

Docker image: chomtana/printname

- Docker build

```
MacBook-Pro-3:py3spark-docker-boilerplate buzzfreezes$ docker build . -t printname
[+] Building 9.9s (9/9) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 266B
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load metadata for docker.io/library/python:3.6
=> [1/4] FROM docker.io/library/python:3.6@sha256:1c12b04b37f41ea6393b1064bdd2901b5bb9624cb8d8128af88f2417a22998ad
=> [internal] load build context
=> => transferring context: 491B
=> CACHED [2/4] WORKDIR /usr/src/app
=> [3/4] RUN pip3 install flask
=> [4/4] COPY .
=> exporting to image
=> => exporting layers
=> => writing image sha256:a45a2740fbc020bc5152f87425d0c9f0a8342a6c230398b6ee8ab66abf6581
=> => naming to docker.io/library/printname
```

- Docker run and Docker commit

```
MacBook-Pro-3:py3spark-docker-boilerplate buzzfreezes$ docker run -d printname
ad3cef4654911aa7c5d0ead5ded8f612b156e0eb46df2cb28d7b62d0871ce199
MacBook-Pro-3:py3spark-docker-boilerplate buzzfreezes$ docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
ad3cef465491   printname     "python3 -m flask ru..." 8 seconds ago  Up 7 seconds  33060/tcp, 0.0.0.0:3307->3306/tcp  charming_dewdney
41910960caa2   mysql:latest  "docker-entrypoint.s..." 4 months ago  Up 17 minutes  33060/tcp, 0.0.0.0:3307->3306/tcp  letx-backend_mysql_1
6b09ea8a258    docker_backend-fakebook  "docker-entrypoint.s..." 16 months ago  Up 1 second   0.0.0.0:5510->8000/tcp          docker_backend-fakebook_1

MacBook-Pro-3:py3spark-docker-boilerplate buzzfreezes$ docker commit ad3cef465491 printname2
sha256:8ae03b09cc989bb1c00b97f15ee681076070442ee9d66b0aa04757e174815a25
MacBook-Pro-3:py3spark-docker-boilerplate buzzfreezes$ docker image ls
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
printname2    latest   8ae03b09cc98   3 seconds ago  913MB
printname     latest   2ab2cb36fb43   39 seconds ago  913MB
<none>        <none>   1a56c16a2e51   About a minute ago  913MB
<none>        <none>   a45a2740fbc0   2 minutes ago  913MB
<none>        <none>   23a3aa54eef4   4 minutes ago  902MB
<none>        <none>   c6d8719d73e0   13 minutes ago  902MB
gartuumodel   latest   7fd3f14e88a    4 months ago  772MB
nginx         latest   62d49f9bab67   5 months ago  133MB
letx-backend_api latest   e96aef9a5f14   5 months ago  712MB
<none>        <none>   5afa3da84e32   7 months ago  335MB
<none>        <none>   5180ef2c3adf   7 months ago  88.9MB
nikolaik/python-nodejs python3.8-nodejs12-alpine e51727c98527   7 months ago  335MB
node          12-alpine 0206ff8a5f9e    8 months ago  88.9MB
node          14-alpine 471e8b4eb0b2    8 months ago  116MB
docker_frontend-fakebook latest   1342e3bb3500   16 months ago  334MB
<none>        <none>   fcc2cb7b8ab3   16 months ago  334MB
docker_backend-fakebook latest   710ea09fd545   16 months ago  138MB
<none>        <none>   d8bf2dd4d7e6   16 months ago  120MB
<none>        <none>   6b21617604c6   16 months ago  120MB
<none>        <none>   22ff410afa1f   16 months ago  120MB
<none>        <none>   cfc7e24ca18e   16 months ago  119MB
soncomqiq/backend-test latest   7655ad789208   16 months ago  119MB
<none>        <none>   44f0eb4acc05   16 months ago  138MB
soncomqiq/backend-fakebook 1        64160446732e   16 months ago  138MB
mysql         latest   30f937e841c8   16 months ago  541MB
node          alpine   72eea7c426fc   16 months ago  117MB
busybox       latest   78096d0a5478   16 months ago  1.22MB
burin010n/kaldi latest   b7c630284570   17 months ago  12.4GB
hello-world   latest   bf756fb1ae65   20 months ago  13.3kB
daniyel3/kaldi-webtrc latest   96c8160ddc45   2 years ago  1.05GB
dtjones/speech-recognition latest   ba95a2428d98   5 years ago  4.56GB
MacBook-Pro-3:py3spark-docker-boilerplate buzzfreezes$
```

