Port Forwarding in Docker

What is Port Forwarding in Docker?

- It helps us to access an application running inside a docker container
- When you run a docker container, Your containers will be on one network called private accelerate network and docker-engine on another network same as you host machine
- The default behavior here is that whatever is running inside the container cannot be accessed from the host for security concern

Enable IPv4 forwarding

Port forwarding might be disabled on the docker host and we need to enable it first. Add the below snippy code to `/etc/sysctl.conf`

```
net.ipv4.ip_forward=1
```

restarted the network service and validated the setting

```
systemctl restart network
sysctl net.ipv4.ip_forward
```

Port Forwarding types in Docker

We have 3 types of port forwarding in docker

- Not port forwarding
- Freeport forwarding
- Binding port forwarding

1. Not port forwarding

The container will not be accessible from outside.

```
docker run -d nginx
```

1. Freeport forwarding

In this case, docker will automatically assign a random range from `30000-65535`

```
docker run -d -P nginx
docker run -d -P leonardtia/devops-pro-repos:covid19

docker ps
http://<ID>:32770/
http://10.0.0.94:32770/
```

1. Binding port forwarding

NB: To bind a port, the port must be exposed in the docker file In this case, we can specify a particular port that we want to use.

```
docker run -d -p 8888:80 nginx
docker run -d -p 8889:80 leonardtia/devops-pro-repos:covid19

docker ps
http://<ID>:8888/
http://10.0.0.94:8889/
```

What is the difference between -p (lowercase) and -P (uppercase)?

-P (uppercase) will expose the container to a random port **-p (lowercase)** will expose the container to a specific port

What is the difference between binding port forwarding and free port forwarding?

freeport forwarding will expose the container to a random port while *binding port forwarding* will expose the container to a specific port.

Port Forwarding Example 1

Port Forwarding Example 2

Port Forwarding Example 3