

Docker:

1. What are the things you worked on docker?
2. Docker RUN vs CMD: 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. However CMD can be replaced by docker run command line parameters.  
ENTRYPOINT configures the command to run when the container starts, similar to CMD from a functionality perspective.
3. What commands you used inside docker CMD?
4. What is nginx? Can you write a sample dockerfile to expose port at 80?
5. Lets say I have 2gb of space and your image size is 500MB, then is it possible to run more than 4 containers on this host? Yes, as we can create 4 new containers from same image.
6. Docker is written in Golang
7. How to check details about each layer in docker image like size, task done and timestamp? Docker history imagename --no-trunc
8. How to remove dangling images (unused images)? Docker image prune -a
9. Details abt container: docker inspect <imagename>
10. Is it possible to create containers writable layer without running a container? Yes  
docker create -it --name test1 alpine
11. Find the size of any containers writeable layer? Docker ps -as
12. Are container logs stored inside or on host and what is the location? On host machine. Use docker inspect to get the log path like /var/snap/docker/common/var-lib-docker/containers/id
13. 10+ containers are running on host. All these containers stop on server reboot or docker engine restart which requires a manually containers start. Is there any way to auto restart the containers in this scenario? Restart policy: failure, always, unless-stopped-? --restart=on-failure
14. One should make use of -rm flag while starting container to auto remove the container on its exit.
15. Is it possible to use restart policy and -rm flag together when starting a container?  
NO
16. How docker works behind scene or where ns, cgroups (manage resource limitation) and unionFS (for docker image layers. Because of this only we will be able to use single image for multiple containers) is used in docker?
17. We can mount the host dir to container using docker volumes
18. I have few running and stopped containers. I have to copy a secre.conf file in all the containers. Is it possible to copy a file inside a stopped container without restarting it?  
Docker cp secret.cf containername:/folder
19. Choose the preferred dockerfile which uses docker build cache feature correctly? Each docker step builds cached, it can be reused in next. This helps in reducing build time
20. I want to protect sensitive data and avoid adding .git while building image. Is there a way to control it? .dockerignore in dockerfile folder
21. We can talk to docker daemon from the container using /var/run/docker.sock. We can build this a volume inside container and we can start talking
22. How two containers talk? Using link flag in case of default bridge and other is user defined bridge.

23. Where will u prefer to put the docker file? Is it in empty or root? Empty cause all data of root will be sent and time consuming. If we want to be in root we can use docker ignore.
24. What might be causing docker run to killed automatically? Might be the process inside container is not running.
25. How to make run as non-root user? Mention USER in docker image
26. Networking modes that docker has? Bridge - The default network mode in Docker. It creates a private network between the host and containers, allowing containers to communicate with each other and with the host system. Host-This mode allows containers to share the host system's network stack, providing direct access to the host system's network. overlay - This mode enables communication between containers across multiple Docker host machines, allowing containers to be connected to a single network even when they are running on different hosts.
27. Docker events: Use docker events to get real-time events from the server. These events differ per Docker object type. Different event types have different scopes. Local scoped events are only seen on the node they take place on, and swarm scoped events are seen on all managers. Only the last 1000 log events are returned. You can use filters to further limit the number of events returned.
28. How do you secure docker images? Trusted images, SLSA, run as non root user. Dockerignore, vulnerability scans.
29. Deployment strategy in docker containers
30. Any state file, or info like where we store the container details so that can be picked up my next container? Where we store this state of container? Docker volumes. If volume is in NFS, next container can pick up
31. Why Docker and what docker container contains, say container is running on VM how will it be created and start process? Docker client -> daemon
32. How you optimize the Docker image? Multistage builds, Using distroless/minimal base images, Minimizing the number of layers, Understanding caching, Using Dockerignore
33. What is multi stage build? It helps to save memory, so which memory container memory or RAM? --from=stagename. each stage produces an intermediate image that is used as the build context for the next stage. Reduce the size of container images.
34. What is container memory? --memory="[memory\_limit]" [docker\_image]
35. Why do you want to copy the data from one stage to another in docker?  
Multi-stage builds help you separate the development and production environments cleanly. The initial stage can be used for building and compiling the application, while the final stage contains only the runtime dependencies and executable files. This separation ensures that the production image remains clean and free from development-related clutter.

