Basic Git Questions

- What is Git, and how does it differ from other version control systems?

- Explain the difference between Git and GitHub.

- How do you initialize a new Git repository?

- What is the difference between git clone and git init?

- How do you check the status of your working directory in Git?

- What is the purpose of the .gitignore file, and how do you use it?

- How do you stage changes in Git using git add?

- How do you commit changes in Git using git commit?

- What is the difference between git pull and git fetch?

- How do you view the commit history in Git?

Intermediate Git Questions

- What is a Git branch, and how do you create and switch between branches?

- How do you merge branches in Git, and what is a merge conflict?

- What is the difference between git merge and git rebase?

- How do you resolve a merge conflict in Git?

- What is a Git tag, and how do you create and use it?

- How do you undo the last commit in Git?

- What is the difference between git reset and git revert?

- How do you stash changes in Git, and why would you use it?

- What is the purpose of git cherry-pick, and how do you use it?

- How do you configure Git to use a specific username and email?

Advanced Git Questions

- What is the Git workflow, and how does it differ in centralized vs. distributed systems?

- How do you squash multiple commits into a single commit?

- What is the difference between HEAD, working tree, and index in Git?

- How do you use git bisect to find the commit that introduced a bug?

- What is a Git hook, and how do you use it?

- How do you rewrite commit history using git filter-branch or git rebase?

- What is the purpose of git reflog, and how do you use it?

- How do you manage large files in Git (e.g., using Git LFS)?

- How do you set up and use a Git submodule?

- How do you contribute to an open-source project using Git (e.g., fork, clone, PR)?

Scenario-Based Questions

- How would you revert a Git repository to a previous commit?

- How would you collaborate on a Git repository with multiple developers?

- How would you handle a situation where you accidentally committed sensitive data (e.g., passwords)?

- How would you automate Git workflows using hooks or CI/CD pipelines?

- How would you manage multiple Git configurations for different projects?

Basic AWS Questions

- What is AWS, and what are its key services?

- Explain the difference between EC2 and S3.

- What is an AWS Region and Availability Zone (AZ)?

- How do you create an EC2 instance, and what are the key steps involved?

- What is an Amazon Machine Image (AMI), and how is it used?

- What is the difference between S3 Standard and S3 Glacier storage classes?

- How do you secure an AWS account (e.g., IAM, MFA)?

- What is the purpose of an Elastic IP in AWS?

- How do you monitor resources in AWS (e.g., CloudWatch)?

- What is the difference between scaling vertically and horizontally in AWS?

Intermediate AWS Questions

- What is an AWS VPC, and how do you configure it?

- What is the difference between a public subnet and a private subnet in AWS?

- How do you set up a load balancer in AWS (e.g., ALB, NLB)?

- What is Auto Scaling in AWS, and how does it work?

- What is the difference between RDS and DynamoDB?

- How do you migrate an on-premises database to AWS (e.g., using DMS)?

- What is AWS Lambda, and how does it work?

- What is the purpose of IAM roles, and how do you assign them?

- How do you configure cross-region replication in S3?

- What is the difference between EBS and Instance Store in EC2?

Advanced AWS Questions

- What is the difference between AWS CloudFormation and Terraform?

- How do you implement disaster recovery in AWS (e.g., using Backup, S3 Cross-Region Replication)?

- What is the purpose of AWS Organizations, and how do you use it?

- How do you secure data in transit and at rest in AWS (e.g., KMS, SSL/TLS)?

- What is the difference between AWS Fargate and ECS?

- How do you implement a CI/CD pipeline in AWS (e.g., using CodePipeline, CodeBuild)?

- What is AWS CloudTrail, and how does it differ from CloudWatch?

- How do you optimize costs in AWS (e.g., Reserved Instances, Spot Instances)?

- What is the purpose of AWS Direct Connect, and how does it work?

- How do you implement multi-account strategies in AWS (e.g., using Control Tower)?

Scenario-Based Questions

- How would you design a highly available and scalable web application on AWS?

