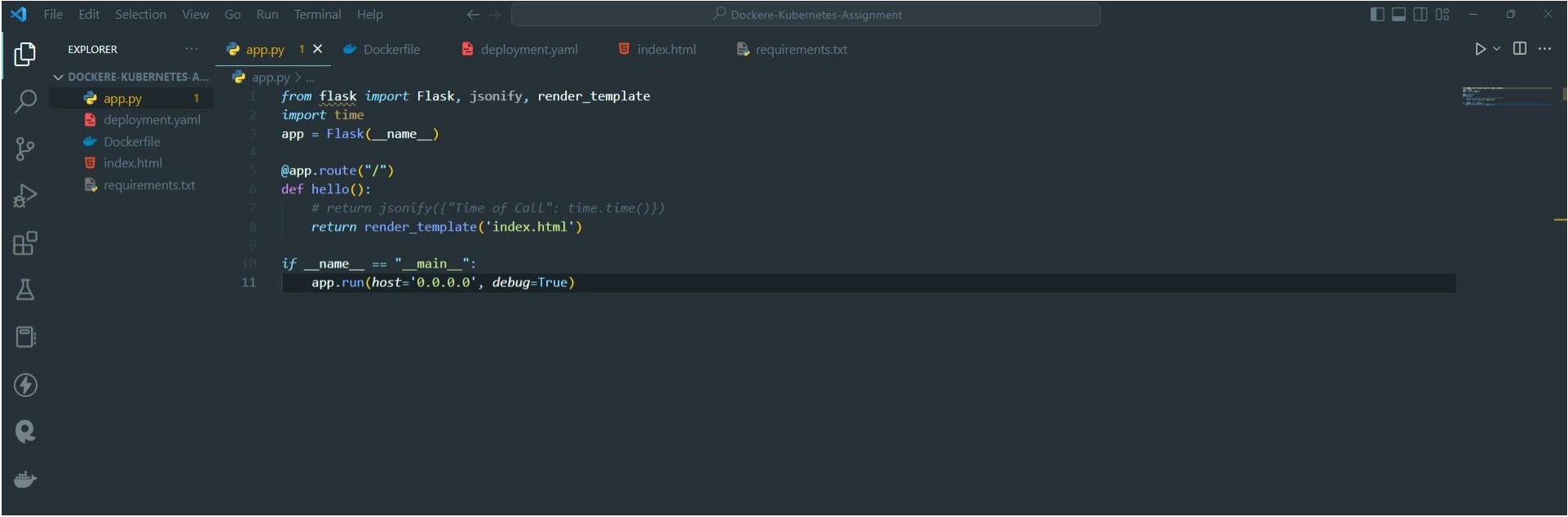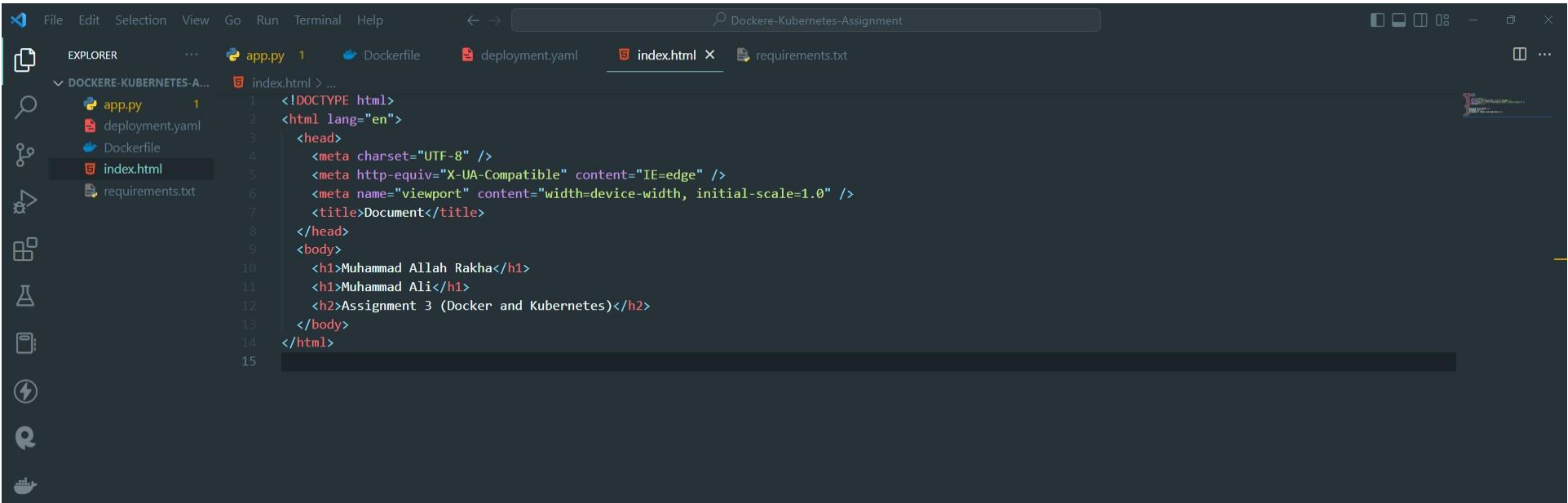# Assignment # 3 (Dockers and Kubernetes)

