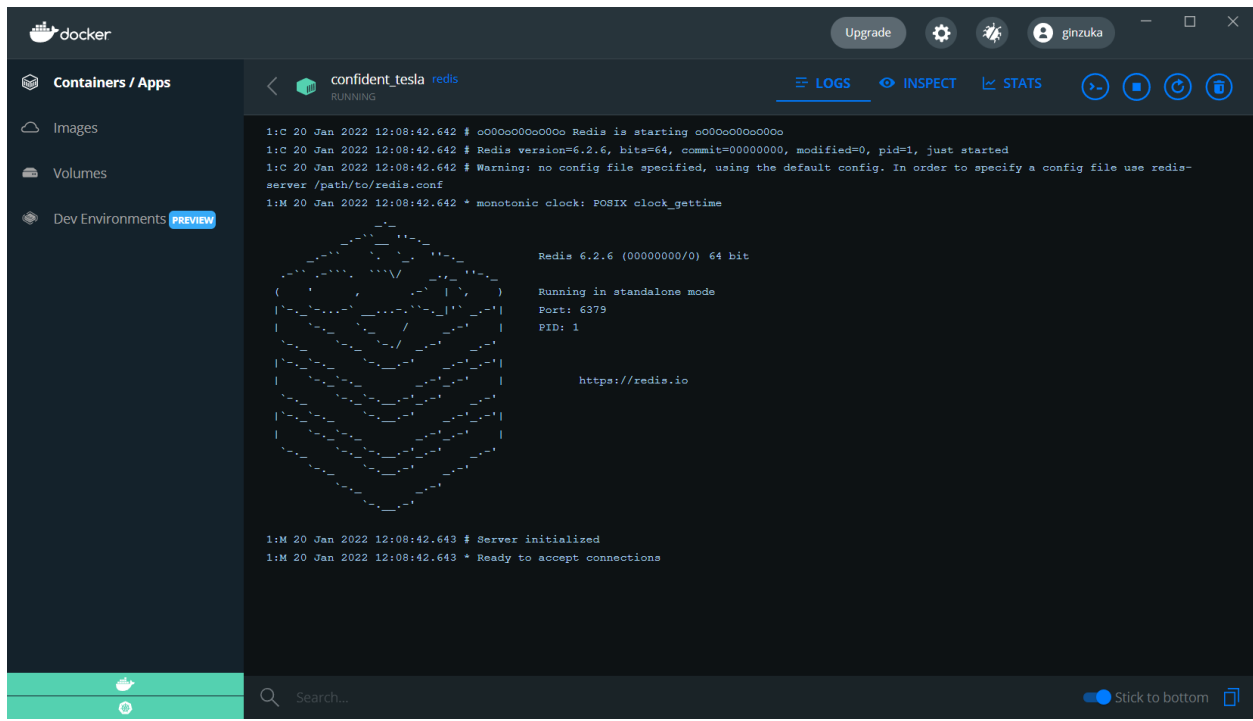# Creating a redis container

```
Command Prompt
Microsoft Windows [Version 10.0.19042.1466]
(c) Microsoft Corporation. All rights reserved.
The system cannot find the path specified.

C:\Users\nipun>docker run -dt redis
Unable to find image 'redis:latest' locally
latest: Pulling from library/redis
a2abf6c4d29d: Pull complete
c7a4e4382001: Pull complete
4044b9ba67c9: Pull complete
c8388a79482f: Pull complete
413c8bb60be2: Pull complete
1abfd3011519: Pull complete
Digest: sha256:db485f2e245b5b3329fdc7eff4eb00f913e09d8feb9ca720788059fdc2ed8339
Status: Downloaded newer image for redis:latest
6b6c976952bcbab678de17a1ebc6bbf708eb75b053b13f2aa24077e80ddc8fb6

C:\Users\nipun>
```
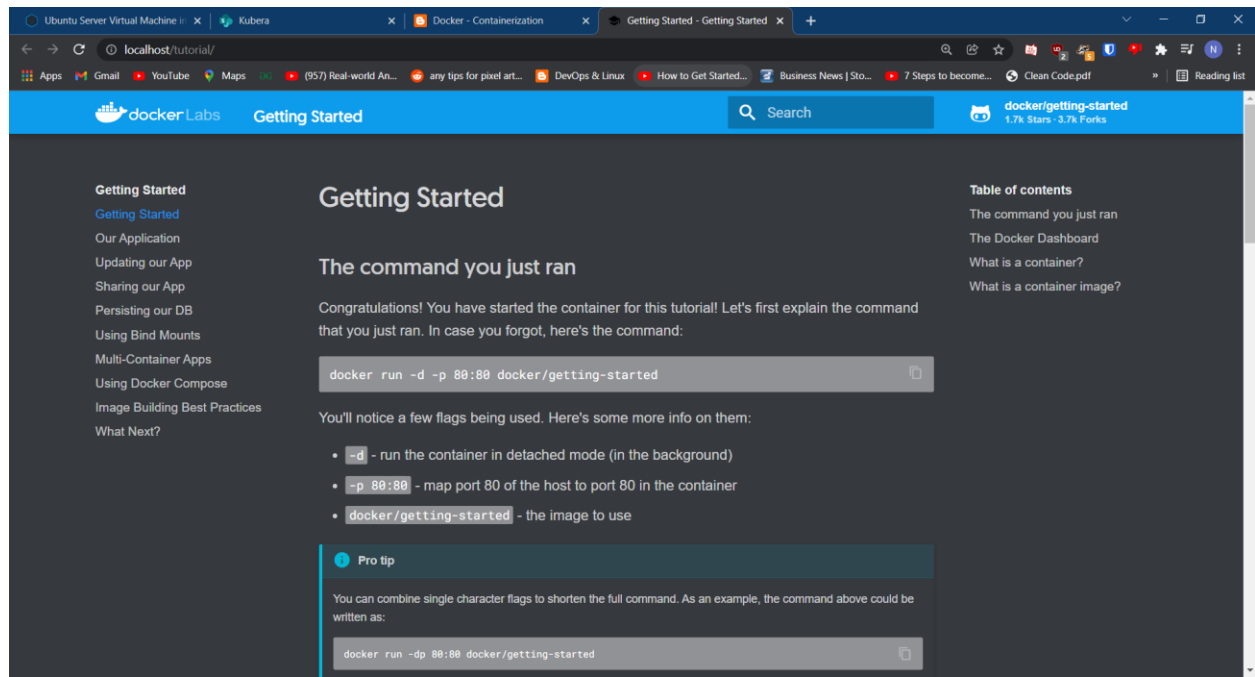
Running a getting-started container


```
6b6c976952bcbab678de17a1ebc6bbf708eb75b053b13f2aa24077e80ddc8fb6

C:\Users\nipun>docker -v
Docker version 20.10.12, build e91ed57

C:\Users\nipun>docker run -dp 80:80 docker/getting-started
Unable to find image 'docker/getting-started:latest' locally
latest: Pulling from docker/getting-started
97518928ae5f: Pull complete
a4e156412037: Pull complete
e0bae2ade5ec: Pull complete
3f3577460f48: Pull complete
e362c27513c3: Pull complete
a2402c2da473: Pull complete
eb65930377cd: Pull complete
69465e074227: Pull complete
Digest: sha256:86093b75a06bf74e3d2125edb77689c8eecf8ed0cb3946573a24a6f71e88cf80
Status: Downloaded newer image for docker/getting-started:latest
d08d4a4a9e42abf5d3c73576c9546e2ef67d50c5ec46345de71ae0f98aacc5e1

C:\Users\nipun>
```


