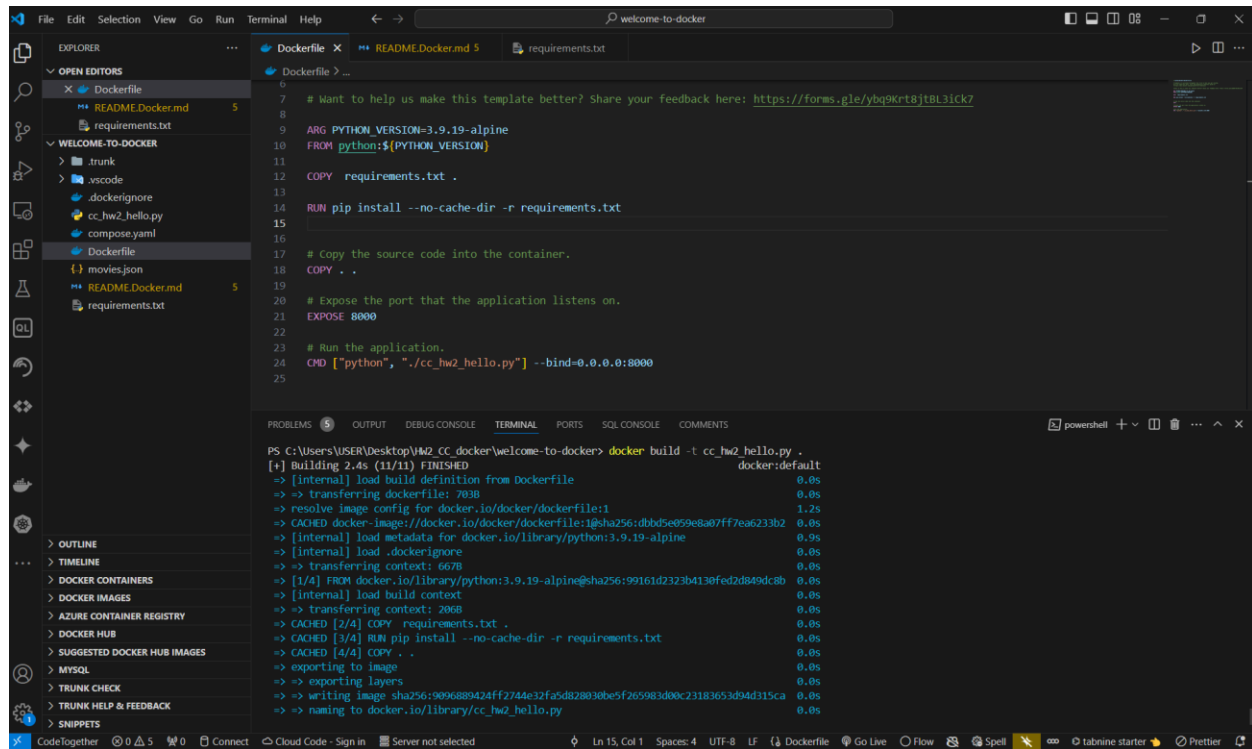


تمرین دوم رایانش ابری

سروین نامی ۹۹۳۱۱۰۳

فاز ۰

ساخت و ارسال image به Docker hub :

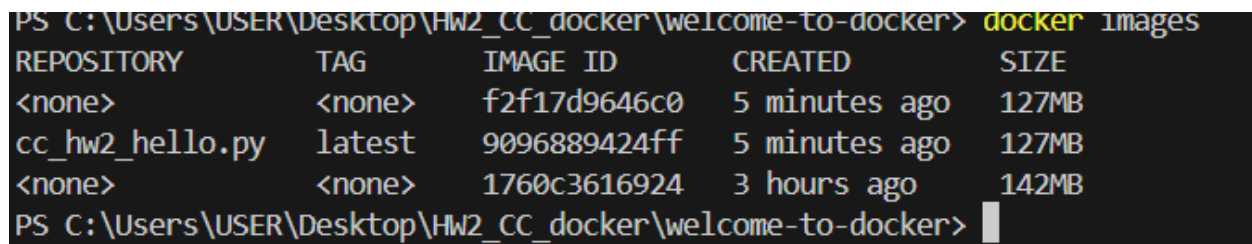


The screenshot shows a VS Code editor with a Dockerfile open. The Dockerfile contains instructions to build a Python application. The terminal at the bottom shows the output of the `docker build` command, which successfully builds the image `cc_hw2_hello.py`.

```
Dockerfile
6
7 # Want to help us make this template better? Share your feedback here: https://forms.gle/ybq9Krt8tBL3ick7
8
9 ARG PYTHON_VERSION=3.9.19-alpine
10 FROM python:${PYTHON_VERSION}
11
12 COPY requirements.txt .
13
14 RUN pip install --no-cache-dir -r requirements.txt
15
16
17 # Copy the source code into the container.
18 COPY . .
19
20 # Expose the port that the application listens on.
21 EXPOSE 8000
22
23 # Run the application.
24 CMD ["python", "./cc_hw2_hello.py"] --bind=0.0.0.0:8000
25
```

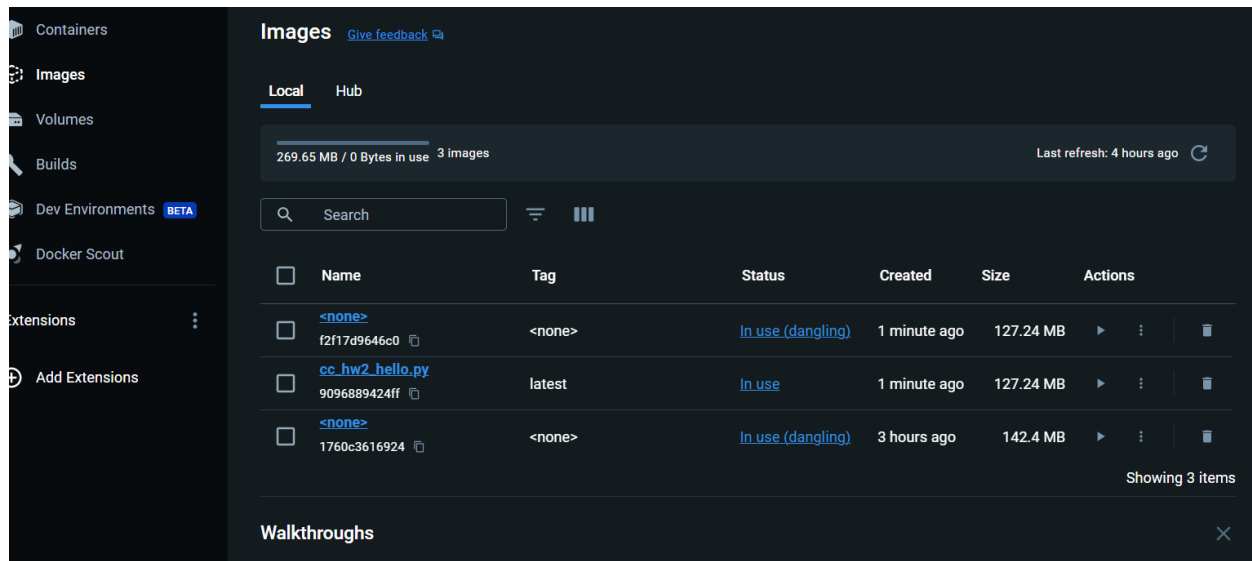
```
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker build -t cc_hw2_hello.py .
[+] Building 2.4s (11/11) FINISHED
=> [internal] load build definition from Dockerfile 0.0s
=> => transferring dockerfile: 703B 0.0s
=> resolve image config for docker.io/docker/dockerfile:1 1.2s
=> CACHED docker-image://docker.io/docker/dockerfile:1@sha256:d8bd5e059e8a87ff7ea6233b2 0.0s
=> [internal] load metadata for docker.io/library/python:3.9.19-alpine 0.0s
=> [internal] load .dockerignore 0.0s
=> => transferring context: 667B 0.0s
=> [1/4] FROM docker.io/library/python:3.9.19-alpine@sha256:99161d2323b4130fed2d849dc8b 0.0s
=> [internal] load build context 0.0s
=> => transferring context: 206B 0.0s
=> CACHED [2/4] COPY requirements.txt . 0.0s
=> CACHED [3/4] RUN pip install --no-cache-dir -r requirements.txt 0.0s
=> CACHED [4/4] COPY . . 0.0s
=> => exporting to image 0.0s
=> => exporting layers 0.0s
=> writing image sha256:9096889424ff2744e32fa5d828030be5f205983d00c23183653d94d315ca 0.0s
=> naming to docker.io/library/cc_hw2_hello.py 0.0s
```

