

Date	19 September 2022
Team ID	PNT2022TMID02527
Project Name	Project – Personal Expense Tracker
Team Lead	Vinodhini A
Team Member 1	Shobana L
Team Member 2	Shyam Sundar G
Team Member 3	Varun Ba

DEPLOYING APP TO IBM CLOUD

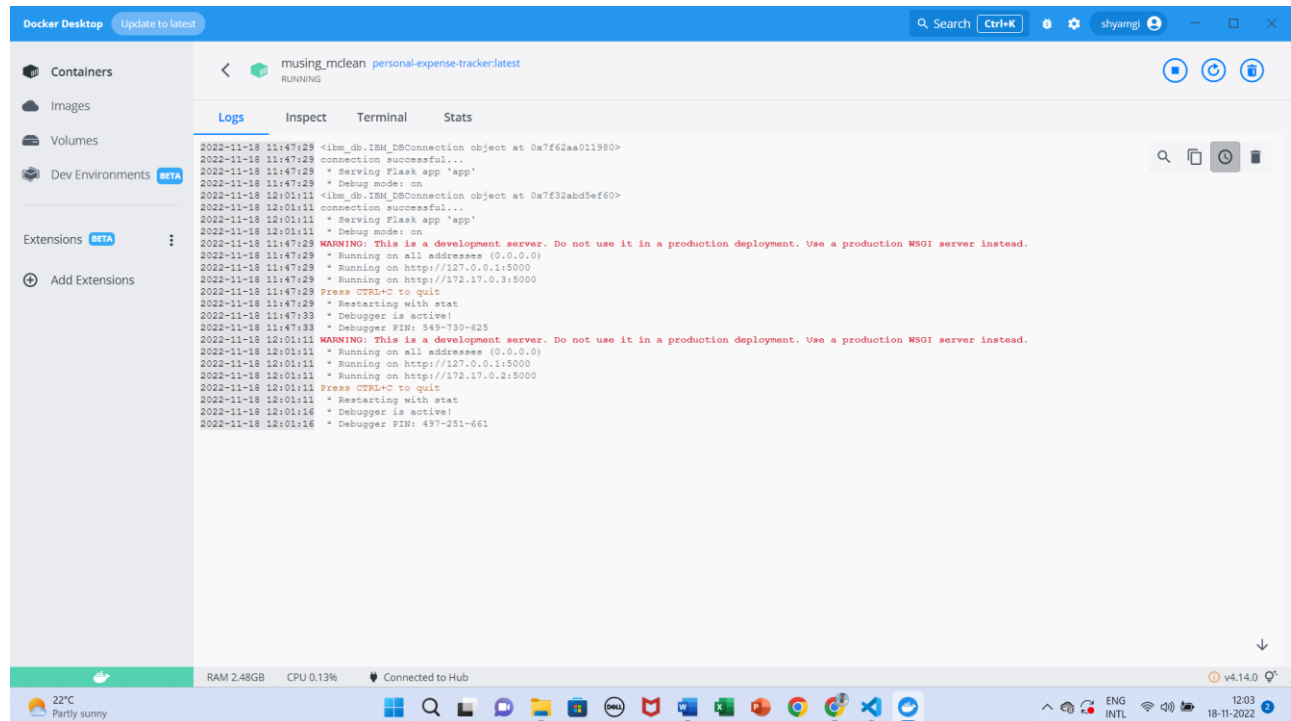
1) BUILD A DOCKER IMAGE

```
C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>docker build -t personal-expense-tracker .
[+] Building 3.5s (11/11) FINISHED
=> [internal] load build definition from Dockerfile                                0.0s
=> => transferring dockerfile: 32B                                              0.0s
=> [internal] load .dockerignore                                                0.0s
=> => transferring context: 2B                                                  0.0s
=> [internal] load metadata for docker.io/library/python:3.10.6                3.2s
=> [auth] library/python:pull token for registry-1.docker.io                  0.0s
=> [1/5] FROM docker.io/library/python:3.10.6@sha256:745efdfb7e4aac9a8422bd8c62d8bc35a693e8979a240d29677cb03e6aa91052 0.0s
=> [internal] load build context                                                0.1s
=> => transferring context: 1.61MB                                             0.1s
=> CACHED [2/5] WORKDIR /app                                                    0.0s
=> CACHED [3/5] COPY requirements.txt ./                                         0.0s
=> CACHED [4/5] RUN pip install -r requirements.txt                             0.0s
=> [5/5] COPY . .                                                              0.0s
=> exporting to image                                                            0.1s
=> => exporting layers                                                         0.1s
=> => writing image sha256:302b480cdb2d6d3d50785e4af84e3c26eef3452e9e8935bf0a0e4982e0c59531 0.0s
=> => naming to docker.io/library/personal-expense-tracker                    0.0s
```

