDRESS      PORTS      AGE
flask-app-ingress     *          *            80         27m

C:\Windows\system32\kubectl get svc
NAME          TYPE          CLUSTER-IP      EXTERNAL-IP    PORT(S)      AGE
```