

# ASSIGNMENT 2:

## Deploying a Python Application on Kubernetes

### The URL of GitHub repository

<https://github.com/RujalMaharjan/kubernetes-project-2.git>

### The URL of Docker hub

<https://hub.docker.com/r/rujalmhn/kubernetes-project2>

### A brief description of your project.

This project involves deploying a Python web application that displays the current time in Toronto, Canada, using Docker and Kubernetes. The application is containerized to ensure consistency across different environments and orchestrated using Kubernetes for scalable deployment.

### Screenshots

Created services and pods

```
Administrator: Windows PowerShell
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\Rujal> kubectl get services
NAME                TYPE        CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
kubernetes          ClusterIP   10.96.0.1      <none>          443/TCP          118m
python-app-service  NodePort    10.102.108.241 <none>          3030:30300/TCP   118m
PS C:\Users\Rujal> kubectl get pods -o wide
NAME                READY   STATUS    RESTARTS   AGE   IP            NODE       NOMINATED NODE   READINESS GATES
python-app-5b849cffb5-dbjh2  1/1     Running   0          118m   10.244.0.3    minikube   <none>            <none>
python-app-5b849cffb5-ln6bg  1/1     Running   0          118m   10.244.0.4    minikube   <none>            <none>
PS C:\Users\Rujal> |
```

Exposing Kubernetes service to Local Machine, allowing to access the service via a web browser

```
Administrator: Windows PowerShell
PS C:\Users\Rujal> minikube status
W0709 13:03:41.699616 12736 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\Rujal\.docker\contexts\meta\37a8ee1ce19687d132fe29051dca629d16ae2c4958ba141d5f4133a33f9688f\meta.json: The system cannot find the path specified.
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured

PS C:\Users\Rujal> minikube service python-app-service
W0709 13:04:50.996557 2928 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\Rujal\.docker\contexts\meta\37a8ee1ce19687d132fe29051dca629d16ae2c4958ba141d5f4133a33f9688f\meta.json: The system cannot find the path specified.

+-----+-----+-----+-----+
| NAMESPACE | NAME          | TARGET PORT | URL               |
+-----+-----+-----+-----+
| default    | python-app-service | 3030        | http://192.168.49.2:30300 |
+-----+-----+-----+-----+
* Starting tunnel for service python-app-service.
+-----+-----+-----+-----+
| NAMESPACE | NAME          | TARGET PORT | URL               |
+-----+-----+-----+-----+
| default    | python-app-service | 3030        | http://127.0.0.1:52021 |
+-----+-----+-----+-----+
* Opening service default/python-app-service in default browser...
! Because you are using a Docker driver on windows, the terminal needs to be open to run it.
```

Accessed the Kubernetes service via browser



Current time in Toronto: 2024-07-09 13:31:14