نمایش لیست images :



The screenshot shows a terminal window with the output of the `docker images` command. It lists three images: `<none>`, `cc_hw2_hello.py`, and `<none>`, along with their tags, image IDs, creation times, and sizes.

```
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
<none>              <none>             f2f17d9646c0       5 minutes ago      127MB
cc_hw2_hello.py     latest             9096889424ff       5 minutes ago      127MB
<none>              <none>             1760c3616924       3 hours ago        142MB
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker>
```



اجرای image :

```
PS C:\Users\USER\Desktop\Hw2_CC_docker\welcome-to-docker> docker run cc_hw2_hello.py
Warm regards from the Cloud Computing TAs! Welcome to the Docker project.

We want to simply sort the elements in an array using NumPy in cc_hw2_hello.py
The array:
[[ 3  7  1]
 [10  3  2]
 [ 5  6  7]]

Sort the whole array:
[ 1  2  3  3  5  6  7  7 10]

Sort along each row:
[[ 1  3  7]
 [ 2  3 10]
 [ 5  6  7]]

Sort along each column:
[[ 3  3  1]
 [ 5  6  2]
 [10  7  7]]
PS C:\Users\USER\Desktop\Hw2_CC_docker\welcome-to-docker>
```



اجرای باقی دستورات:

```
File Edit Selection View Go Run Terminal Help welcome-to-docker

PROBLEMS 5 OUTPUT DEBUG CONSOLE TERMINAL PORTS SQL CONSOLE COMMENTS

PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker search srvn0nm
NAME DESCRIPTION STARS OFFICIAL
srvn0nm/cloud0 0
srvn0nm/cloud-0 0
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker tag cc_hw2_help.py:latest srvn0nm/cloud0
Error response from daemon: No such image: cc_hw2_help.py:latest
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker tag cc_hw2_hello.py:latest srvn0nm/cloud0
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
cc_hw2_hello.py latest 9096889424ff 16 minutes ago 127MB
srvn0nm/cloud0 latest 9096889424ff 16 minutes ago 127MB
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker push srvn0nm/cloud0
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker push srvn0nm/cloud0
Using default tag: latest
The push refers to repository [docker.io/srvn0nm/cloud0]
855395870d29: Pushed
73b47dc0f3be: Pushed
94fb54c3778a: Pushed
4857056bad11: Pushed
69141b6c4721: Pushed
0bbac9765c1f: Pushed
4c9c2b9681ab: Pushed
d4fc045c9e3a: Pushed
latest: digest: sha256:05a1a5513b1fd47b7c7b1eec2c807170943a88fc909a853e2d43a225756469cb size: 1997
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker rmi srvn0nm/cloud0:latest
Untagged: srvn0nm/cloud0:latest
Untagged: srvn0nm/cloud0@sha256:05a1a5513b1fd47b7c7b1eec2c807170943a88fc909a853e2d43a225756469cb
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker search srvn0nm
NAME DESCRIPTION STARS OFFICIAL
srvn0nm/cloud-0 0
srvn0nm/cloud0 0
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker pull srvn0nm/cloud0
Using default tag: latest
latest: Pulling from srvn0nm/cloud0
Digest: sha256:05a1a5513b1fd47b7c7b1eec2c807170943a88fc909a853e2d43a225756469cb
Status: Downloaded newer image for srvn0nm/cloud0:latest
docker.io/srvn0nm/cloud0:latest

What's Next?
View a summary of image vulnerabilities and recommendations -> docker scout quickview srvn0nm/cloud0
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
<none> <none> f2f17d9646c0 33 minutes ago 127MB
cc_hw2_hello.py latest 9096889424ff 33 minutes ago 127MB
srvn0nm/cloud0 latest 9096889424ff 33 minutes ago 127MB
<none> <none> 1760c3616924 3 hours ago 142MB

CodeTogether 0 0 5 Connect Cloud Code - Sign in Server not selected Ln 15, Col 1 Spaces: 4 UTF-8 LF
```

```

What's Next?
View a summary of image vulnerabilities and recommendations → docker scout quickview srvn0nm/cloud0
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker images
REPOSITORY          TAG                 IMAGE ID           CREATED            SIZE
<none>              <none>            f2f17d9646c0      33 minutes ago    127MB
cc_hw2_hello.py     latest            9096889424ff      33 minutes ago    127MB
srvn0nm/cloud0      latest            9096889424ff      33 minutes ago    127MB
<none>              <none>            1760c3616924      3 hours ago       142MB
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker> docker run srvn0nm/cloud0
Warm regards from the Cloud Computing TAs! Welcome to the Docker project.

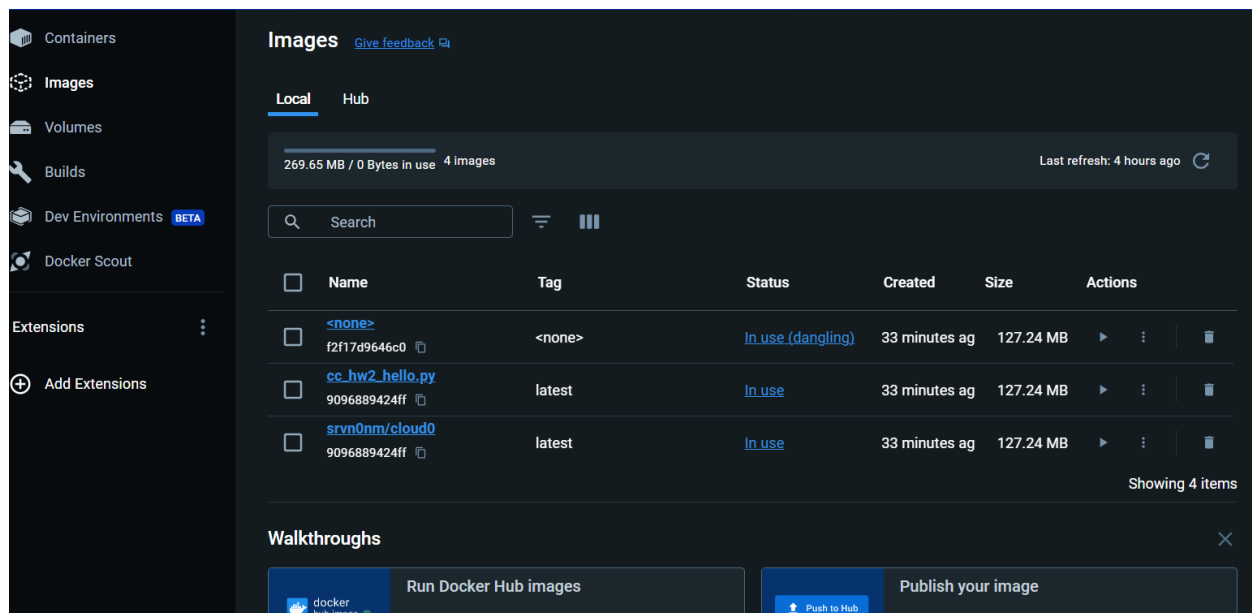
We want to simply sort the elements in an array using NumPy in cc_hw2_hello.py
The array:
[[ 3  7  1]
 [10  3  2]
 [ 5  6  7]]

Sort the whole array:
[ 1  2  3  3  5  6  7  7 10]

Sort along each row:
[[ 1  3  7]
 [ 2  3 10]
 [ 5  6  7]]

Sort along each column:
[[ 3  3  1]
 [ 5  6  2]
 [10  7  7]]
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker>

