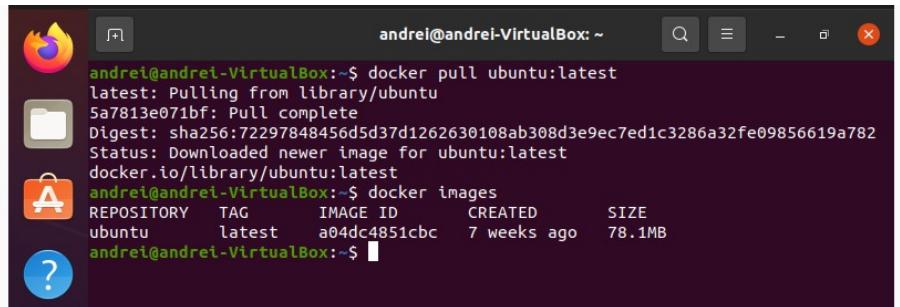


Задание 1.

1. Загружаем image ubuntu:latest из docker hub

docker pull ubuntu:latest



```
andrei@andrei-VirtualBox:~$ docker pull ubuntu:latest
latest: Pulling from library/ubuntu
5a7813e071bf: Pull complete
Digest: sha256:72297848456d5d37d1262630108ab308d3e9ec7ed1c3286a32fe09856619a782
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
ubuntu          latest   a04dc4851cbc  7 weeks ago   78.1MB
andrei@andrei-VirtualBox:~$
```

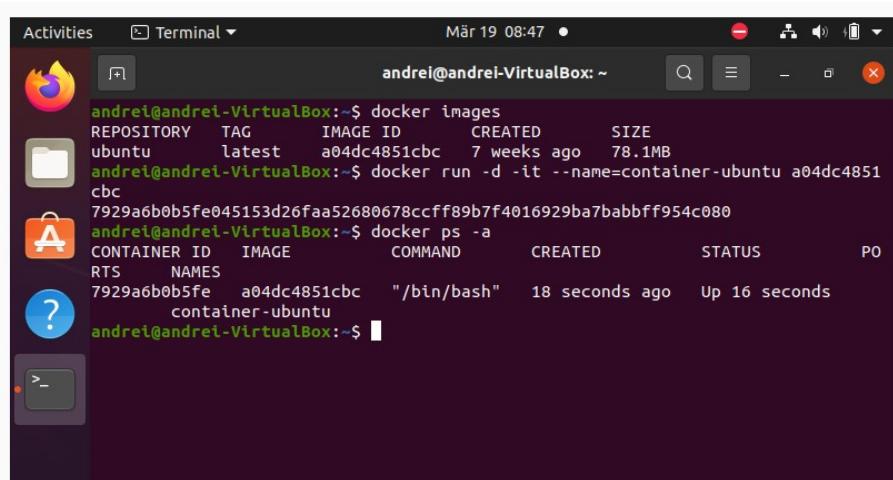
2. Запускаем контейнер container-ubuntu

docker run -d -it --name=container-ubuntu ubuntu

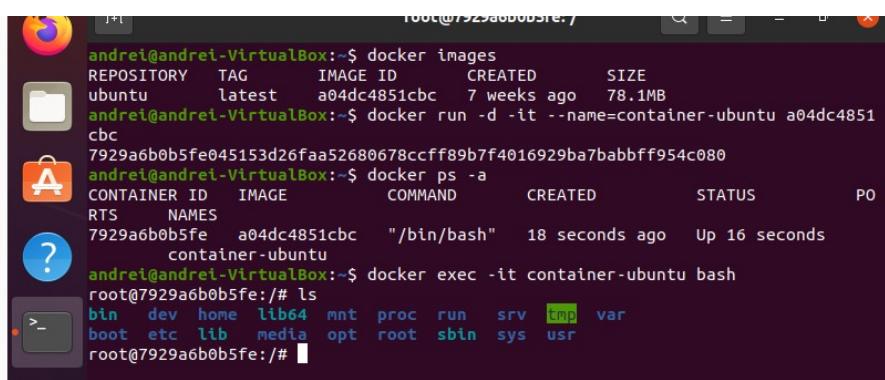
Проверяем, что контейнер запущен и заходим в него

