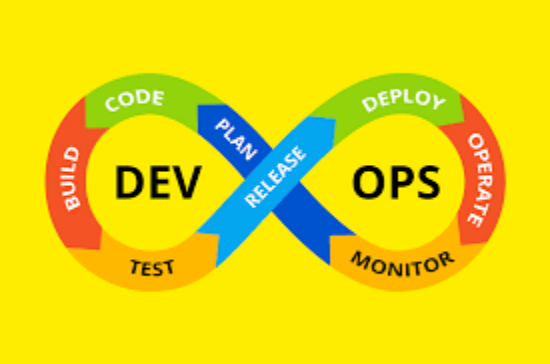
DEVOPS

Abhijit Salunke

Q-1 what is **DEVOPS**?

DevOps is a development strategy that bridges the gap between software development and IT operations.



Q-2 What is difference between JS and JQ?

JavaScript	*jQuery*
JavaScript is a language. It is most popular scripting language on internet which works on all major browsers	jQuery is a framework. It is a fast and concise JavaScript library that simplifies HTML document
If I use JavaScript, you need to write own script which may take time	If I use jQuery you need not to write much scripting which already exists in libraries
JavaScript is a combination of ECMA script and DOM	jQuery has DOM (Document object Model)

Example:
JavaScript ID Selector:
`var $el = document.querySelector('#hello');`
JavaScript Class Selector:
`var $el = document.querySelector('.bye');`
`Function changeBackground(color) {`
`Document.body.style.background = color;}`
`Onload="changeBackground ('red');"`
	Example:
	jQuery ID Selector:
	`var $el = $("#hello");`
	jQuery Class Selector:
	`var $el = $('.bye');`
	`$ ('body') .css ('background', '#ccc');`

Q-3 What is **LINUX**?

- Just like Windows, iOS, and Mac OS, Linux is an operating system.
- In fact, one of the most popular platforms on the planet, Android, is powered by the Linux operating system.
- An operating system is software that manages all of the hardware resources associated with your desktop or laptop.
- To put it simply, the operating system manages the communication between your software and your hardware.

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The Linux operating system comprises several different pieces:

Bootloader – The software that manages the boot process of your computer. For most users, this will simply be a splash screen that pops up and eventually goes away to boot into the operating system.

Kernel – This is the one piece of the whole that is actually called ?Linux?. The kernel is the core of the system and manages the CPU, memory, and peripheral devices. The kernel is the lowest level of the OS.

Q-4 Difference between **Git** and **Github**.

S.No.	Git	GitHub
1.	Git is a software.	GitHub is a service.
2.	Git is a command-line tool	GitHub is a graphical user interface
3.	Git is installed locally on the system	GitHub is hosted on the web
4.	Git is maintained by linux.	GitHub is maintained by microsoft.
5.	Git is focused on version control and code sharing.	GitHub is focused on centralized source code hosting.
6.	Git is a version control system to manage source code history.	GitHub is a hosting service for Git repositories.
7.	Git was first released in 2005.	GitHub was launched in 2008.
8.	Git has no user management feature.	GitHub has built-in user management feature.

Q-5 Git Command?

Q-6 What is **DOCKER**?

Docker is an open platform for developing, shipping, and running applications. Docker enables you to separate your applications from your infrastructure so you can deliver software quickly. With Docker, you can manage your infrastructure in the same ways you manage your applications.

Steps which followed by using DOCKER.

- The developers write code locally and share their work with their colleagues using Docker containers.

- They use Docker to push their applications into a test environment and execute automated and manual tests.
- When developers find bugs, they can fix them in the development environment and redeploy them to the test environment for testing and validation.
- When testing is complete, getting the fix to the customer is as simple as pushing the updated image to the production environment.

Q-7 What is **SERVER**?

