Exercise 3: Building images

- Firstly, lets create a Dockerfile and inside that we can use different dockerfile directives.

```
FROM ubuntu:22.04
LABEL author="Alap Pandya"
ENV PING_TARGET "google.com"
RUN apt-get update
RUN apt-get install -y iputils-ping
CMD ["bash","-c", "ping $PING_TARGET"]
~
```

- This Dockerfile will be used to create a docker image using docker build command as shown below.

```
alap@sf-cpu-036:~/Exercises-docker/Exercise-3$ docker build -t alappandya05/pingbuild .
[+] Building 2.7s (7/7) FINISHED
 => [internal] load build definition from Dockerfile
 => => transferring dockerfile: 266B
 => [internal] load .dockerignore
 => => transferring context: 2B
 => [internal] load metadata for docker.io/library/ubuntu:22.04
 => [1/3] FROM docker.io/library/ubuntu:22.04@sha256:67211c14fa74f070d27cc59d69a7fa9aeff8e28ea118ef3babc295a0428a6d21
 => => resolve docker.io/library/ubuntu:22.04@sha256:67211c14fa74f070d27cc59d69a7fa9aeff8e28ea118ef3babc295a0428a6d21
 => CACHED [2/3] RUN apt-get update
 => CACHED [3/3] RUN apt-get install -y iputils-ping
 => exporting to image
 => => exporting layers
 => => writing image sha256:1986e340f355ee5953905ec6ff50c636b7f1468e5aa392ae94650cfaa3fa1af7
 => => naming to docker.io/alappandya05/pingbuild
alap@sf-cpu-036:~/Exercises-docker/Exercise-3$
```

- Here, we can see that our image is present, but the size of the image is too big as we have installed the iputils-ping package inside the Dockerfile.

```
alap@sf-cpu-036:~/Exercises-docker/Exercise-3$ docker images
REPOSITORY              TAG       IMAGE ID       CREATED          SIZE
alappandya05/pingbuild  latest    1986e340f355   17 minutes ago   123MB
ubuntu                  22.04     08d22c0ceb15   6 weeks ago      77.8MB
```

- But after installing a single package it should not use this much of space, lets try to clean it.

```
FROM ubuntu:22.04
LABEL author="Alap Pandya"
ENV PING_TARGET "google.com"
RUN apt-get update
RUN apt-get update \
    && apt-get install -y iputils-ping \
    && apt-get clean \
    && cd /var/lib/apt/lists && rm -fr *Release* *Sources* *Packages* \
    && truncate -s 0 /var/log/*log
RUN apt-get install -y iputils-ping
CMD ["bash","-c", "ping $PING_TARGET"]
```

- Now, we can again build the image using Dockerfile.

```
alap@sf-cpu-036:~/Exercises-docker/Exercise-3$ docker build -t alappandya05/pingbuild .
[+] Building 5.1s (8/8) FINISHED
 => [internal] load .dockerignore
 => => transferring context: 2B
 => [internal] load build definition from Dockerfile
 => => transferring dockerfile: 458B
 => [internal] load metadata for docker.io/library/ubuntu:22.04
 => [1/4] FROM docker.io/library/ubuntu:22.04
 => CACHED [2/4] RUN apt-get update
 => [3/4] RUN apt-get update     && apt-get install -y iputils-ping     && apt-get clean
 => [4/4] RUN apt-get install -y iputils-ping
 => exporting to image
 => => exporting layers
 => => writing image sha256:6cf64a4ddffa960f5739e9222f4967daeb52cb5d9bf53f202e00f33d0fe4ea
 => => naming to docker.io/alappandya05/pingbuild
```

- We can run this image as a container and we can see the ping command perfectly running.

```
alap@sf-cpu-036:~/Exercises-docker/Exercise-3$ docker run -it alappandya05/pingbuild
PING google.com (142.250.192.46) 56(84) bytes of data.
64 bytes from bom12s15-in-f14.1e100.net (142.250.192.46): icmp_seq=1 ttl=116 time=25.9 ms
64 bytes from bom12s15-in-f14.1e100.net (142.250.192.46): icmp_seq=2 ttl=116 time=26.0 ms
64 bytes from bom12s15-in-f14.1e100.net (142.250.192.46): icmp_seq=3 ttl=116 time=26.4 ms
^C
--- google.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 25.938/26.119/26.437/0.225 ms
```