docker ps -a

docker exec -it container-ubuntu bash



```
andrei@andrei-VirtualBox:~$ docker images
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
ubuntu          latest   a04dc4851cbc  7 weeks ago   78.1MB
andrei@andrei-VirtualBox:~$ docker run -d -it --name=container-ubuntu a04dc4851cbc
7929a6b0b5fe045153d26faa52680678ccff89b7f4016929ba7babff954c080
andrei@andrei-VirtualBox:~$ docker ps -a
CONTAINER ID      IMAGE      COMMAND      CREATED      STATUS      PORTS
RTS      NAMES
7929a6b0b5fe   a04dc4851cbc   "/bin/bash"  18 seconds ago   Up 16 seconds
      container-ubuntu
andrei@andrei-VirtualBox:~$
```



```
andrei@andrei-VirtualBox:~$ docker images
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
ubuntu          latest   a04dc4851cbc  7 weeks ago   78.1MB
andrei@andrei-VirtualBox:~$ docker run -d -it --name=container-ubuntu a04dc4851cbc
7929a6b0b5fe045153d26faa52680678ccff89b7f4016929ba7babff954c080
andrei@andrei-VirtualBox:~$ docker ps -a
CONTAINER ID      IMAGE      COMMAND      CREATED      STATUS      PORTS
RTS      NAMES
7929a6b0b5fe   a04dc4851cbc   "/bin/bash"  18 seconds ago   Up 16 seconds
      container-ubuntu
andrei@andrei-VirtualBox:~$ docker exec -it container-ubuntu bash
root@7929a6b0b5fe:/# ls
bin  dev  home  lib64  mnt  proc  run  srv  tmp  var
boot  etc  lib  media  opt  root  sbin  sys  usr
root@7929a6b0b5fe:/#
```

3. Останавливаем контейнер и удаляем его

```
docker stop container-ubuntu  
docker rm container-ubuntu
```

```
andrei@andrei-VirtualBox:~$ docker ps -a  
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES  
7929a6b0b5fe a04dc4851cbc "/bin/bash" 13 minutes ago Up 13 minutes  
container-ubuntu  
andrei@andrei-VirtualBox:~$ docker stop 7929a6b0b5fe  
7929a6b0b5fe  
andrei@andrei-VirtualBox:~$ docker ps  
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES  
andrei@andrei-VirtualBox:~$ docker ps -a  
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES  
PORTS NAMES  
7929a6b0b5fe a04dc4851cbc "/bin/bash" 14 minutes ago Exited (137) 11 se  
conds ago container-ubuntu  
andrei@andrei-VirtualBox:~$
```

```
Activities Terminal Mär 19 09:00 ●  
andrei@andrei-VirtualBox:~$ docker ps -a  
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES  
7929a6b0b5fe a04dc4851cbc "/bin/bash" 16 minutes ago Exited (137) 2 min  
utes ago container-ubuntu  
andrei@andrei-VirtualBox:~$ docker rm --force 7929a6b0b5fe  
7929a6b0b5fe  
andrei@andrei-VirtualBox:~$ docker ps -a  
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES  
andrei@andrei-VirtualBox:~$
```

Задание 2.