```



۱. جستجوی تصاویر داکر: دستور `Docker search srvn0nm` برای جستجوی تصاویر داکر تحت کاربر `srvn0nm` استفاده می‌شود. دو تصویر (`srvn0nm/cloud0`) و (`srvn0nm/cloud-0`) لیست می‌شوند، هر دو بدون ستاره و توضیحات دقیق.

۲. برچسبگذاری تصویر داکر: تلاش برای برچسبگذاری یک تصویر غیرموجود `cc_hw2_help.py:latest` با خطا مواجه می‌شود: "چنین تصویری وجود ندارد." یک برچسبگذاری موفق برای تصویر `cc_hw2_hello.py:latest` به `srvn0nm/cloud0` انجام می‌شود.

۳. لیست کردن تصاویر داکر: دستور `Docker images` تمام تصاویر داکر موجود محلی را نمایش می‌دهد و نشان می‌دهد که تصویر `cc_hw2_hello.py` با موفقیت به `srvn0nm/cloud0` برچسبگذاری شده است.

۴. فرستادن تصویر داکر به رجیستری: دستور `Docker push srvn0nm/cloud0` تصویر برچسب‌دار را به رجیستری داکر می‌فرستد، جایی که ذخیره و قابل دسترسی برای دیگران می‌شود.

۵. حذف تصویر داکر به صورت محلی: با استفاده از `Docker rmi srvn0nm/cloud0:latest`، ارجاع محلی به تصویر حذف می‌شود، اما همچنان در رجیستری داکر موجود است.

۶. کشیدن تصویر داکر از رجیستری: `Docker pull srvn0nm/cloud0`: تصویر را از رجیستری داکر بازیابی می‌کند تا اطمینان حاصل شود که آخرین نسخه دانلود شده است.

۷. اجرای تصویر داکر: اجرای `Docker run srvn0nm/cloud0` کانتینری را بر اساس تصویر `srvn0nm/cloud0` اجرا می‌کند. این عملیات پیام خوش‌آمدگویی و توضیحاتی در مورد پروژه را نمایش می‌دهد.

بخش دوم:

-RUN

دستور RUN در Dockerfile برای اجرای دستورات در لایه‌های میانی ساخت تصویر داکر استفاده می‌شود. هر دستور RUN یک لایه جدید در تصویر ایجاد می‌کند. این دستور معمولاً برای نصب بسته‌ها، ایجاد تنظیمات و دیگر تغییرات مورد نیاز در سیستم فایل تصویر استفاده می‌شود.

برای مثال، برای نصب نرم‌افزاری در تصویر داکر از دستور RUN استفاده شود:

```
RUN apt-get update && apt-get install -y nginx
```

این دستور ابتدا لیست بسته‌های قابل نصب را به‌روزرسانی می‌کند و سپس وب‌سرور Nginx را نصب می‌کند.

- CMD

دستور CMD در Dockerfile برای تعریف دستور پیش‌فرض است که هنگام اجرای یک کانتینر از تصویر ساخته شده اجرا می‌شود. این دستور تعیین می‌کند که چه عملیاتی باید به صورت پیش‌فرض در زمان اجرای کانتینر صورت بگیرد. در هر Dockerfile تنها یک دستور CMD باید وجود داشته باشد.

برای مثال:

```
CMD ["nginx", "-g", "daemon off;"]
```

این دستور نشان می‌دهد که وب‌سرور Nginx باید در حالت فورگراند (پیش‌زمینه) اجرا شود و این امر معمولاً برای کانتینرها توصیه می‌شود تا مدیریت پروسه‌ها را آسان‌تر کند.

در نهایت، RUN برای ایجاد تغییرات در تصویر استفاده می‌شود و CMD برای تعیین رفتار پیش‌فرض کانتینر در هنگام اجرا.

بخش سوم:

دلیل اصلی اینکه حجم تصویر داکر ساخته شده (strange:latest) بیشتر از تصویر اولیه busybox است، به نحوه کار داکر در ایجاد لایه‌ها و ذخیره تغییرات در هر لایه برمی‌گردد. هر دستور RUN در Dockerfile یک لایه جدید ایجاد می‌کند و تغییرات ایجاد شده در هر لایه به صورت جداگانه ذخیره می‌شوند، حتی اگر در لایه‌های بعدی پاک شوند.

توضیح مشکل

در خط ۲ از Dockerfile، دستور RUN dd if=/dev/random of=/home/disk.img bs=1MB count=200 یک فایل ۲۰۰ مگابایتی را ایجاد می‌کند. این دستور یک لایه جدید با حجم حدود ۲۰۰ مگابایت ایجاد می‌کند. سپس در خط ۳، دستور RUN rm /home/disk.img فایل ساخته شده را پاک می‌کند، اما این دستور نیز به عنوان یک لایه جداگانه ذخیره می‌شود. حذف فایل در لایه‌ای متفاوت انجام شده و لایه‌ای که فایل در آن ساخته شده بود تغییر نمی‌کند؛ بنابراین حجم اضافه شده توسط فایل همچنان در تصویر نهایی باقی می‌ماند.

راه‌حل

برای رفع این مشکل و کاهش حجم تصویر، بهتر است تمام دستوراتی که منجر به ایجاد و حذف داده‌ها در یک لایه می‌شوند، در یک دستور RUN ترکیب شوند. این کار باعث می‌شود که هر دو عملیات (ایجاد و حذف) در یک لایه انجام شده و حجم نهایی تصویر تأثیر نپذیرد.

Dockerfile بهینه‌شده

```
FROM busybox:latest
```

```
RUN dd if=/dev/random of=/home/disk.img bs=1MB count=200 && rm /home/disk.img
```

در این Dockerfile بهینه‌شده، هر دو دستور در یک خط قرار گرفته‌اند، بنابراین فایل ایجاد شده فوراً حذف می‌شود و این تغییرات در یک لایه ذخیره می‌شوند، نه دو لایه جداگانه. این امر موجب می‌شود که حجم تصویر نهایی تأثیر نپذیرد و به اندازه تصویر busybox اصلی باقی بماند.

