

## DEPLOYMENT OF APPLICATION TO IBM KUBERNETES

Date	18 November 2022
Team ID	PNT2022TMID35580
Project Name	Project – Personal Expense Tracker Application

Step 1: Create the docker file for the Application.

Step 2: Create a container of the Application and deploy it in IBM Container Registry.

Step 3: Upload and deploy the container in IBM Kubernetes to get the URL which could be used anywhere anytime.

```
C:\Users\DELL\Documents\7th sem\IBM\sprint3>docker build -t personal-expense-tracker .
[+] Building 117.1s (15/15) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 32B
=> [internal] load .dockerignore
=> => transferring context: 2B
=> resolve image config for docker.io/docker/dockerfile:1
=> CACHED docker-image://docker.io/docker/dockerfile:1@sha256:9ba7531bd80fb0a858632727cf7a112fbfd19b17e94c4e84ced81e24ef1a0dbdc
=> [internal] load build definition from Dockerfile
=> [internal] load .dockerignore
=> [internal] load metadata for docker.io/library/ubuntu:22.04
=> [internal] load build context
=> => transferring context: 1.13kB
=> [1/6] FROM docker.io/library/ubuntu:22.04@sha256:4b1d0c4a2d2aaf63b3711f34eb9fa89fa1bf53dd6e4ce954d47caebca4005c2
=> CACHED [2/6] RUN DEBIAN_FRONTEND=noninteractive apt-get update && apt-get install -y python3 pip g++ make python3-dev rustc && rm -rf /var/lib/apt/lists/*
=> [3/6] COPY . /app
=> [4/6] WORKDIR /app
=> [5/6] RUN pip install --upgrade pip
=> [6/6] RUN pip install -r requirements.txt
=> exporting to image
=> => exporting layers
=> => writing image sha256:763b35c179917531fce0742c0e0d650489d110f209dfd8d7bbf035c8364492c3
=> => naming to docker.io/library/personal-expense-tracker

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

C:\Users\DELL\Documents\7th sem\IBM\sprint3>docker run -dp 5000:5000 personal-expense-tracker
0e8f30f7fa69275c92b6d23b648d1d0eea31ff1ae910b9927ee09044bed240e5

C:\Users\DELL\Documents\7th sem\IBM\sprint3>docker ps
CONTAINER ID   IMAGE                  COMMAND                  CREATED        STATUS        PORTS                    NAMES
0e8f30f7fa69   personal-expense-tracker  "python3 app.py"        7 seconds ago Up 6 seconds   0.0.0.0:5000->5000/tcp   elastic_chandrasekhar
```

```
C:\Windows\System32\cmd.exe - docker push au.icr.io/personal_app/app
2. in-che
3. jp-osa
4. jp-tok
5. kr-seo
6. eu-de
7. eu-gb
8. ca-tor
9. us-south
10. us-east
11. br-sao
Enter a number> 1
Targeted region au-syd

API endpoint: https://cloud.ibm.com
Region: au-syd
User: 2019115076@student.unnauiv.edu
Account: Ramya Natarajan's Account (3194b15e711a406e93052d40e59a7692)
Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:

C:\Users\DELL\Documents\7th sem\IBM\sprint3> ibmcloud cr namespace-add personal_app
No resource group is targeted. Therefore, the default resource group for the account ('Default') is targeted.
Adding namespace 'personal_app' in resource group 'Default' for account Ramya Natarajan's Account in registry au.icr.io...
Successfully added namespace 'personal_app'

OK

C:\Users\DELL\Documents\7th sem\IBM\sprint3> ibmcloud cr login
Logging 'docker' in to 'au.icr.io'...
Logged in to 'au.icr.io'.

OK

C:\Users\DELL\Documents\7th sem\IBM\sprint3> docker tag personal-expense-tracker au.icr.io/personal_app/app

C:\Users\DELL\Documents\7th sem\IBM\sprint3> docker push au.icr.io/personal_app/app
Using default tag: latest
The push refers to repository [au.icr.io/personal_app/app]
b28708c879c5: Pushing [====>] 7.695MB/173.3MB
afdc4153b7ec: Pushing [=====] 14.67MB
5f70bf18a086: Pushed
3f588f98e87f: Pushed
f6474fef770c: Pushing [>] 7.627MB/768.9MB
f4a670ac65b6: Pushing [=====] 41.38MB/77.79MB
```

```
C:\Users\DELL\Documents\7th sem\IBM\sprint3> docker tag personal-expense-tracker au.icr.io/personal_app/app

C:\Users\DELL\Documents\7th sem\IBM\sprint3> docker push au.icr.io/personal_app/app
Using default tag: latest
The push refers to repository [au.icr.io/personal_app/app]
b28708c879c5: Pushed
afdc4153b7ec: Pushed
5f70bf18a086: Pushed
3f588f98e87f: Pushed
f6474fef770c: Pushed
f4a670ac65b6: Pushed
latest: digest: sha256:3380025470d5213b87c63d2ba7faf8f2bbcea142216f6cbb36023ead880c3166 size: 1581

C:\Users\DELL\Documents\7th sem\IBM\sprint3>
```

```
C:\Users\DELL\Documents\7th sem\IBM\sprint3> ibmcloud cr image-list
Listing images...

Repository          Tag      Digest          Namespace      Created      Size      Security statu
au.icr.io/personal_app/app  latest  3380025470d5    personal_app    27 minutes ago  388 MB    -

OK
```

IBM Cloud

Search resources and products...

CatalogManageRamya Natarajan's Acc...

Clusters / mycluster-free

HelpKubernetes dashboardActions...

Overview

Worker nodes

Worker pools

DevOps New

Pool: Filter...

