I am currently working as a DevOps engineer and I have close to 2+ years of experience. I started my career initially as ‘Build and release’ engineer in which I worked for 8 months. Later I was assigned the other DevOps tools.

The current project that I am working for is for a client called ‘client name’ and this is an application related to \_\_\_ domain (Banking domain). I have been working for this project last 1 year.

This is an application created using Java and one of my responsibilities here is to setup the CI-CD pipelines for which we are using Jenkins. Developers simply check-in their code into the git repository and I designed the Jenkins files

which download, build, and deploy the code into the testing environment. Our testing environment is running on tomcat9 and I have configured Jenkins to automatically deploy into this tomcat servers. We have a team of testers who are creating automation test-scripts using Selenium and Jmeter. I have configured Jenkins to execute these automation test scripts and if this testing passes then I configured Jenkins to deploy into the staging environment this is the regular flow of CI that we implement.

We have lot of times where we have to run multiple Jenkins jobs parallelly and just to ensure the performance of my Jenkins server does not go down, I have setup additional slave machine to distribute the workload of the Jenkins master.

Developers upload different functionality of this application on different branches and it is my responsibility to place separate copy of the Jenkins file on each of these branches so that whenever any developer checks-in code into any of branches the corresponding Jenkins file gets triggered and multi branch pipeline gets executed.

We are using Docker containers on a very huge scale. Our entire dev environment, testing environment, production environment has been dockerised. I designed necessary docker compose files, for setting up these environments. As I told you earlier this is a Java based application. We have our database running on mysql and application servers are running on tomcat. This entire dev-environment has been dockerised.

Similarly, we had a recent requirement where the automation testing team wanted to test this application on multiple browser and OS combinations. But the testing team expected approximately 800+ browser and OS combinations on which they wanted to run the cross browser, cross platform testing programs but creating an infrastructure of 800 browser and OS combinations was a very big challenge and initially our organisation depended on cloud service provider called ‘Sauce labs’. But as this was very expensive I did little bit of POC and checked if we can use Docker and almost 70% of this environment we were able to create as Docker containers. Though creating all these customised Docker images, was a challenging task still it has helped us in saving lot of time and money for automation testing.

I am also responsible for creating customised Docker images using Docker file and these images I preserve on a Docker private registry that I have setup. I had the chance of working on both Docker swarm and Kubernetes for container orchestration and I have handled on all production related challenges on containers like load balancing, scaling, performing rolling updates with zero downtime etc.

I have first hand knowledge of how to create docker stack files in docker swarm. Similarly I also have knowledge on Kubernetes definition files and integrating these kubernetes deployments using Jenkins.

We have our applications running on approximately 2000 servers and this data centre is located in N.verginia and one of my core responsibility here is to remotely configure software applications on these servers for which we are using Ansible. I designed ansible playbooks and roles. For remote management I have created Ansible playbooks for applications like Tomact, Appache, dbs like mysql etc.

These ansible playbooks we scheduled for a specific date and time with the help of Jenkins. We are also using python for automating most of the day to day activities that we perform on Jenkins and docker.

* Whats is sprint and what was its time duration ?

It’s one of the functionalities of whole software which is developed, tested and delivered to the client so that he can deploy it in his environment. Normally its time duration is 2-4 weeks depends on size of that functionality.

* Other uses of Jenkins:

1. Triggering ansible playbooks
2. To automate docker lifecycle
3. Though sprint duration was 4 weeks.. sprint were divided into sub-sprints which were getting released once in 2 days (enhancing / bugfixing) which were causing me to modify Jenkins files and other tasks
4. Creating user strories

* At which stage in SDLC Devops engineers role comes into picture ?

Our roles starts in starting only i.e gathering requirements of client

Scrum teams includes following members:

1. Product owner PO/ Business owner BO/ client
2. Scrum master / Team lead/ manager
3. System analyst / Business analyst
4. 1-2 developers and testers and Devops engineers also

* User stories 🡪 these are one line statements which states client requirements

Format:

As a [designation] I want [feature] so that [benefit]

e.g As a devops engineer I want you to do this task so that I can get this

majority of user stories will be created by system analyst with collaboration of entire scrum team

* Product Backlog 🡪 all user stories will be stored here
* Release backlog 🡪 selected user stories which we can implement will be store in this document
* Technic used for prioritization of user stories🡪

MoSCoW

Mo 🡪 Must have

S 🡪 should have

Co 🡪 could have

W 🡪 wouldn’t have

* DOCKER:

1. Whats difference between docker file and docker compose ?

Dockerfile is the way to create our own customised image whereas docker-compose is the way to create multiple container architecture using single file instead of firing commands one by one.