بخش ۴:

رمز و دستورات:

The screenshot shows a VS Code editor with a Dockerfile open in the editor. The Dockerfile contains instructions to build an image from a tar file and run a container. The terminal shows the output of the Docker commands, including pulling the image and running the container. The container is named 'cc-ta-hw2docker-ctf' and is running the latest version of the image. The terminal also shows the output of the 'docker history' command, which lists the build steps for the image.

```
PS C:\Users\USER\Desktop\442_cc_docker\welcome-to-docker\phase0-4> docker pull abazshoushtari/cc-ta-hw2docker-ctf
Using default tag: latest
latest: Pulling from abazshoushtari/cc-ta-hw2docker-ctf
Digest: sha256:0e987b0dc73277e0f17af14a4d7960f0dc800db0220eccf8df112b1746fc4
Status: Image is up to date for abazshoushtari/cc-ta-hw2docker-ctf:latest
docker.io/abazshoushtari/cc-ta-hw2docker-ctf:latest

What's Next?
View a summary of image vulnerabilities and recommendations → docker scout quickview abazshoushtari/cc-ta-hw2docker-ctf
PS C:\Users\USER\Desktop\442_cc_docker\welcome-to-docker\phase0-4> docker history abazshoushtari/cc-ta-hw2docker-ctf
```

IMAGE	CREATED	CREATED BY	SIZE	COMMENT
11fa7d5887da	2 weeks ago	RUN /bin/sh -c rm /home/user-pass.txt # buildkit.dockerfile.v0	0B	buildkit.dockerfile.v0
<missing>	2 weeks ago	COPY ./user-pass.txt /home/user-pass.txt # buildkit.dockerfile.v0	307B	buildkit.dockerfile.v0
<missing>	2 months ago	/bin/sh -c #(nop) CMD ["bin/sh"]	0B	buildkit.dockerfile.v0
<missing>	2 months ago	/bin/sh -c #(nop) ADD file:37a76ec18f9887751...	7.38MB	

```
PS C:\Users\USER\Desktop\442_cc_docker\welcome-to-docker\phase0-4> docker run -it --name temp_container abazshoushtari/cc-ta-hw2docker-ctf /bin/sh
/ # ls
bin  dev  etc  home  lib  media  mnt  opt  proc  root  run /sbin  srv  sys  tmp  usr  var
/ # cd home
/home # ls
/home # user-pass.txt
/bin/sh: user-pass.txt: not found
/home # cd ..
/ # cd bin
```

نام کاربری:

The screenshot shows a VS Code editor with a Dockerfile open in the editor. The Dockerfile contains instructions to build an image from a tar file and run a container. The terminal shows the output of the Docker commands, including pulling the image and running the container. The container is named 'cc-ta-hw2docker-ctf' and is running the latest version of the image. The terminal also shows the output of the 'docker history' command, which lists the build steps for the image.

```
PS C:\Users\USER\Desktop\442_cc_docker\welcome-to-docker\phase0-4> docker pull abazshoushtari/cc-ta-hw2docker-ctf
Using default tag: latest
latest: Pulling from abazshoushtari/cc-ta-hw2docker-ctf
Digest: sha256:0e987b0dc73277e0f17af14a4d7960f0dc800db0220eccf8df112b1746fc4
Status: Image is up to date for abazshoushtari/cc-ta-hw2docker-ctf:latest
docker.io/abazshoushtari/cc-ta-hw2docker-ctf:latest

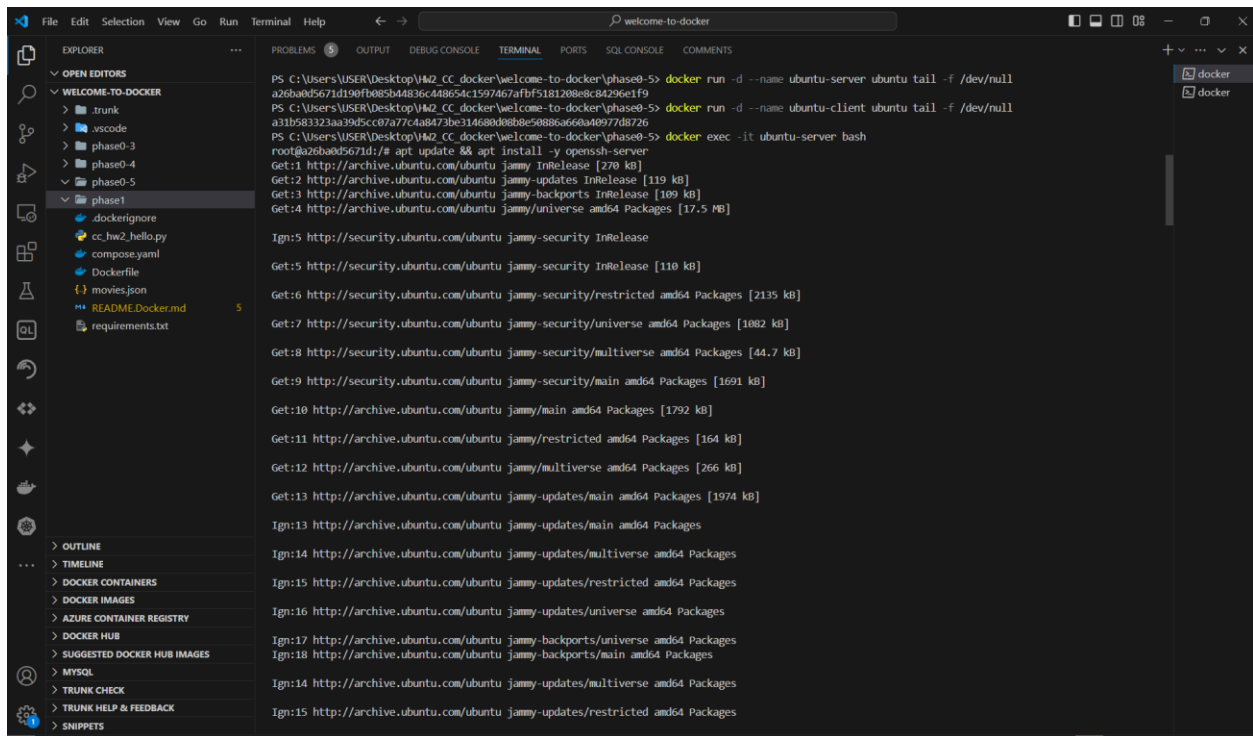
What's Next?
View a summary of image vulnerabilities and recommendations → docker scout quickview abazshoushtari/cc-ta-hw2docker-ctf
PS C:\Users\USER\Desktop\442_cc_docker\welcome-to-docker\phase0-4> docker history abazshoushtari/cc-ta-hw2docker-ctf
```

IMAGE	CREATED	CREATED BY	SIZE	COMMENT
11fa7d5887da	2 weeks ago	RUN /bin/sh -c rm /home/user-pass.txt # buildkit.dockerfile.v0	0B	buildkit.dockerfile.v0
<missing>	2 weeks ago	COPY ./user-pass.txt /home/user-pass.txt # buildkit.dockerfile.v0	307B	buildkit.dockerfile.v0
<missing>	2 months ago	/bin/sh -c #(nop) CMD ["bin/sh"]	0B	buildkit.dockerfile.v0
<missing>	2 months ago	/bin/sh -c #(nop) ADD file:37a76ec18f9887751...	7.38MB	

```
PS C:\Users\USER\Desktop\442_cc_docker\welcome-to-docker\phase0-4> docker run -it --name temp_container abazshoushtari/cc-ta-hw2docker-ctf /bin/sh
/ # ls
bin  dev  etc  home  lib  media  mnt  opt  proc  root  run /sbin  srv  sys  tmp  usr  var
/ # cd home
/home # ls
/home # user-pass.txt
/bin/sh: user-pass.txt: not found
/home # cd ..
/ # cd bin
```