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them

```
C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>
C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>
```

2) RUN THE DOCKER IMAGE



```
C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>docker build -t personal-expense-tracker .
[+] Building 1.3s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
    0.0s
=> => transferring dockerfile: 32B
    0.0s
=> [internal] load .dockerignore
xpense-tracker
<ibm_db.IBM_DBConnection object at 0x7fa3e117ee70>
connection successful...
* Serving Flask app 'app'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.17.0.3:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 117-436-375
```

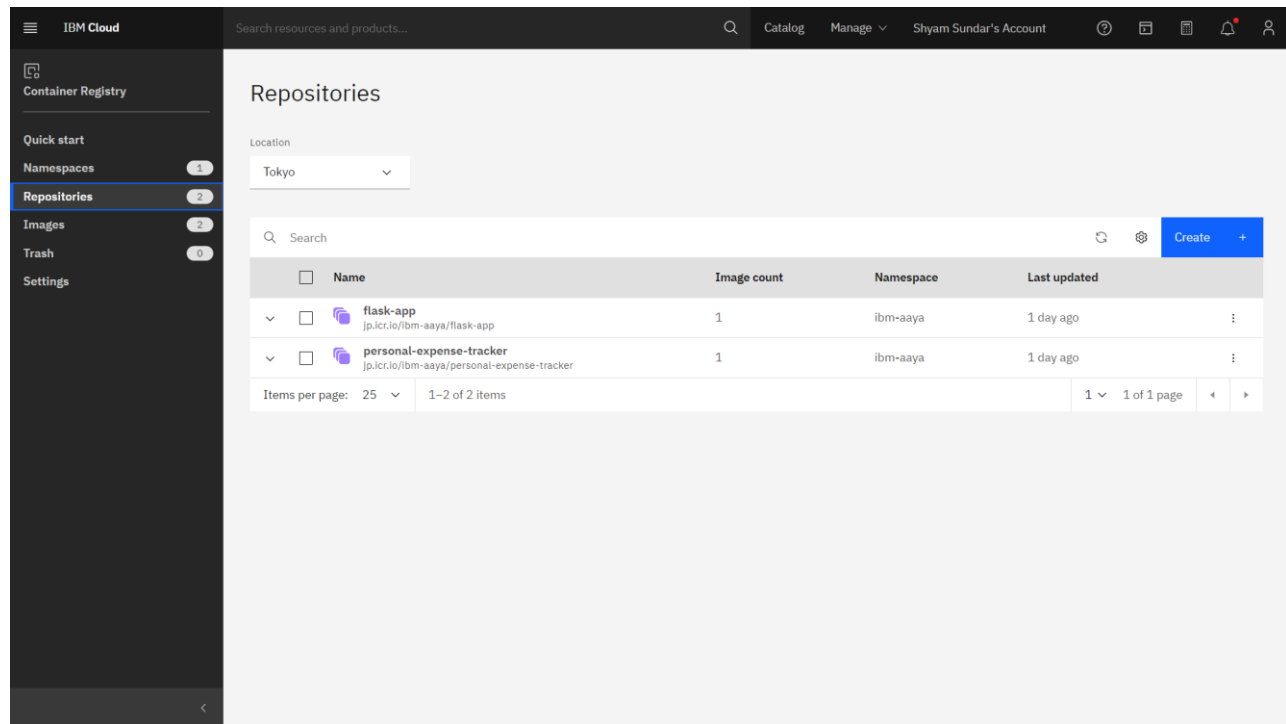
3) PUSH IMAGE TO DOCKERHUB

```
