

DOCKER

Ques 1. Set the base image to Ubuntu

- Add File Author / Maintainer
- Install Nginx
- Install necessary tools: vim wget curl net-tools
- Remove the default Nginx configuration file
- Copy a configuration file from the current directory
- Expose ports (80)
- Set the default command to execute Nginx when creating a new container

Ans 1. First i created a docker file

```
FROM ubuntu

MAINTAINER kaushlendra singh <kaushlendra.singh@tothenew.com>

RUN apt-get -y update

RUN apt-get install -y nginx

RUN apt-get install -y vim wget curl net-tools

RUN rm -rf /etc/nginx/conf.d/default.conf

RUN rm -rf /etc/nginx/sites-enabled/default

COPY abc.com /etc/nginx/sites-enabled/

EXPOSE 80

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

Docker file executed successfully

```
kaushlendra@kaushlendra:dockerfile $ sudo nano dockerfile
kaushlendra@kaushlendra:dockerfile $ sudo docker build .
Sending build context to Docker daemon 4.096kB
Step 1/10 : FROM ubuntu
---> 72300a873c2c
Step 2/10 : MAINTAINER kaushlendra singh <kaushlendra.singh@tothenew.com>
---> Using cache
---> 264d0063e5fb
Step 3/10 : RUN apt-get -y update
---> Using cache
---> 95dfaeea08de
Step 4/10 : RUN apt-get install -y nginx
---> Using cache
---> 2d53239cb169
Step 5/10 : RUN apt-get install -y vim wget curl net-tools
---> Using cache
---> edd84176533a
Step 6/10 : RUN rm -rf /etc/nginx/conf.d/default.conf
---> Using cache
---> ab725dfd71e5
Step 7/10 : RUN rm -rf /etc/nginx/sites-enabled/default
---> Running in 048f0b681914
Removing intermediate container 048f0b681914
---> 1f4e6fbc8060
Step 8/10 : COPY abc.com /etc/nginx/sites-enabled/
---> 72f8dc4062e2
Step 9/10 : EXPOSE 80
---> Running in 2287c0e487f2
Removing intermediate container 2287c0e487f2
---> f5e0ad3a2788
Step 10/10 : CMD ["nginx" , "-g" , "daemon off;"]
---> Running in a92ce5111e82
Removing intermediate container a92ce5111e82
---> c5d240764601
Successfully built c5d240764601
kaushlendra@kaushlendra:dockerfile $
```

Image of dockerfile has been created

```
kaushlendra@kaushlendra:dockerfile $ sudo docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
kaushu	latest	9a1179459365	10 seconds ago	218MB
ubuntu	latest	72300a873c2c	8 days ago	64.2MB

After this create the container

```
kaushlendra@kaushlendra:dockerfile $ sudo docker run -itd --name kaushu1 -p 90:80 kaushu
99f3387bcc555066cb38414572f663170886ae634768d41b82188950e614dead
kaushlendra@kaushlendra:dockerfile $ sudo docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS               NAMES
99f3387bcc55        kaushu             "nginx -g 'daemon of..." 20 seconds ago      Up 18 seconds      0.0.0.0:90->80/tcp   kaushu1
kaushlendra@kaushlendra:dockerfile $ sudo docker exec -it kaushu1 bash
root@99f3387bcc55:/# service nginx status
* nginx is running
root@99f3387bcc55:/# cat /etc/nginx/sites-enabled/
cat: /etc/nginx/sites-enabled/: Is a directory
root@99f3387bcc55:/# cat /etc/nginx/sites-enabled/abc.com
```

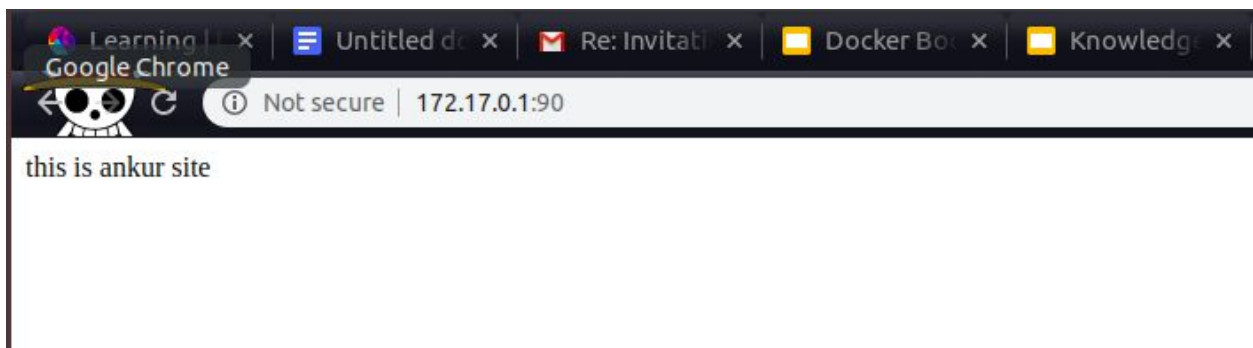
Configure the abc.com in dockerfile

```
kaushlendra@kaushlendra:dockerfile $ cat abc.com

server
{
    listen 80;
    root /etc/var/www/html;
    index index.html;
}
kaushlendra@kaushlendra:dockerfile $
```

```
kaushlendra@kaushlendra:dockerfile $ ls
abc.com  dockerfile  index.html
kaushlendra@kaushlendra:dockerfile $
```

Checked ob browser image working properly



Ques 2. What is the difference between 'RUN', 'CMD', & 'ENTRYPOINT' in dockerfile?