Improved Build Efficiency: Copying only the necessary files allows you to take advantage of build caching in Docker. If you don't change the source code or dependencies between builds, Docker can reuse the previously cached layers, which speeds up the build process. By copying only the final artifacts to the production stage, you minimize the chances of invalidating the cache during development. Simplified deployment

36. How docker layer works? Docker uses a layered file system for container images. Each layer represents changes in the file system, starting with a base image. Layers

are read-only and can be cached for faster builds. The final image includes a read-write layer for runtime changes. This system saves storage space, speeds up image builds, and supports versioning and rollbacks.

Kubernetes:

1. What is PV and PVC
2. Is one PVCs bound onto one PV and what about PV?
3. What is storage class in PV and PVC
4. What is K8 CRD
5. How one pod in one namespace connects to another pod in another namespace?
6. Tell me about network policy
7. How will you debug issues in K8
8. About ingress and Service
9. Tell me about helm and its structure
10. K8 Architecture
11. Let's say I give you a app to deploy. What process you follow? (asked what kind of app)
12. How to mount sensitive data in K8
13. Service mesh ISTIO usecases and explanation
14. HA and DR of K8 cluster
15. You are getting 5XX errors. How will you set alerts and monitor that
16. We talked about autoscaling groups, ArgoCD and Argo workflows
17. I have one POD and inside 2 containers are running one is Nginx and another one is wordpress So, how can access these 2 containers from the Browser with IP address? Just port forward with pod name
18. If I have multiple containers running inside a pod, and I want to wait for a specific container to start before starting another one. Init containers and sidecar containers
19. What is the impact of upgrading kubelet if we leave the pods on the worker node - will it break running pods? why? Restarting kubelet, which has to happen for an upgrade will cause all the Pods on the node to stop and be started again.
20. Updating Pods to Use Updated ConfigMap in Kubernetes: rollout restart
21. How do we save data as container may fail? Autoscaling groups
22. Igress vs egress
23. Consider a company which has monolithic architecture, now company is expanding. How to implement monolithic to microservices and use k8 in it?
24. Docker Swarm vs k8
25. don't you think microservice cause issues to devops. So how will you tackle it?
26. About k8 services
27. Internal vs external LB in k8: The external load balancer is used to route external HTTP traffic into the cluster. The internal load balancer is used for internal service discovery and load balancing within the cluster.
28. How will you scale the platform ? what are the plans you will suggest? HPA vIn Kubernetes, a HorizontalPodAutoscaler automatically updates a workload resource (such as a Deployment or StatefulSet), with the aim of automatically scaling the workload to match demand. Horizontal scaling means that the response to increased load is to deploy more Pods. This is different from vertical scaling, which for

Kubernetes would mean assigning more resources (for example: memory or CPU) to the Pods that are already running for the workload.

29. Manages the deployment and scaling of a set of Pods, and provides guarantees about the ordering and uniqueness of these Pods. Like a Deployment, a StatefulSet manages Pods that are based on an identical container spec. Unlike a Deployment, a StatefulSet maintains a sticky identity for each of its Pods. These pods are created from the same spec, but are not interchangeable: each has a persistent identifier that it maintains across any rescheduling.
30. Purpose of Operator in k8: <https://www.cncf.io/blog/2022/06/15/kubernetes-operators-what-are-they-some-examples/>
31. How to get logs from pods? Node level, pod level, sidecar containers
32. Pods not getting scheduled? Check logs, describe, taints and toleration, memory is gone,
33. Is there any way that we can give external network communication to k8?  
hostNetwork: true, LB
34. How to port-forward 8080 in container -> service -> ingress -> port
35. The pods are failing/restarting how will you debug that? Give different scenarios.  
Pod logs, describe, resource limits, images, probes, dependencies, configs
36. How will you have HA DR for master node? And how will you configure multiple master node? Kubeadm join and LB between the clusters
37. What is etcd and we say its key value but what exactly is key and value give example  
Etcd's key-value store is versatile and can be used for various purposes, including storing configuration settings, service discovery information, distributed locks, and more, in distributed and highly available environments.
- Key: /app/config/database/url Value: jdbc:mysql://db.example.com:3306/mydb
38. HA DR for application
39. Consider you did kubectl create command, what happens behind like how it will be created?
40. How we make sure that pods get scheduled on the given node, taint and toleration?
41. Lets say a pod is tolerant to all nodes, how k8 cluster schedules it or on which node it will schedule?
42. Then lets say the pod is not scheduled on the more memory node. What might be the reason?
43. Filtering in k8: labels and selectors
44. What is node affinity and pod affinity
45. How the certificates are added to load balancer
46. - What is helm folder structure
  - What is the difference between replica set and deployment
  - What is the difference between ingress controller and load balancer
47. Where we get errors and how to fix it:
  - Crash loop back off
  - init error, and there are couple of pods facing it, what might be reason
  - daemonsets
48. NodePort vs LB
49. Horizontal scaling and vertical scaling
50. Restart pod if something happens? Restartpolicy