C:\Users\Shyam Sundar>docker push shyamgi/personal-expense-tracker
Using default tag: latest
The push refers to repository [docker.io/shyamgi/personal-expense-tracker]
8b7734b1693d: Layer already exists
214fdc78dedc: Layer already exists
b38ddd7666c7: Layer already exists
a211904ecd8b: Layer already exists
bfc1deb8136e: Layer already exists
1f123186824c: Layer already exists
3d6eb1152931: Layer already exists
100796cdf3b1: Layer already exists
54acb5a6fa0b: Layer already exists
8d51c618126f: Layer already exists
9ff6e4d46744: Layer already exists
a89d1d47b5a1: Layer already exists
655ed1b7a428: Layer already exists
latest: digest: sha256:72e9cad22a9291cf145f204dbd06637c9f7afd4b423ba82033d107ec71b8280b size: 3054

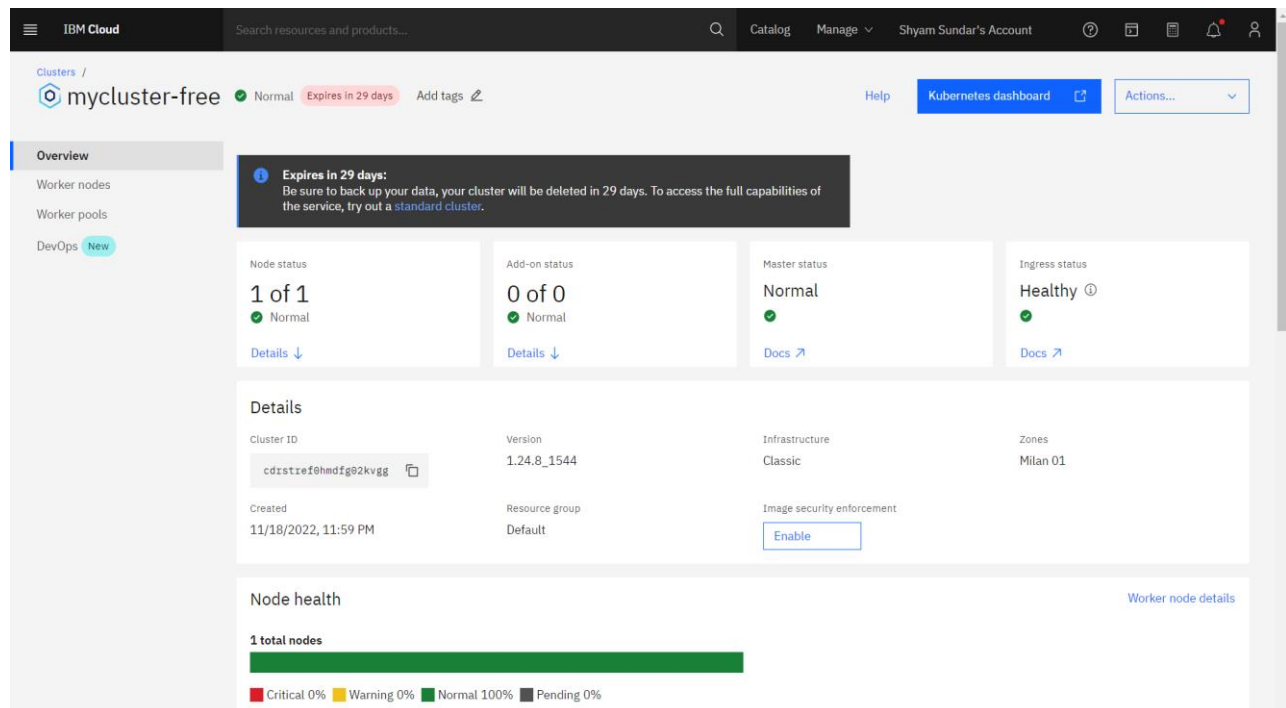
C:\Users\Shyam Sundar>_
```

4) PUSH IMAGE TO IBM CONTAINER REGISTRY:

