Assignment 4

1. What is Docker, and why is Docker used?

Docker is a set of platform as a service products that use OS-level virtualization to deliver software in packages called containers.

In simple words we can say that docker promises to encapsulate the process of creating distributable artifacts for application, deploying it at scale into any environment,and streamlining the workflow and responsiveness.

Docker streamlines the development lifecycle by allowing developers to work in standardized environments using local containers which provide your applications and services. Containers are great for continuous integration and continuous delivery (CI/CD) workflows.

Docker's container-based platform allows for highly portable workloads. Docker containers can run on a developer's local laptop, on physical or virtual machines in a data center, on cloud providers, or in a mixture of environments.

Docker's portability and lightweight nature also make it easy to dynamically manage workloads, scaling up or tearing down applications and services as business needs dictate, in near real time.

2. Explain the Docker architecture?

Docker follows Client-Server architecture, which includes the three main components that are Docker Client, Docker Host, and Docker Registry.

Let's have a look at each component.

Docker Client

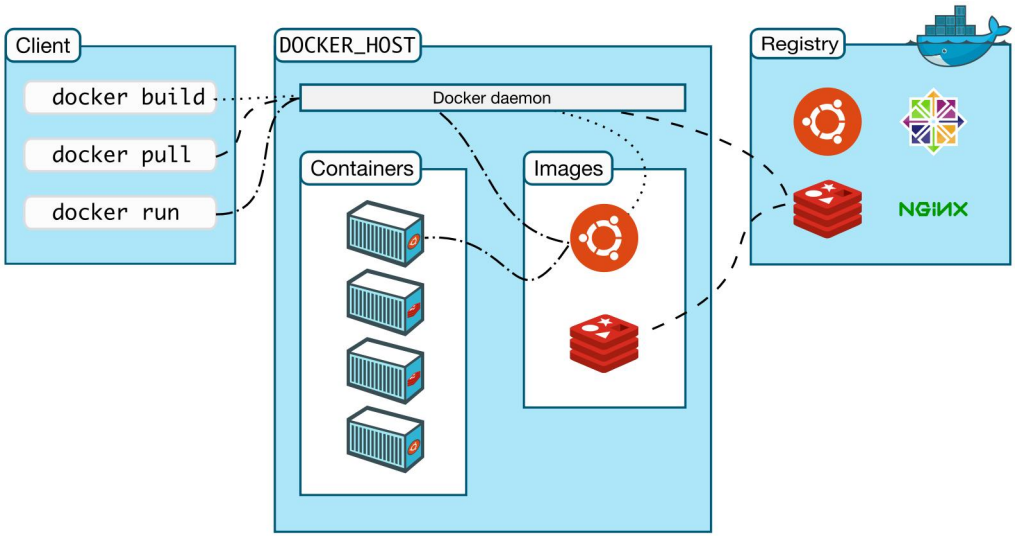
Docker client uses commands and REST APIs to communicate with the Docker Daemon (Server). When a client runs any docker command on the docker client terminal, the client terminal sends these docker commands to the Docker daemon.

Docker Host

Docker Host is used to provide an environment to execute and run applications. It contains the docker daemon, images, containers, networks, and storage.

Docker Registry

Docker Registry(Pubic Registry,Private Registry) manages and stores the Docker images.



3. What do you mean by a Dockerfile?

Docker can build images automatically by reading the instructions from a Dockerfile. A Dockerfile is a text document that contains all the commands a user could call on the command line to assemble an image.

Using docker build users can create an automated build that executes several command-line instructions in succession.

4. What do you mean by Docker Images?

Docker Image is an executable package of software that includes everything needed to run an application. This image informs how a container should instantiate, determining which software components will run and how.

5. What do you mean by Docker Hub?

Docker Hub is a hosted repository service provided by Docker for finding and sharing container images with your team. Key features include:

- **Private Repositories**: Push and pull container images
- **Automated Builds**: Automatically build container images from GitHub and Bitbucket and push them to Docker Hub
- **Teams & Organizations**: Manage access to private repositories
- **Official Images**: Pull and use high-quality container images provided by Docker

- **Publisher Images**: Pull and use high-quality container images provided by external vendors. Certified images also include support and guarantee compatibility with Docker Enterprise
- **Webhooks**: Trigger actions after a successful push to a repository to integrate Docker Hub with other services

6. Which command can be used to check Docker Client and Docker Server Version?

Ans : **docker version [OPTIONS**

7. How to create a Docker container from an Image?

Below are the steps to create a container from an image.

1. Create a Dockerfile

2. Build a container using command : docker build -t <<Image_Name>> .

3. Run a container for the created image using the below command. docker run -p 8000:8000 getting-started