Getting Started

The command you just ran

Congratulations! You have started the container for this tutorial! Let's first explain the command that you just ran. In case you forgot, here's the command:

```
docker run -d -p 80:80 docker/getting-started
```

You'll notice a few flags being used. Here's some more info on them:

- `-d` - run the container in detached mode (in the background)
- `-p 80:80` - map port 80 of the host to port 80 in the container
- `docker/getting-started` - the image to use

> **Pro tip**
>
> You can combine single character flags to shorten the full command. As an example, the command above could be written as:
>
> ```
> docker run -dp 80:80 docker/getting-started
> ```

Table of contents

The command you just ran
The Docker Dashboard
What is a container?
What is a container image?

```
C:\Users\nipun>docker image ls
REPOSITORY                      TAG                                                    IMAGE ID        CREATED
        SIZE
docker/desktop-kubernetes       kubernetes-v1.22.5-cni-v0.8.5-critools-v1.17.0-debian  88c30feb8fa7    2 weeks ag
o       294MB
redis                           latest                                                 7614ae9453d1    4 weeks ag
o       113MB
k8s.gcr.io/kube-apiserver       v1.22.5                                                059e6cd8cf78    5 weeks ag
o       128MB
k8s.gcr.io/kube-scheduler       v1.22.5                                                935d8fdc2d52    5 weeks ag
o       52.7MB
k8s.gcr.io/kube-controller-manager  v1.22.5                                            04185bc88e08    5 weeks ag
o       122MB
k8s.gcr.io/kube-proxy           v1.22.5                                                8f8fdd6672d4    5 weeks ag
o       104MB
docker/getting-started          latest                                                 26d80cd96d69    6 weeks ag
o       28.5MB
k8s.gcr.io/etcd                 3.5.0-0                                                004811815584    7 months a
go      295MB
k8s.gcr.io/coredns/coredns      v1.8.4                                                 8d147537fb7d    7 months a
go      47.6MB
docker/desktop-vpnkit-controller  v2.0                                                 8c2c38aa676e    8 months a
go      21MB
docker/desktop-storage-provisioner  v2.0                                               99f89471f470    8 months a
go      41.9MB
k8s.gcr.io/pause                3.5                                                    ed210e3e4a5b    10 months
```

```
ago     683kB

C:\Users\nipun>docker image history redis
IMAGE           CREATED         CREATED BY                                      SIZE        COMMENT
7614ae9453d1    4 weeks ago     /bin/sh -c #(nop)  CMD ["redis-server"]         0B
<missing>       4 weeks ago     /bin/sh -c #(nop)  EXPOSE 6379                  0B
<missing>       4 weeks ago     /bin/sh -c #(nop)  ENTRYPOINT ["docker-entry…   0B
<missing>       4 weeks ago     /bin/sh -c #(nop) COPY file:df205a0ef6e6df89…   374B
<missing>       4 weeks ago     /bin/sh -c #(nop) WORKDIR /data                 0B
<missing>       4 weeks ago     /bin/sh -c #(nop)  VOLUME [/data]               0B
<missing>       4 weeks ago     /bin/sh -c mkdir /data && chown redis:redis …   0B
<missing>       4 weeks ago     /bin/sh -c set -eux;   savedAptMark="$(apt-m…   27.8MB
<missing>       4 weeks ago     /bin/sh -c #(nop)  ENV REDIS_DOWNLOAD_SHA=5b…   0B
<missing>       4 weeks ago     /bin/sh -c #(nop)  ENV REDIS_DOWNLOAD_URL=ht…   0B
<missing>       4 weeks ago     /bin/sh -c #(nop)  ENV REDIS_VERSION=6.2.6      0B
<missing>       4 weeks ago     /bin/sh -c set -eux;   savedAptMark="$(apt-ma…  4.24MB
<missing>       4 weeks ago     /bin/sh -c #(nop)  ENV GOSU_VERSION=1.12        0B
<missing>       4 weeks ago     /bin/sh -c groupadd -r -g 999 redis && usera…   329kB
<missing>       4 weeks ago     /bin/sh -c #(nop)  CMD ["bash"]                 0B
<missing>       4 weeks ago     /bin/sh -c #(nop) ADD file:09675d11695f65c55…   80.4MB

C:\Users\nipun>
```

```
nipun@LAPTOP-1HNTD447: ~
nipun@LAPTOP-1HNTD447:~$ docker container run alpine hostname
Unable to find image 'alpine:latest' locally
latest: Pulling from library/alpine
59bf1c3509f3: Pull complete
Digest: sha256:21a3deaa0d32a8057914f36584b5288d2e5ecc984380bc0118285c70fa8c9300
Status: Downloaded newer image for alpine:latest
cc506b790fd6
nipun@LAPTOP-1HNTD447:~$ docker container ls --all
CONTAINER ID   IMAGE                    COMMAND                  CREATED          STATUS                     F
             NAMES
cc506b790fd6   alpine                   "hostname"               27 seconds ago   Exited (0) 27 seconds ago
             inspiring_tereshkova
d08d4a4a9e42   docker/getting-started   "/docker-entrypoint.…"   15 minutes ago   Up 15 minutes              6
->80/tcp   reverent_almeida
6b6c976952bc   redis                    "docker-entrypoint.s…"   18 minutes ago   Up 18 minutes              6
             confident_tesla
nipun@LAPTOP-1HNTD447:~$ docker container run --interactive --tty --rm ubuntu bash
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
ea362f368469: Pull complete
Digest: sha256:b5a61709a9a44284d88fb12e5c48db0409cfad5b69d4ff8224077c57302df9cf
Status: Downloaded newer image for ubuntu:latest
root@0bccec66d1ac:/# ls /
bin  boot  dev  etc  home  lib  lib32  lib64  libx32  media  mnt  opt  proc  root  run  sbin  srv  sys  tmp  us
root@0bccec66d1ac:/# cat /etc/issue
Ubuntu 20.04.3 LTS \n \l

root@0bccec66d1ac:/# exit
exit
nipun@LAPTOP-1HNTD447:~$ cat /etc/issue
```



```
nipun@LAPTOP-1HNTD447: ~/linux_tweet_app
nipun@LAPTOP-1HNTD447:~/linux_tweet_app$ docker container ls
CONTAINER ID   IMAGE    COMMAND                  CREATED          STATUS          PORTS      NAMES
6b6c976952bc   redis    "docker-entrypoint.s…"   23 minutes ago   Up 23 minutes   6379/tcp   confident_tesla
nipun@LAPTOP-1HNTD447:~/linux_tweet_app$ docker container run \
> --detach \
ublish 8>  --publish 80:80 \
> --name linux_tweet_app \
> $DOCKERID/linux_tweet_app:1.0
docker: Error response from daemon: Conflict. The container name "/linux_tweet_app" is already in use by container "5a66
d51f2cb446147416207799c150fbe6397eea08cfe580d622730fab90c2c2". You have to remove (or rename) that container to be able
to reuse that name.
See 'docker run --help'.
nipun@LAPTOP-1HNTD447:~/linux_tweet_app$ docker rm 5a66d51f2cb4461
5a66d51f2cb4461
nipun@LAPTOP-1HNTD447:~/linux_tweet_app$ docker container run \
> --detach \
> --publish 80:80 \
> --name linux_tweet_app \
> $DOCKERID/linux_tweet_app:1.0
afa37ad8ff5bfa75fde65fbf3ada4b231faa9dc14d88a2c6e6dd19f26a03facb
nipun@LAPTOP-1HNTD447:~/linux_tweet_app$
```

