Docker Interview Questions

Explain different components of Docker?
Docker Client - The machine/software that interacts with docker daemon is called docker client.

Docker Daemon - It will listen for all the docker commands and that we execute from the docker client and perform necessary action.

Docker Registry - The place where we store all the docker images. We have two types of registories i) Public and private.

What are the different states of the Docker container?

1. Running
2. Paused
3. Restarting
4. Excited

What is the difference between CMD and ENTRYPOINT instruction in Dockerfile?
CMD instruction is used to pass default arguments to the ENTRYPOINT instruction.

What is the difference between ADD and COPY instruction in Dockerfile?

ADD instruction is used to download files from the internet and COPY instruction is used to copy the files from local machine to docker image.

What is the difference between CMD and RUN commands in Dockerfile?

RUN executes commands and creates new image layers. CMD sets the command and its parameters to be executed by default after the container is started.

What is the docker-compose?

Docker compose is a way that we run multiple containers at once and we link them together. Below is an example of a docker-compose file.

```
version: "3"
services:
 mongodb:
   image: mongo
   environment:
     MONGO_INITDB_ROOT_USERNAME: admin
     MONGO_INITDB_ROOT_PASSWORD: testtesttest
 studentapp:
   image: 8072388539/studentstore
#    build: ./
   ports:
     - 8989:8080
   environment:
     MONGODB_HOST: mongodb
     MONGODB_PORT: 27017
     MONGODB_DBNAME: studentdb
     MONGODB_USERNAME: admin
     MONGODB_PASSWORD: testtesttest
   links:
#      mongodb is a container name of mongo and mongg is an alias name
     - mongodb:mongg
   depends_on:
     - mongodb
```

What are layers in docker?

Dockerfile consists of a series of ordered build instructions. When we execute dockerfile each instruction will create one layer.

Dockerfile instructions	Layers
FROM ubuntu	FROM ubuntu
RUN apt-get update -y	RUN apt-get update -y
RUN apt-get install -y git	RUN apt-get install git

What is the difference between below two Dockerfile snippets?

FROM ubuntu MAINTAINER shiva RUN apt-get update -y RUN apt-get install -y git	FROM ubuntu MAINTAINER shiva RUN apt-get update -y && apt-get install -y git

Difference is layers, In the first Dockerfile 4 layers will be created and in the second Dockerfile 3 layers will be created.

What are the uses of multistage docker builds?
Multistage docker builds will help us to decrease the images size and increase the security for our application.
Below is the example of multistage docker file content.

```
FROM adoptopenjdk/openjdk11 as builder
MAINTAINER shiva
RUN mkdir -p /app/source
COPY . /app/source
WORKDIR /app/source
RUN ./mvnw package


FROM amazoncorretto:11-alpine-jdk
MAINTAINER shiva
COPY --from=builder /app/source/target/*.jar /app/app.jar
EXPOSE 8080
ENTRYPOINT ["java", "-jar", "/app/app.jar"]
```

How does multistage docker builds decrease docker image size and increase the security?
Multistage docker builds removes the unwanted and unrelated data from the image and it only keeps the data that is related to the application in order to make it run. In this way as it removes unwanted data from the image, Its size will be decreased and it will increase the security.

Where do docker volumes stored on docker host?
/var/lib/docker/volumes

What is the default network that is used when we create a docker container?

The default network that is used when we create a docker container is bridge network.

What are the different types of networks in docker?

There are four types of networks. Below were those.

1) Bridge Network.
2) Host Network.
3) Null Network.
4) Overlay Network.

What might be the reasons if the container went into an excited state? How to solve it?

1) The process inside the container may be having a problem.
2) Check the Dockerfile that is used to create the docker image. There might be a problem in dockerfile instructions.

Steps to solve

Check the logs of a container and inspect the container for detailed information.

Check the instructions in the Dockerfile.
