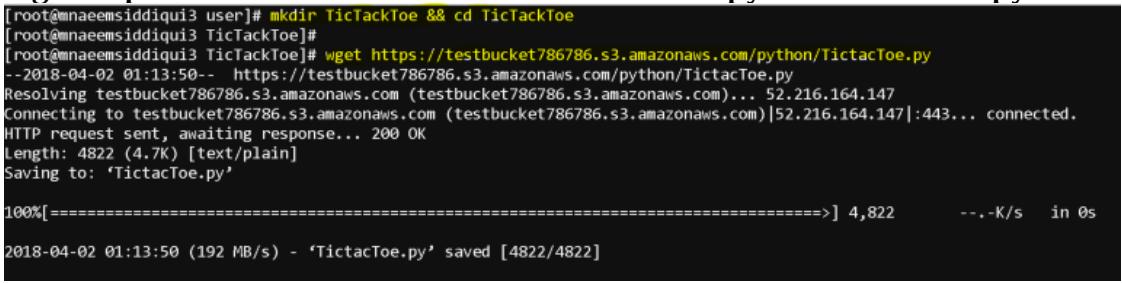# Dockers 101 – Series 2 of N – Using Dockerfile to run a Tic Tack Toe game in Python

PUBLISHED ON *April 1, 2018April 1, 2018 by Mohd Naeem*

- **Requirement**:
  - To run a Tic Tack Toe which is written in Python
- **Strategy**:
  - Docker uses a **Dockerfile** to define what all will be going in a container
  - For above requirement we need the following:
    - a **Python runtime**
    - a **working directory** with the **Python file**
    - a command to **execute** the **Python file**
    - **build** the **app**
    - **push** the **container** to **Docker Hub**(you will need to create Docker Hub account and a repository under the account, Please visit <u>hub.docker.com (http://hub.docker.com</u>))
    - **pull** the **image**
    - **run** the **container**
- **Solution:**
  - Login to your Host machine(in my case a CentOS 7 machine)
  - Make a directory "TicTackToe" and go to the directory – **mkdir TicTackToe && cd TicTackToe**
  - Download my Python Tic Tack Toe game from here – **wget https://testbucket786786.s3.amazonaws.com/python/TictacToe.py**
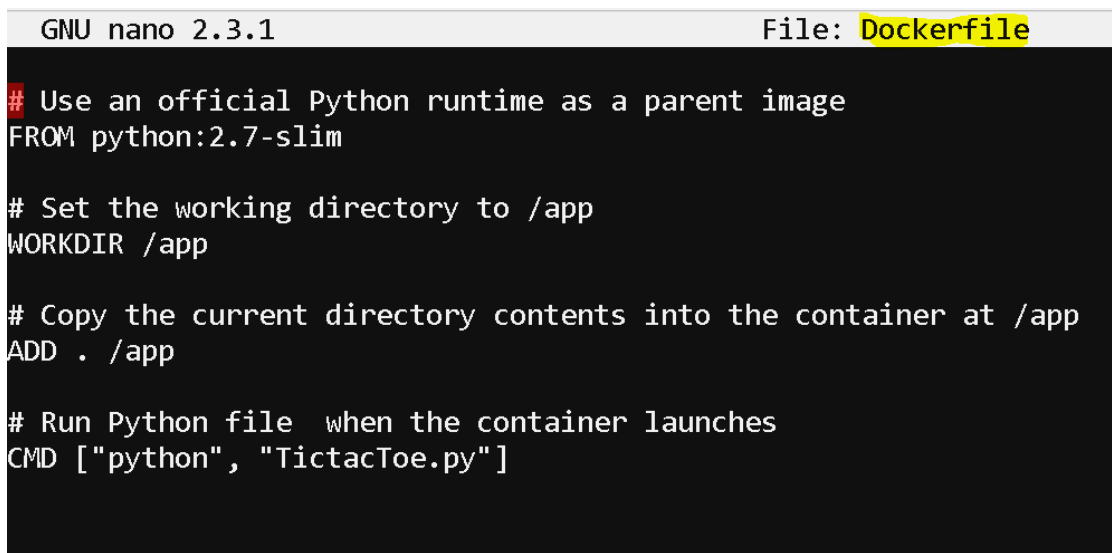
  - Now **create a Dockerfile** and copy the following content into it – **nano Dockerfile**
  - **Copy following content** into the **Dockerfile** and **save**:
  - The docker file has self explanatory explanations as what it is doing:

  -

```
# Use an official Python runtime as a parent image
FROM python:2.7-slim

# Set the working directory to /app
WORKDIR /app

# Copy the current directory contents into the container at /app
ADD . /app

# Run TicTacToe.py when the container launches
CMD ["python", "TicTacToe.py"]
```

```
  GNU nano 2.3.1                            File: Dockerfile

# Use an official Python runtime as a parent image
FROM python:2.7-slim

# Set the working directory to /app
WORKDIR /app

# Copy the current directory contents into the container at /app
ADD . /app

# Run Python file  when the container launches
CMD ["python", "TictacToe.py"]
```