- How would you migrate an on-premises application to AWS (e.g., using the 6 Rs of migration)?

- How would you troubleshoot an EC2 instance that is not responding?

- How would you implement a serverless architecture using AWS services?

- How would you secure an S3 bucket to prevent public access?

Basic Terraform Questions

- What is Terraform, and how does it differ from other Infrastructure as Code (IaC) tools?

- Explain the key components of Terraform (e.g., providers, resources, modules, state files).

- What is a Terraform provider, and how do you use it?

- How do you initialize a Terraform project using terraform init?

- What is the purpose of the terraform plan command?

- How do you apply changes using the terraform apply command?

- What is a Terraform state file, and why is it important?

- How do you destroy infrastructure created by Terraform?

- What is the difference between terraform apply and terraform destroy?

- How do you manage sensitive data (e.g., passwords, API keys) in Terraform?

Intermediate Terraform Questions

- What are Terraform modules, and how do you use them?

- How do you manage Terraform state files in a team environment (e.g., remote state)?

- What is the difference between terraform plan and terraform apply --auto-approve?

- How do you use variables in Terraform (e.g., variables.tf, terraform.tfvars)?

- What is the purpose of outputs.tf in Terraform?

- How do you handle dependencies between resources in Terraform?

- What is the difference between count and for_each in Terraform?

- How do you use Terraform with cloud providers like AWS, Azure, or GCP?

- What is the purpose of the terraform refresh command?

- How do you manage multiple environments (e.g., dev, staging, prod) in Terraform?

Advanced Terraform Questions

- What is Terraform Workspaces, and how do you use them?

- How do you implement conditional logic in Terraform (e.g., using count or for_each)?

- What is the purpose of the terraform import command, and how do you use it?

- How do you manage Terraform state locking to prevent conflicts?

- What is the difference between local-exec and remote-exec provisioners in Terraform?

- How do you use Terraform to manage Kubernetes resources?

- What is Terraform Cloud, and how does it differ from the open-source version?

- How do you handle rollbacks or reverting changes in Terraform?

- What is the purpose of the terraform taint command, and how do you use it?

- How do you optimize Terraform configurations for large-scale infrastructure?

Scenario-Based Questions

- How would you manage Terraform state for a multi-region deployment in AWS?

- How would you implement a CI/CD pipeline for Terraform configurations?

- How would you troubleshoot a Terraform plan that is failing due to dependency issues?

- How would you use Terraform to provision a Kubernetes cluster?

- How would you manage secrets in Terraform without exposing them in the state file?

Basic Ansible Questions

- What is Ansible, and how does it differ from other configuration management tools?

- Explain the key components of Ansible (e.g., inventory, playbooks, modules, tasks).

- What is an Ansible playbook, and how is it structured?

- How do you install Ansible on a control node?

- What is an Ansible inventory file, and how do you define hosts in it?

- How do you run an ad-hoc command using Ansible?

- What is the difference between a task and a play in Ansible?

- How do you check the syntax of an Ansible playbook?

- What are Ansible modules, and how do you use them?

- How do you handle errors or failures in an Ansible playbook?

Intermediate Ansible Questions

- What is the difference between shell and command modules in Ansible?

- How do you use variables in Ansible playbooks?

- What is an Ansible role, and how do you create one?

- How do you manage sensitive data (e.g., passwords, API keys) in Ansible?

- What is the purpose of ansible-vault, and how do you use it?

- How do you conditionally execute tasks in Ansible (e.g., when clause)?

- What is the difference between handlers and tasks in Ansible?

- How do you use loops in Ansible (e.g., with_items)?

- How do you manage dependencies between roles in Ansible?

- How do you use tags in Ansible playbooks?

Advanced Ansible Questions

- What is Ansible Galaxy, and how do you use it?

- How do you optimize Ansible playbooks for large-scale deployments?

- What is the difference between serial and max_fail_percentage in Ansible?

- How do you use dynamic inventory in Ansible (e.g., with AWS or Azure)?