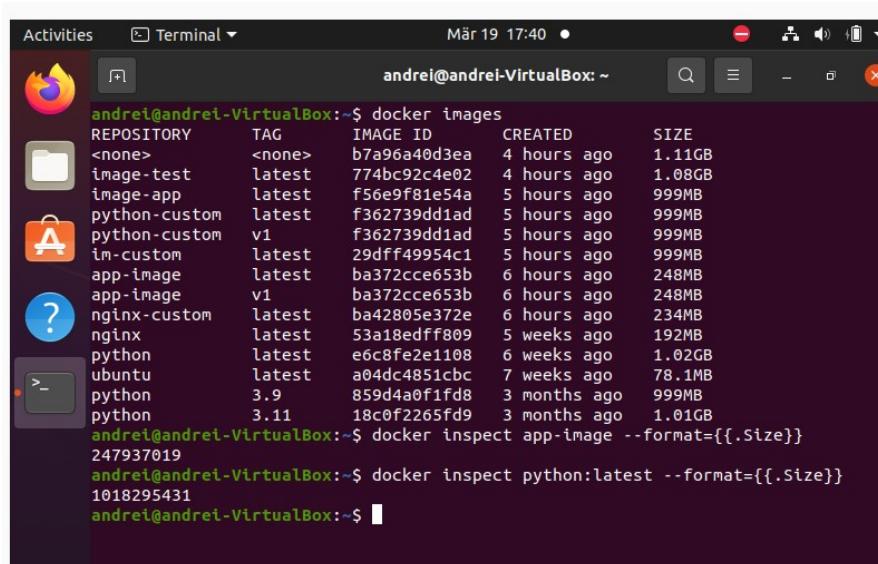
Выводим список образов установленных на хосте

```
Activities Terminal Mär 19 17:35 ●  
andrei@andrei-VirtualBox:~$ docker images  
REPOSITORY TAG IMAGE ID CREATED SIZE  
<none> <none> b7a96a40d3ea 4 hours ago 1.11GB  
image-test latest 774bc92c4e02 4 hours ago 1.08GB  
image-app latest f56e9f81e54a 5 hours ago 999MB  
python-custom latest f362739dd1ad 5 hours ago 999MB  
python-custom v1 f362739dd1ad 5 hours ago 999MB  
im-custom latest 29dff49954c1 5 hours ago 999MB  
app-image latest ba372cce653b 6 hours ago 248MB  
app-image v1 ba372cce653b 6 hours ago 248MB  
nginx-custom latest ba42805e372e 6 hours ago 234MB  
nginx latest 53a18edff809 5 weeks ago 192MB  
python latest e6c8fe2e1108 6 weeks ago 1.02GB  
ubuntu latest a04dc4851cbc 7 weeks ago 78.1MB  
python 3.9 859d4a0f1fd8 3 months ago 999MB  
python 3.11 18c0f2265fd9 3 months ago 1.01GB  
andrei@andrei-VirtualBox:~$
```

Выведем информацию (в байтах) о размере некоторых образов на данном хосте

docker inspect app-image --format={{.Size}}

docker inspect python:latest --format={{.Size}}

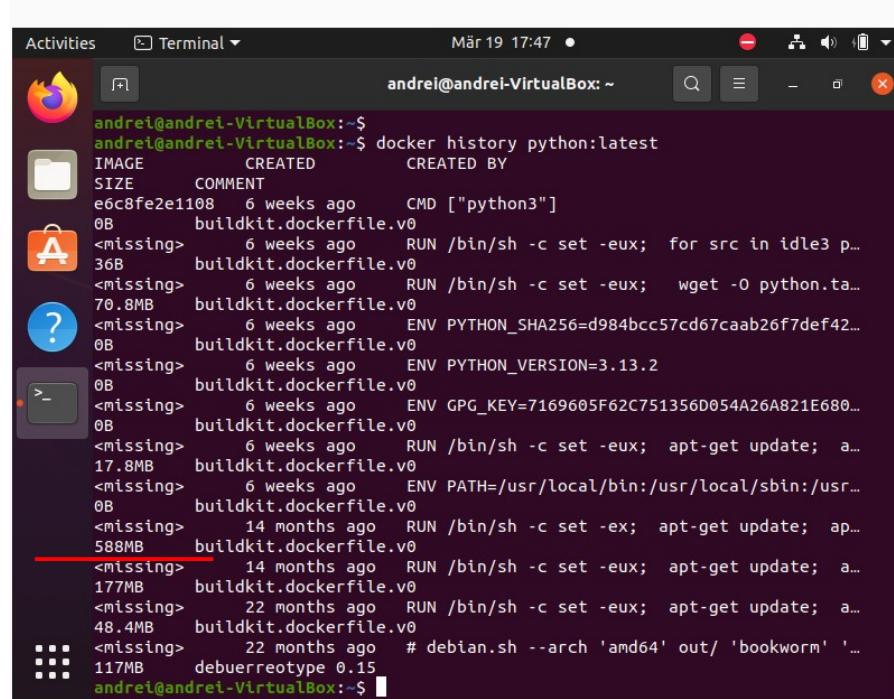


```
Activities Terminal Mär 19 17:40 • andrei@andrei-VirtualBox:~$ docker images
REPOSITORY      TAG        IMAGE ID      CREATED       SIZE
<none>          <none>     b7a96a40d3ea  4 hours ago  1.11GB
image-test       latest     774bc92c4e02  4 hours ago  1.08GB
image-app        latest     f56e9fb81e54a  5 hours ago  999MB
python-custom    latest     f362739dd1ad  5 hours ago  999MB
python-custom    v1        f362739dd1ad  5 hours ago  999MB
im-custom        latest     29dff49954c1  5 hours ago  999MB
app-image        latest     ba372cce653b  6 hours ago  248MB
app-image        v1        ba372cce653b  6 hours ago  248MB
nginx-custom    latest     ba42805e372e  6 hours ago  234MB
nginx            latest     53a18edff809  5 weeks ago  192MB
python           latest     e6c8fe2e1108  6 weeks ago  1.02GB
ubuntu           latest     a04dc4851cbc  7 weeks ago  78.1MB
python           3.9       859d4a0f1fd8  3 months ago  999MB
python           3.11      18c0f2265fd9  3 months ago  1.01GB
andrei@andrei-VirtualBox:~$ docker inspect app-image --format={{.Size}}
247937019
andrei@andrei-VirtualBox:~$ docker inspect python:latest --format={{.Size}}
1018295431
andrei@andrei-VirtualBox:~$
```

