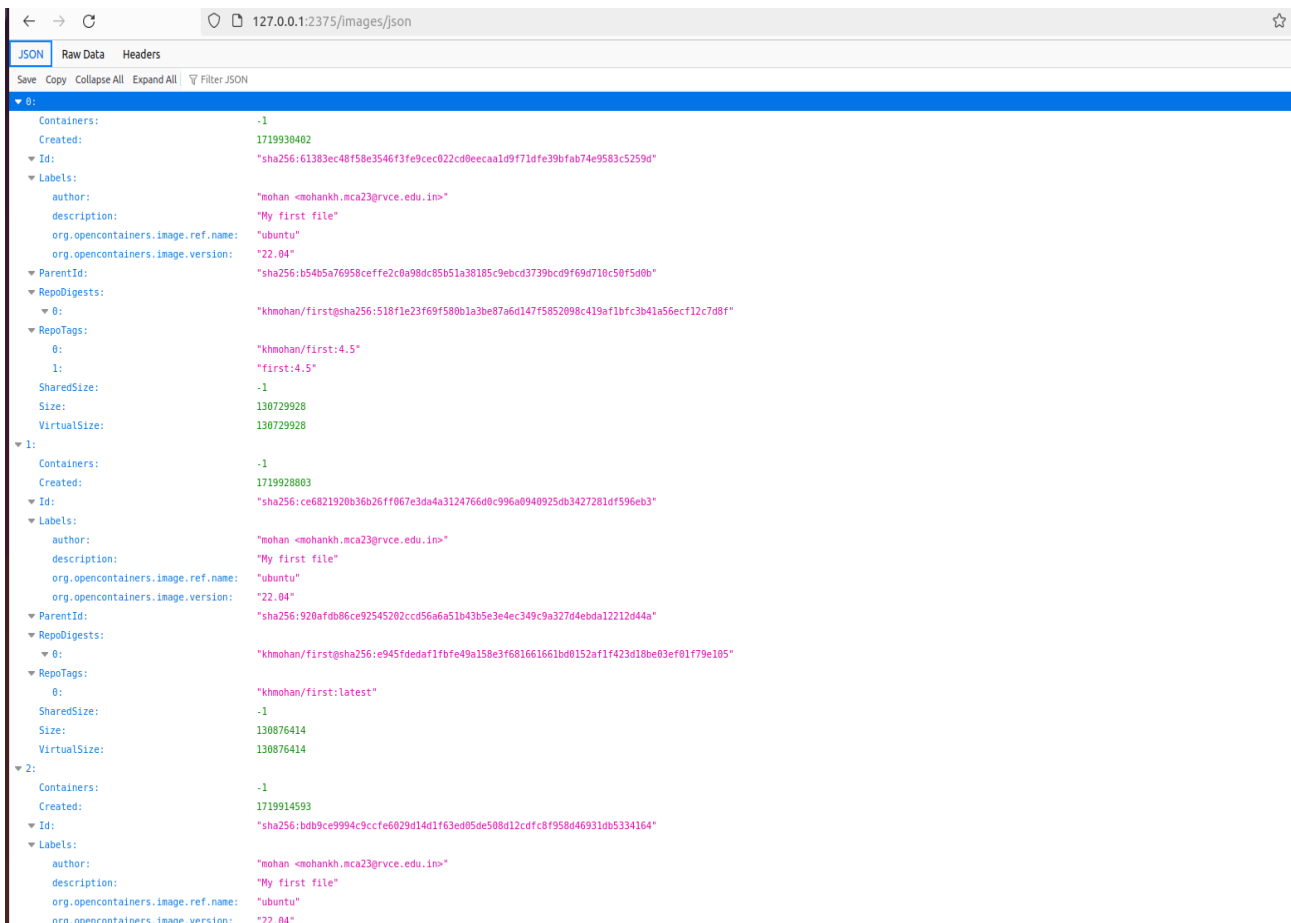


DEVOPS:

MOHAN K H
1RV23MC057

1. Open your Docker daemon to the world:

- Configure the docker daemon to listen on a specific IP address and port.
- Create docker file inside the configuration file, the file name must be in “.json” format
`sudo nano /etc/docker/daemon.json`
- edit the docker.service add new line.
`sudo nano /lib/systemd/system/docker.service`
- Restart the docker daemon
`sudo systemctl daemon-reload`
- we can see the docker images using port number
`localhost:2375/images/json`