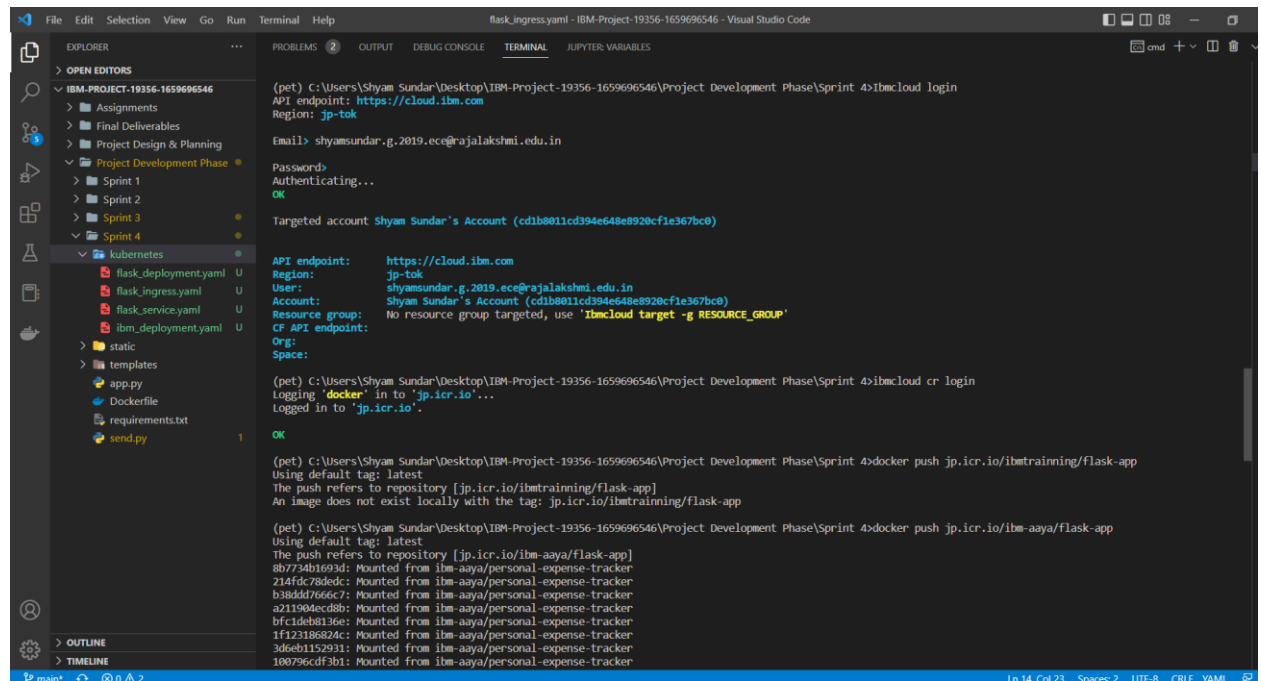
```
C:\Users\Shyam Sundar>docker push jp.icr.io/ibm-aaya/personal-expense-tracker:latest
The push refers to repository [jp.icr.io/ibm-aaya/personal-expense-tracker]
8b7734b1693d: Layer already exists
214fdc78dedc: Layer already exists
b38ddd7666c7: Layer already exists
a211904ecd8b: Layer already exists
bfc1deb8136e: Layer already exists
1f123186824c: Layer already exists
3d6eb1152931: Layer already exists
100796cdf3b1: Layer already exists
54acb5a6fa0b: Layer already exists
8d51c618126f: Layer already exists
9ff6e4d46744: Layer already exists
a89d1d47b5a1: Layer already exists
655ed1b7a428: Layer already exists
latest: digest: sha256:72e9cad22a9291cf145f204dbd06637c9f7afd4b423ba82033d107ec71b8280b size: 3054
```