- Uploading docker image to hub

```

MacBook-Pro-3:py3spark-docker-boilerplate buzzfreeze$ docker image tag printname chomtana/printname
MacBook-Pro-3:py3spark-docker-boilerplate buzzfreeze$ docker image ls
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
printname2          latest      8ae03b09cc98     4 minutes ago   913MB
printname           latest      2ab2cb36fb43     5 minutes ago   913MB
chomtana/printname   latest      2ab2cb36fb43     5 minutes ago   913MB
<none>              <none>      1a56c16a2e51     5 minutes ago   913MB
<none>              <none>      a45a2740fbc9     7 minutes ago   913MB
<none>              <none>      23a3aa54eef4     9 minutes ago   902MB
<none>              <none>      c6d8719d73e0     18 minutes ago  902MB
gartuumodel         latest      7f1d3f14e88a     4 months ago    772MB
nginx               latest      62d49f9bab67     5 months ago    133MB
letx-backend_api    latest      e96aef9a5f14     5 months ago    712MB
<none>              <none>      5afa3da84e32     7 months ago    335MB
<none>              <none>      5180ef2c3adf     7 months ago    88.9MB
nikolaik/python-nodejs python3.8-nodejs12-alpine e51727c98527     7 months ago    335MB
node                12-alpine  0206ff8a5f9e     8 months ago    88.9MB
node                14-alpine  471e8b4eb0b2     8 months ago    116MB
docker_frontend-fakebook latest      1342e3bb3500     16 months ago   334MB
<none>              <none>      fcc2cb7b8ab3     16 months ago   334MB
docker_backend-fakebook latest      710ea09fd545     16 months ago   138MB
<none>              <none>      d8bf2dd4d7e6     16 months ago   120MB
<none>              <none>      6b21617604c6     16 months ago   120MB
<none>              <none>      22ff410afa1f     16 months ago   120MB
<none>              <none>      cfc7e24ca18e     16 months ago   119MB
soncomqiq/backend-test latest      7655ad789208     16 months ago   119MB
<none>              <none>      44f0eb4acc05     16 months ago   138MB
soncomqiq/backend-fakebook 1          64160446732e     16 months ago   138MB
mysql               latest      30f937e841c8     16 months ago   541MB
node                alpine     72eea7c426fc     16 months ago   117MB
busybox             latest      78096d0a5478     16 months ago   1.22MB
burin010n/kaldi     latest      bfc630204570     17 months ago   12.4GB
hello-world         latest      bf756fb1ae65     20 months ago   13.3kB
danijel3/kaldi-webrtc latest      96c8160ddc45     2 years ago     1.05GB
dtjones/speech-recognition latest      ba95a2428d98     5 years ago     4.56GB

```

```

MacBook-Pro-3:py3spark-docker-boilerplate buzzfreeze$ docker push chomtana/printname
Using default tag: latest
The push refers to repository [docker.io/chomtana/printname]
6a051fe5f871: Pushed
b6f58322b590: Pushed
37409b9375a8: Pushed
1eb4d0818e24: Mounted from library/python
0d901395d91a: Mounted from library/python
0921f67224d7: Mounted from library/python
b648c7c7c062: Mounted from library/python
7cf0f434f498: Mounted from library/python
8555e663f65b: Pushed
d00da3cd7763: Mounted from library/python
4e61e63529c2: Mounted from library/python
799760671c38: Mounted from library/python
latest: digest: sha256:e48e95e1f3de75673ca11c11fc354a753cd15cf0c2fc86af9fe1a78190967984 size: 2844

```

แสดงให้เห็นถึง layer ที่เพิ่มขึ้นมา โดยดูจากผลลัพธ์ของคำสั่ง docker diff หรือ docker build พร้อมคำอธิบาย

```
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=> => naming to docker.io/library/printname
```

```
MacBook-Pro-3:py3spark-docker-boilerplate buzzfreez$ docker diff ad3cef465491
C /usr
C /usr/src
C /usr/src/app
A /usr/src/app/__pycache__
A /usr/src/app/__pycache__/app.cpython-36.pyc
C /usr/local
C /usr/local/lib
C /usr/local/lib/python3.6
C /usr/local/lib/python3.6/http
C /usr/local/lib/python3.6/http/__pycache__
A /usr/local/lib/python3.6/http/__pycache__/server.cpython-36.pyc
C /usr/local/lib/python3.6/site-packages
C /usr/local/lib/python3.6/site-packages/pkg_resources
C /usr/local/lib/python3.6/site-packages/pkg_resources/__pycache__
A /usr/local/lib/python3.6/site-packages/pkg_resources/__pycache__/__init__.cpython-36.pyc
C /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor
C /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/packaging
C /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/packaging/__pycache__
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/packaging/__pycache__/markers.cpython-36.pyc
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/packaging/__pycache__/requirements.cpython-36.pyc
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/packaging/__pycache__/specifiers.cpython-36.pyc
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/packaging/__pycache__/utils.cpython-36.pyc
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/packaging/__pycache__/version.cpython-36.pyc
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/packaging/__pycache__/__about__.cpython-36.pyc
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/packaging/__pycache__/compat.cpython-36.pyc
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/packaging/__pycache__/structures.cpython-36.pyc
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/packaging/__pycache__/__init__.cpython-36.pyc
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/packaging/__pycache__/typing.cpython-36.pyc
C /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/__pycache__
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/__pycache__/__init__.cpython-36.pyc
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/__pycache__/appdirs.cpython-36.pyc
A /usr/local/lib/python3.6/site-packages/pkg_resources/_vendor/__pycache__/pyparsing.cpython-36.pyc
C /usr/local/lib/python3.6/site-packages/pkg_resources/extern
C /usr/local/lib/python3.6/site-packages/pkg_resources/extern/__pycache__
A /usr/local/lib/python3.6/site-packages/pkg_resources/extern/__pycache__/__init__.cpython-36.pyc
C /usr/local/lib/python3.6/__pycache__
A /usr/local/lib/python3.6/__pycache__/difflib.cpython-36.pyc
A /usr/local/lib/python3.6/__pycache__/secrets.cpython-36.pyc
A /usr/local/lib/python3.6/__pycache__/runpy.cpython-36.pyc
```

Image layers:

- Application: /usr/src/app
- Python: /usr/local/lib/python3.6
- Base layer: Ubuntu

Container layers:

- Writable (diff: /usr/src/app/__pycache__)
- Application: /usr/src/app
- Python: /usr/local/lib/python3.6
- Base layer: Ubuntu

Container has writable layers while the image doesn't because the image represents static code and infrastructure while the container is responsible for running applications which can write something to the writable layer at the runtime. Moreover our container has already written some cache to /usr/src/app/__pycache__.