- ○
- ○ Now build the app(naeemstictactoelatest is the image name you want for this app)- **docker build -t naeemstictactoelatest .**

```
[root@mnaeemsiddiqui3 TicTackToe]# nano Dockerfile
[root@mnaeemsiddiqui3 TicTackToe]# ls
Dockerfile  TictacToe.py
[root@mnaeemsiddiqui3 TicTackToe]# docker build -t naeemstictactoelatest .
Sending build context to Docker daemon   7.68kB
Step 1/4 : FROM python:2.7-slim
2.7-slim: Pulling from library/python
b0568b191983: Pull complete
55a7da9473ae: Pull complete
422d2e7f1272: Pull complete
8fb86f1cff1c: Pull complete
Digest: sha256:9e24a026a55ca1d9a7284db30ed846b7190a3d7f557edf493b454bff362ed64c
Status: Downloaded newer image for python:2.7-slim
 ---> b16fde09c92c
Step 2/4 : WORKDIR /app
Removing intermediate container 323c2449c4ee
 ---> e546fe147feb
Step 3/4 : ADD . /app
 ---> c9ea1efb394b
Step 4/4 : CMD ["python", "TictacToe.py"]
 ---> Running in f7cb0f914da6
Removing intermediate container f7cb0f914da6
 ---> c86d2e0d25ca
Successfully built c86d2e0d25ca
Successfully tagged naeemstictactoelatest:latest
[root@mnaeemsiddiqui3 TicTackToe]#
```

- Now check for the image name for your app and tag it for pushing it to Docker Hub
  - **docker images** # to check for image name
  - **docker tag image username/repository:tag** # for tagging
  - **docker login** # to login to the Docker hub
- Now push the image to Docker Hub
  - **docker push mnaeemsiddiqui/naeemsrepo:naeemstictactoelatest**

```
[root@mnaeemsiddiqui3 TicTackToe]# docker images
REPOSITORY              TAG          IMAGE ID         CREATED          SIZE
naeemstictactoelatest   latest       c86d2e0d25ca     8 minutes ago    139MB
python                  2.7-slim     b16fde09c92c     10 days ago      139MB
ubuntu                  latest       f975c5035748     3 weeks ago      112MB
ubuntu                  trusty       a35e70164dfb     3 weeks ago      222MB
hello-world             latest       f2a91732366c     4 months ago     1.85kB
[root@mnaeemsiddiqui3 TicTackToe]# docker tag c86d2e0d25ca mnaeemsiddiqui/naeemsrepo:naeemstictactoelatest
[root@mnaeemsiddiqui3 TicTackToe]# docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.doc
ker.com to create one.
Username: mnaeemsiddiqui
Password:
Login Succeeded
[root@mnaeemsiddiqui3 TicTackToe]# docker push mnaeemsiddiqui/naeemsrepo:naeemstictactoelatest
The push refers to repository [docker.io/mnaeemsiddiqui/naeemsrepo]
cc92e8d3f2a0: Pushed
8c989e501edb: Pushed
d99e7ab4a34b: Layer already exists
332873801f89: Layer already exists
2ec65408eff0: Layer already exists
43efe85a991c: Layer already exists
naeemstictactoelatest: digest: sha256:30cb41c4f12f9a48e694201c7400d5c0972e39262b409e974700fc304e431295 size: 1577
[root@mnaeemsiddiqui3 TicTackToe]#
```

- Now that you have a docker image on docker hub, you can
  - pull the docker image – **docker pull mnaeemsiddiqui/naeemsrepo:naeemstictactoelatest**
  - to run your app – **docker run -it mnaeemsiddiqui/naeemsrepo:naeemstictactoelatest**

```
[root@mnaeemsiddiqui3 TicTackToe]# docker pull mnaeemsiddiqui/naeemsrepo:naeemstictactoelatest
naeemstictactoelatest: Pulling from mnaeemsiddiqui/naeemsrepo
Digest: sha256:30cb41c4f12f9a48e694201c7400d5c0972e39262b409e974700fc304e431295
Status: Image is up to date for mnaeemsiddiqui/naeemsrepo:naeemstictactoelatest
[root@mnaeemsiddiqui3 TicTackToe]# docker run -it mnaeemsiddiqui/naeemsrepo:naeemstictactoelatest
How many matches for the series, please enter your choice (3,5,7,9): 3
Welcome to my Tic Tac Toe!!!
Match 1 of 3
Player 1, Please enter if you want to be X or 0 :
```

- Yay!!, you containerized your app and pushed it to docker hub and pulled that image and ran the container to run your application.

CATEGORIES DOCKERS •