

# Counter App with Python and Flask

This repo is contain files which needed to create an app using python, in order to count webpage hits. The application is bundled into a container and deployed on docker using docker compose. The backend database is MySQL.

## API functionality:

Description: Retrives number of hits for the current deployment.

Request: GET /

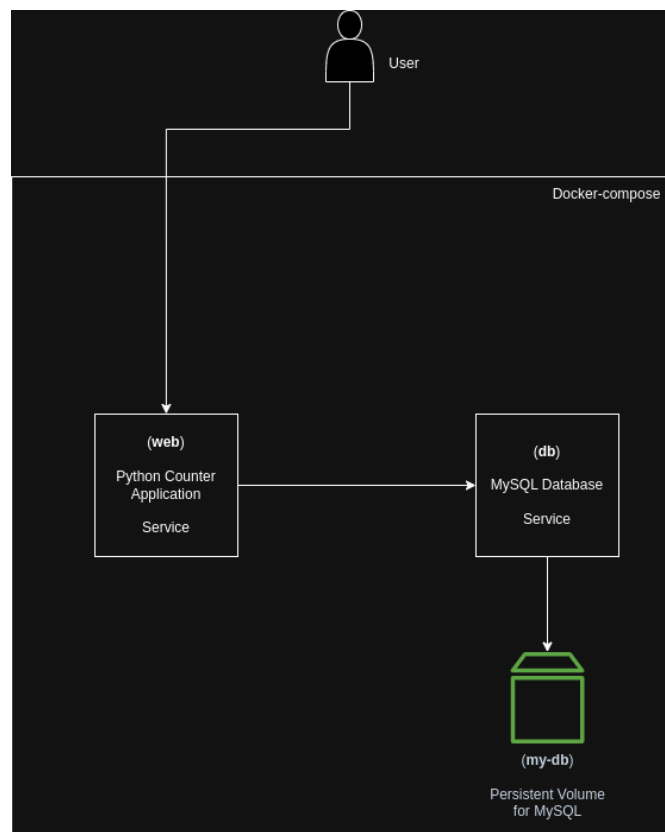
Response: This page has been visited **1** times.

## Details:

The app is written in Python, using Flask framework

- **app.py** is the actual app code.
- **requirements.txt** are the dependencies required to run the app.
- **Init\_database.py** file is used to establish connection with mysql database and created tables and entries.
- **Dockerfile** is used to build docker container.
- **entrypoint.sh** is used to configure database entries and run application by required commands when container will start.
- **wsgi.py** file is Web Server Gateway Interface (WSGI) is a mediator responsible for conveying communication between a web server and a Python web application.

## Architecture diagram:



## Building/testing steps:

Build and tag docker image:

```
docker build -t counterapp .
```

```
---> Using cache
hemant@sf-lap-849:~/homework-main$ docker build -t counterapp:v1 .
Sending build context to Docker daemon 17.92kB
Step 1/7 : FROM ubuntu:22.04
---> 01f29b872827
Step 2/7 : WORKDIR /app
---> Using cache
---> 158293978d6e
Step 3/7 : RUN apt-get update && apt-get install -y python3 python3-pip libmysqlclient-dev pkg-config
---> Using cache
---> 02fdc649a354
Step 4/7 : COPY . .
---> Using cache
---> b1fdf69c11ac
Step 5/7 : RUN pip3 install -r requirements.txt
---> Running in e3289d21e568
Collecting flask==2.2.3
  Downloading Flask-2.2.3-py3-none-any.whl (101 kB)
    101.8/101.8 KB 850.5 kB/s eta 0:00:00
Collecting flask_sqlalchemy
  Downloading flask_sqlalchemy-3.0.5-py3-none-any.whl (24 kB)
Collecting sqlalchemy_utils==0.40.0
  Downloading SQLAlchemy_Utils-0.40.0-py3-none-any.whl (92 kB)
    92.5/92.5 KB 1.6 MB/s eta 0:00:00
Collecting flask-mysqldb==1.0.1
  Downloading Flask-MySQLdb-1.0.1.tar.gz (4.3 kB)
  Preparing metadata (setup.py): started
  Preparing metadata (setup.py): finished with status 'done'
Collecting pymysql==1.0.2
  Downloading PyMySQL-1.0.2-py3-none-any.whl (43 kB)
    43.8/43.8 KB 2.4 MB/s eta 0:00:00
Collecting python-decouple==3.8
  Downloading python_decouple-3.8-py3-none-any.whl (9.9 kB)
Collecting gunicorn==20.1.0
  Downloading gunicorn-20.1.0-py3-none-any.whl (79 kB)
    79.5/79.5 KB 2.3 MB/s eta 0:00:00
Collecting cryptography==40.0.2
  Downloading cryptography-40.0.2-cp36-abi3-manylinux_2_28_x86_64.whl (3.7 MB)
    3.7/3.7 MB 1.8 MB/s eta 0:00:00
Collecting click==8.0
  Downloading click-8.1.7-py3-none-any.whl (97 kB)
    97.9/97.9 KB 6.9 MB/s eta 0:00:00
Collecting Werkzeug==2.2.2
  Downloading werkzeug-2.3.7-py3-none-any.whl (242 kB)
    242.2/242.2 KB 2.4 MB/s eta 0:00:00
Collecting itsdangerous==2.0
  Downloading itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Collecting Jinja2==3.0
  Downloading Jinja2-3.1.2-py3-none-any.whl (133 kB)
    133.1/133.1 KB 3.0 MB/s eta 0:00:00
Collecting SQLAlchemy==1.3
  Downloading SQLAlchemy-2.0.20-cp310-cp310-manylinux_2_17_x86_64_manylinux2014_x86_64.whl (3.0 MB)
    3.0/3.0 MB 2.4 MB/s eta 0:00:00
Collecting mysqlclient==1.3.7
  Downloading mysqlclient-2.2.0.tar.gz (89 kB)
    89.5/89.5 KB 5.9 MB/s eta 0:00:00
Installing build dependencies: started
Installing build dependencies: finished with status 'done'
```

