**Docker Assignment 1**

1. What is Docker?

Ans: Docker is an open source containerization platform. It enables developers to package applications into containers—standardized executable components combining application source code with the operating system (OS) libraries.

1. What is a Container?

Ans: A executable software package needed to run applications runtime, code etc.

1. What are Docker Images?

Ans: A [Docker](https://searchitoperations.techtarget.com/definition/Docker) image is a file used to execute code in a Docker container. Docker images act as a set of instructions to build a Docker [container](https://searchitoperations.techtarget.com/definition/container-containerization-or-container-based-virtualization), like a template.

1. What is Docker Hub?

Ans: Docker Hub is a service provided by Docker for finding and sharing container images with your team. It is the world’s largest repository of container images with an array of content sources including container community developers.

1. Explain Docker Architecture?

Ans: Docker uses a client-server architecture. The Docker client talks to the Docker daemon, which does the heavy lifting of building, running, and distributing your Docker containers. The Docker client and daemon can run on the same system, or you can connect a Docker client to a remote Docker daemon. The Docker client and daemon communicate using a REST API, over UNIX sockets or a network interface. Another Docker client is Docker Compose, that lets you work with applications consisting of a set of containers.

1. What is a Dockerfile?

Ans: A Dockerfile is a text document that contains all the commands a user could call on the command line to assemble an image.

1. What is the purpose of the EXPOSE command in Dockerfile?

Ans: EXPOSE instruction informs Docker that the container listens on the specified network ports at runtime. You can specify whether the port listens on TCP or UDP.

1. Why is docker monitoring necessary?

Ans: Detect and solve issues early and proactively to avoid risks in production. Implement changes safely as the entire environment is monitored.

1. Explain the implementation method of continuous integration (CI) and continuous deployment (CD) in Docker.

Ans: Set up continuous integration (CI) pipeline using GitHub Actions;

Enable Docker Hub access for continuous deployment (CD) tools;

Optimize your GitHub Actions-based CI/CD pipeline to reduce the number of pull requests and the total build time; and

Release only specific versions of your application to Docker Hub.

1. What is a Docker Engine?

Ans: It enables users to easily build, manage, share and run their container objects on Linux. The Docker Engine is made up of 3 core components