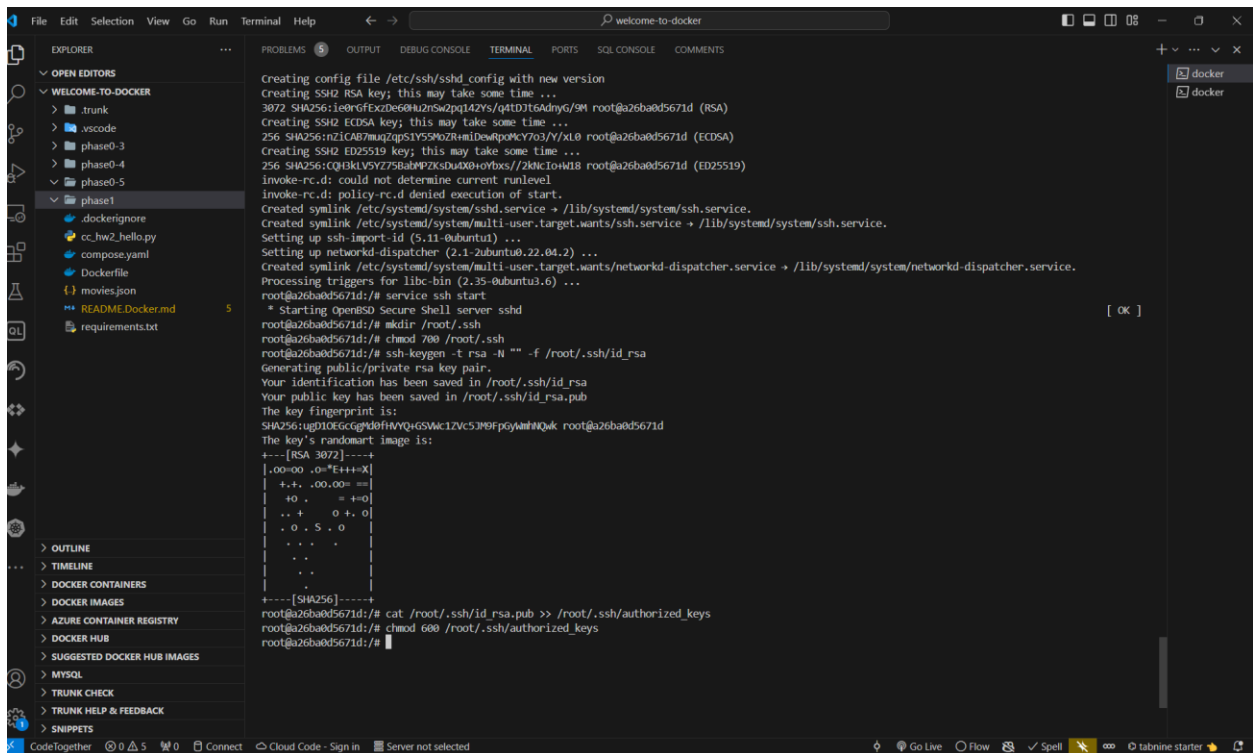
بخش ۵:

ساخت کانینرها و تنظیمات سرور:



```
PS C:\Users\USER\Desktop\H42_CC_docker\welcome-to-docker\phase0> docker run -d --name ubuntu-server ubuntu tail -f /dev/null
a26ba0d5671d198fb085b44836c448654c1597467afb5181208e8c84296e1f9
PS C:\Users\USER\Desktop\H42_CC_docker\welcome-to-docker\phase0> docker run -d --name ubuntu-client ubuntu tail -f /dev/null
a31b581323aa39d5cc0a77c4a8473be31468d0d8b8e50886a660a40977d8726
PS C:\Users\USER\Desktop\H42_CC_docker\welcome-to-docker\phase0> docker exec -it ubuntu-server bash
root@a26ba0d5671d:/# apt update && apt install -y openssh-server
Get:1 http://archive.ubuntu.com/ubuntu jammy InRelease [270 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [17.5 MB]

Ign:5 http://security.ubuntu.com/ubuntu jammy-security InRelease
Get:5 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:6 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [2135 kB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [1082 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [44.7 kB]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1691 kB]
Get:10 http://archive.ubuntu.com/ubuntu jammy/main amd64 Packages [1792 kB]
Get:11 http://archive.ubuntu.com/ubuntu jammy/restricted amd64 Packages [164 kB]
Get:12 http://archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [266 kB]
Get:13 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1974 kB]
Ign:13 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages
Ign:14 http://archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages
Ign:15 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages
Ign:16 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages
Ign:17 http://archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages
Ign:18 http://archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages
Ign:14 http://archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages
Ign:15 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages
```



```
Creating config file /etc/ssh/sshd_config with new version
Creating SSH2 RSA key; this may take some time ...
3072 SHA256:ie0rGfEx2de6Hu2n5w2pq142Ys/q4tD1T6AdmYc/9M root@a26ba0d5671d (RSA)
Creating SSH2 ECDSA key; this may take some time ...
256 SHA256:nZiCAB7muqZqps1Y554oZRhniDewRpoM4V7o3/Yx10 root@a26ba0d5671d (ECDSA)
Creating SSH2 ED25519 key; this may take some time ...
256 SHA256:cQdKLV5Y2758b4M2K5Du0X0h0f0cs//2hMc1o+K18 root@a26ba0d5671d (ED25519)
invoke-rc.d: could not determine current runlevel
invoke-rc.d: policy-rc.d denied execution of start.
created symlink /etc/systemd/system/ssh.service + /lib/systemd/system/ssh.service.
created symlink /etc/systemd/system/multi-user.target.wants/ssh.service + /lib/systemd/system/ssh.service.
Setting up ssh-import-id (5.11-0ubuntu1) ...
Setting up networkd-dispatcher (2.1-2ubuntu0.22.04.2) ...
Created symlink /etc/systemd/system/multi-user.target.wants/networkd-dispatcher.service + /lib/systemd/system/networkd-dispatcher.service.
Processing triggers for libc-bin (2.35-0ubuntu3.6) ...
root@a26ba0d5671d:/# service ssh start
* Starting OpenSSH Secure Shell server sshd
root@a26ba0d5671d:/# mkdir /root/.ssh
root@a26ba0d5671d:/# chmod 700 /root/.ssh
root@a26ba0d5671d:/# ssh-keygen -t rsa -N "" -f /root/.ssh/id_rsa
Generating public/private rsa key pair.
Your identification has been saved in /root/.ssh/id_rsa
Your public key has been saved in /root/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:ugD10EGCgPd0fHVVQhGSWc12Vc53H9FpGyVnHhQJk root@a26ba0d5671d
The key's randomart image is:
+--[RSA 3072]-----+
|.00=00 .0="E++X|
| +. .00.00 =|
| +0 . . +0|
|.. + . 0 +. 0|
|. 0 . S . 0|
| . . . .|
|. . . .|
|. . . .|
| . . . .|
+-----[SHA256]-----+
root@a26ba0d5671d:/# cat /root/.ssh/id_rsa.pub >> /root/.ssh/authorized_keys
root@a26ba0d5671d:/# chmod 600 /root/.ssh/authorized_keys
root@a26ba0d5671d:/#
```

تنظیمات کلاینت:

The screenshot shows the Visual Studio Code interface with a terminal window open. The terminal displays the output of a `docker exec` command running `apt-get update` inside a container named `phase0-5`. The logs show the process of updating the package list from various Ubuntu mirrors, including the main archive, security updates, and universe repositories. The output includes package sizes and download progress for various repositories like `jammy InRelease`, `jammy-updates InRelease`, and `jammy-security InRelease`. The terminal also shows the command `apt-get update` being executed again, and the package lists being read.