- What is the purpose of become in Ansible, and how do you use it?

- How do you implement idempotency in Ansible playbooks?

- How do you use Ansible to manage Docker containers or Kubernetes clusters?

- What is the difference between include_tasks and import_tasks in Ansible?

- How do you debug Ansible playbooks (e.g., using -vvv or debug module)?

- How do you integrate Ansible with CI/CD pipelines?

Bonus Scenario-Based Questions

- How would you use Ansible to automate the deployment of a web application?

- How would you manage multi-environment deployments (e.g., dev, staging, prod) using Ansible?

- How would you troubleshoot an Ansible playbook that is failing on a specific host?

- How would you use Ansible to provision infrastructure on a cloud provider like AWS?

- How would you implement rolling updates for a cluster of servers using Ansible?

Basic Docker Questions

- What is Docker, and how does it differ from traditional virtualization?

- Explain the key components of Docker (Docker Engine, Docker Images, Docker Containers, Docker Hub).

- What is a Dockerfile, and what are some common instructions used in it?

- How do you create a Docker container from an image?

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

- How do you list all running containers in Docker?

- What is the purpose of the docker run command, and what are some commonly used flags with it?

- How do you remove a stopped container or unused images?

- What is Docker Hub, and how is it used?

- How do you share or export a Docker image to another system?

Intermediate Docker Questions

- What is the difference between docker exec and docker attach?

- How do you manage persistent data in Docker containers (e.g., volumes and bind mounts)?

- What is Docker Compose, and how is it used to manage multi-container applications?

- How do you optimize the size of a Docker image?

- What is the purpose of the ENTRYPOINT and CMD instructions in a Dockerfile?

- How do you debug a Docker container that is failing to start?

- What is the difference between Docker Swarm and Kubernetes?

- How do you limit the resources (CPU, memory) used by a Docker container?

- What is the purpose of the docker network command, and how do you create a custom network?

- How do you update a running container without stopping it?

Advanced Docker Questions

- Explain Docker's layered filesystem and how it impacts image building.

- What is the difference between a Docker volume and a bind mount?

- How do you secure Docker containers and images (e.g., best practices for security)?

- What is Docker's build cache, and how can you invalidate it?

- How do you use multi-stage builds in Docker, and what are the benefits?

- What is the difference between docker commit and docker build?

- How do you monitor the performance of Docker containers?

- What is Docker's default logging mechanism, and how can you configure it?

- How do you use Docker in a CI/CD pipeline?

- What are Docker namespaces and control groups, and how do they work?

Scenario-Based Questions

- How would you deploy a multi-container application (e.g., a web app with a database) using Docker?

- How would you troubleshoot a Docker container that is running out of memory?

- How would you migrate a Docker-based application from a development environment to production?

- How would you handle secrets (e.g., API keys, passwords) in Docker containers?

- How would you scale a Dockerized application across multiple servers?

Basic Kubernetes Questions

- What is Kubernetes, and what are its main features?

- Explain the difference between Kubernetes and Docker Swarm.

- What are the main components of a Kubernetes cluster (e.g., Master Node, Worker Node, etc.)?

- What is a Pod in Kubernetes, and how is it different from a Docker container?

- How do you create a Kubernetes deployment?

- What is a Namespace in Kubernetes, and why is it used?

- How do you check the status of Pods in a Kubernetes cluster?

- What is a Service in Kubernetes, and what are its types (ClusterIP, NodePort, LoadBalancer)?

- How do you scale a deployment in Kubernetes?

- What is the purpose of the kubectl command-line tool?

Intermediate Kubernetes Questions

- What is the difference between a Deployment and a StatefulSet in Kubernetes?

- How do you manage configuration data in Kubernetes (e.g., ConfigMaps and Secrets)?

- What is a Persistent Volume (PV) and Persistent Volume Claim (PVC) in Kubernetes?

- How do you perform rolling updates and rollbacks in Kubernetes?

