What is Docker?

- Docker is an open-source platform for automating the deployment, scaling, and management of applications in lightweight, portable containers.

Explain the difference between a Docker image and a Docker container.

- A Docker image is a lightweight, standalone, and executable package that includes everything needed to run a piece of software, including the code, runtime, libraries, and system tools. A Docker container is a running instance of a Docker image.

How does Docker facilitate the concept of "containerization"?

- Docker containers encapsulate applications and their dependencies, ensuring consistency across different environments and enabling easy deployment, scaling, and management.

What is the purpose of a Dockerfile?

- A Dockerfile is a script that contains instructions for building a Docker image. It specifies the base image, sets up the environment, installs dependencies, and defines the commands to run when the container starts.

Explain the role of the Docker daemon.

- The Docker daemon is a background process that manages Docker containers on a host system. It listens for Docker API requests and handles the building, running, and monitoring of containers.

How do you share data between Docker containers?

- Docker containers can share data through volumes or by using a network. Volumes provide a way to persist and share data between containers, while a shared network enables communication and data exchange.

What is Docker Compose, and how is it used?

- Docker Compose is a tool for defining and running multi-container Docker applications. It allows you to define services, networks, and volumes in a YAML file and then use a single command to start and run the entire application stack.

Explain the concept of Docker Swarm.

- Docker Swarm is Docker's native orchestration solution for managing and scaling a cluster of Docker hosts. It enables the deployment and management of multi-container applications across a swarm of machines.

How do you secure Docker containers?

- Security measures include using minimal base images, keeping images and containers up-to-date with security patches, using Docker Content Trust (DCT) to verify image integrity, restricting container capabilities, and applying network segmentation.

What are Docker registries?

- Docker registries are repositories for storing and sharing Docker images. Docker Hub is a public registry, and organizations can set up private registries for internal use.

How do you monitor Docker containers in production?

- Monitoring tools like Prometheus, Grafana, and Docker's built-in monitoring capabilities can be used to monitor containerized applications. It's important to track container health, resource usage, and overall system performance.

What is the difference between a Docker image and a Docker container?

- An image is a lightweight, stand-alone, executable package that includes everything needed to run a piece of software, including the code, runtime, libraries, and system tools. A container is a running instance of an image.