یافتن IP سرور:

```
exit
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker\phase0-5> docker inspect -f '{{range .NetworkSettings.Networks}}{{.IPAddress}}{{end}}' ubuntu
-server
172.17.0.2
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker\phase0-5> |
```

```
File Edit Selection View Go Run Terminal Help welcome-to-docker
EXPLORER
WELCOME-TO-DOCKER
.trunk
.vscode
phase0-3
phase0-4
phase0-5
phase1
.dockerignore
cc_hw2_hello.py
compose.yaml
Dockerfile
movies.json
README.Docker.md
requirements.txt
OUTLINE
TIMELINE
DOCKED CONTAINERS
DOCKED IMAGES
AZURE CONTAINER REGISTRY
DOCKED HUB
SUGGESTED DOCKED HUB IMAGES
MYSQL
TRUNK CHECK
TRUNK HELP & FEEDBACK
SNIPPETS
CodeTogether 0 5 0 Connect Cloud Code - Sign in Server not selected

Permission denied, please try again.
root@172.17.0.2's password:
root@172.17.0.2: Permission denied (publickey,password).
root@a31b583323aa: /# root
bash: root: command not found
root@a31b583323aa: /# ssh root@172.17.0.2
root@172.17.0.2's password:
Permission denied, please try again.
root@172.17.0.2's password:

root@a31b583323aa: /# sudo systemctl restart sshd
bash: sudo: command not found
root@a31b583323aa: /# systemctl restart sshd
bash: systemctl: command not found
root@a31b583323aa: /# ssh-keygen -t ed25519
Generating public/private ed25519 key pair.
Enter file in which to save the key (/root/.ssh/id_ed25519):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_ed25519
Your public key has been saved in /root/.ssh/id_ed25519.pub
The key fingerprint is:
SHA256:ge4vb19QdM11sYAc+j12hQURQNHq4dd/UURQWwqc root@a31b583323aa
The key's randomart image is:
+--[ED25519 256]--+
|X*.. ....o..o|
|O*.. . o..o |
|B= +... o..o |
|+B*.O....o . |
|==O.* + S.   |
|oo. = .      |
| .            |
| O            |
| E            |
+----[SHA256]-----+
root@a31b583323aa: /# ssh-copy-id -i ~/.ssh/id_ed25519.pub root@172.17.0.2
/usr/bin/ssh-copy-id: INFO: source of key(s) to be installed: "/root/.ssh/id_ed25519.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
root@172.17.0.2's password:
Permission denied, please try again.
root@172.17.0.2's password:
Permission denied, please try again.
root@172.17.0.2's password:
root@172.17.0.2: Permission denied (publickey,password).
root@a31b583323aa: /#
```

docker desktop

Search for images, containers, volumes... **Ctrl+K**

Containers

Images

Volumes

Builds

Dev Environments **BETA**

Docker Scout

Extensions

Add Extensions

ubuntu-server

ubuntu

a26ba0d5671d

STATUS

Running (1 hour ago)

Logs

Inspect

Bind mounts

Exec

Files

Stats

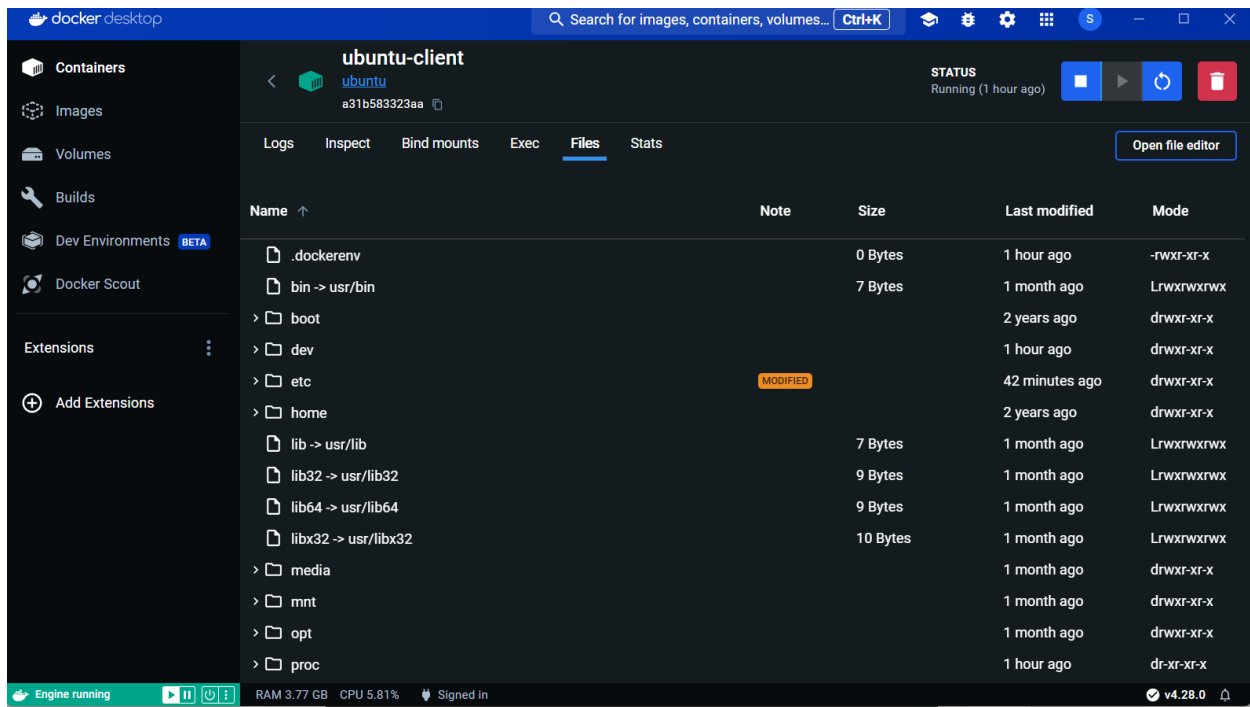
Open file editor

Name	Note	Size	Last modified	Mode
.dockerenv		0 Bytes	1 hour ago	-rwxr-xr-x
bin -> usr/bin		7 Bytes	1 month ago	Lrwxrwxrwx
boot			2 years ago	drwxr-xr-x
dev			1 hour ago	drwxr-xr-x
etc	MODIFIED		16 minutes ago	drwxr-xr-x
home			2 years ago	drwxr-xr-x
lib -> usr/lib		7 Bytes	1 month ago	Lrwxrwxrwx
lib32 -> usr/lib32		9 Bytes	1 month ago	Lrwxrwxrwx
lib64 -> usr/lib64		9 Bytes	1 month ago	Lrwxrwxrwx
libx32 -> usr/libx32		10 Bytes	1 month ago	Lrwxrwxrwx
media			1 month ago	drwxr-xr-x
mnt			1 month ago	drwxr-xr-x
opt			1 month ago	drwxr-xr-x
proc			1 hour ago	dr-xr-xr-x