1. How to start stopped container ?

docker start container\_name/container\_id

To restart after 20 seconds

docker restart -t 20 container\_name/container\_id

1. Docker written in which language and which version you were using ?

GO language

Version: 19.03.8

1. Command to check logs of docker container

# docker logs container\_id

# docker logs -f test1

1. Different ways to create docker images:
2. Using dockerfile
3. Pull from dockerhub
4. Create image from running container

docker commit container\_name/container\_id image\_name

1. Command to check size of container

docker ps --size

docker ps -as

1. Suppose host server has 2 GB space and your image size is 500MB then is it possible to run more than 4 containers of this image on the host ?

Yes its possible. Size of running container is lesser than actual image size. Image belongs to readable layer and container specific data belongs to writable layer.

1. How to check details about any image ?

# docker inspect image\_name/image\_id

1. Suppose I want to pull a alpine-git image and a alpine image is already installed then will docker download a full or partial alpine-git image ?

Docker will not download any already available layer of alpine-git

1. How to check details about each layer in a docker image like size , task done, timestamp ?

# docker history image\_name/id

# docker history image\_name/id --no-trunc

1. How to remove dangling images and why is it useful?

Dangling images are those images which are not associated with any container.

# docker image prune -a

1. How to run a container in interactive and daemon/detached mode ?

# docker run -itd --name test image\_name

1. Is it possible to create container's writable layer without running a docker container ?

Yes. Using docker create command.

# docker create -it --name test1 alpine

Container will get created but it won’t be in running condition.

1. How to find size of any container’s writable layer ?

# docker ps -as

1. Are the container logs stored inside of container or in local host? Whats location ?

Logs will be stored in local server. Though we stop the container still we can see those logs.

Location of logs path can be find by running following command:

# docker inspect container\_name

1. 10+ containers are running on my host server. All these containers stops on server reboot or docker engine restart which requires a manually container start. Is there any way to auto restart the containers in this scenario

Run container with following command:

# docker run -itd --restart=always --name myalpine alpine

1. Is it possible to use restart policy and -rm flag together when starting a container

No. conflict occurs as restart policy will try to restart the container and -rm will try to remove that container

# docker run -itd --rm --restart=always --name myalpine alpine

1. what is containerization ?  
   Containerization is a process of packaging an application code along with its dependencies like libraries, frameworks and configuration files so that it can be run efficiently and seamlessly in any environments.  
   example - app code, java, tomcat, config files, .net, node etc.
2. what are the advantages of containerization ?  
   quick software development -- ex lib1 and develop lib2  
   easy software delivery -- ex java11 and develop java 8 it fails dependency not match.
3. what is Docker ?  
   Docker is a very popular containerization platform which packages your application along with its dependencies in the form of containers so that your application can work seamlessly in any environment,  
   be it development, test or production.
4. Docker Architecture ?  
   Docker has a client-server architecture in this it has docker client and docker deamon. docker deamon is a continuous deamon process which does most of the heavy lifting like maintaining container, maintaining images, maintaining network,  
   and storage and other thing.  
   along with this docker daemon always listen for the command line docker client.
5. what is docker client ?  
   docker client is a command line interface from users like you and me. we can pass our commands and docker client will pass them all to the docker daemon and docker daemon perform this action for us.  
   how docker client to connect docker daemon ?  
   1. through API's  
   2. Unix Socket  
   3. Network Interface
6. What is Docker Registry ?  
   Docker Registry is a Remote Repository where you can stored your docker images.  
   you can download your images whenever you want we can run your container.  
   there are 2 types of docker registry --  
   1. public  
   2. Private
7. Do you Need to you Login to public repository pull the image ?  
   you can pull images from the docker hub without login. but if you want to push your images on docker hub in that case you have to login.
8. How to Access private Registry ?  
   docker login <private registry URL > means own registry name.
9. What is docker Images ?  
   A docker image is a read-only template that contains source code, libraries, dependencies and some set of instruction to start/creating the container.  
   Docker image is an immutable (unchangeable - not modified in image)
10. What is Docker Container ?  
    container is a running instance of the image  
    every time you start a new container, an extra writeable layer is created for it.  
    Is There any Dependencies between Docker container and Docker Image ?  
    Docker image is no dependencies on Docker Container. because it is install an docker image it is ok do not run container  
    from end. on the other  
    docker container dependencies has docker image. ex - tomcat docker container you has to pull docker images without pull docker image  
    not run tomcat docker container.

* JENKINS:

1. Alternative tool for Jenkins

Bamboo, AWS ci-cd, Buddy, Gitlab, Azure Devops

* Linux

1. How to locate any file in linux just by knowing its name

# locate file\_name

* AWS

1. Aws security group inbound rules

80 🡪 http

443 🡪 https

3306 🡪 mysql rds

22 🡪 ssh

9000 🡪

8080 🡪 jenkins tomcat

3389🡪 windows remote connection

1. Which ports are opened in default security group of AWS
2. Which ports are opened in default security group of Azure VM