- First of all, we create the Python file to testing the Image of Docker for Container. This "app.py" contain the HTML file in which simple text displayed.
- After then, we make the "Dockerfile" extension in which setup of the Docker Image, Python IDE, and Flask API. Flask related details in "requirements.txt"
- For Kubernetes, we create "deployment.yaml" file in which two portion, first one is Service (Load Balancer) and second one is Deployment (Docker Image).
- Hence, we final develop setup of "Kubernetes (kubercli and minikube)". We create Docker Image and Container, but we can't deployment in Kubernetes, because we don't have Kubernetes Environment in Desktop Docker. So, we didn't proceed further procedure.


```python
from flask import Flask, jsonify, render_template
import time
app = Flask(__name__)

@app.route("/")
def hello():
    # return jsonify({"Time of Call": time.time()})
    return render_template('index.html')

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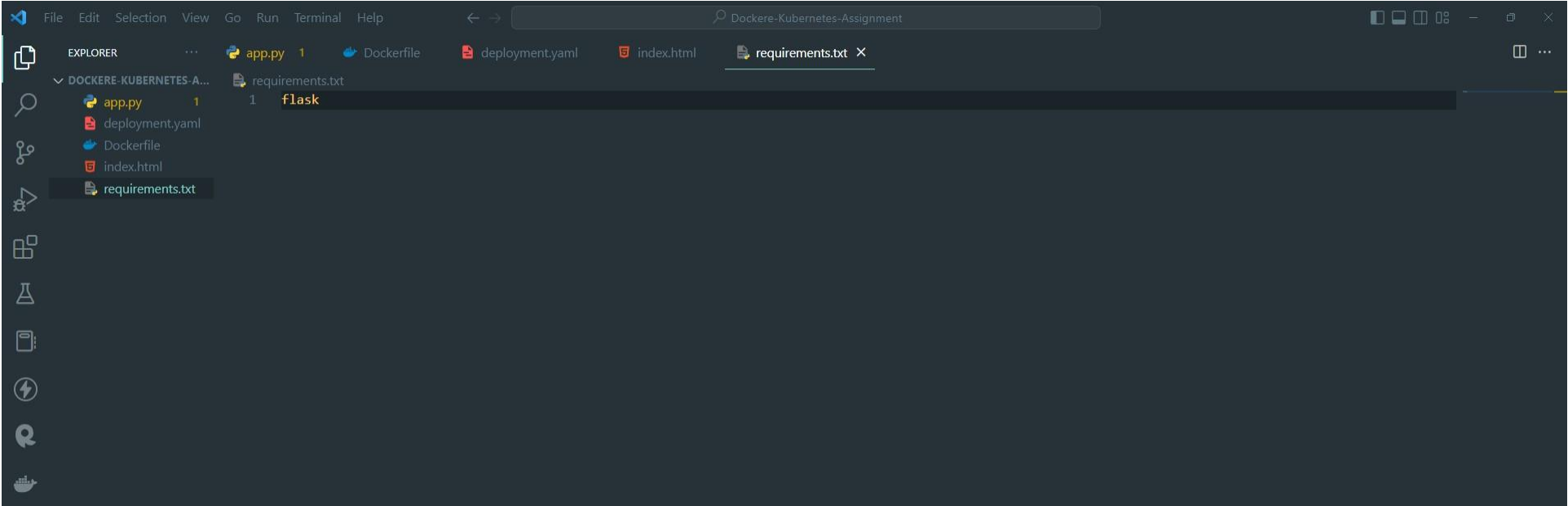