Engine running

RAM 3.77 GB CPU 1.00% Signed in

v4.28.0



فاز ۱:

راه اندازی الستیک سرچ:

```
PS C:\Users\USER\Desktop\HM2_CC_docker\welcome-to-docker\phase1> docker pull elasticsearch:8.12.2
8.12.2: Pulling from library/elasticsearch
17d0386c2fff: Pull complete
ffe7ce0121c2: Pull complete
00006f089e5f: Pull complete
4f4fb700ef54: Pull complete
7ecb135b48be: Pull complete
73d43a577817: Pull complete
8f75e114d603: Pull complete
cc24dd566f6: Pull complete
cbb03bb9d4cc: Pull complete
40eeb4636ee3: Pull complete
Digest: sha256:1d183abc10a89d49a9a7c8c9aeebc32bdd9de91782b4b3d39a1318469f5ad8c3
Status: Downloaded newer image for elasticsearch:8.12.2
docker.io/library/elasticsearch:8.12.2

What's Next?
View a summary of image vulnerabilities and recommendations → docker scout quickview elasticsearch:8.12.2
PS C:\Users\USER\Desktop\HM2_CC_docker\welcome-to-docker\phase1> docker run -d --name elasticsearch -p 9200:9200 -e "discovery.type=single-node" elasticsearch:8.12.2
a9ae8243bde1ea7cdfa836dd18cd7c2eb32222fe7caa861fdc3b9273a01937a1
PS C:\Users\USER\Desktop\HM2_CC_docker\welcome-to-docker\phase1> docker pull redis
```

راه اندازی ردیس:

```

PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker\phase1> docker pull redis
Using default tag: latest
Error response from daemon: Head "https://registry-1.docker.io/v2/library/redis/manifests/latest": Get "https://auth.docker.io/token?account=srvn0nm&scope=repository%3Alibrary%2Fredis%3Apull&service=registry.docker.io": tls: failed to verify certificate: x509: certificate has expired or is not yet valid: current time 2024-04-12T16:39:04Z is after 2023-10-02T23:59:59Z
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker\phase1> docker run -d --name redis -p 6379:6379 redis
Unable to find image 'redis:latest' locally
docker: Error response from daemon: Head "https://registry-1.docker.io/v2/library/redis/manifests/latest": Get "https://auth.docker.io/token?account=srvn0nm&scope=repository%3Alibrary%2Fredis%3Apull&service=registry.docker.io": tls: failed to verify certificate: x509: certificate has expired or is not yet valid: current time 2024-04-12T16:39:10Z is after 2023-10-02T23:59:59Z.
See 'docker run --help'.
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker\phase1> docker run -d --name redis -p 6379:6379 redis
Unable to find image 'redis:latest' locally
latest: Pulling from library/redis
13808c22b207: Pull complete
6900ab66c9ff: Pull complete
d707ec7ebe0f: Pull complete
031016405bfb: Pull complete
84b54df900f6: Pull complete
6d2bba2ab923: Pull complete
4f4fb700ef54: Pull complete
09073cda9bdf: Pull complete
Digest: sha256:1d38c52e8d34c0471350c545d7a9066c95f5a6b9f24c74209331c03c496e2290
Status: Downloaded newer image for redis:latest
28708377db4781cc69efd14cd92e2dada48414d82376682c49697e9e914b8580
PS C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker\phase1>

```

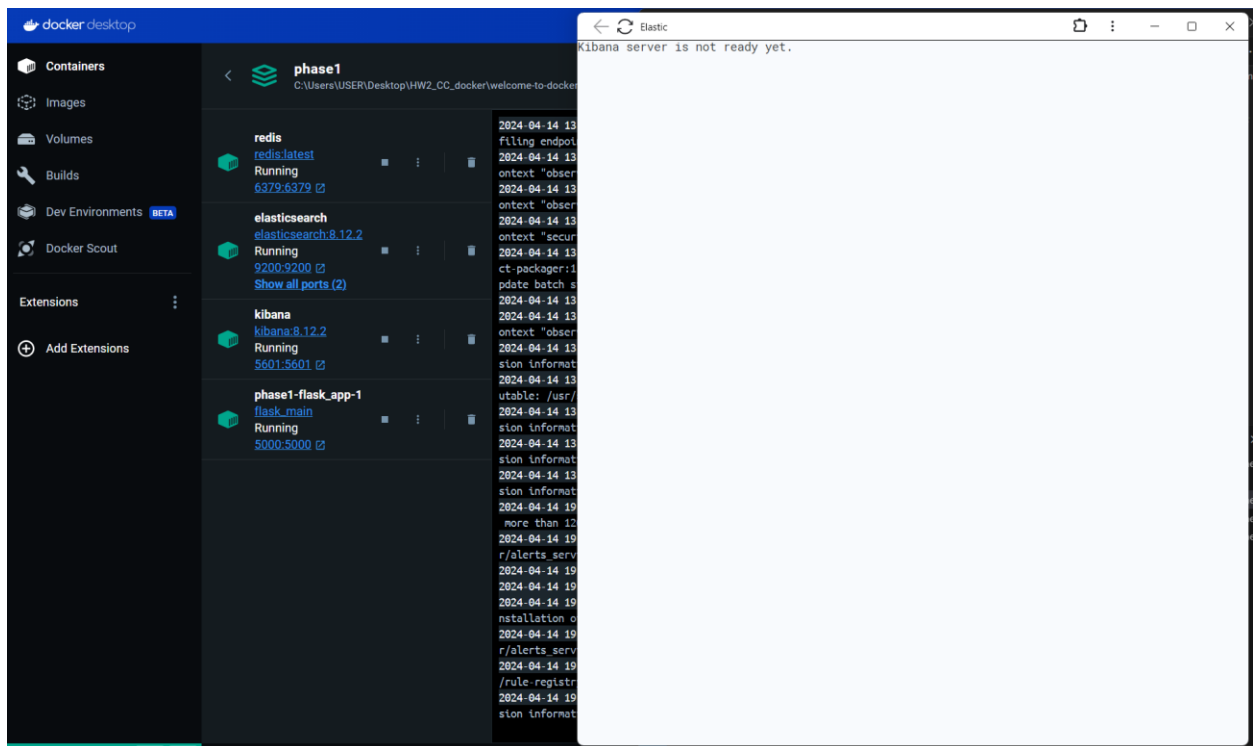
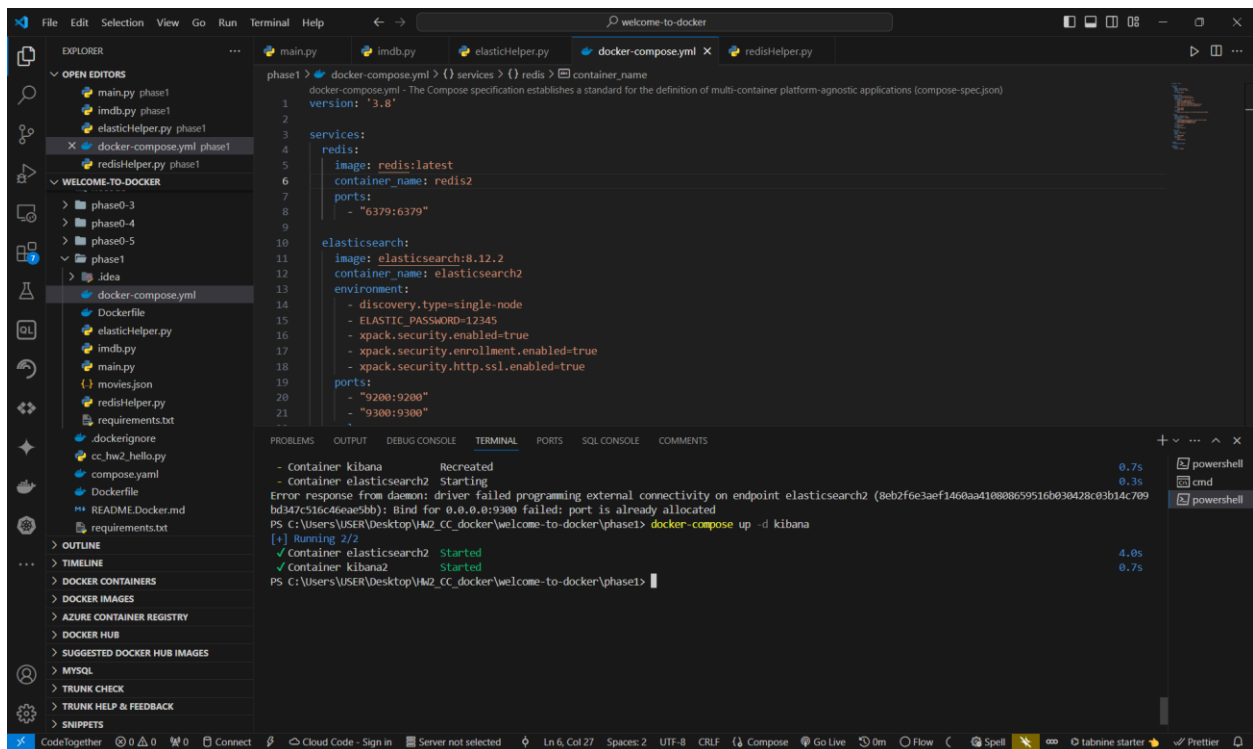
: افزودن json

```

C:\Users\USER\Desktop\HW2_CC_docker\welcome-to-docker\phase1> curl -XPOST -k -u elastic:12345 "https://localhost:9200/_bulk?pretty" -H "Content-Type: application/json" --data-binary @movies.json
{
  "error" : {
    "root_cause" : [
      {
        "type" : "security_exception",
        "reason" : "unable to authenticate user [elastic] for REST request [/_bulk?pretty]",
        "header" : {
          "WWW-Authenticate" : [
            "Basic realm=\"security\" charset=\"UTF-8\"",
            "Bearer realm=\"security\"",
            "ApiKey"
          ]
        }
      }
    ],
    "type" : "security_exception",
    "reason" : "unable to authenticate user [elastic] for REST request [/_bulk?pretty]",
    "header" : {
      "WWW-Authenticate" : [
        "Basic realm=\"security\" charset=\"UTF-8\"",
        "Bearer realm=\"security\"",
        "ApiKey"
      ]
    }
  },
  "status" : 401
}