2. Running containers as daemons:

- Run the containers as daemon terminal is withheld by process.

```
mohan@1rv23mc057:~/secondfile$ sudo docker images
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
secondfile          latest         02205a18492b   26 seconds ago 13.7MB
khmohan/first       4.5            61383ec48f58   6 days ago     131MB
first               4.5            61383ec48f58   6 days ago     131MB
khmohan/first       latest         ce6821920b36   6 days ago     131MB
first               2.4            bdb9ce9994c9   7 days ago     131MB
<none>              <none>         29ad313b5a85   7 days ago     131MB
firstfile           latest         788e11a723fd   7 days ago     131MB
<none>              <none>         64a556e9c4a1   7 days ago     131MB
<none>              <none>         52466439142a   7 days ago     131MB
<none>              <none>         feaa3af29b72   7 days ago     131MB
<none>              <none>         4b50a9d76e7c   7 days ago     131MB
<none>              <none>         634c2f0784d7   12 days ago    131MB
alpine              latest         a606584aa9aa   2 weeks ago    7.8MB
ubuntu              22.04         67c845845b7d   5 weeks ago    77.9MB
hello-world         latest         d2c94e258dcb   14 months ago  13.3kB
mohan@1rv23mc057:~/secondfile$ sudo docker run secondfile
1:C 09 Jul 2024 12:58:55.909 # WARNING Memory overcommit must be enabled! Without it, a background save or repli
fail under low memory condition. To fix this issue add 'vm.overcommit_memory = 1' to /etc/sysctl.conf and then
run the command 'sysctl vm.overcommit_memory=1' for this to take effect.
1:C 09 Jul 2024 12:58:55.909 * o000o000o000o Redis is starting o000o000o000o
1:C 09 Jul 2024 12:58:55.909 * Redis version=7.2.5, bits=64, commit=00000000, modified=0, pid=1, just started
1:C 09 Jul 2024 12:58:55.909 # Warning: no config file specified, using the default config. In order to specify
file use redis-server /path/to/redis.conf
1:M 09 Jul 2024 12:58:55.910 * monotonic clock: POSIX clock_gettime
1:M 09 Jul 2024 12:58:55.910 * Running mode=standalone, port=6379.
1:M 09 Jul 2024 12:58:55.910 * Server initialized
1:M 09 Jul 2024 12:58:55.910 * Ready to accept connections tcp
```