5) GETTING IBM KUBERNETES SERVICE



6) DEPLOYING FLASK APP IN PUBLIC IP HOSTING IN KUBERNETES:



```
(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>ibmcloud login
API endpoint: https://cloud.ibm.com
Region: jp-tok

Email> shyamsundar.g.2019.ece@rajalakshmi.edu.in

Password:
Authenticating...
OK

Targeted account Shyam Sundar's Account (cd1b8011cd394e648e8920cf1e367bc0)

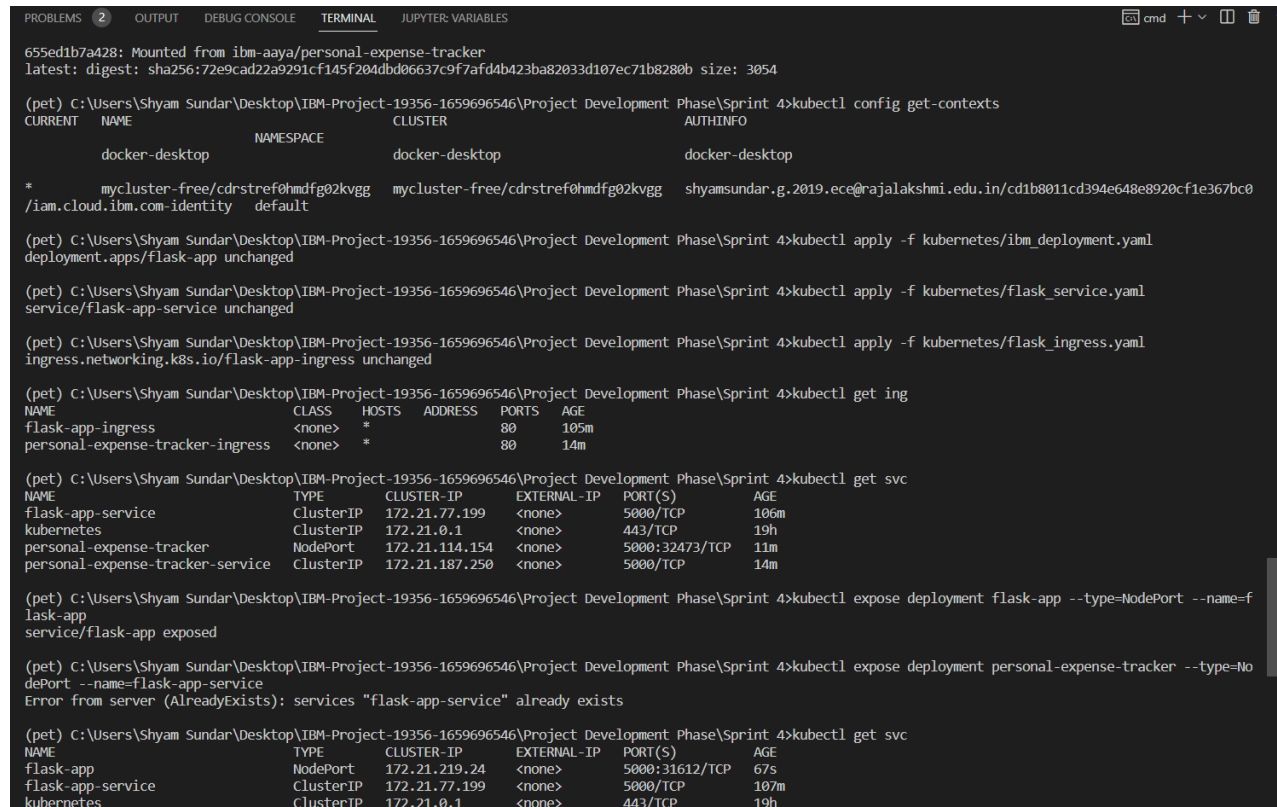
API endpoint: https://cloud.ibm.com
Region: jp-tok
User: shyamsundar.g.2019.ece@rajalakshmi.edu.in
Account: Shyam Sundar's Account (cd1b8011cd394e648e8920cf1e367bc0)
Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:

(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>ibmcloud cr login
Logging 'docker' in to 'jp.icr.io'...
Logged in to 'jp.icr.io'.

OK

(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>docker push jp.icr.io/ibmtraining/flask-app
Using default tag: latest
The push refers to repository [jp.icr.io/ibmtraining/flask-app]
An image does not exist locally with the tag: jp.icr.io/ibmtraining/flask-app

(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>docker push jp.icr.io/ibm-aaya/flask-app
Using default tag: latest
The push refers to repository [jp.icr.io/ibm-aaya/flask-app]
8b7734b1693d: Mounted from ibm-aaya/personal-expense-tracker
214fd78dedc: Mounted from ibm-aaya/personal-expense-tracker
b38dd7666c7: Mounted from ibm-aaya/personal-expense-tracker
a211904ecd8b: Mounted from ibm-aaya/personal-expense-tracker
bf1c1deb8136e: Mounted from ibm-aaya/personal-expense-tracker
1f121186824c: Mounted from ibm-aaya/personal-expense-tracker
3d6eb1152911: Mounted from ibm-aaya/personal-expense-tracker
100796cdf3b1: Mounted from ibm-aaya/personal-expense-tracker
```



```
(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>kubectl config get-contexts
CURRENT NAME CLUSTER AUTHINFO
docker-desktop NAMESPACE docker-desktop docker-desktop
* mycluster-free/cdrstref0hmdfg02kvvg mycluster-free/cdrstref0hmdfg02kvvg shyamsundar.g.2019.ece@rajalakshmi.edu.in/cd1b8011cd394e648e8920cf1e367bc0
/iam.cloud.ibm.com-identity default

(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>kubectl apply -f kubernetes/ibm_deployment.yaml
deployment.apps/flask-app unchanged

(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>kubectl apply -f kubernetes/flask_service.yaml
service/flask-app-service unchanged

(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>kubectl apply -f kubernetes/flask_ingress.yaml
ingress.networking.k8s.io/flask-app-ingress unchanged