```html
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>Document</title>
  </head>
  <body>
    <h1>Muhammad Allah Rakha</h1>
    <h1>Muhammad Ali</h1>
    <h2>Assignment 3 (Docker and Kubernetes)</h2>
  </body>
</html>
```
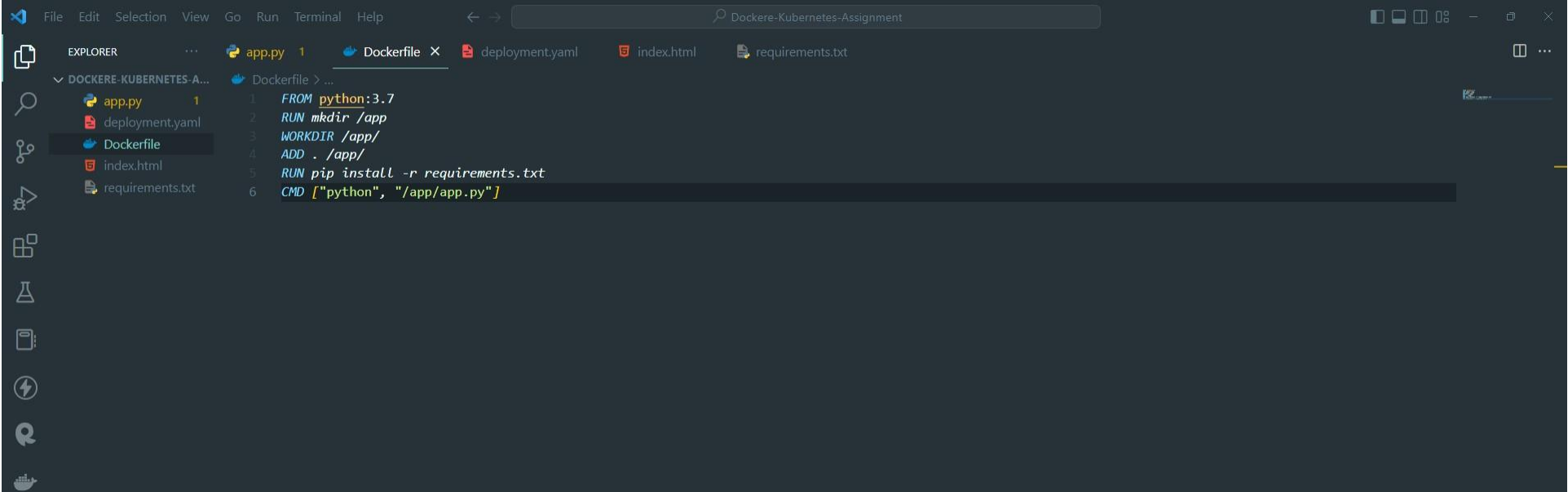


```dockerfile
FROM python:3.7
RUN mkdir /app
WORKDIR /app/
ADD . /app/
RUN pip install -r requirements.txt
CMD ["python", "/app/app.py"]
```



```
flask
```

File Edit Selection View Go Run Terminal Help

EXPLORER

DOCKERE-KUBERNETES-A...
- app.py   1
- deployment.yaml
- Dockerfile
- index.html
- requirements.txt

deployment.yaml

```yaml
apiVersion: v1
kind: Service
metadata:
  name: flask-test-service
spec:
  selector:
    app: flask-test-app
  ports:
    - protocol: "TCP"
      port: 6000
      targetPort: 5000
  type: LoadBalancer

---
apiVersion: apps/v1
kind: Deployment
metadata:
  name: flask-test-app
spec:
  selector:
    matchLabels:
      app: flask-test-app
  replicas: 5
  template:
    metadata:
      labels:
        app: flask-test-app
    spec:
      containers:
        - name: flask-test-app
          image: flask-kubernetes
          imagePullPolicy: IfNotPresent
          ports:
            - containerPort: 5000
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
PS G:\Semester_7\Dockere-Kubernetes-Assignment>
```

OUTLINE
TIMELINE

File Edit Selection View Go Run Terminal Help

EXPLORER

DOCKERE-KUBERNETES-A...
- app.py
- deployment.yaml
- Dockerfile
- index.html
- requirements.txt

app.py > ...