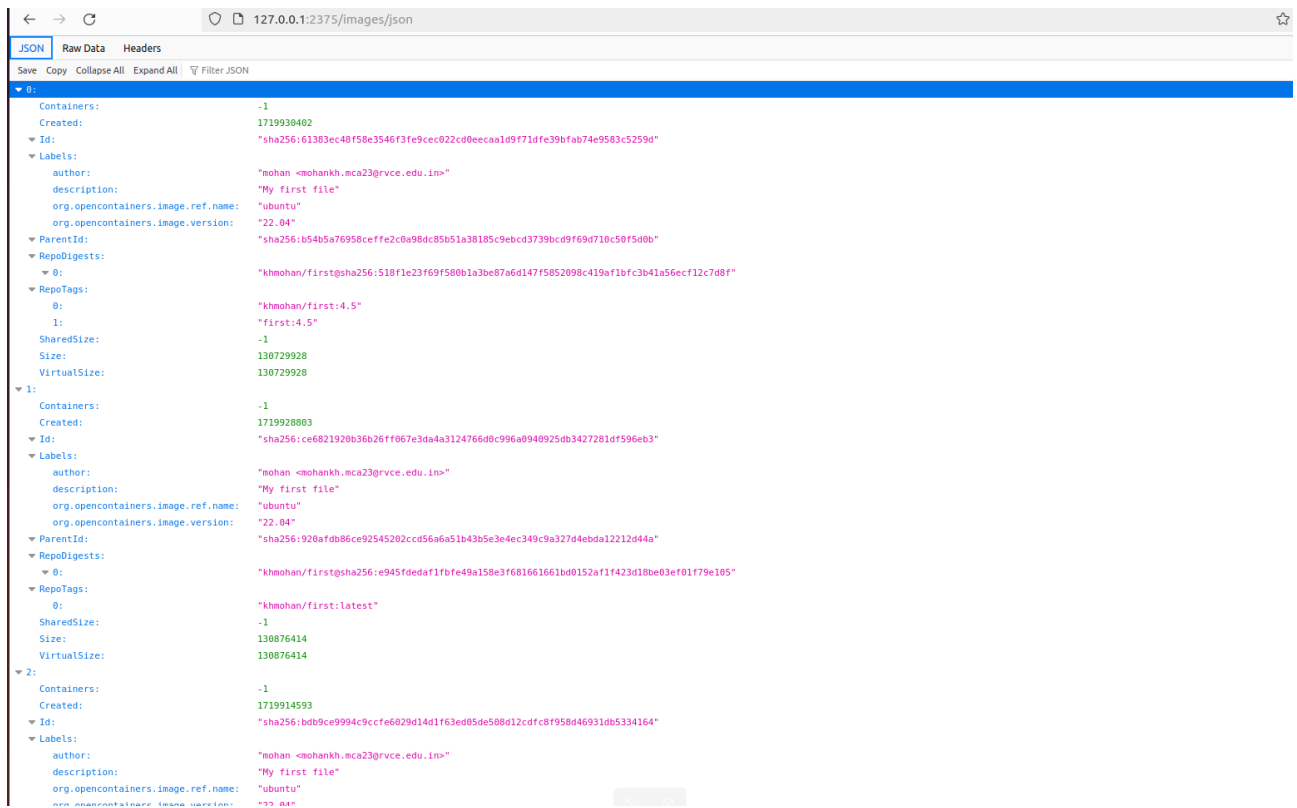
- Run the same image in detachmode, it does not hold the terminal.
- Check the process states of docker.

```
mohan@1rv23mc057:~/secondfile$ sudo docker run -d secondfile
0ac0ff45068288f89eba5934efdf2fe2c05a7b932cfddb5b306730540b2274c2
mohan@1rv23mc057:~/secondfile$ sudo docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED         STATUS         PORTS          NAMES
0ac0ff450682   secondfile    "redis-server"          19 seconds ago Up 17 seconds          charming_bassi
mohan@1rv23mc057:~/secondfile$
```

