ASSIGNMENT 6

AIM : Understand Docker and Create first docker container.

THEORY :

Docker is a software platform for building applications based on containers — small and lightweight execution environments that make shared use of the operating system kernel but otherwise run in isolation from one another. While containers as a concept have been around for some time, Docker, an open source project launched in 2013, helped popularize the technology, and has helped drive the trend towards containerization and microservices in software development that has come to be known as cloud-native development.

What are containers?

One of the goals of modern software development is to keep applications on the same host or cluster isolated from one another so they don't unduly interfere with each other's operation or maintenance. This can be difficult, thanks to the packages, libraries, and other software components required for them to run. One solution to this problem has been virtual machines, which keep applications on the same hardware entirely separate, and reduce conflicts among software components and competition for hardware resources to a minimum. But virtual machines are bulky—each requires its own OS, so is typically gigabytes in size—and difficult to maintain and upgrade.

To create a docker container follow the given steps :

1. Install Docker on your machine.
2. Write a Dockerfile that specifies the dependencies and configurations needed to run your application.
3. Build an image from the Dockerfile by running the command docker build --tag [tag_name] . in the directory containing the Dockerfile.
4. Run a container from the image by running the command docker run [tag_name].

The command docker logs <friendly-name|container-id> will display messages the container has written to standard error or standard out :

$ docker fb0431e37c81

docker: 'fb0431e37c81' is not a docker command.

See 'docker --help'

$ docker logs fb0431e37c81

$ docker logs f43d427f2174

1:C 12 Mar 08:24:49.330 # oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo

1:C 12 Mar 08:24:49.331 # Redis version=4.0.8, bits=64, commit=00000000, modified=0, pid=1, just started

1:C 12 Mar 08:24:49.331 # Warning: no config file specified, using the default config. In order to specify a config fileuse redis-server /path/to/redis.conf

1:M 12 Mar 08:24:49.332 * Running mode=standalone, port=6379.

1:M 12 Mar 08:24:49.332 # WARNING: The TCP backlog setting of 511 cannot be enforced because /proc/sys/net/core/somaxconn is set to the lower value of 128.

1:M 12 Mar 08:24:49.332 # Server initialized

1:M 12 Mar 08:24:49.332 # WARNING overcommit_memory is set to 0! Background save may fail under low memory condition. Tofix this issue add 'vm.overcommit_memory = 1' to /etc/sysctl.conf and then reboot or run the command 'sysctl vm.overcommit_memory=1' for this to take effect.

1:M 12 Mar 08:24:49.333 # WARNING you have Transparent Huge Pages (THP) support enabled in your kernel. This will createlatency and memory usage issues with Redis. To fix this issue run the command 'echo never > /sys/kernel/mm/transparent_hugepage/enabled' as root, and add it to your /etc/rc.local in order to retain the setting after a reboot. Redis must be restarted after THP is disabled.

1:M 12 Mar 08:24:49.333 * Ready to accept connections.

CONCLUSION : In this experiment we Understood Docker concepts and created first docker container.