Dockerfile

A Dockerfile is a text document that contains all the instructions needed to build a Docker image. Dockerfiles allow you to automate the process of creating images, which you can use to deploy applications in Docker containers. The Dockerfile specifies the environment, dependencies, configurations, and commands needed to set up your application within a container.

Dockerfile Components

FROM defines the base image used to start the build process.

ADD copies the files from a source on the host into the container's own filesystem at the set destination.

COPY copies the files from a source on the host into the container's own filesystem at the set destination.

CMD can be used for executing a specific command within the container.

ENTRYPOINT sets a default application to be used every time a container is created with the image.

The command that is executed when the container starts.

ENV sets environment variables.

EXPOSE associates a specific port to enable networking between the container and to the outside.

MAINTAINER defines a full name and email address of the image creator.

RUN is the central executing directive for Dockerfiles.

It runs commands we defined while Image is being created.

USER sets the UID (or Username) which is torun the container.

VOLUME is used to enable access from the container to a directory on the host machine.

WORKDIR sets the path where the command defined with CMD is to be executed.

LABEL allows you to add a label to your Docker Image.

```
# Use the official Ubuntu 18.04 image as the base image
FROM ubuntu:18.04

# Update the package list and install the Apache2 web server
RUN apt-get update && apt-get -y install apache2

# Expose port 80 to allow HTTP traffic (the default port for web servers)
EXPOSE 80

# Set the ENTRYPOINT to the apachectl command, which is used to control the
Apache web server
ENTRYPOINT ["usr/sbin/apachectl"]

# Set the default CMD to pass the "-D FOREGROUND" argument, which ensures
Apache runs in the foreground (important for Docker containers)
CMD ["-D", "FOREGROUND"]

# Copy the local 'index.html' file into the container's Apache web directory
(/var/www/html)
COPY index.html /var/www/html/index.html

# Create a Docker volume for persistent storage, specifically for the Apache
web directory (/var/www/html)
VOLUME /var/www/html
```

To build an Image from the Dockerfile, run the following command

```
docker build -t <Image_Name> .
```

Tag an Image to upload it into the registry

```
docker tag <ImageName> <Username/RepoName:tag>
```

To push the Image into hub login into the registry using

docker login

To push the image, run the following command

```
docker push <Username/RepoName:tag>
```