51. A single pod has 2 containers and hpa is configured for it to scale if cpu is more than 70%. Now if one container is using 60% CPU and other 70% CPU, will hpa trigger? Yes it will as it takes avg of both CPU utilization.

Git:

1. Inside code base there are 200+ branches, how will you delete all the branches containing some prefix: `git branch -d $(git branch --list 'prefix *')`
2. How do you setup automated PR check? Branch protection rules like branch name

Maven:

1. What is maven?
2. What you use to compile app in your organization?
3. What is maven cmd for compiling code?
4. You want to deploy a spring boot app on VM, how will you do it? Ssh, ansible
5. Same process with CI,CD how will you do it?
6. Where you will store the jar file that maven built?
7. From jenkins how will you communicate to registry, like are you user? OIDC, but all these uname, pwd you need to keep it some where right, what is that file u use in jenkins slave? Settings.xml
8. <https://www.interviewbit.com/maven-interview-questions/>
9. <https://www.simplilearn.com/tutorials/maven-tutorial/maven-interview-questions>
10. <https://www.guru99.com/maven-interview-questions.html>

AWS

1. Types of LB in AWS
2. EKS, AWS VPC, NAT, internal LB and internet LB
3. AWS CDN
4. EC2 and EBS. How you increase EBS volume
5. Autoscaling groups
6. Security Groups
7. Versioning in S3 and ACL in s3
8. Different types of s3 class
9. VPC, NAT
10. How NAT access internet
11. Stateful and stateless network in AWS
12. Usage of cloudwatch
13. IAM vs role vs User vs policies
14. Cost optimization in AWS
15. Reserved instance vs on spot instances
16. IAM policy explain with json. Like principle, action, resource
17. Pros and cons of cloudwatch agent
18. - How many types of ec2 instance
19. What are types of RDS and how to setup a disaster recovery
20. What is a private and public subnet
21. How to login to EC2 instance if PEM file is lost

22. You have instance in private subnet, why it will not be accessible from chrome:  
*Security Group Rules, Network Access Control Lists (NACLs)*: Network ACLs at the subnet level might not allow incoming or outgoing traffic on the required ports. Double-check the NACL rules to make sure they are configured correctly. *Route Table*: *DNS Configuration*: *Proxy Settings*: If your network environment requires a proxy server for internet access, ensure that the proxy settings are correctly configured on the instance. *Web Server Configuration*: If you are running a web server on the instance, ensure that it is properly configured, and the web server software (e.g., Apache, Nginx) is running., *Instance State*: Check the state of the instance. If it's stopped or terminated, it won't be accessible. *Network Troubleshooting*: Use network troubleshooting tools like ping or traceroute and health checks
23. Why we are not able to list s3 bucket? Permission issues, region not configured properly, CLI might be having expired creds, token expiry, auth issues, Check if you have reached your S3 service quotas for the maximum number of buckets allowed in your AWS account.
24. What is ECS?
25. how a account user can access the s3 bucket obj in another account?  
 AWS account with s3: create IAM that allows cross account access to s3 (create a new role wit trusted identity set to account id of the other account and attach s3 full access role to it)  
 AWS account where user resides: If you haven't already, create an IAM user in the AWS account that needs access to the S3 bucket. Attach an IAM policy to the IAM user that allows it to assume the IAM role in the other account. This policy should grant permission to assume roles. The IAM user can now use the sts:AssumeRole API to assume the role created in the other account. After assuming the role, the IAM user will receive temporary credentials.
26. Switch roles in AWS: using AWS UI, using AWS CLI like `aws sts assume-role`, using AWS SDK.

