

Members:

1. Syed Mohammad Anjil Hussain Rizvi (2303.KHI.DEG.031)
 2. Huzefa Anver (2303.KHI.DEG.002)
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The following changes were made to the application to cater areas of improvements file.

1. Dockerfile:

- a. Requirements installation moved from runtime to build time; pip install requirements.txt that was part of the CMD command in line 16 is now part of the code pertaining to building the image. Line 7 is where the requirements are being installed.
- b. Mount location for volume is specified in line 14 to introduce statelessness.
- c. Another environment variable introduced namely "level", the value of which if set to "debug" sets the app.debug==True. And if set to "production", sets the app.debug==False so that App should be able to be executed both during development, with debugging enabled, and in production, with debugging disabled.

```
day_4_best_practices_tools_common_pitfalls > app_that_doesnt_follow_best_practices > Dockerfile
1  FROM python:3.8-slim-buster
2
3  WORKDIR /home/app/
4
5  COPY ./ /home/app/
6
7  RUN pip install -r requirements.txt
8
9  ENV PYTHONPATH=${PYTHONPATH}:/home/app/
10
11  ENV level="debug"
12
13
14  VOLUME /home/app/data/
15
16  CMD ["bash", "-c", "gunicorn main:app -b 0.0.0.0:5000"]
17
```

2. Main.py:

- The logs shouldn't be written to a file, but to the container output.

- a. Lines 11-14 modified where code pertaining to logs.txt file creation is removed
- b. Lines 16-17 are added to include logging stream to be passed into standard error stream (stderr) of the app.

- c. Logging level set to INFO

```
11 logging.basicConfig(  
12     format="%(asctime)s,%(msecs)d %(name)s %(levelname)s %(message)s",  
13     datefmt="%H:%M:%S",  
14 )  
15  
16 app.logger.addHandler(logging.StreamHandler(sys.stderr))  
17 app.logger.setLevel(logging.INFO)
```

- App should be able to be executed both during development, with debugging enabled, and in production, with debugging disabled.

- d. `Os.environ.get('level')` fetches the environment variable of the name passed in the parameter. This environment will have been specified in our Dockerfile. (refer 1.c)

```
19 if os.environ.get ('level')== 'debug':  
20     app.debug = True  
21  
22 elif os.environ.get ('level')== 'production':  
23     app.debug == False
```

- e. Path for saving `todo.json` file is changed to `$PWD/data/`. This data directory is where our volume is mounted which allows the data to be stored in the volume.

```
25  
26 TODO_FILE_NAME = "./data/todo.json"
```

RESULTS:

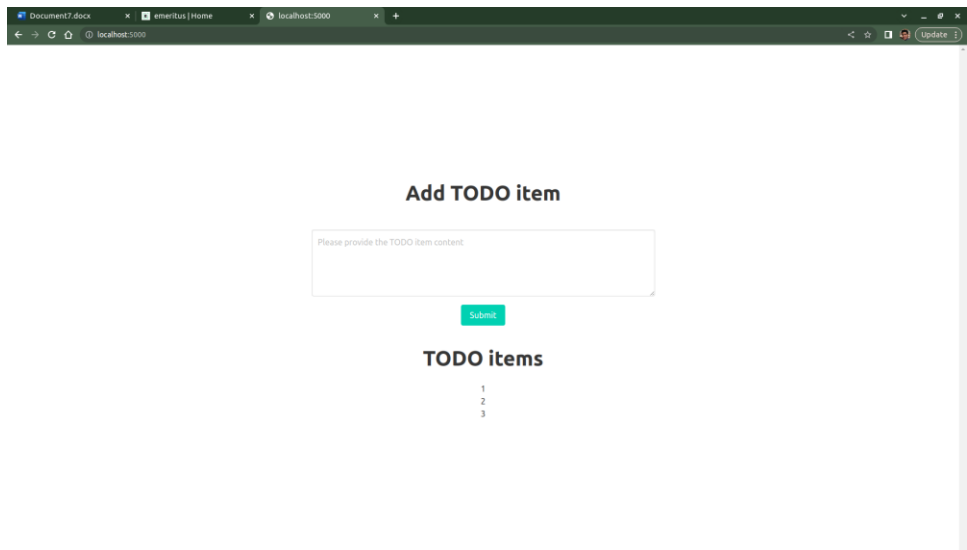
Dependencies being installed at buildtime

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
● syedmohammadanjilhussainrizvi@all-MS-7035:~/Desktop/day_4_best_practices_tools_common_pitfalls (1)$ cd day_4_best_practices_tools_common_pitfalls
● syedmohammadanjilhussainrizvi@all-MS-7035:~/Desktop/day_4_best_practices_tools_common_pitfalls (1)/day_4_best_practices_tools_common_pitfalls$ docker build --tag assignment4.4 .
Sending build context to Docker daemon 220.2kB
Step 1/8 : FROM python:3.8-slim-buster
--> 3e9454c9b564
Step 2/8 : WORKDIR /home/app/
--> Using cache
--> 4b261633cddf
Step 3/8 : COPY ./ /home/app/
--> 08d6e04998e5
Step 4/8 : RUN pip install -r requirements.txt
--> Running in ffb70252d67e
Collecting Flask==2.2.2
  Downloading Flask-2.2.2-py3-none-any.whl (101 kB)
    101.5/101.5 KB 3.6 MB/s eta 0:00:00
Collecting gunicorn==20.1.0
  Downloading gunicorn-20.1.0-py3-none-any.whl (79 kB)
    79.5/79.5 KB 13.3 MB/s eta 0:00:00
Collecting itsdangerous==2.0
  Downloading itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Collecting click>=8.0
  Downloading click-8.1.3-py3-none-any.whl (96 kB)
    96.6/96.6 KB 4.8 MB/s eta 0:00:00
Collecting Jinja2>=3.0
  Downloading Jinja2-3.1.2-py3-none-any.whl (133 kB)
    133.1/133.1 KB 8.7 MB/s eta 0:00:00
Collecting importlib-metadata>=3.6.0
  Downloading importlib_metadata-6.6.0-py3-none-any.whl (22 kB)
Connect to Google Cloud
```

Container up and running with volume binded to the directory /home/app/data

```
Successfully tagged assignment4.4:latest
● syedmohammadanjilhussainrizvi@all-MS-7035:~/Desktop/day_4_best_practices_tools_common_pitfalls (1)$ docker volume create volassignment4.4
volassignment4.4
● syedmohammadanjilhussainrizvi@all-MS-7035:~/Desktop/day_4_best_practices_tools_common_pitfalls (1)$ docker run -p 5000:5000 -v volassignment4.4:/home/app/data/ assignment4.4:latest
[2023-05-16 11:52:58 +0000] [1] [INFO] Starting gunicorn 20.1.0
[2023-05-16 11:52:58 +0000] [1] [INFO] Listening at: http://0.0.0.0:5000 (1)
[2023-05-16 11:52:58 +0000] [1] [INFO] Using worker: sync
[2023-05-16 11:52:58 +0000] [8] [INFO] Booting worker with pid: 8
Connect to Google Cloud
```

The following was entered in the application. We shall see if this has been written to the json file without delay:



The json file has been written with the contents without delay:

```
["1", "2", "3"]root@72b22f3cfe82:/home/app/data#
```