4. Using socat to monitor Docker API traffic:

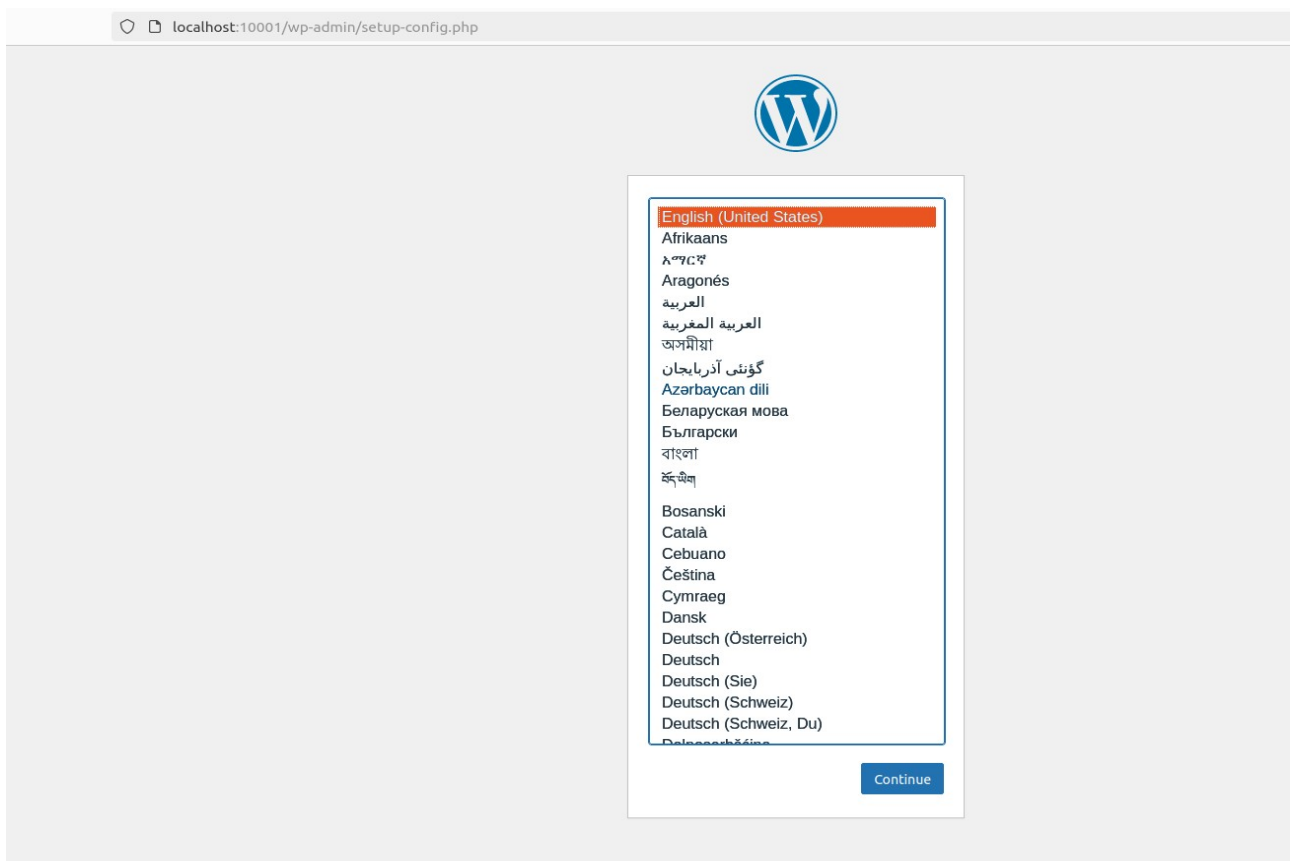
```
Cache-Control: no-cache, no-store, must-revalidate\r
Content-Length: 0\r
Content-Type: text/plain; charset=utf-8\r
Docker-Experimental: false\r
Ostype: linux\r
Pragma: no-cache\r
Server: Docker/24.0.5 (linux)\r
Swarm: inactive\r
Date: Sun, 14 Jul 2024 13:59:49 GMT\r
\r
> 2024/07/14 19:29:49.723192 length=113 from=92 to=284
GET /v1.43/containers/json?all=1 HTTP/1.1\r
Host: api.moby.localhost\r
User-Agent: Docker-Client/24.0.5 (linux)\r
\r
< 2024/07/14 19:29:49.724133 length=3983 from=316 to=4298
HTTP/1.1 200 OK\r
Api-Version: 1.43\r
Content-Type: application/json\r
Docker-Experimental: false\r
Ostype: linux\r
Server: Docker/24.0.5 (linux)\r
Date: Sun, 14 Jul 2024 13:59:49 GMT\r
Transfer-Encoding: chunked\r
\r
eb2\r
[{"Id":"0ac0ff45068288f89eba5934efdf2fe2c05a7b932cfddb5b306730540b2274c2","Names":["/charming_bassi"],"Image":"secondfile","ImageID":"sha256:02205a18492b7b5f4448b8f583ce6f18c572e4e3d12811b57b3adc928f45a594","Command":["redis-server"],"Created":1720530038,"Ports":[],"Labels":{"State":"exited"},"Status":"Exited (0) 5 days ago","HostConfig":{"NetworkMode":"default"},"NetworkSettings":{"Networks":{"bridge":{"IPAMConfig":null,"Links":null,"Aliases":null,"NetworkID":"3d1944e488e9ab10463a35f6537ef217041a5ff55edcaeb156b913b1758da9a1","EndpointID":"","Gateway":"","IPAddress":"","IPPrefixLen":0,"IPv6Gateway":"","GlobalIPv6Address":"","GlobalIPv6PrefixLen":0,"MacAddress":"","DriverOpts":null}}},"Mounts":[{"Id":"3054654660ac52eb41cf6771d5e68c0af60284fc646755121829e2bb9714037a","Names":["/silly_spence"],"Image":"secondfile","ImageID":"sha256:02205a18492b7b5f4448b8f583ce6f18c572e4e3d12811b57b3adc928f45a594","Command":["redis-server"],"Created":1720529934,"Ports":[],"Labels":{"State":"exited"},"Status":"Exited (0) 5 days ago","HostConfig":{"NetworkMode":"default"},"NetworkSettings":{"Networks":{"bridge":{"IPAMConfig":null,"Links":null,"Aliases":null,"NetworkID":"3d1944e488e9ab10463a35f6537ef217041a5ff55edcaeb156b913b1758da9a1","EndpointID":"","Gateway":"","IPAddress":"","IPPrefixLen":0,"IPv6Gateway":"","GlobalIPv6Address":"","GlobalIPv6PrefixLen":0,"MacAddress":"","DriverOpts":null}}},"Mounts":[{"Id":"3292ac04859d2089fcc947db07b61b897c02b77dca25bdb6f524f41ad7seeffe","Names":["/sharp_goodall"],"Image":"sha256:634c2f0784d7534869915ebcb64702e2d6043bb4d27b7672396d691666bbb028","ImageID":"sha256:634c2f0784d7534869915ebcb64702e2d6043bb4d27b7672396d691666bbb028","Command":["echo 'Finally done and not rested yet'"],"Created":1719471636,"Ports":[],"Labels":{"author":"nohan <nohanhk.mca23@rvce.edu.in>","description":"My first file"},"Org.opencontainers.image.ref.name":"ubuntu","Org.opencontainers.image.version":"22.04"},"State":"exited"},"Status":"Exited (0) 2 weeks ago","HostConfig":{"NetworkMode":"default"},"NetworkSettings":{"Networks":{"bridge":{"IPAMConfig":null,"Links":null,"Aliases":null,"NetworkID":"2f300b1de02c4c4a04d91956471fc1ecf22cb95dd417c3a3bb014cb94cbcc06f","EndpointID":"","Gateway":"","IPAddress":"","IPPrefixLen":0,"IPv6Gateway":"","GlobalIPv6Address":"","GlobalIPv6PrefixLen":0,"MacAddress":"","DriverOpts":null}}},"Mounts":[{"Id":"00f016743f6f79b666c9b522ef58d79f0b3ac1d21845392e90e8874220f7abd","Names":["/naughty_morse"],"Image":"hello-world","ImageID":"sha256:d2c94e258dcb3c5ac2798d32e1249e42ef01c8a4841c2234249495f87264ac5a","Command":["/hello"],"Created":1714403948,"Ports":[],"Labels":{"State":"exited"},"Status":"Exited (0) 2 months ago","HostConfig":{"NetworkMode":"default"},"NetworkSettings":{"Networks":{"bridge":{"IPAMConfig":null,"Links":null,"Aliases":null,"NetworkID":"f0883bf46d22d279980ed7c2a9c947f16d015dd23ba5e735c3dc60bb4c4179e2","EndpointID":"","Gateway":"","IPAddress":"","IPPrefixLen":0,"IPv6Gateway":"","GlobalIPv6Address":"","GlobalIPv6PrefixLen":0,"MacAddress":"","DriverOpts":null}}},"Mounts":[{"Id":"562895df66eef216a440343c2d922e07f932e88b0181621d915e7879595cd86d","Names":["/hopeful_carver"],"Image":"hello-world","ImageID":"sha256:d2c94e258dcb3c5ac2798d32e1249e42ef01c8a4841c2234249495f87264ac5a","Command":["/hello"],"Created":1714403938,"Ports":[],"Labels":{"State":"exited"},"Status":"Exited (0) 2 months ago","HostConfig":{"NetworkMode":"default"},"NetworkSettings":{"Networks":{"bridge":{"IPAMConfig":null,"Links":null,"Aliases":null,"NetworkID":"f0883bf46d22d279980ed7c2a9c947f16d015dd23ba5e735c3dc60bb4c4179e2","EndpointID":"","Gateway":"","IPAddress":"","IPPrefixLen":0,"IPv6Gateway":"","GlobalIPv6Address":"","GlobalIPv6PrefixLen":0,"MacAddress":"","DriverOpts":null}}},"Mounts":[]}]}\r
}\r
\r
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS          NAMES
0ac0ff450682   secondfile    "redis-server"          5 days ago    Exited (0) 5 days ago          charming_bassi
3054654660ac   secondfile    "redis-server"          5 days ago    Exited (0) 5 days ago          silly_spence
3292ac04859d   634c2f0784d7  "echo 'Finally done ..." 2 weeks ago    Exited (0) 2 weeks ago          sharp_goodall
00f016743f6f   hello-world   "/hello"                 2 months ago   Exited (0) 2 months ago          naughty_morse
562895df66ee   hello-world   "/hello"                 2 months ago   Exited (0) 2 months ago          hopeful_carver
```