## Terraform

1. Tell me process of terraform init
2. What is element and trim in terraform?: The element function is used to retrieve a specific element from a list. It takes two arguments: the list and the index of the element you want to retrieve. default = ["apple", "banana", "cherry", "date"] and value = `element(var.my_list, 2)` # This will return "cherry"
3. Indexing in Terraform lists is zero-based, meaning that the first element is at index 0, the second at index 1, and so on.
4. Statefile process
5. Create a code to create a multiple ec2 instance at once

```

provider "aws" {
  region = "us-east-1"
}

variable "instance_tags" {
  type = list(string)
  default = ["english", "spanish"]
}

resource "aws_instance" "name" {
  ami = "ami-"
  instance_type = "t2.micro"
  key_name = ""
  count = length(var.instance_tags)
  tags = {
    Name = var.instance_tags[count.index]
  }
}

```

6. Which command create statefile? Apply
7. How you copy code which is already on cloud? Create resource in main tf file then use terraform import aws\_instance.instance\_name instance\_id
8. Terraform error: enable TF\_LOG to see errors
  - Variable interpolation when var syntax is wrong
  - Cycle error: when we have cyclic dependency on some resources
  - Output error when terraform cannot capture output of a resource
  - State error: when state is out of sync
  - Others related to versioning, provider, Terraform version mismatch error, credential error.

## Jenkins

1. Production event / outage you managed?
2. How can I optimize the distribution of the load? LB
3. Sonarqube is part of security. SO what we can do to make k8 security possible? net pol, image scans, OPA
4. Have you worked any compliance related problems? No
5. What are well architected framework? Tell me abt the pillars The AWS Well-Architected Framework describes key concepts, design principles, and architectural best practices for designing and running workloads in the cloud. operational excellence, security, reliability, performance efficiency, and cost optimization.
6. There is app and you are not able to down, what will do and how will you debug?
7. What approach you take to investigate the issue related to performance issues but app is running
8. If Db is changing, how will you do it?
9. Master Slave in jenkins
10. Why do we wanna use jenkins other than ansible?

11. How do you manage/ let's say I want to run in specific slave, how do you do it?

Linux:

1. How will you monitor log file in linux?
2. Give a logfile where I needed to fetch the unique IPs among the multiple lines of logs.
3. There are 100 microservices that you want to deploy, how will u do it?
4. How you provide access to the github action? SA and workload identity
5. What is proxy and proxypass in apache
6. What is a zombie process in linux
7. How will you monitor log file in linux?
8. There is app and you are not able to down, what will do and how will you debug?
9. How to delete empty files? `find . -type f -empty -print -delete`
10. Find size of file: `du -f, ls -la`
11. How to see last and first line? Head and tail
12. Delete file without using rm command? mv command
13. Get files which has been modified in last 15 days? `find /directory/path/ -mtime -15 -ls`
14. Delete blank line in files: `sed '/^$/d' inputfile > outputfile`
15. `echo $? -` displays 0 if the last command has been successfully executed and displays a non-zero value if some error has occurred.
16. Get the second line from file: `head -n 2 filename | tail -n 1`
17. Delete all files which has 677 as its permission: `find /path/to/directory -type f -perm 677 -exec rm {} \;`
18. print all lines in a file except 5 and 6th line: `sed '5,6d' filename`
19. to print the first 5 lines and the last 5 lines of a file: `{head -n 5 && tail -n 5} < filename`
20. How to set a username and password that never expire? `chage -M -1 Sharadhi`
21. Why `etc/passwd` and `etc/shadow` cannot merged to 1 file? `Etc/passwd` can be only used by text file that can be read by other apps. So an attacker could gain access to the info of the file to `etc/shadow` was given that can be accessible only by root
- 22.