push the image to docker hub:

```
hemant@sf-lap-849:~/homework-main$ docker tag counterapp:v1 hsoni2404/counterapp:v1
hemant@sf-lap-849:~/homework-main$
hemant@sf-lap-849:~/homework-main$ docker login -u hsoni2404
Password:
WARNING! Your password will be stored unencrypted in /home/hemant/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
hemant@sf-lap-849:~/homework-main$
```

```
hemant@sf-lap-849:~/homework-main$ docker push hsoni2404/counterapp:v1
The push refers to repository [docker.io/hsoni2404/counterapp]
91e57b56371c: Pushed
6d91ed8850da: Pushed
4353bb71de58: Pushed
fc30735a2428: Pushed
bce45ce613d3: Mounted from library/ubuntu
v1: digest: sha256:d12f3d8494953f43a28ff83b70b03ecfd78b868a0cea2d1fc0c94455d1ec3950 size: 1368
hemant@sf-lap-849:~/homework-main$
```

Create a docker-compose file to run this application with it's dependency on server within same network.

docker-compose.yaml

```
version: '3.3'

services:
  mysql_database:
    image: mysql:8.0
    restart: always
    env_file:
      - .env
    ports:
      - '3306:3306'
    volumes:
      - my-db:/var/lib/mysql

  python_counter_app:
    image: hsoni2404:v1
    restart: always
    ports:
      - '5000:5000'
    env_file:
      - .env
    depends_on:
      - mysql_database

volumes:
  my-db:
```

## Deployment steps:

Run application and its dependency (MySQL) using docker-compose.

```
hemant@sf-lap-849:~/homework-main$ docker-compose up -d
/usr/lib/python3/dist-packages/paramiko/transport.py:236: CryptographyDeprecationWarning: Blowfish has been deprecated
"class": algorithms.Blowfish,
Starting homework-main_mysql_database_1 ... done
Recreating homework-main_python_counter_app_1 ... done
hemant@sf-lap-849:~/homework-main$
```

Check Application status my using below command:

Docker-compose ps

```
hemant@sf-lap-849:~/homework-main$ docker-compose ps
/usr/lib/python3/dist-packages/paramiko/transport.py:236: CryptographyDeprecationWarning: Blowfish has been deprecated
"class": algorithms.Blowfish,

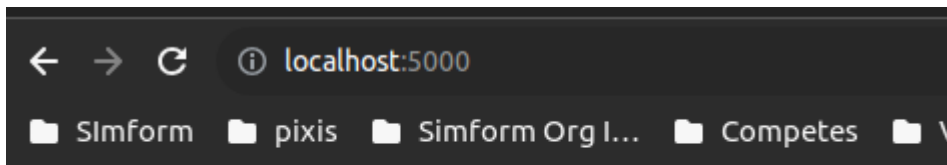
```

Name	Command	State	Ports
homework-main_mysql_database_1	docker-entrypoint.sh mysqld	Up	0.0.0.0:3306->3306/tcp, :::3306->3306/tcp, 33060/tcp
homework-main_python_counter_app_1	bash entrypoint.sh	Up	0.0.0.0:5000->5000/tcp, :::5000->5000/tcp

```
hemant@sf-lap-849:~/homework-main$
```

Access application using curl command in CLI and also you can use browser to check hits count.

```
hemant@sf-lap-849:~/homework-main$  
● hemant@sf-lap-849:~/homework-main$ curl localhost:5000  
<!DOCTYPE html>  
<html>  
  <head>  
  </head>  
  <body>  
    <p>This page has been visited <b>14</b> times.</p>  
  </body>  
</html>hemant@sf-lap-849:~/homework-main$
```



This page has been visited **15** times.