5. Using Docker in your browser (Make a flowchart)



6. Using ports to connect to containers

```
mohan@1rv23mc057:~$ sudo docker pull wordpress
Using default tag: latest
latest: Pulling from library/wordpress
f11c1adaa26e: Pull complete
91c1fd48de30: Pull complete
c3b3bda7c6d1: Pull complete
65a68eb681dd: Pull complete
35406f9afc7f: Pull complete
a7d29e357509: Pull complete
d497b137ced8: Pull complete
dabbc6b5ab09: Pull complete
42ebbd004593: Pull complete
d8437f303b6d: Pull complete
1eb7786e3600: Pull complete
6f109a68b308: Pull complete
3fae4e1410c6: Pull complete
374204136091: Pull complete
10be860e0dea: Pull complete
d15b284f6870: Pull complete
4566618a287b: Pull complete
e67b58997f2b: Pull complete
a66deda1e7f1: Pull complete
e911796db38f: Pull complete
d17017b188bc: Pull complete
Digest: sha256:a63692e302fa9a6ca9e19dc84c9dfc91280b5515bd8b4f70c9d7722073bf7190
Status: Downloaded newer image for wordpress:latest
docker.io/library/wordpress:latest
mohan@1rv23mc057:~$
```



7. Allowing container communication

```
mohan@1rv23mc057:~$ sudo docker network connect my_network container1
mohan@1rv23mc057:~$ sudo docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
b354f7a2b656	wordpress	"docker-entrypoint.s..."	34 seconds ago	Up 32 seconds	0.0.0.0:10001->80/tcp, :::10001->80/tcp	container1

```
mohan@1rv23mc057:~$
```

8. Linking containers for port isolation

```
mohan@1rv23mc057:~$ sudo docker network connect my_network container1
mohan@1rv23mc057:~$ sudo docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
b354f7a2b656	wordpress	"docker-entrypoint.s..."	34 seconds ago	Up 32 seconds	0.0.0.0:10001->80/tcp, :::10001->80/tcp	container1

```
mohan@1rv23mc057:~$
```

```
mohan@1rv23mc057:~$ sudo docker inspect mysql
```

```
[
  {
    "Id": "b8f9372de378ee8c1520b3718412adc7f9ced263d418474f72e33d292b394588",
    "Created": "2024-07-14T15:46:31.18775637Z",
    "Path": "/entrypoint.sh",
    "Args": [
      "mysqld"
    ],
    "State": {
      "Status": "running",
      "Running": true,
      "Paused": false,
      "Restarting": false,
      "OOMKilled": false,
      "Dead": false,
      "Pid": 9679,
      "ExitCode": 0,
      "Error": "",
      "StartedAt": "2024-07-14T15:46:32.545395784Z",
      "FinishedAt": "0001-01-01T00:00:00Z",
      "Health": {
```

```

mohan@1rv23mc057:~$ sudo docker run -p 3307:3306 --name mysql -e MYSQL_ROOT_PASSWORD=root123 -d mysql/mysql-server:5.6
b8f9372de378ee8c1520b3718412adc7f9ced263d418474f72e33d292b394588
mohan@1rv23mc057:~$ sudo docker run -p 3307:3306 --name mysql_new -e MYSQL_ROOT_PASSWORD=root123 -d mysql/mysql-server:5.6
7c6dd3b97a398bed34ad8fc136c8c0d9c7ea73a4468a061e6f212cf0481a501c
docker: Error response from daemon: driver failed programming external connectivity on endpoint mysql_new (7969879a53cb65b9b099c9ff9f23e818cf3410b8917946
4696415d83bc119373): Bind for 0.0.0.0:3307 failed: port is already allocated.
mohan@1rv23mc057:~$ sudo docker run -tid -p 80:80 --name apache2 --link mysql nimmis/apache-php5
2fec950b03c0474dffbabfaa45fcb6d37c5d51149a931c2e07e16258d8a61003
mohan@1rv23mc057:~$ sudo docker ps

```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
2fec950b03c0	nimmis/apache-php5	"/my_init"	22 seconds ago	Up 19 seconds	0.0.0.0:80->80/tcp, :::80->80/tcp
b8f9372de378	mysql/mysql-server:5.6	"/entrypoint.sh mysql..."	About a minute ago	Up 59 seconds (healthy)	0.0.0.0:3307->3306/tcp, :::3307->3306/tcp

```

mohan@1rv23mc057:~$

