

ASSIGNMENT 4

BATCH NUMBER	PNT2022TMID07252
STUDENT NAME	Hari Shankar R
STUDENT REGISTER NUMBER	711519bcs015

QUESTION:

Assignment Kubernetes / Docker

- 1.Pull an Image from docker hub and run it in docker playground.
- 2.Create a docker file for the jobportal application and deploy it in Docker desktop application.
- 3.Create a IBM container registry and deploy helloworld app or jobportalapp.
- 4.Create a Kubernetes cluster in IBM cloud and deploy helloworld image or jobportal image and also expose the same app to run in nodeport

Kubernetes

dashboard adminuser.yaml:

```
apiVersion: v1
kind: ServiceAccount
metadata:
  name: admin-user
  namespace: kubernetes-dashboard
---
```

```
apiVersion: v1
kind: Secret
metadata:
  name: admin-user-token
  namespace: kubernetes-dashboard
  annotations:
    kubernetes.io/service-account.name: admin-user
type: kubernetes.io/service-account-token
```

```
apiVersion: rbac.authorization.k8s.io/v1
kind: ClusterRoleBinding
metadata:
  name: admin-user
roleRef:
  apiGroup: rbac.authorization.k8s.io
  kind: ClusterRole
  name: cluster-admin
subjects:
- kind: ServiceAccount
  name: admin-user
  namespace: kubernetes-dashboard
```

flask deployment.yaml:

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: flask-app
```

spec:

replicas: 3

selector:

matchLabels:

app: flask-app

template:

metadata:

labels:

app: flask-app

spec:

containers:

- name: webpage

image: rajkiranss/flask

imagePullPolicy: Never

ports:

- containerPort: 8000

protocol: TCP

flask_ingress.yaml:

apiVersion: networking.k8s.io/v1

kind: Ingress

metadata:

name: flask-app-ingress

annotations:

kubernetes.io/ingress.class: nginx

nginx.ingress.kubernetes.io/ssl-redirect: "false"

spec:

```
# ingressClassName: nginx
rules:
  - http:
      paths:
        - backend:
            service:
              name: flask-app-service
            port:
              number: 8000
          path: /
          pathType: Prefix
```

flask_service.yaml:

```
apiVersion: v1
kind: Service
metadata:
  name: flask-app-service
spec:
  type: ClusterIP
  ports:
    - port: 8000
  selector: app: flask-app
```

ibm deployment.yaml:

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: flask-deploy

spec:
```

replicas: 3

selector:

matchLabels:

app: flask-deploy

template:

metadata:

labels:

app: flask-deploy

spec:

containers:

- name: web

image: jp.icr.io/webpage/web

imagePullPolicy: Always

ports:

- containerPort: 5000

protocol: TCP

templates:

base.html:

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<title> FlaskApp</title>

<style>

.message {

padding: 10px;

margin: 5px;

```
        background-color: #f3f3f3
    }

    nav a {
        color: #d64161;
        font-size: 25px;
        margin-left: 50px;
        text-decoration: none;
        text-transform: uppercase;
    }


    .alert {
        padding: 20px;
        margin: 5px;
        color: #970020;
        background-color: #ffd5de;
    }

    .button {
background-color:#970020; /* Green */
border: none;
color: white;
padding: 16px 32px;
text-align: center;
text-decoration: none;
display: inline-block;
font-size: 16px;
margin: 4px 2px;
transition-duration: 0.4s;
cursor: pointer;
    }
```

```
.button1 {  
    background-color: white;  
    color: black;  
    border: 2px solid #970020;  
}
```

```
.button1:hover {  
    background-color: #970020;  
    color: white;  
}
```

```
input[type=text],textarea {  
    width: 50%;  
    padding: 12px 20px;  
    margin: 8px 0;  
    box-sizing: border-box;  
    border: 2px solid red;  
    border-radius: 4px;  
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<nav>
```

```
<a href="{{ url_for('index') }}">FlaskApp</a>
```

```
<a href="{{ url_for('create') }}">Create</a>
```

```
</nav>
```

```
<hr>
```

```
<div class="content">

    {% for message in get_flashed_messages() %}

        <div class="alert">{{ message }}</div>

    {% endfor %}

    {% block content %} {% endblock %}

</div>
```

```
</body>
```

```
</html>
```

create.html:

```
{% extends 'base.html' %}
```

```
{% block content %}
```

```
<h1>{% block title %} Add a New Message {% endblock %}</h1>
```

```
<form method="post" style="text-align: center;">
```

```
<label for="title">TITLE</label>
```

```
<br>
```

```
<input type="text" name="Welcome"
```

```
    placeholder="Hello World!"
```

```
    value="{{ request.form['Welcome'] }}"></input>
```

```
<br>
```

```
<label for="content">Hello World!</label>
```

```
<br>
```

```
<textarea name="content"
```

```
    placeholder="Hello World!"
```



```

        rows="15"

        cols="60"

        >{{ request.form['content'] }}</textarea>

<br>

<button type="submit" class="button button1">Submit</button>

</form>

<a href="{{ url_for('index') }}" class="button button1">Home</a>

{% endblock %}

```

index.html:

```

{% extends 'base.html' %}

{% block content %}

<h1 style="text-align: center;">HELLO !</h1>

<h1> {% block title %} <span style="color: red;">WRITE YOUR MESSAGE</span> {% endblock %}</h1>

{% for message in messages %}

    <div class='message'>

        <h3><span style="color: blue;">welcome </span> {{ message['title'] }}</h3>

        <p><span style="color: blue;">Hello World! </span>{{ message['content'] }}</p>

    </div>

{% endfor %}

{% endblock %}

```

dockerfile:

```

FROM python:3.10.4

WORKDIR /app

COPY requirements.txt ./

RUN pip install -r requirements.txt

COPY . .

```

EXPOSE 8000

CMD ["python", "./app.py"]

app.py

```
from flask import Flask, render_template, request, url_for, flash, redirect
```

```
app = Flask(__name__)
```

```
app.config['SECRET_KEY'] = 'df0331cefc6c2b9a5d0208a726a5d1c0fd37324feba25506'
```

```
@app.route('/create/', methods=('GET', 'POST'))
```

```
def create():
```

```
    if request.method == 'POST':
```

```
        title = request.form['title']
```

```
        content = request.form['content']
```

```
    if not title:
```

```
        flash('Title is required!')
```

```
    elif not content:
```

```
        flash('Content is required!')
```

```
    else:
```

```
        messages.append({'title': title, 'content': content})
```

```
        name = "Hari Shankar"
```

```
        return redirect(url_for('index', messages=name ))
```

```
    return render_template('create.html')
```

```
messages = [{'title': 'Message One',
```

```
             'content': 'Message One Content'},
```

```
    {'title': 'Message Two',  
     'content': 'Message Two Content'}  
]
```

```
@app.route('/')  
def index():  
    return render_template('index.html', messages=messages)
```

```
@app.route('/admin')  
def hello_admin():  
    return 'Hello Admin'
```

```
@app.route('/guest/<guest>')  
def hello_guest(guest):  
    return 'Hello %s as Guest' % guest
```

```
@app.route('/user/<name>')  
def hello_user(name):  
    if name == 'admin':  
        return redirect(url_for('hello_admin'))  
    else:  
        return redirect(url_for('hello_guest', guest = name))
```

```
if __name__ == '__main__':  
    app.run(host='0.0.0.0', port=8000, debug=True)
```