Данные образы занимают 248МВ и 1.02GB памяти

Воспользуемся командой docker history <ID_image>, чтобы определить размеры слоев образа на примере python:latest image

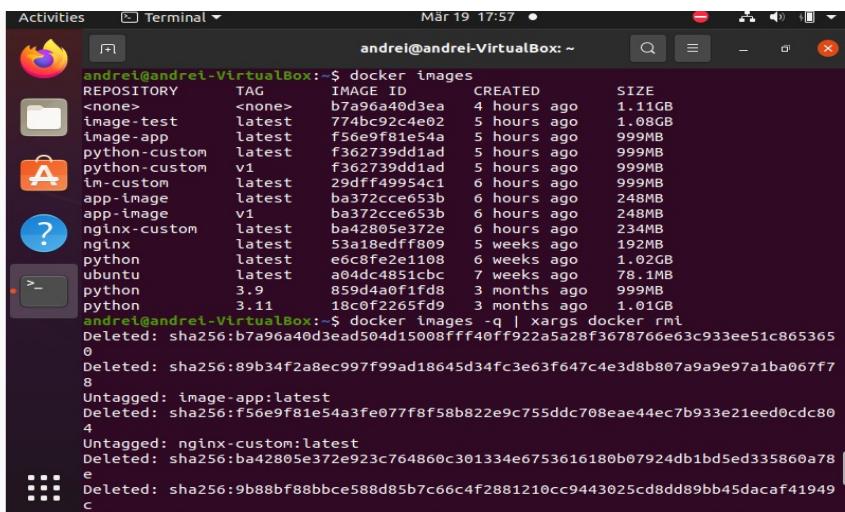
docker history python:latest



```
Activities Terminal Mär 19 17:47 • andrei@andrei-VirtualBox:~$
andrei@andrei-VirtualBox:~$ docker history python:latest
IMAGE      CREATED      CREATED BY
SIZE      COMMENT
e6c8fe2e1108  6 weeks ago   CMD ["python3"]
0B        buildkit.dockerfile.v0
<missing>  6 weeks ago   RUN /bin/sh -c set -eux;  for src in idle3 p...
36B       buildkit.dockerfile.v0
<missing>  6 weeks ago   RUN /bin/sh -c set -eux;  wget -O python.ta...
70.8MB    buildkit.dockerfile.v0
<missing>  6 weeks ago   ENV PYTHON_SHA256=d984bcc57cd67caab26f7def42...
0B        buildkit.dockerfile.v0
<missing>  6 weeks ago   ENV PYTHON_VERSION=3.13.2
0B        buildkit.dockerfile.v0
<missing>  6 weeks ago   ENV GPG_KEY=7169605F62C751356D054A26A821E680...
0B        buildkit.dockerfile.v0
<missing>  6 weeks ago   RUN /bin/sh -c set -eux;  apt-get update;  a...
17.8MB    buildkit.dockerfile.v0
<missing>  6 weeks ago   ENV PATH=/usr/local/bin:/usr/local/sbin:/usr...
0B        buildkit.dockerfile.v0
<missing>  14 months ago  RUN /bin/sh -c set -ex;  apt-get update;  ap...
588MB     buildkit.dockerfile.v0
<missing>  14 months ago  RUN /bin/sh -c set -eux;  apt-get update;  a...
177MB    buildkit.dockerfile.v0
<missing>  22 months ago  RUN /bin/sh -c set -eux;  apt-get update;  a...
48.4MB    buildkit.dockerfile.v0
<missing>  22 months ago  # debian.sh --arch 'amd64' out/ 'bookworm' ...
117MB    debuerreotype.0.15
andrei@andrei-VirtualBox:~$
```