```

```

mohan@1rv23mc057:~$ sudo docker inspect apache2
[
  {
    "Id": "2fec950b03c0474dffbabfaa45fcb6d37c5d51149a931c2e07e16258d8a6
1003",
    "Created": "2024-07-14T15:47:10.285406254Z",
    "Path": "/my_init",
    "Args": [],
    "State": {
      "Status": "running",
      "Running": true,
      "Paused": false,
      "Restarting": false,
      "OOMKilled": false,
      "Dead": false,
      "Pid": 10020,
      "ExitCode": 0,
      "Error": "",
      "StartedAt": "2024-07-14T15:47:12.303471892Z",
      "FinishedAt": "0001-01-01T00:00:00Z"
    }
  }
]

```



```
root@2fec950b03c0:/# ping mysql
PING mysql (172.18.0.2) 56(84) bytes of data.
64 bytes from mysql (172.18.0.2): icmp_seq=1 ttl=64 time=0.070 ms
64 bytes from mysql (172.18.0.2): icmp_seq=2 ttl=64 time=0.127 ms
64 bytes from mysql (172.18.0.2): icmp_seq=3 ttl=64 time=0.111 ms
64 bytes from mysql (172.18.0.2): icmp_seq=4 ttl=64 time=0.138 ms
64 bytes from mysql (172.18.0.2): icmp_seq=5 ttl=64 time=0.108 ms
^C
--- mysql ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4085ms
rtt min/avg/max/mdev = 0.070/0.110/0.138/0.026 ms
root@2fec950b03c0:/#
```

9. Setting up a local Docker registry

```
mohan@1rv23mc057:~$ sudo docker run -d -p 5000:5000 -v $HOME/registry:/var/
lib/registry registry:2
Unable to find image 'registry:2' locally
sudo docker run -d -p 5000:5000 -v $HOME/registry:/var/lib/registry registr
y:2
Unable to find image 'registry:2' locally
2: Pulling from library/registry
73baa7ef167e: Pull complete
d49090716641: Pull complete
bc8f2b8a18ff: Pull complete
9d41963883ad: Pull complete
ad02dd2076d6: Pull complete
Digest: sha256:79b29591e1601a73f03fcd413e655b72b9abfae5a23f1ad2e883d4942fbb
4351
Status: Downloaded newer image for registry:2
cf50cad4f9e2e3f7b3fe6217f23a729a4cd930481192b7539c5b234bcba18f73
mohan@1rv23mc057:~$ █
```

10 Finding and Running a Docker Image


```
mohan@1rv23mc057:~$ sudo docker search mohan
```

NAME	DESCRIPTION	STARS	OFFICIAL	AUTOMATED
mohan421/aws-currency-exchange-service-h2		0		
mohankrishnav24/custom-img		0		
mohankrishna105/flaskapp		0		
mohaniaz/pyclient		0		
mohankrish3/dockeragenttest		0		
mohaniaz/flasjapi		0		
mohaniaz/mongo		0		
mohanarpit/wisebuild		0		
mohankrishnav24/cust-img		0		
mohan91prasad/mohan-nginx-lb		0		
mohansameer/pytorch-app-flask		0		
mohankrishnav24/eskube		0		
mohanvadapalli/customerservice		0		
mohanreddy072/qa	To test	0		[OK]
mohankrishna225/classify		0		
mohanreddykr/java-app		0		
mohanarpit/node		0		
mohannaddocker85/goals-node		0		
mohankonem123/django_azure_v1		0		
mohankrishna225/sparkflow		1		
mohankrishnav24/es-kube		0		
mohankrishna225/udacity-restapi-user		0		
mohanraz81/frontendsyn		0		
mohanrathod550/mohanapp		0		
mohanned/serverless-python-3	a fundamental image for serverless and pytho...	0		

```
mohan@1rv23mc057:~$ sudo docker pull mohan91prasad/mohan-nginx-lb
```

```
Using default tag: latest
```

```
latest: Pulling from mohan91prasad/mohan-nginx-lb
```

```
f7ec5a41d630: Downloading [=====] 11.99MB/27.14MB
```

```
aa1efa14b3bf: Downloading [=====] 12.79MB/26.58MB
```

```
b78b95af9b17: Download complete
```

```
c7d6bca2b8dc: Download complete
```

```
cf16cd8e71e0: Download complete
```

```
0241c68333ef: Download complete
```

```
ac84c023498c: Download complete
```

```
1556dc12bd58: Download complete
```

```
^C
```

```
mohan@1rv23mc057:~$
```