Shell Scripting

1. Simple script to showcase if statement
2. Cronjobs in linux Write a shell script on log archive for 15 days
3. SSL in a website
4. Write a shell script to check the PID of jar and restart the process if not running
5. How to find a hello in a file and count the number of occurrences?
6. There is log file of 10k lines of error logs, there there is pid of 1 and error message should be error not debug or info, how will u do it from linux CLI? Awk but what is its not in column
7. How will copy from my machine to host machine? `Scp /file.txt sharadhi@:/path`

Ansible:

1. <https://mindmajix.com/ansible-interview-questions>



2. <https://codingcompiler.com/ansible-interview-questions/>
3. <https://medium.com/@Techie1/ansible-scenario-based-questions-part-1-3e12aa20d592>
4. <https://dev.to/mariehposa/how-to-deploy-an-application-to-aws-ec2-instance-using-terraform-and-ansible-3e78>
5. How folder structure in ansible you used to install in all these log agents? Using aws modules we can fetch the ips. Ansible tower. how it will detect in other accounts? trusted policy.
6. Write a hello world ansible playbook
7. How will you connect terraform to ansible?
8. Create a bucket in aws using terraform. And how you connect aws to terraform? Using roles?
9. Write a playbook to install nginx, change html page by copying from local machine and restart using handlers.
10. If one of server is shut down, verify and make it up, ssh errors due to key mismatch

#### Network:

1. <https://www.guru99.com/networking-interview-questions.html>
2. <https://chat.openai.com/c/1ad88c72-4634-4c2d-8e3b-da3e46196e04>
3. <https://sematext.com/glossary/ssl-tls-handshake/>
4. <https://www.interviewbit.com/networking-interview-questions/>
5. <https://www.interviewbit.com/operating-system-interview-questions/>
6. WAF layers. In GCP what is WAF and difference between WAF and normal Application firewall?

#### HA/DR:

1. <https://cloud.google.com/anthos/clusters/docs/bare-metal/latest/installing/install-prep>
2. <https://cloud.google.com/anthos/clusters/docs/on-prem/latest/concepts/high-availability-disaster-recovery>
3. <https://medium.com/velotio-perspectives/demystifying-high-availability-in-kubernetes-using-kubeadm-3d83ed8c458b>
4. <https://hevodata.com/learn/kubernetes-high-availability/>
5. <https://www.techtarget.com/searchitoperations/tip/Ensure-Kubernetes-high-availability-with-master-node-planning>
6. <https://medium.com/@ravijagannathan/backup-and-dr-in-k8-f7e3f0fd2946>
7. <https://www.rubrik.com/insights/rubrik-kubernetes-disaster-recovery>

#### Kafka:

1. <https://www.youtube.com/watch?v=aj9CDZm0Glc>
2. <https://www.simplilearn.com/kafka-interview-questions-and-answers-article>
3. <https://www.interviewbit.com/kafka-interview-questions/>

#### LB SSL:

1. <https://www.nginx.com/resources/glossary/load-balancing/>

2. [https://www.digicert.com/what-is-an-ssl-certificate#:~:text=Secure%20Sockets%20Layer%20\(SSL\)%20is,client%20\(e.g.%2C%20Outlook\).](https://www.digicert.com/what-is-an-ssl-certificate#:~:text=Secure%20Sockets%20Layer%20(SSL)%20is,client%20(e.g.%2C%20Outlook).)
3. <https://www.encryptionconsulting.com/education-center/symmetric-vs-asymmetric-encryption/>
4. <https://www.geeksforgeeks.org/top-50-tcp-ip-interview-questions-and-answers/>
5. <https://climbtheladder.com/ssl-handshake-interview-questions/>
6. <https://sg.indeed.com/career-advice/interviewing/dns-interview-questions>
7. <https://www.codingninjas.com/studio/library/dns-interview-questions>

#### Prometheus and Grafana:

1. <https://www.devopsschool.com/blog/top-20-interview-question-for-prometheus-and-grafana/>
2. <https://mindmajix.com/grafana-interview-questions>
3. <https://logit.io/blog/post/prometheus-interview-questions/>
4. [devopsschool.com/blog/top-50-prometheus-interview-questions-and-answers/](https://www.devopsschool.com/blog/top-50-prometheus-interview-questions-and-answers/)
5. <https://medium.com/@nandhini.d/prometheus-interview-question-21704cb59baa>
6. <https://www.youtube.com/watch?v=h4Sl21AKiDg>
7. <https://www.youtube.com/playlist?list=PLdsu0umqbb8NxUs8r8BIUe9-PhcoZyojA>
8. <https://www.youtube.com/watch?v=EeiYpnBHnhY>
9. What kind of monitoring you did? Why? Used cloudwatch but we need to install agent everywhere so used appdynamics. Why these are different?
10. How did you enable app dynamics for ur application?
11. What is the log monitoring exp you have?
12. How the Grafana and ELK is setup in your organization