```

: Kibana



Without kibana:

```
localhost:5000/search?query=godfather
localhost:5000/search?query=godfather
Getting Started google translate Abtin (Abtin Zandi) GitHub Professional Certificat... quera
JSON Raw Data Headers
Save Copy Collapse All Expand All Filter JSON
message: "Data retrieved from Elasticsearch service."
result:
  hits:
    0:
      _id: "ypvj3Y488GsuZ139eqsa"
      _index: "your_index_name"
      _score: 6.406322
      _source:
        Certificate: "A"
        Director: "Francis Ford Coppola"
        Genre: "Crime, Drama"
        Gross: "134,966,411"
        IMDB_Rating: 9.2
        Meta_score: 100
        No_of_Votes: 1620367
        Overview: "An organized crime dynasty's aging patriarch transfers control of his clandestine empire to his reluctant son."
        Poster_Link: "https://m.media-amazon.com/images/M/MV5BMjMyNTUyMTYwMTY3ZGw4ODM1Yy1kZWV1YyZlL0QyZjZkL0ZlLXkxYXhkaGdsQXV5Zm1jQ3NzZW..._V1_UY98_CR1,0,67,98_AL_.jpg"
        Released_Year: 1972
        Runtime: "175 min"
        Series_Title: "The Godfather"
        Star1: "Marlon Brando"
        Star2: "Al Pacino"
        Star3: "James Caan"
        Star4: "Diane Keaton"
    1:
      _id: "ypvj3Y488GsuZ139eqs6"
      _index: "your_index_name"
      _score: 4.8146772
      _source:
        Certificate: "A"
        Director: "Francis Ford Coppola"
        Genre: "Crime, Drama"
        Gross: "57,300,000"
        IMDB_Rating: 9
        Meta_score: 90
        No_of_Votes: 1129952
```

بار دوم:

```
localhost:5000/search?query=dune
localhost:5000/search?query=dune
Getting Started google translate Abtin (Abtin Zandi) GitHub Professional Certificat... quera
JSON Raw Data Headers
Save Copy Collapse All Expand All Filter JSON
message: "Data retrieved from Elasticsearch service."
result:
  hits:
    max_score: null
  total:
    relation: "eq"
    value: 0
  1:
    []
```

```
localhost:5000/search?query=godfather
← → ↺ localhost:5000/search?query=godfather
Getting Started google translate Abtin (Abtin Zandi) GitHub Professional Certificat... quera
JSON Raw Data Headers
Save Copy Collapse All Expand All Filter JSON
message: "Data retrieved from Redis cache."
result:
  hits:
    0:
      _id: "ypvj3Y488GsuZ139eqsa"
      _index: "your_index_name"
      _score: 6.406322
      _source:
        Certificate: "A"
        Director: "Francis Ford Coppola"
        Genre: "Crime, Drama"
        Gross: "134,966,411"
        IMDb_Rating: 9.2
        Meta_score: 100
        No_of_Votes: 1620367
        Overview: "An organized crime dynasty's aging patriarch transfers control of his clandestine empire to his reluctant son."
        Poster_Link: "https://m.media-amazon.com/images/M/M558H25yN1YxNmUyVTA4Ni00MTYxLWZlbnV1cyZ1ODV3ZjIh307ZLlMhYXNlZGdsQXV5b3h0IjQ1NzQW...V1_UY98_CR1,0,67,98_AL_.jpg"
        Released_Year: 1972
        Runtime: "175 min"
        Series_Title: "The Godfather"
        Star1: "Marlon Brando"
        Star2: "Al Pacino"
        Star3: "James Caan"
        Star4: "Diane Keaton"
    1:
      _id: "ypvj3Y488GsuZ139eqs8"
      _index: "your_index_name"
      _score: 4.8146772
      _source:
        Certificate: "A"
        Director: "Francis Ford Coppola"
        Genre: "Crime, Drama"
        Gross: "57,300,000"
        IMDb_Rating: 9
        Meta_score: 90
        No_of_Votes: 1129952
```