(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>kubectl get ing
NAME CLASS HOSTS ADDRESS PORTS AGE
flask-app-ingress <none> * 80 105m
personal-expense-tracker-ingress <none> * 80 14m

(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>kubectl get svc
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
flask-app-service ClusterIP 172.21.77.199 <none> 5000/TCP 106m
kubernetes ClusterIP 172.21.0.1 <none> 443/TCP 19h
personal-expense-tracker NodePort 172.21.114.154 <none> 5000:32473/TCP 11m
personal-expense-tracker-service ClusterIP 172.21.187.250 <none> 5000/TCP 14m

(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>kubectl expose deployment flask-app --type=NodePort --name=flask-app
service/flask-app exposed

(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>kubectl expose deployment personal-expense-tracker --type=NodePort --name=flask-app-service
Error from server (AlreadyExists): services "flask-app-service" already exists

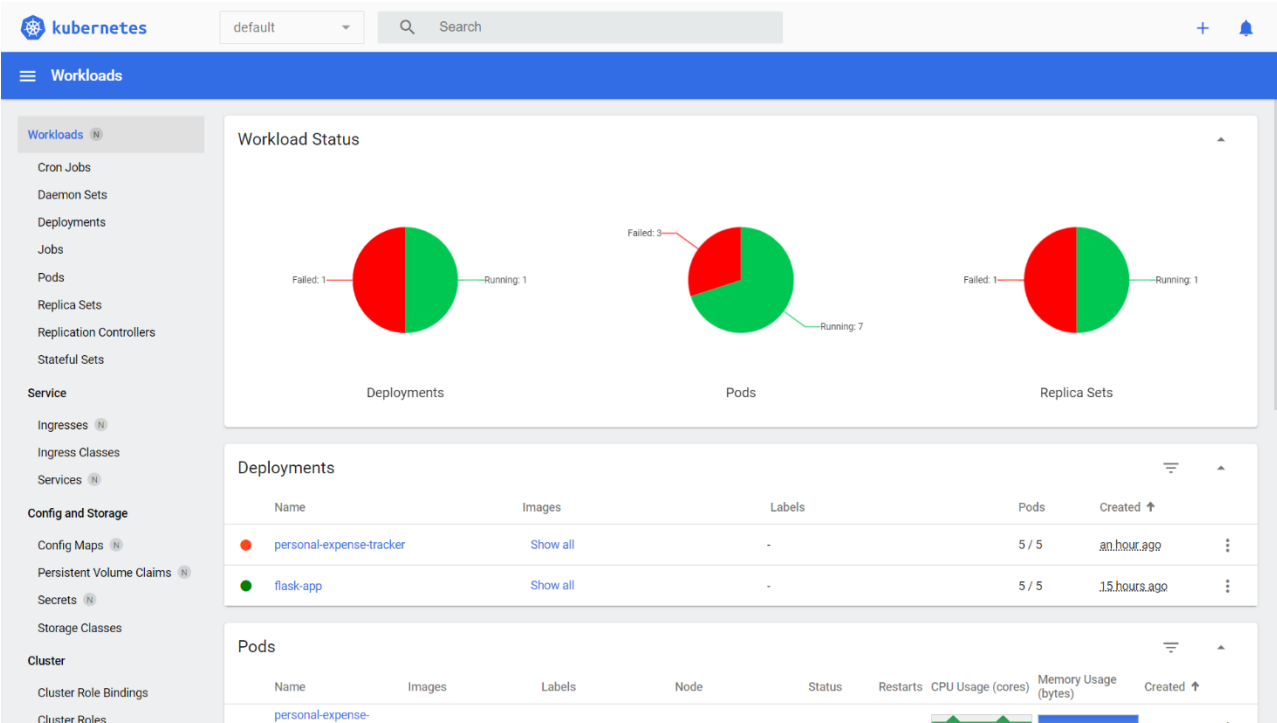
(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>kubectl get svc
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
flask-app NodePort 172.21.219.24 <none> 5000:31612/TCP 67s
flask-app-service ClusterIP 172.21.77.199 <none> 5000/TCP 107m
kubernetes ClusterIP 172.21.0.1 <none> 443/TCP 19h
```

```
(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>kubectl get svc
NAME                                TYPE                CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
flask-app                           NodePort            172.21.219.24   <none>            5000:31612/TCP   97m
flask-app-service                   ClusterIP           172.21.77.199   <none>            5000/TCP         3h24m
kubernetes                           ClusterIP           172.21.0.1      <none>            443/TCP          21h
personal-expense-tracker             NodePort            172.21.114.154  <none>            5000:32473/TCP   110m
personal-expense-tracker-service     ClusterIP           172.21.187.250  <none>            5000/TCP         113m


(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>kubectl get nodes -o wide
NAME                                STATUS    ROLES    AGE   VERSION   INTERNAL-IP   EXTERNAL-IP   OS-IMAGE      KERNEL-VERSION   CONTAINER-RUNTIME
10.144.188.96                       Ready    <none>    21h   v1.24.7+IKS  10.144.188.96  169.51.206.153  Ubuntu 18.04.6 LTS  4.15.0-194-generic  containerd://1.6.8

(pet) C:\Users\Shyam Sundar\Desktop\IBM-Project-19356-1659696546\Project Development Phase\Sprint 4>
```