```python
from flask import Flask, jsonify, render_template
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
=> [internal] load build definition from Dockerfile                                                                          2.2s
=> => transferring dockerfile: 167B                                                                                          1.1s
=> [internal] load .dockerignore                                                                                             1.7s
=> => transferring context: 2B                                                                                               0.9s
=> [internal] load metadata for docker.io/library/python:3.7                                                                10.9s
=> [internal] load build context                                                                                            0.8s
=> => transferring context: 1.66kB                                                                                           0.1s
=> [1/5] FROM docker.io/library/python:3.7@sha256:520bd41d196f37b077c3e586009785cc698a7afd11291209324cc267780c8657        780.0s
=> => resolve docker.io/library/python:3.7@sha256:520bd41d196f37b077c3e586009785cc698a7afd11291209324cc267780c8657          0.5s
=> => sha256:520bd41d196f37b077c3e586009785cc698a7afd11291209324cc267780c8657 1.86kB / 1.86kB                               0.0s
=> => sha256:19675f873997771853c774be3f9c29a2aed309bb6614408c04514996163aac7b 2.22kB / 2.22kB                               0.0s
=> => sha256:5cda39795abb5d66354c474fdd58f880141a593de54e292f2610e7757ae98aef 9.20kB / 9.20kB                               0.0s
=> => sha256:5c8cfbf51e6e6869f1af2a1e7067b07fd6733036a333c9d29f743b0285e26037 5.16MB / 5.16MB                              26.8s
=> => sha256:aa3a609d15798d35c1484072876b7d22a316e98de6a097de33b9dade6a689cd1 10.88MB / 10.88MB                            62.9s
=> => sha256:f2f58072e9ed1aa1b0143341c5ee83815c00ce47548309fa240155067ab0e698 55.04MB / 55.04MB                           244.5s
=> => sha256:094e7d9bb04ebf214ea8dc5a48899549684104ae8ad9603bf061cac0d18eb54 54.59MB / 54.59MB                            218.2s
=> => sha256:2cbfd734f3824a4390fe4be45f6a11a5543bca1023e4814d72460eaebc2eef89 196.87MB / 196.87MB                         739.3s
=> => sha256:aa86ac293d0fa66515f0a670445969ba98dd8d6a114a7f6aea934aaad44084d0 6.29MB / 6.29MB                             256.0s
=> => sha256:e8aea10b41a0a7606151f26f7590f539bf99da2d82c6d1cfe13623a8d8b453e3 15.49MB / 15.49MB                           310.0s
=> => extracting sha256:f2f58072e9ed1aa1b0143341c5ee83815c00ce47548309fa240155067ab0e698                                    3.0s
=> => extracting sha256:5c8cfbf51e6e6869f1af2a1e7067b07fd6733036a333c9d29f743b0285e26037                                    0.4s
=> => extracting sha256:aa3a609d15798d35c1484072876b7d22a316e98de6a097de33b9dade6a689cd1                                    0.4s
=> => extracting sha256:094e7d9bb04ebf214ea8dc5a48899549684104ae8ad9603bf061cac0d18eb54                                     2.8s
=> => extracting sha256:3f1c4dc605dc72fd0aec6d66733fee7732cd6b82e96a04279e0907cb97f4f5ed 233B / 233B                      257.6s
=> => sha256:ee7d24a3adf39850d5fe6d4525837db7ef1c36681e74e1057bf6a8bcfa5ce842 2.89MB / 2.89MB                             274.7s
=> => extracting sha256:2cbfd734f3824a4390fe4be45f6a11a5543bca1023e4814d72460eaebc2eef89                                   12.3s
=> => extracting sha256:aa86ac293d0fa66515f0a670445969ba98dd8d6a114a7f6aea934aaad44084d0                                    0.4s
=> => extracting sha256:e8aea10b41a0a7606151f26f7590f539bf99da2d82c6d1cfe13623a8d8b453e3                                    1.1s
=> => extracting sha256:3f1c4dc605dc72fd0aec6d66733fee7732cd6b82e96a04279e0907cb97f4f5ed                                    0.0s
=> => extracting sha256:ee7d24a3adf39850d5fe6d4525837db7ef1c36681e74e1057bf6a8bcfa5ce842                                    0.5s
=> [2/5] RUN mkdir ./app                                                                                                     2.6s
=> [3/5] WORKDIR /app/                                                                                                       1.6s
=> [4/5] ADD . /app/                                                                                                         1.4s
=> [5/5] RUN pip install -r requirements.txt                                                                                52.7s
=> exporting to image                                                                                                        2.9s
=> => exporting layers                                                                                                       2.3s
=> => writing image sha256:e0785271457aedc694fc718dd94b9720e140e62165b3d74bf23e2dbc3301926a                                 0.1s
=> => naming to docker.io/library/flask-kubernetes                                                                          0.1s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
PS G:\Semester_7\Dockere-Kubernetes-Assignment> docker build -t flask-kubernetes .
```

OUTLINE
TIMELINE

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
PS G:\Semester_7\Dockere-Kubernetes-Assignment> docker images
REPOSITORY              TAG         IMAGE ID       CREATED          SIZE
flask-kubernetes        latest      e0785271457a   30 minutes ago   918MB
docker-assignment-php   latest      fcbdd81dc176   5 days ago       453MB
my-php-app              latest      b14180fb6783   5 days ago       474MB
<none>                  <none>      9d2ddebc4e91   5 days ago       474MB
mysql                   latest      7484689f290f   6 days ago       538MB
php                     7.4-apache  20a3732f422b   4 weeks ago      453MB
adminer                 latest      ef63a68bb1a5   4 weeks ago      91.3MB
php                     7.2-apache  c61d277263e1   2 years ago      410MB
PS G:\Semester_7\Dockere-Kubernetes-Assignment>
```