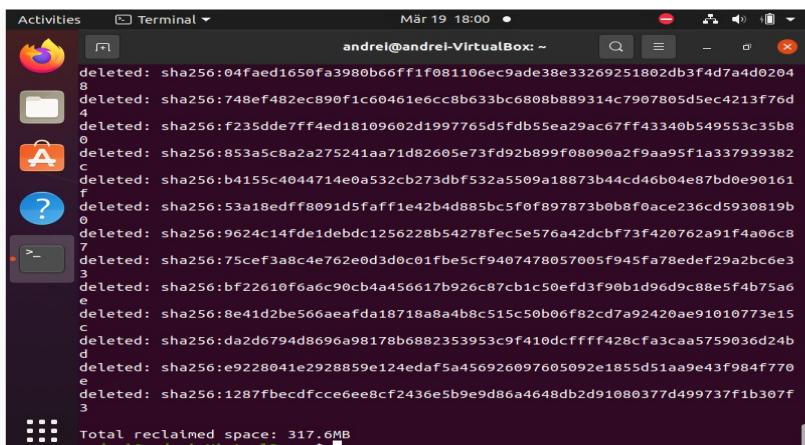
Видим размеры слоев данного образа. Один слой занимает 588МВ памяти

Воспользуемся командой docker rmi для удаления ненужных образов
docker images -q | xargs docker rmi



```
andrei@andrei-VirtualBox:~$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
<none> <none> b7a96a40d3ea 4 hours ago 1.11GB
image-test latest 774bc92c4e02 5 hours ago 1.08GB
image-app latest f56ef981e54a 5 hours ago 999MB
python-custom latest f362739dd1ad 5 hours ago 999MB
python-custom v1 f362739dd1ad 5 hours ago 999MB
im-custom latest 29dff49954c1 6 hours ago 999MB
app-image latest ba372cce653b 6 hours ago 248MB
app-image v1 ba372cce653b 6 hours ago 248MB
nginx-custom latest ba42805e372e 6 hours ago 234MB
nginx latest 53a18edff809 5 weeks ago 192MB
python latest e6c8fe2e1108 6 weeks ago 1.02GB
ubuntu latest a64dc4851cbc 7 weeks ago 78.1MB
python 3.9 859d4a0f1fd8 3 months ago 999MB
python 3.11 18c0f2265fd9 3 months ago 1.01GB
andrei@andrei-VirtualBox:~$ docker images -q | xargs docker rmi
Deleted: sha256:b7a96a40d3ead504d15008ffff40ff922a5a28f3678766e63c933ee51c865365
0
Deleted: sha256:89b34f2a8ec997f99ad18645d34fc3e63f647c4e3d8b807a9a9e97a1ba067f7
8
Untagged: image-app:latest
Deleted: sha256:f56ef981e54a3fe077f8f58b822e9c755ddc708eae44ec7b933e21eed0cdc80
4
Untagged: nginx-custom:latest
Deleted: sha256:ba42805e372e923c764860c301334e6753616180b07924db1bd5ed335860a78
e
Deleted: sha256:9888bf88bbce588d85b7c66c4f2881210cc9443025cd8dd89bb45daca41949
c
```

После данной операции высвободилось 317.6MB , но некоторые образы остались.