<http://169.51.206.153:31612/> : Public IP running by hosting Kubernetes





Flask App running successfully with 5 pods above

kubernetes

default

 Search

Workloads

Workloads 11

Cron Jobs

Daemon Sets

Deployments

Jobs

Pods

Replica Sets

Replication Controllers

Stateful Sets

Service

Ingresses 11

Ingress Classes

Services 11

Config and Storage

Config Maps 11

Persistent Volume Claims 11

Secrets 11

Storage Classes

Cluster

Cluster Role Bindings

Cluster Roles


flask-app

Show all


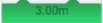





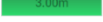


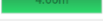











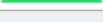

-

5 / 5

15 hours ago



Pods

Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created ↑
 personal-expense-tracker-6d47fc9568-55hbh	Show all	Show all	10.144.188.96	Running	0	 3.00m	 58.99Mi	an hour ago ⋮
 personal-expense-tracker-6d47fc9568-lkbrl	Show all	Show all	10.144.188.96	CrashLoopBc	24	-	-	an hour ago ⋮
 personal-expense-tracker-6d47fc9568-mdc5z	Show all	Show all	10.144.188.96	CrashLoopBc	24	-	-	an hour ago ⋮
 personal-expense-tracker-6d47fc9568-mrkwd	Show all	Show all	10.144.188.96	CrashLoopBc	24	-	-	an hour ago ⋮
 personal-expense-tracker-6d47fc9568-s2rf5	Show all	Show all	10.144.188.96	Running	12	 3.00m	 58.81Mi	an hour ago ⋮
 flask-app-58c4977879-5nh42	Show all	Show all	10.144.188.96	Running	0	 4.00m	 60.20Mi	3 hours ago ⋮
 flask-app-58c4977879-jhqvs	Show all	Show all	10.144.188.96	Running	0	 3.00m	 60.00Mi	3 hours ago ⋮
 flask-app-58c4977879-prdbt	Show all	Show all	10.144.188.96	Running	0	 4.00m	 61.16Mi	3 hours ago ⋮
 flask-app-58c4977879-vr6hz	Show all	Show all	10.144.188.96	Running	0	 3.00m	 61.17Mi	3 hours ago ⋮
 flask-app-58c4977879-whksk	Show all	Show all	10.144.188.96	Running	0	 3.00m	 61.33Mi	3 hours ago ⋮

Replica Sets