Pulling busybox image and running it as a container


```
nipun@LAPTOP-1HNTD447:~$ docker pull busybox
Using default tag: latest
latest: Pulling from library/busybox
Digest: sha256:5acba83a746c7608ed544dc1533b87c737a0b0fb730301639a0179f9344b1678
Status: Image is up to date for busybox:latest
docker.io/library/busybox:latest
nipun@LAPTOP-1HNTD447:~$ docker run busy box
Unable to find image 'busy:latest' locally
docker: Error response from daemon: pull access denied for busy, repository does not exist or may require 'docker login': denied: reque
sted access to the resource is denied.
See 'docker run --help'.
nipun@LAPTOP-1HNTD447:~$ docker run busybox
nipun@LAPTOP-1HNTD447:~$ docker run busybox echo "hello from busy"
hello from busy
nipun@LAPTOP-1HNTD447:~$ docker ps
CONTAINER ID   IMAGE     COMMAND      CREATED    STATUS     PORTS      NAMES
nipun@LAPTOP-1HNTD447:~$ docker ps 0a
"docker ps" accepts no arguments.
See 'docker ps --help'.

Usage:  docker ps [OPTIONS]

List containers
nipun@LAPTOP-1HNTD447:~$ docker ps -a
CONTAINER ID   IMAGE                    COMMAND                CREATED         STATUS                     PORTS      NAMES
2061ec3c3f00   busybox                  "echo 'hello from bu…" 11 seconds ago  Exited (0) 10 seconds ago             unruffled_swans
on
54a87457c2db   busybox                  "sh"                   26 seconds ago  Exited (0) 24 seconds ago             great_gould
cc506b790fd6   alpine                   "hostname"             24 minutes ago  Exited (0) 24 minutes ago             inspiring_teres
hkova
d08d4a4a9e42   docker/getting-started   "/docker-entrypoint.…" 39 minutes ago  Exited (0) 18 minutes ago             reverent_almeid
a
6b6c976952bc   redis                    "docker-entrypoint.s…" 42 minutes ago  Exited (0) 12 minutes ago             confident_tesla
```



```
nipun@LAPTOP-1HNTD447:~$ docker run -it busybox sh
/ # lls
sh: lls: not found
/ # uptime
 13:02:52 up  3:17,  0 users,  load average: 0.00, 0.03, 0.05
/ # exit
nipun@LAPTOP-1HNTD447:~$ docker container prune
WARNING! This will remove all stopped containers.
Are you sure you want to continue? [y/N] y
Deleted Containers:
49f918603799659748de7ab17c9b5c5afe80a66120022e78b0da93bf91450b5a
2061ec3c3f004013be4f1ac86792e4a1e29af6c396445787a63ad92d591b1af5
54a87457c2dbfde54f32844fae2e8e385bcd5205cfae3d2c91dffc02f1061059
60801e56eb9ccf23cd6cd832bf55e723789163d8aad3a5e2d1c8e7e32b196471
cc506b790fd63882edf9b4aec3c57e8807881f1aab9d3751b436053a1b068870
d08d4a4a9e42abf5d3c73576c9546e2ef67d50c5ec46345de71ae0f98aacc5e1
6b6c976952bcbab678de17a1ebc6bbf708eb75b053b13f2aa24077e80ddc8fb6
dc9784128eeffaae9d6ddc6d6cc0588bb8370a6b4bd5181ebf94f57a08d5349d
c90ca123ecb32e6e167335fc07a19dc507425226e294caa922c997996830c914

Total reclaimed space: 1.109kB
nipun@LAPTOP-1HNTD447:~$ docker container ls
CONTAINER ID   IMAGE     COMMAND      CREATED    STATUS     PORTS      NAMES
d4bce7fd68df: Pull complete
a3ed95caeb02: Pull complete
573113c4751a: Pull complete
31917632be33: Pull complete
77e66f18af1c: Pull complete
df3f108f3ade: Pull complete
d7a279eb19f5: Pull complete
e798589c05c5: Pull complete
78eeaf458ae0: Pull complete
Digest: sha256:bb6907c8db9ac4c6cadb25162a979e286575cd8b27727c08c7fbaf30988534db
```

Cloning a git repository containing docker image and running it using Docker

```
nipun@LAPTOP-1HNTD447: ~/docker-curriculum/flask-app
Nginx is running...
^Cnipun@LAPTOP-1HNTD447:~$ docker run --rm prakhar1989/static-site
Nginx is running...
^Cnipun@LAPTOP-1HNTD447:~$ docker run -p 8888:80 prakhar1989/static-site
Nginx is running...
172.17.0.1 - - [20/Jan/2022:13:07:09 +0000] "GET / HTTP/1.1" 200 2041 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36
(KHTML, like Gecko) Chrome/97.0.4692.99 Safari/537.36" "-"
172.17.0.1 - - [20/Jan/2022:13:07:09 +0000] "GET /css/normalize.css HTTP/1.1" 200 7797 "http://localhost:8888/" "Mozilla/5.0 (Windows N
T 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/97.0.4692.99 Safari/537.36" "-"
172.17.0.1 - - [20/Jan/2022:13:07:09 +0000] "GET /css/skeleton.css HTTP/1.1" 200 11452 "http://localhost:8888/" "Mozilla/5.0 (Windows N
T 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/97.0.4692.99 Safari/537.36" "-"
172.17.0.1 - - [20/Jan/2022:13:07:09 +0000] "GET /images/favicon.png HTTP/1.1" 200 1156 "http://localhost:8888/" "Mozilla/5.0 (Windows
NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/97.0.4692.99 Safari/537.36" "-"
^Cnipun@LAPTOP-1HNTD447:~$ docker stop static-site
Error response from daemon: No such container: static-site
nipun@LAPTOP-1HNTD447:~$ docker container ls
CONTAINER ID   IMAGE     COMMAND     CREATED    STATUS    PORTS    NAMES
nipun@LAPTOP-1HNTD447:~$ docker container ls -a
CONTAINER ID   IMAGE                    COMMAND        CREATED          STATUS                    PORTS    NAMES
9d8888acae33   prakhar1989/static-site  "./wrapper.sh"   55 seconds ago   Exited (0) 21 seconds ago          epic_pasteur
nipun@LAPTOP-1HNTD447:~$ git clone https://github.com/prakhar1989/docker-curriculum.git
Cloning into 'docker-curriculum'...
remote: Enumerating objects: 1625, done.
remote: Counting objects: 100% (34/34), done.
remote: Compressing objects: 100% (21/21), done.
remote: Total 1625 (delta 19), reused 14 (delta 13), pack-reused 1591
Receiving objects: 100% (1625/1625), 8.90 MiB | 9.88 MiB/s, done.
Resolving deltas: 100% (912/912), done.
nipun@LAPTOP-1HNTD447:~$ cd docker-curriculum/flask-app
nipun@LAPTOP-1HNTD447:~/docker-curriculum/flask-app$
```

```
localhost:8888
```
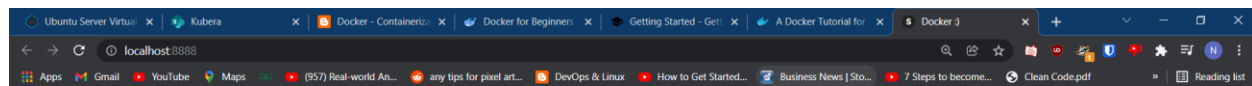
Hello Docker!

This is being served from a **docker** container running Nginx.

```
nipun@LAPTOP-1HNTD447: ~/docker-curriculum/flask-app

nipun@LAPTOP-1HNTD447:~/docker-curriculum/flask-app$ ls
Dockerfile  Dockerrun.aws.json  app.py  requirements.txt  templates
nipun@LAPTOP-1HNTD447:~/docker-curriculum/flask-app$ cat Dockerfile
FROM python:3

# set a directory for the app
[+] Building 48.4s (5/9)
 => [internal] load build definition from Dockerfile                                        0.0s
[+] Building 48.9s (5/9)
 => [internal] load build definition from Dockerfile                                        0.0s
 => => transferring dockerfile: 344B                                                        0.0s
 => [internal] load .dockerignore                                                           0.0s
 => => transferring context: 2B                                                             0.0s
 => [internal] load metadata for docker.io/library/python:3                                 4.9s
[+] Building 61.9s (5/9)
 => [internal] load build definition from Dockerfile                                        0.0s
 => => transferring dockerfile: 344B                                                        0.0s
 => [internal] load .dockerignore                                                           0.0s
 => => transferring context: 2B                                                             0.0s
[+] Building 64.2s (5/9)
 => [internal] load build definition from Dockerfile                                        0.0s
 => => transferring dockerfile: 344B                                                        0.0s
[+] Building 64.9s (5/9)
 => [internal] load build definition from Dockerfile                                        0.0s
 => => transferring dockerfile: 344B                                                        0.0s
[+] Building 114.7s (10/10) FINISHED
 => [internal] load build definition from Dockerfile                                        0.0s
 => => transferring dockerfile: 344B                                                        0.0s
 => [internal] load .dockerignore                                                           0.0s
 => => transferring context: 2B                                                             0.0s
 => [internal] load metadata for docker.io/library/python:3                                 4.9s
 => [auth] library/python:pull token for registry-1.docker.io                               0.0s
 => [1/4] FROM docker.io/library/python:3@sha256:a780eec51b47c0684d81315d48524b92e84873f93558f863733333e558d620b6   105.6s
```

```
nipun@LAPTOP-1HNTD447: ~/docker-curriculum/flask-app

nipun@LAPTOP-1HNTD447:~/docker-curriculum/flask-app$ docker scan ginzuka/catnip

Testing ginzuka/catnip...

✗ Low severity vulnerability found in tiff/libtiff5
  Description: Out-of-bounds Read
  Info: https://snyk.io/vuln/SNYK-DEBIAN11-TIFF-514595
  Introduced through: imagemagick@8:6.9.11.60+dfsg-1.3, imagemagick/libmagickcore-dev@8:6.9.11.60+dfsg-1.3
  From: imagemagick@8:6.9.11.60+dfsg-1.3 > imagemagick/imagemagick-6.q16@8:6.9.11.60+dfsg-1.3 > imagemagick/libmagickcore-6.q16-6@8:6.9
.11.60+dfsg-1.3 > tiff/libtiff5@4.2.0-1
  From: imagemagick/libmagickcore-dev@8:6.9.11.60+dfsg-1.3 > imagemagick/libmagickcore-6.q16-dev@8:6.9.11.60+dfsg-1.3 > tiff/libtiff-de
v@4.2.0-1 > tiff/libtiff5@4.2.0-1
  From: imagemagick/libmagickcore-dev@8:6.9.11.60+dfsg-1.3 > imagemagick/libmagickcore-6.q16-dev@8:6.9.11.60+dfsg-1.3 > tiff/libtiff-de
v@4.2.0-1 > tiff/libtiffxx5@4.2.0-1 > tiff/libtiff5@4.2.0-1
  and 3 more...

✗ Low severity vulnerability found in tiff/libtiff5
  Description: NULL Pointer Dereference
  Info: https://snyk.io/vuln/SNYK-DEBIAN11-TIFF-516778
  Introduced through: imagemagick@8:6.9.11.60+dfsg-1.3, imagemagick/libmagickcore-dev@8:6.9.11.60+dfsg-1.3
  From: imagemagick@8:6.9.11.60+dfsg-1.3 > imagemagick/imagemagick-6.q16@8:6.9.11.60+dfsg-1.3 > imagemagick/libmagickcore-6.q16-6@8:6.9
.11.60+dfsg-1.3 > tiff/libtiff5@4.2.0-1
  From: imagemagick/libmagickcore-dev@8:6.9.11.60+dfsg-1.3 > imagemagick/libmagickcore-6.q16-dev@8:6.9.11.60+dfsg-1.3 > tiff/libtiff-de
v@4.2.0-1 > tiff/libtiff5@4.2.0-1
  From: imagemagick/libmagickcore-dev@8:6.9.11.60+dfsg-1.3 > imagemagick/libmagickcore-6.q16-dev@8:6.9.11.60+dfsg-1.3 > tiff/libtiff-de
v@4.2.0-1 > tiff/libtiffxx5@4.2.0-1 > tiff/libtiff5@4.2.0-1
  and 3 more...

✗ Low severity vulnerability found in tiff/libtiff5
  Description: Missing Release of Resource after Effective Lifetime
  Info: https://snyk.io/vuln/SNYK-DEBIAN11-TIFF-518574
  Introduced through: imagemagick@8:6.9.11.60+dfsg-1.3, imagemagick/libmagickcore-dev@8:6.9.11.60+dfsg-1.3
  From: imagemagick@8:6.9.11.60+dfsg-1.3 > imagemagick/imagemagick-6.q16@8:6.9.11.60+dfsg-1.3 > imagemagick/libmagickcore-6.q16-6@8:6.9
```

```
Platform:        linux/amd64
Base image:      python:3.10.2-bullseye

Tested 427 dependencies for known vulnerabilities, found 204 vulnerabilities.

Base Image              Vulnerabilities  Severity
python:3.10.2-bullseye  204              10 critical, 16 high, 32 medium, 146 low

Recommendations for base image upgrade:

Alternative image types
Base Image                    Vulnerabilities  Severity
python:3.11.0a3-slim-bullseye 52               4 critical, 7 high, 0 medium, 41 low
python:3.11-rc-slim           52               4 critical, 7 high, 0 medium, 41 low
python:3.11.0a2-slim          53               4 critical, 8 high, 0 medium, 41 low
python:3-slim-buster          85               5 critical, 17 high, 8 medium, 55 low


For more free scans that keep your images secure, sign up to Snyk at https://dockr.ly/3ePqVcp


nipun@LAPTOP-1HNTD447:~/docker-curriculum/flask-app$ docker run -p 8888:5000 ginzuka/catnip
Traceback (most recent call last):
  File "/usr/src/app/./app.py", line 1, in <module>
    from flask import Flask, render_template
  File "/usr/local/lib/python3.10/site-packages/flask/__init__.py", line 21, in <module>
    from .app import Flask, Request, Response
  File "/usr/local/lib/python3.10/site-packages/flask/app.py", line 34, in <module>
    from .sessions import SecureCookieSessionInterface
  File "/usr/local/lib/python3.10/site-packages/flask/sessions.py", line 14, in <module>
    from collections import MutableMapping
ImportError: cannot import name 'MutableMapping' from 'collections' (/usr/local/lib/python3.10/collections/__init__.py)
nipun@LAPTOP-1HNTD447:~/docker-curriculum/flask-app$ _
```
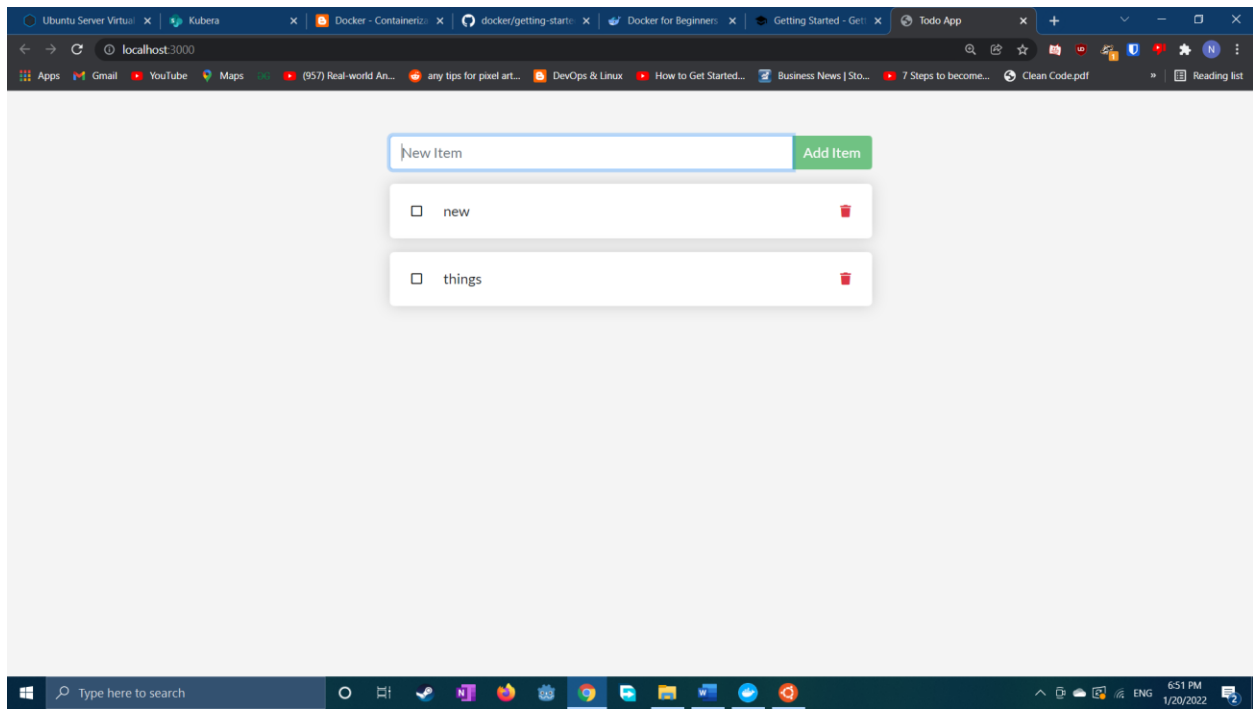
Cloning and running get-started dockerimage from repository


```
nipun@LAPTOP-1HNTD447:~$ git clone https://github.com/docker/getting-started.git
Cloning into 'getting-started'...
remote: Enumerating objects: 645, done.
remote: Counting objects: 100% (122/122), done.
remote: Compressing objects: 100% (115/115), done.
remote: Total 645 (delta 58), reused 36 (delta 7), pack-reused 523
Receiving objects: 100% (645/645), 3.78 MiB | 5.22 MiB/s, done.
Resolving deltas: 100% (327/327), done.
nipun@LAPTOP-1HNTD447:~$ cd getting-started
nipun@LAPTOP-1HNTD447:~/getting-started$ ls
Dockerfile  Jenkinsfile  LICENSE  README.md  app  build.sh  docker-compose.yml  docs  mkdocs.yml  requirements.txt  yarn.lock
nipun@LAPTOP-1HNTD447:~/getting-started$ cd app
nipun@LAPTOP-1HNTD447:~/getting-started/app$ ls
package.json  spec  src  yarn.lock
nipun@LAPTOP-1HNTD447:~/getting-started/app$ nano
nipun@LAPTOP-1HNTD447:~/getting-started/app$ nano Dockerfile
nipun@LAPTOP-1HNTD447:~/getting-started/app$ docker build -t getting-started .
[+] Building 33.4s (11/11) FINISHED
```

New Item | Add Item

☐ new 🗑

☐ things 🗑

```
nipun@LAPTOP-1HNTD447: ~/getting-started/app

nipun@LAPTOP-1HNTD447:~/getting-started/app$ docker run -dp 3000:3000 getting-started
5aece1492b20de8c5beca97253b1a81fd24ecc0f76236e3877c2620965c324df
nipun@LAPTOP-1HNTD447:~/getting-started/app$ ls
Dockerfile  package.json  spec  src  yarn.lock
nipun@LAPTOP-1HNTD447:~/getting-started/app$ cd src/static/js
nipun@LAPTOP-1HNTD447:~/getting-started/app/src/static/js$ ls
app.js  babel.min.js  react-bootstrap.js  react-dom.production.min.js  react.production.min.js
nipun@LAPTOP-1HNTD447:~/getting-started/app/src/static/js$ nano app.js
nipun@LAPTOP-1HNTD447:~/getting-started/app/src/static/js$ cd ../..
nipun@LAPTOP-1HNTD447:~/getting-started/app/src$ docker container ls
CONTAINER ID   IMAGE            COMMAND                CREATED         STATUS          PORTS                    NAMES
5aece1492b20   getting-started  "docker-entrypoint.s…" 2 minutes ago   Up 2 minutes    0.0.0.0:3000->3000/tcp   objective_cray
nipun@LAPTOP-1HNTD447:~/getting-started/app/src$ docker stop 5aece1492b20
5aece1492b20
nipun@LAPTOP-1HNTD447:~/getting-started/app/src$ docker rm 5aece1492b20
5aece1492b20
nipun@LAPTOP-1HNTD447:~/getting-started/app/src$ docker volumes
docker: 'volumes' is not a docker command.
See 'docker --help'
nipun@LAPTOP-1HNTD447:~/getting-started/app/src$ docker volume ls
DRIVER    VOLUME NAME
local     31e78932325392bab175f1726a0726bcdb67f8c6ed5e74113cd0f54266ea4ad6
local     b395dc7e0f8a7bf53beab5c57b2ddcfe33e204f018ee7596cc04a17dd664d299
nipun@LAPTOP-1HNTD447:~/getting-started/app/src$ cd ..
nipun@LAPTOP-1HNTD447:~/getting-started/app$ docker run -dp 3000:3000 -v todo-db:/etc/todos getting-started
47ffa89be07194d723fe2cf82d100e1d952daae84730a8783df6906077a2e9fe
nipun@LAPTOP-1HNTD447:~/getting-started/app$ docker rm -f 47ffa89be07194d
47ffa89be07194d
nipun@LAPTOP-1HNTD447:~/getting-started/app$ docker run -dp 3000:3000 -v todo-db:/etc/todos getting-started
9b09a4fee0ce17e21616aa8188c9822f332908282e58b7c8562dcc22c0a3ebd8
nipun@LAPTOP-1HNTD447:~/getting-started/app$
```