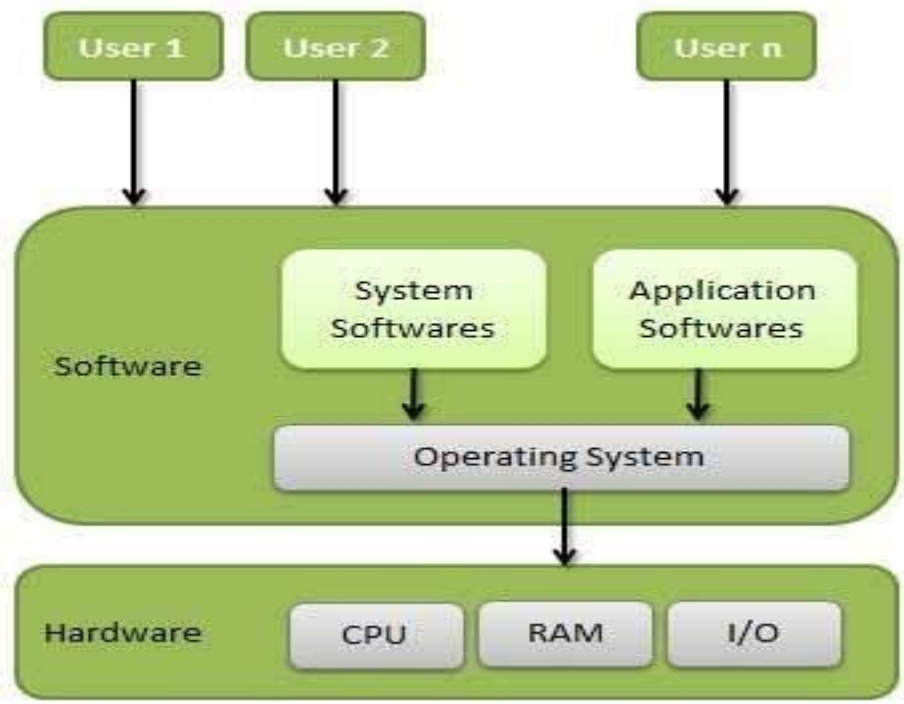
server is a computer program or device that provides a service to another computer program and its user, also known as the client.

- It has higher configuration.
- Server can accept all upcoming requests by client.
- Request is a data exchange from browser(client) to website(server).
- Response is data exchange from website(server) to browser(client).
- Response changes for every request.

Q-8 What is OS?

An Operating System (OS) is an interface between a computer user and computer hardware. An operating system is a software which performs all the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers.

Some popular Operating Systems include Linux Operating System, Windows Operating System, VMS, OS/400, AIX, z/OS, etc.



Q-9 What is **HTML ?**

HTML, or Hypertext Markup Language, is a markup language for the web that defines the structure of web pages.

- HTML Stands for Hyper Text Markup Language.
- HTML is used for developing structure of Webpages.

- HTML file has extension .html/htm
- **Hypertext**: text (often with embeds such as images, too) that is organized in order to connect related items
- **Markup**: a style guide for typesetting anything to be printed in hardcopy or soft copy format
- **Language**: a language that a computer system understands and uses to interpret commands.

HTML determines the structure of web pages. This structure alone is not enough to make a web page look good and interactive. So you'll use assisted technologies such as CSS and JavaScript to make your HTML beautiful and add interactivity, respectively.

In this case, I like to break down the three technologies – HTML, CSS, and JavaScript – this way: they are like a human body.

- HTML is the skeleton,
- CSS is the skin,
- and JavaScript is the circulatory, digestive, and respiratory systems that brings the structure and the skin to life.

You can also look at HTML, CSS, and JavaScript this way: HTML is the structure of a house, CSS is the interior and exterior decor, and JavaScript is the electricity, water system, and many other functional features that make the house liveable.

Q-10 What is **XML**?

XML, in full **extensible markup language**, a document formatting language used for some World Wide Web pages.

- It is one of the markup language.
- It is used to designed to store and transport data.
- It is set of rules for encoding document in format that both human and machine can understand.

Q-11.What is 10g database ?

- The 10g database is designed for enterprise grid computing.
- It is effectively manage information on application.

Q-12 .**Development Tools**?

1.Version Control Git follow the question number 4

2. Build Tool: **Maven**

- Maven is one of the important DevOps tools for building projects.
- It is also designed to manage reporting, documentation, distribution, releases, and dependencies processes. Written in Java language.
- