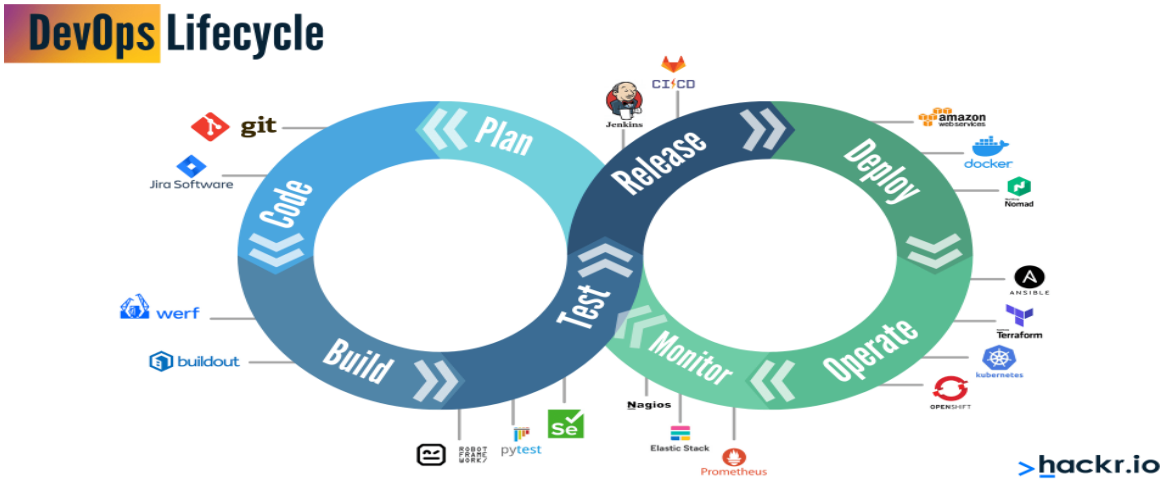
INTERVIEW QUESTIONS:

1. **What is DevOps?**

   DevOps is a **software development methodology** that accelerates the delivery of higher-quality applications and services by combining and automating the work of software development and IT operations teams. With shared tools and practices, including small but frequent updates, software development becomes more efficient, faster and more reliable.

2. **Which methodology is DevOps related to?**
   DevOps is related to agile methodology (Refer about agile methodology).

3. **What are the different phases of DevOps?**
   DevOps is usually classified into 6 phases. However, phases are not separated by hard boundaries, and no phase begins even if the previous one has ended completely.



4. **What is the purpose of AWS in DevOps?**

Amazon Web Services (AWS), is an important cloud computing platform known for its wide service offerings. Its popularity is developed through its scalability, cost-effectiveness, and global infrastructure. Businesses increased the AWS to efficiently scale operations, reduce costs, and innovate rapidly

5. **Explain The Key Components Of AWS?**

AWS provides the fundamental components crucial for cloud computing such as EC2 provides scalable computing capabilities, S3 offers storage for all kinds of files, RDS manages many kinds of databases, and IAM ensures secured access through addressing Authentication and Authorization. These components collectively empower the users to create and deploy various applications seamlessly.

6. **What Is An EC2 Instance And How Does It Work?**

An EC2 instance stands for Elastic Cloud Compute service, It is a virtual server in the cloud. When we launch this, it will run the selected operating system with a specified application stack. For instance, you can deploy a web server or a database in this EC2 service. It can also be configured for specific computing needs, making it a flexible and scalable solution.

7. **Describe The Difference Between S3 And EBS In AWS?**

S3 (Simple Storage Service) is an object storage service suitable for storing various data types of files that can accessed through the internet. In contrast, EBS (Elastic Block storage) is a block-level storage attached to EC2 instances, offering persistent and high-performance storage for applications like databases. EBS provides the raw storage hardware helpful for I/O operations whereas S3 comes with pre-configured file system. For understanding think of S3 as a file storage system and EBS as a hard drive.

8. **How Does Auto Scaling Work In AWS?**

Auto Scaling is an aws service that provides dynamically adjusts, on running the number of EC2 instances based on traffic demand. For instance, during the high traffic periods, Auto Scaling adds instances, improving optimal performance as per the policies configuration. Conversely, while during low traffic, it will reduce the number of instances, optimizes the cost efficiency maintaining high availability.

9. **What Is Elastic Load Balancing (ELB) And How Does It Function?**

Elastic Load balancer (ELB) is a service provided by AWS that helps in distribution of incoming traffic of the applications across multi targets such as EC2 instances, containers etc.. in one or more Availability zones. It helps in improving fault tolerance and ensuring the utilization of resources, bringing high availability of the application by preventing a single node (instance) faulterance by improving application's resilience.

10. **Explain The Concept of AWS Identity and Access Management (IAM)?**

IAM stands for Identity Access Management, a security AWS service that provides Authentication and Authorization to AWS services and resources. It involves in creating users, assigning permissions through policies, and then setting up the multi-factor authentication. For example, IAM will grant read-only access for specific users to the S3 buckets or full administrative access to EC2 instances.

11. **What Is Amazon VPC and How Does It Help in Securing Your Resources?**

Amazon VPC (Virtual Private Cloud) is an AWS service that helps the users to create isolated networks within AWS account through customizing IP address ranges and the defining their subnets. It helps in enhancing the security through controlling both the inbound and outbound of the traffic. For example, to host the web servers in public subnets and connecting to the databases placing in private subnets can be on configuring the VPC. It provides an additional layer of network security to the applications.

12. **Describe The Use of Amazon Route 53?**

Amazon Route 53 is an aws service that offers DNS web services which are scalable. It helps in guaranteeing dependable, low-latency routing to the AWS services through facilitating efficient translation of user-friendly domain names into IP addresses. For example, Route 53 will be useful to route the traffic between multiple EC2 instances or direct users to a hosted website on an S3 bucket.

13. **How Do You Monitor and Log AWS Resources?**

AWS comes up with providing services such as CloudWatch for monitoring and CloudTrail for logging. CloudWatch take place in monitoring the resources and applications, while CloudTrail will record the API calls, providing the visibility of user activity. These tools collectively allow detailed observation and analysis of AWS resources.

14. **What Is the Significance of Amazon DynamoDB In AWS?**

Amazon DynamoDB is a service in AWS that is helpful in management of NoSQL database service that known for its scalability and low-latency performance. This service is suitable for the applications which

requires seamlessly quick access to data, such as gaming, e-commerce, and mobile applications offering consistency of a single-digit millisecond latency.

15. Difference between git and GitHub?

Git: Git is a distributed version control system for tracking changes in source code during software development. It is designed for coordinating work among programmers, but it can be used to track changes in any set of files. Its goals include speed, data integrity, and support for distributed, non-linear workflows.

GitHub: GitHub is a web-based Git repository hosting service, which offers all of the distributed revision control and source code management (SCM) functionality of Git as well as adding its own features.

16. What is the command to create a branch?

To create a new branch, you use the git branch <branch-name> command, and to view all the local branches, use the git branch command. The current branch is marked with an asterisk (*).

17. When should you use git push compared to when you use git pull?

git push is used to upload content from one repository to another. For example, you can push content from a local repository into a remote repository.

git pull is used to retrieve and integrate content from another repository. For example, you can pull content from a remote repository into a local repository.

18. Git commit?

The git commit command will save all staged changes, along with a brief description from the user, in a “commit” to the local repository.
The most common option used with git commit is the -m option. The -m stands for message. When calling git commit, it is required to include a message. The message should be a short description of the changes being committed. The message should be at the end of the command and it must be wrapped in quotations " ".
Example: git commit -m "My message"

Here's a step-by-step guide on how to create a branch, make a commit, and push the code using Git:

- git checkout -b branch_name
- git add .
- git commit -m "Your commit message"
- git push origin branch_name

19. What is Linux?

Linus Torvalds developed Linux, a Unix-like, free, open-source, and kernel operating system. Mainly it is designed for systems, servers, embedded devices, mobile devices, and mainframes and is also supported on major computer platforms such as ARM, x86, and SPARC.

20. Explain the basic features of the Linux OS.?

Some basic features of Linux are:

- Linux is free and easily available.
- It is more secure than other operating systems because it uses security auditing and password authentication features.
- Linux has its personal software repository.
- It includes multiple languages throughout the world. Hence Linux supports different language keyboards.
- It offers CLI and GUI to use different commands and applications such as Firefox, VLC, etc.
- Name some Linux Distros

There are various Linux distros but the following are the most commonly used:

Ubuntu
Debian
CentOS
Fedora
RedHat

21. Define the basic components of Linux?

Majorly there are five basic components of Linux:

Kernel: Linux kernel is a core part of the operating system that works as a bridge between hardware and software.

Shell: Shell is an interface between a kernel and a user.

GUI: Offers different way to interact with the system, known as the graphical user interface (GUI).

Application programs: It is designed to perform a bundle of tasks through a bundle of functions.

System Utilities: It is the software functions through which users manage the system.

22. Elaborate all the file permission in Linux?

Define the basic components of Linux.

Read: Users open and read files with this permission.

Write: Users can open and modify the files.

Execute: Users can run the file.

23. Example commands to change permissions?

-rw-r--r-- 1 user group 0 May 3 12:00 example.txt
to above file we can change permisstions.

you can change the permissions using the chmod command. For example, if you want to give the owner execute permission, you would use:

chmod u+x example.txt

This command adds execute permission (+x) for the owner (u).

Setting Permissions Numerically:

You can also set permissions numerically using octal notation. For example, to give read, write, and execute permissions to the owner, read and execute permissions to the group, and read-only permissions to others, you would use:

chmod 754 example.txt

Here, 7 corresponds to read (4) + write (2) + execute (1), 5 corresponds to read (4) + execute (1), and 4 corresponds to read only.

24. Linux commands?

Please Refer all commands what I teach in the class (All commands are important).

25. Using cat to Display File Contents?

The cat command is primarily used to concatenate and display files. Here's how you can use it:

cat filename.txt

This command displays the contents of the file named "filename.txt" in the terminal.
Using cat to Create or Append to a File:
You can also use cat to create a new file or append to an existing file. For example:

cat > newfile.txt

This command allows you to type directly into the terminal. Press Ctrl + D when you're finished typing to save the input into a file named "newfile.txt".To append to an existing file, you can use:

cat >> existingfile.txt

This command allows you to append text to the end of the existing file "existingfile.txt".
Using touch to Create Files:
The touch command is used to create new files or update timestamps of existing files. Here's how you can use it:

touch newfile.txt

This command creates a new empty file named "newfile.txt" if it doesn't already exist. If the file already exists, touch updates the last modification timestamp of the file.

You can also create multiple files at once:

touch file1.txt file2.txt file3.txt

this command creates three new empty files named "file1.txt", "file2.txt", and "file3.txt".
These are some basic commands using cat and touch in Linux. They are versatile tools that can be used for various file-related operations.

26. What is a root account?

The root is like the user's name or system administrator account in Linux. The root account provides complete system control, which an ordinary user cannot do.

27. Describe CLI and GUI in Linux?

CLI, i.e., command line interface. It takes input as a command and runs the tasks of the system. The term GUI refers to the Graphical User Interface or the human-computer interface. It uses icons, images, menus, and windows, which can be manipulated through the mouse.

28. What is the difference between hard links and soft links?

Hard Links	Soft Links
It includes original content.	It includes the original file location.
Hard links are faster as compared to soft links.	Soft links are slower.
It shares similar inode numbers.	It shares different inode numbers.
There is no relative path for hard links.	Relative paths are used for soft links.
It didn't link the directories.	It links the directories.
Any change in this link reflects other files directly.	Every change in this link reflects its hard link and the actual file directly.
It uses less memory.	It uses more memory.

29. What is the chmod command in Linux, and how do you use it?

You can use the chmod command to change the file permissions of the directories. It offers a simple way to control the read and write permissions. For instance, if you want to change the permission of the ABC.sh script and give it the write and executable permission, you can run the below command:

Example: chmod u+wx ABC.sh

30. How do you check disk space usage?

The **df or disk-free** command shows the used and the available disk space. You can use the additional options to check disk space differently. For instance, you can use the df -h command to check the disk usage in the human-readable format.

31. How do you create a user account?

You can use adduser and useradd commands to create a user for the system.

32. What are the most important Linux commands?

ls: Display directory contents such as folders and files.

mkdir: Used to create a new directory.

pwd: Shows the current directory.

top: Display system running processes and resource usage.

grep: Search a specific pattern in a file.

cat: Through this command, users can add multiple files and also display the content of the files.

tar: Archives directories and files into a tarball.

wget: Download files from the browser or web.

free: Shows memory usage.

df: Shows disk space usage.

man: Gives a manual page for a specific command that displays instructions and details.

33. What is the grep command used for in Linux?

The grep command is used to search for specific patterns within files or input streams. It allows us to find and print lines that we give to match the pattern

For example: grep "test" file.txt

34. How do you use the "awk" command to perform arithmetic operations on columns in a file?

awk is used to filter and manipulate output from other programs and functions. awk works on programs that contain rules comprised of patterns and actions. The action awk takes is executed on the text that matches the pattern. Patterns are enclosed in curly braces ({}). Together, a pattern and an action form a rule. The entire awk program is enclosed in single quotes (').

35. What is shell script?

Usually, shells are interactive, which means they accept commands as input from users and execute them. However, sometimes we want to execute a bunch of commands routinely, so we have to type in all commands each time in the terminal.

As a shell can also take commands as input from file, we can write these commands in a file and can execute them in shell to avoid this repetitive work. These files are called Shell Scripts or Shell Programs.

36. Why do we need shell scripts?

There are many reasons to write shell scripts:

- To avoid repetitive work and automation
- System admins use shell scripting for routine backups.
- System monitoring
- Adding new functionality to the shell etc.

37. Give the purpose of the shebang line?

The shebang line is at the top of each script used to determine the engine's location and is used to execute the script

38. Tell us about the '$#' use in shell scripting?

'$#' is used to display the total number of passed arguments to the script.

39. Explain Crontab?

The crontab is a list of commands that you want to run on a regular schedule, and also the name of the command used to manage that list. Crontab stands for “cron table” because it uses the job scheduler cron to execute tasks

Examples of Cron jobs: Scheduling a Job For a Specific Time

The basic usage of cron is to execute a job in a specific time as shown below. This will execute the Full backup shell script (full-backup) on 10th June 08:30 AM.

40. What's The Alternative Command For echo?

While echo is a built-in Shell command, printf is an external command that’s commonly available across different Shells and a good alternative for echo in Linux/UNIX.