Ans 2.

RUN executes the command(s) that you give in a new layer and creates a new image. This is mainly used for installing a new package.

CMD sets default command and/or parameters, however, we can overwrite those commands or pass in and bypass the default parameters from the command line when docker runs

ENTRYPOINT is used when you want to run a container as an executable. It might look similar to CMD, but in fact, it is different and should be used in a different context

The difference is ENTRYPOINT is that unlike CMD, the command and parameters are not ignored when Docker container runs with command line parameters. (There is a way to ignore ENTRYPOINT, but it is unlikely that you will do it.)

Ques 3. How to connect docker client to docker daemon running on another host?

Ans 3. Setting up docker on the host machine(docker machine).

```
kaushlendra@kaushlendra:~ $ cd downloads
bash: cd: downloads: No such file or directory
kaushlendra@kaushlendra:~ $ cd Downloads
kaushlendra@kaushlendra:Downloads $ sudo ssh -i "kaushu2.pem" ubuntu@ec2-52-23-242-72.compute-1.amazonaws.com
[sudo] password for kaushlendra:
The authenticity of host 'ec2-52-23-242-72.compute-1.amazonaws.com (52.23.242.72)' can't be established.
ECDSA key fingerprint is SHA256:hzUQT7VGk7L6AIFblsh7f/cCR5iNcXaViJQR/EWra9E.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-52-23-242-72.compute-1.amazonaws.com,52.23.242.72' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.4 LTS (GNU/Linux 4.15.0-1057-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Thu Mar  5 09:44:37 UTC 2020

System load:  0.18               Processes:    95
Usage of /:   24.2% of 7.69GB    Users logged in:  0
Memory usage: 19%               IP address for eth0: 172.31.20.65
Swap usage:   0%

 * Multipass 1.0 is out! Get Ubuntu VMs on demand on your Linux, Windows or
   Mac. Supports cloud-init for fast, local, cloud devops simulation.

   https://multipass.run/

 * Latest Kubernetes 1.18 beta is now available for your laptop, NUC, cloud
   instance or Raspberry Pi, with automatic updates to the final GA release.

   sudo snap install microk8s --channel=1.18/beta --classic

0 packages can be updated.
0 updates are security updates.

*** System restart required ***
Last login: Wed Mar  4 10:17:59 2020 from 182.71.160.186
```

```

ubuntu@ip-172-31-20-65:~$ sudo docker --version
Docker version 18.09.7, build 2d0083d
ubuntu@ip-172-31-20-65:~$ docker run -p 80
"docker run" requires at least 1 argument.
See 'docker run --help'.

Usage:  docker run [OPTIONS] IMAGE [COMMAND] [ARG...]

Run a command in a new container
ubuntu@ip-172-31-20-65:~$ docker run -p 80:2375 -v /var/run/docker.sock:/var/run/docker.sock jarkt/docker-remote-api
docker: Got permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Post http://%2Fvar%2Frun%2Fdocker.sock/v1.39/containers/create: dial unix /var/run/docker.sock: connect: permission denied.
See 'docker run --help'.
ubuntu@ip-172-31-20-65:~$ sudo docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
ubuntu@ip-172-31-20-65:~$ sudo docker run -p 80:2375 -v /var/run/docker.sock:/var/run/docker.sock jarkt/docker-remote-api
Unable to find image 'jarkt/docker-remote-api:latest' locally
latest: Pulling from jarkt/docker-remote-api
cfc728c1c558: Pull complete
342750649827: Pull complete
Digest: sha256:b744eb1c2d19a90f44ffd1cc1c9ceeacead67cfac25b79d48d7d2697a156e538
Status: Downloaded newer image for jarkt/docker-remote-api:latest

```

Showing how many containers were created in the docker machine

```

ubuntu@ip-172-31-20-65:~$ sudo docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
cc82bcef2a4e        jarkt/docker-remote-api  "/bin/sh -c 'socat T..."  16 minutes ago     Up 16 minutes      0.0.0.0:80->2375/tcp  stoic_ga
garin

```

Then after that configured the docker client with the following commands which are as given below ::

```

1993 sudo apt install apt-transport-https ca-certificates curl software-properties-common
1994 curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
1995 sudo apt-key fingerprint 0EBFCD88
1996 sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable"
1997 sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable edge test"
1998 sudo apt update
1999 sudo apt install docker-ce
2000 sudo apt install docker-ce
2001 sudo usermod -aG docker $USER
2002 alias dockerx="docker -H=52.23.242.72:80"
2003 dockerx ps
2004 dockerx ps -a
2005 history
kaushlendra@kaushlendra:~$ █

```

After that the same container are created as in the docker host...

```
kaushlendra@kaushlendra:~$ dockerx ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS               NAMES
cc82bcef2a4e       jarkt/docker-remote-api  "/bin/sh -c 'socat T..."  14 minutes ago     Up 14 minutes      0.0.0.0:80->2375/tcp  stoic_ga
garin
kaushlendra@kaushlendra:~$ dockerx ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS               NAMES
cc82bcef2a4e       jarkt/docker-remote-api  "/bin/sh -c 'socat T..."  14 minutes ago     Up 14 minutes      0.0.0.0:80->2375/tcp  stoic_ga
garin
kaushlendra@kaushlendra:~$ █
```