Search

Add

<input type="checkbox"/>	Name	Status	Worker pool	Zone	Private IP	Public IP	Version
<input checked="" type="checkbox"/>	0000007d	Deploying - Starting...	default	Milan 01	10.144.217.71	159.122.179.38	--> 1.24.7_1543

Items per page: 25

1-1 of 1 item

1 of 1 page

2. Set the context for your cluster in the IBM Cloud Shell

For more access options that vary with your cluster network setup, see the docs.

ibmcloud ks cluster

Deploy your app

1. Set up your image registry

Store your images in a registry that the cluster can access to run containers.

2. Deploy your app

Kubernetes dashboard

3. Manage your app lifecycle

Keep your apps up to date with Kubernetes container orchestration tools.

Expose your app

```
C:\Users\DELL\Documents\7th sem\IBM\sprint3>ibmcloud ks cluster config --cluster mycluster-ramya
The configuration for mycluster-ramya was downloaded successfully.

Added context for mycluster-ramya to the current kubeconfig file.
You can now execute 'kubectl' commands against your cluster. For example, run 'kubectl get nodes'.
If you are accessing the cluster for the first time, 'kubectl' commands might fail for a few seconds while RBAC synchronizes.

C:\Users\DELL\Documents\7th sem\IBM\sprint3> kubectl get nodes
NAME                 STATUS    ROLES    AGE   VERSION
10.144.213.188       Ready     <none>    6m40s v1.24.7+IKS





C:\Users\DELL\Documents\7th sem\IBM\sprint3> kubectl create -f deployment.yaml
error: resource mapping not found for name: "flask-node-deployment" namespace: "" from "deployment.yaml": no matches for kind "Deployment" in version "extensions/v1beta1"
ensure CRDs are installed first

C:\Users\DELL\Documents\7th sem\IBM\sprint3> kubectl create -f deployment.yaml
error: resource mapping not found for name: "flask-node-deployment" namespace: "" from "deployment.yaml": no matches for kind "Deployment" in version "extensions/v1"
ensure CRDs are installed first

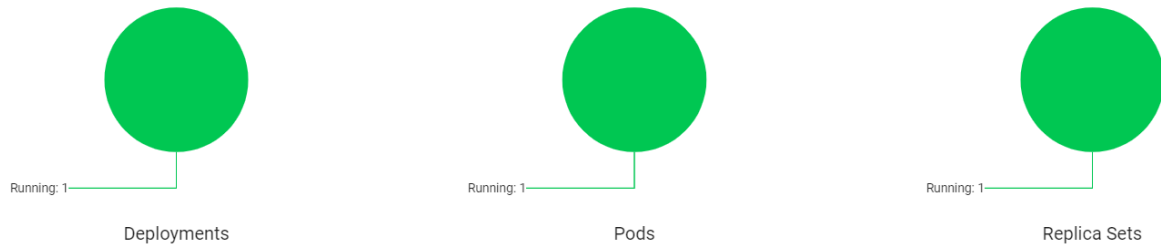
C:\Users\DELL\Documents\7th sem\IBM\sprint3> kubectl create -f deployment.yaml
deployment.apps/flask-node-deployment created

C:\Users\DELL\Documents\7th sem\IBM\sprint3> kubectl create -f service.yaml
service/flask-node-deployment created
```

Kubernetes clusters

Resource group: Filter...	Location: Filter...	 Search		Create cluster +		
Name	State	Location	Worker count	Created	Version	Infrastructure
mycluster-ramya	 Normal	Paris 01	1	Expires in 25 days	 1.24.8_1544	Classic
Items per page: 25		1-1 of 1 item		1 1 of 1 page		

## Workload Status



eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdse8ont096a1hq1rbj0/service/#/workloads?namespace=default

kubernetes

default

Search

Workloads

Deployments Pods Replica Sets

Workloads

Cron Jobs

Daemon Sets

Deployments

Jobs

Pods

Replica Sets

Replication Controllers

Stateful Sets

Service

Ingresses

Ingress Classes

Services

Config and Storage

Config Maps

Persistent Volume Claims

Secrets

Storage Classes

Deployments

Name	Images	Labels	Pods	Created
flask-node-deployment	Show all	-	1 / 1	4 minutes ago

Pods

Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created
flask-node-deployment-74f9879bb7-45qpw	Show all	app: flasknode pod-template-hash: 74f9879bb7	10.144.213.188	Running	0	3.00m	58.69Mi	4 minutes ago

Replica Sets

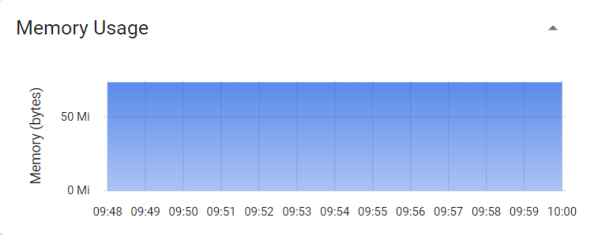
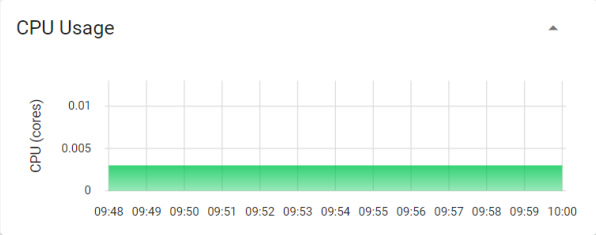
Name	Images	Labels	Pods	Created
flask-node-deployment-74f9879bb7	Show all	Show all	1 / 1	4 minutes ago

27°C

20:12

19-11-2022

Deployments



Deployments

Name	Images	Labels	Pods	Created <span>↑</span>
<span>●</span> <a href="#">flask-node-deployment</a>	<a href="#">Show all</a>	-	1 / 1	4 days ago