- What is the role of the Kubernetes Scheduler?

- How do you troubleshoot a Pod that is stuck in the "Pending" state?

- What is a DaemonSet in Kubernetes, and how is it used?

- How do you set resource limits (CPU, memory) for Pods in Kubernetes?

- What is the difference between kubectl apply and kubectl create?

- How do you expose a Kubernetes Service to the outside world?

Advanced Kubernetes Questions

- What is the etcd database, and what role does it play in Kubernetes?

- How does Kubernetes handle network communication between Pods (e.g., CNI, kube-proxy)?

- What is a Kubernetes Ingress, and how is it different from a Service?

- How do you implement autoscaling in Kubernetes (e.g., Horizontal Pod Autoscaler)?

- What is the role of the Kubernetes Controller Manager?

- How do you secure a Kubernetes cluster (e.g., RBAC, Network Policies)?

- What is a Helm chart, and how is it used in Kubernetes?

- How do you monitor and log applications running in Kubernetes (e.g., Prometheus, Fluentd)?

- What is the difference between a Liveness Probe and a Readiness Probe?

- How do you manage multi-tenancy in Kubernetes?

Scenario-Based Questions

- How would you deploy a stateful application (e.g., a database) in Kubernetes?

- How would you troubleshoot a Kubernetes cluster where Nodes are not joining the cluster?

- How would you implement a CI/CD pipeline using Kubernetes?

- How would you handle secrets (e.g., API keys, passwords) in Kubernetes?

- How would you scale a Kubernetes application across multiple clusters (e.g., using Federation)?

Basic Jenkins Questions

- What is Jenkins, and what is it used for?

- Explain the difference between Continuous Integration (CI) and Continuous Delivery (CD).

- What are the key features of Jenkins?

- How do you install Jenkins on a server?

- What is a Jenkins Pipeline, and how is it different from a freestyle project?

- How do you create a Jenkins job?

- What is a Jenkinsfile, and why is it used?

- How do you trigger a Jenkins job automatically (e.g., using SCM polling or webhooks)?

- What are Jenkins plugins, and how do you install them?

- How do you secure a Jenkins instance (e.g., authentication and authorization)?

Intermediate Jenkins Questions

- What is the difference between a Scripted Pipeline and a Declarative Pipeline in Jenkins?

- How do you manage credentials in Jenkins (e.g., API keys, passwords)?

- What is a Jenkins agent, and how do you configure it?

- How do you integrate Jenkins with version control systems like Git?

- How do you parameterize a Jenkins job?

- What is the purpose of the Jenkinsfile, and how do you write one?

- How do you handle failures in a Jenkins Pipeline (e.g., retries, notifications)?

- What is the role of the Jenkins Master and Jenkins Agent(s)?

- How do you archive artifacts in Jenkins?

- How do you schedule a Jenkins job to run at specific intervals?

Advanced Jenkins Questions

- How do you implement a multi-branch pipeline in Jenkins?

- What is Blue Ocean in Jenkins, and how does it improve the user experience?

- How do you monitor the performance and health of a Jenkins server?

- How do you back up and restore Jenkins configurations and jobs?

- What is the difference between sh and bat in Jenkins Pipelines?

- How do you integrate Jenkins with tools like SonarQube, Docker, and Kubernetes?

- How do you implement role-based access control (RBAC) in Jenkins?

- What is the purpose of the Jenkins Shared Library, and how do you use it?

- How do you handle secrets management in Jenkins (e.g., using HashiCorp Vault)?

- How do you scale Jenkins to handle large workloads (e.g., distributed builds)?

Scenario-Based Questions

- How would you set up a Jenkins Pipeline for a microservices-based application?

- How would you troubleshoot a Jenkins job that is failing intermittently?

- How would you implement a CI/CD pipeline for a Dockerized application using Jenkins?

- How would you integrate Jenkins with a cloud provider like AWS or Azure?

- How would you automate the deployment of a Jenkins configuration (e.g., using Infrastructure as Code)?