Creating a multi container app

```
f5c46d756a20    node:12-alpine    "docker-entrypoint.s…"    5 minutes ago    Up 5 minutes    0.0.0.0:3000->3000/tcp    compassionate_proskuri
akova
nipun@LAPTOP-1HNTD447:~/getting-started/app$ docker run -d \
    --n>         --network todo-app --network-alias mysql \
>       -v todo-mysql-data:/var/lib/mysql \
>       -e MYSQL_ROOT_PASSWORD=secret \
>       -e MYSQL_DATABASE=todos \
> clear
Unable to find image 'clear:latest' locally
^Cnipun@LAPTOP-1HNTD447:~/getting-started/app$ docker container ls
CONTAINER ID    IMAGE            COMMAND                  CREATED          STATUS          PORTS                     NAMES
67f321946461    mysql:5.7        "docker-entrypoint.s…"   37 seconds ago   Up 35 seconds   3306/tcp, 33060/tcp       nifty_lichterman
f5c46d756a20    node:12-alpine   "docker-entrypoint.s…"   6 minutes ago    Up 6 minutes    0.0.0.0:3000->3000/tcp    compassionate_prosku
riakova
nipun@LAPTOP-1HNTD447:~/getting-started/app$ docker exec -it 67f321946461 mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 2
Server version: 5.7.37 MySQL Community Server (GPL)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> SHOW DATABASES;
+--------------------+
| Database           |
+--------------------+
| information_schema |
```

```
| information_schema |
| mysql              |
| performance_schema |
| sys                |
| todos              |
+--------------------+
5 rows in set (0.00 sec)

mysql> exit
Bye
nipun@LAPTOP-1HNTD447:~/getting-started/app$ docker run -it --network todo-app nicolaka/netshoot
Unable to find image 'nicolaka/netshoot:latest' locally
latest: Pulling from nicolaka/netshoot
97518928ae5f: Already exists
09706d35e05d: Pull complete
4996ecc64030: Pull complete
9a11de879aaa: Pull complete
44f8e61e69d1: Pull complete
dcf41a6beeb6: Pull complete
d4d3a508f57b: Pull complete
ca86b0e825d1: Pull complete
7eeba344c2b1: Pull complete
c52dc2d61c4a: Pull complete
d04aa1a002c2: Pull complete
7070cabd1e04: Pull complete
Digest: sha256:d6942ec583d8e2818f5a5d7a71c303e861a70a11396ad9e9d25b355842e97589
Status: Downloaded newer image for nicolaka/netshoot:latest
                  dP              dP                      dP
                  88              88                      88
88d888b. .d8888b. d8888P .d8888b. 88d888b. .d8888b. .d8888b. d8888P
88'  `88 88oooood8   88   Y8ooooo. 88'  `88 88'  `88 88'  `88   88
88    88 88.  ...    88         88 88    88 88.  .88 88.  .88   88
dP    dP `88888P'    dP   `88888P' dP    dP `88888P' `88888P'   dP
```

```
8d35b6850691   1|   dig mysql

; <<>> DiG 9.16.22 <<>> mysql
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 33953
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;mysql.                         IN      A

;; ANSWER SECTION:
mysql.                  600     IN      A       172.18.0.2

;; Query time: 0 msec
;; SERVER: 127.0.0.11#53(127.0.0.11)
;; WHEN: Thu Jan 20 13:39:05 UTC 2022
;; MSG SIZE  rcvd: 44


8d35b6850691   1|   exit
nipun@LAPTOP-1HNTD447:~/getting-started/app$ docker run -dp 3000:3000 \
>     -w /app -v "$(pwd):/app" \
>     --network todo-app \
   -e M>      -e MYSQL_HOST=mysql \
>     -e MYSQL_USER=root \
>     -e MYSQL_PASSWORD=secret \
>     -e MYSQL_DB=todos \
>     node:12-alpine \
>     sh -c "yarn install && yarn run dev"
fc570cfe37578d833521b56206b06e0a92a38d2840153a7e9ae014ce248bb161
```

```
nipun@LAPTOP-1HNTD447:~/getting-started/app$ nodemon src/index.js
nodemon: command not found
nipun@LAPTOP-1HNTD447:~/getting-started/app$ docker exec -it <mysql-container-id> mysql -p todos
-bash: mysql-container-id: No such file or directory
nipun@LAPTOP-1HNTD447:~/getting-started/app$ docker container ls
CONTAINER ID   IMAGE          COMMAND                CREATED          STATUS            PORTS                     NAMES
fc570cfe3757   node:12-alpine "docker-entrypoint.s…" About a minute ago  Up About a minute  0.0.0.0:3000->3000/tcp   youthful_gol
dberg
67f321946461   mysql:5.7      "docker-entrypoint.s…" 5 minutes ago    Up About a minute  3306/tcp, 33060/tcp      nifty_lichte
rman
nipun@LAPTOP-1HNTD447:~/getting-started/app$ docker exec -it 67f321946461  mysql -p todos
Enter password:
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 4
Server version: 5.7.37 MySQL Community Server (GPL)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> select * from todo_items
    -> ;
Empty set (0.00 sec)

mysql>
```

```
mysql> select * from todo_items
    -> ;
+----------------------------------------+--------+-----------+
| id                                     | name   | completed |
+----------------------------------------+--------+-----------+
| b6908e40-f13b-46fa-aa49-bec0b5d078c4   | funny  |         0 |
| 458abec5-41f9-4a87-84e3-131fb064cd19   | things |         0 |
+----------------------------------------+--------+-----------+
2 rows in set (0.00 sec)
```

Running application stack using docker compose

```
nipun@LAPTOP-1HNTD447:~/getting-started/app$ cat docker-compose.yaml
cat: docker-compose.yaml: No such file or directory
nipun@LAPTOP-1HNTD447:~/getting-started/app$ ls
Dockerfile  docker-compose.yml  node_modules  package.json  spec  src  yarn.lock
nipun@LAPTOP-1HNTD447:~/getting-started/app$ cat docker-compose.yml
version: "3.7"

services:
  app:
    image: node:12-alpine
    command: sh -c "yarn install && yarn run dev"
    ports:
      - 3000:3000
    working_dir: /app
    volumes:
      - ./:/app
    environment:
      MYSQL_HOST: mysql
      MYSQL_USER: root
      MYSQL_PASSWORD: secret
      MYSQL_DB: todos

  mysql:
    image: mysql:5.7
    volumes:
      - todo-mysql-data:/var/lib/mysql
    environment:
      MYSQL_ROOT_PASSWORD: secret
      MYSQL_DATABASE: todos

volumes:
  todo-mysql-data:
nipun@LAPTOP-1HNTD447:~/getting-started/app$
```

docker

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app
RUNNING

app-mysql-1 mysql:5.7
RUNNING

app-app-1 node:12-alpine
RUNNING   PORT: 3000