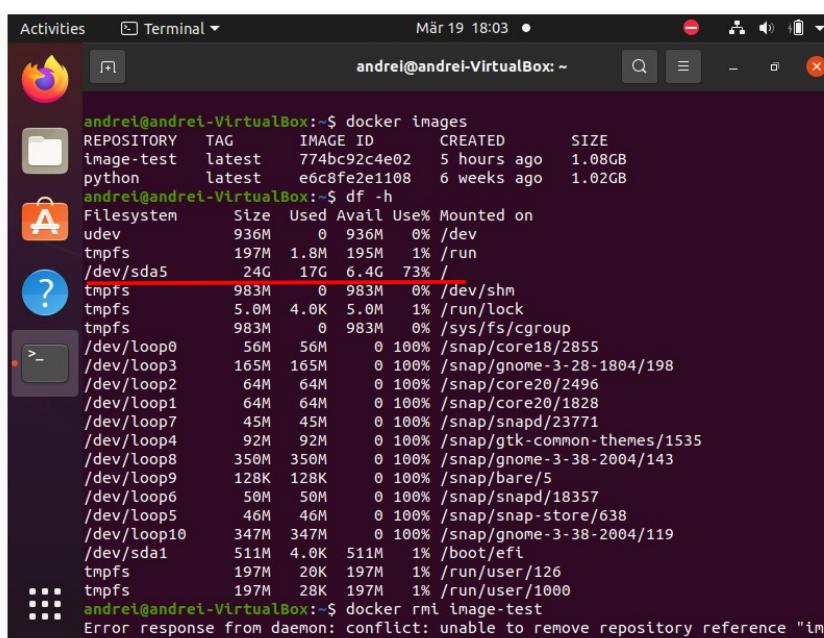


```
andrei@andrei-VirtualBox:~$ docker images
deleted: sha256:04faed1650fa39890b66ff1f081106ec9ade38e33269251802db3f4d7a4d0204
8
deleted: sha256:748ef482ec890f1c60461edcc8b633bc6808b889314c7907805d5ec4213f76d
4
deleted: sha256:f235dde7ff4ed18109602d1997765d5fdb55ea29ac67ff43340b549553c35b8
0
deleted: sha256:853a5c8a2a275241aa71d82605e73fd92b899f08090a2f9aa95f1a337939382
c
deleted: sha256:b4155c4044714e0a532cb273dbf532a5509a18873b44cd46b04e87bd0e90161
f
deleted: sha256:53a18edff8091d5faff1e42b4d885bc5f0f897873b0b8f0ace236cd5930819b
0
deleted: sha256:9624c14fde1debdc1256228b5427fec5e576a42dcfb73f420762a91f4a6c8
7
deleted: sha256:75cef3a8c4e762e0d3d0c01fbe5cf9407478057005f945fa78edef29a2bc6e3
3
deleted: sha256:bf22610f6a6c90cb4a456617b926c87cb1c50efd3f90b1d96d9c88e5f4b75a6
e
deleted: sha256:8e41d2be566aeaefda18718a84b8c515c50b06f82cd7a92420ae91010773e15
c
deleted: sha256:da2d6794d8696a98178b6882353953c9f410dcffff428cfa3caa5759036d24b
d
deleted: sha256:e9228041e2928859e124edadfa5a456926097605092e1855d51aa9e43f984f77e
e
deleted: sha256:1287fbecdfcce6ee8cf2436e5b9e9d86a4648db2d91080377d499737f1b307f
3
Total reclaimed space: 317.6MB
andrei@andrei-VirtualBox:~$
```

Для удаления всего, что не используется воспользуемся командой
docker system prune -fa

После удаления связанных контейнеров удаляем оставшиеся образы
docker rmi <ID_image>

На диске высвободилось место



```
andrei@andrei-VirtualBox:~$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
image-test latest 774bc92c4e02 5 hours ago 1.08GB
python latest e6c8fe2e1108 6 weeks ago 1.02GB
andrei@andrei-VirtualBox:~$ df -h
Filesystem Size Used Avail Use% Mounted on
udev 936M 0 936M 0% /dev
tmpfs 197M 1.8M 195M 1% /run
/dev/sda5 24G 17G 6.4G 73% /
tmpfs 983M 0 983M 0% /dev/shm
tmpfs 5.0M 4.0K 5.0M 1% /run/lock
tmpfs 983M 0 983M 0% /sys/fs/cgroup
/dev/loop0 56M 56M 0 100% /snap/core18/2855
/dev/loop3 165M 165M 0 100% /snap/gnome-3-28-1804/198
/dev/loop2 64M 64M 0 100% /snap/core20/2496
/dev/loop1 64M 64M 0 100% /snap/core20/1828
/dev/loop7 45M 45M 0 100% /snap/snapd/23771
/dev/loop4 92M 92M 0 100% /snap/gtk-common-themes/1535
/dev/loop8 350M 350M 0 100% /snap/gnome-3-38-2004/143
/dev/loop9 128K 128K 0 100% /snap/bare/5
/dev/loop6 50M 50M 0 100% /snap/snapd/18357
/dev/loop5 46M 46M 0 100% /snap/snap-store/638
/dev/loop10 347M 347M 0 100% /snap/gnome-3-38-2004/119
/dev/sda1 511M 4.0K 511M 1% /boot/efi
tmpfs 197M 20K 197M 1% /run/user/126
tmpfs 197M 28K 197M 1% /run/user/1000
andrei@andrei-VirtualBox:~$ docker rmi image-test
Error response from daemon: conflict: unable to remove repository reference "im
```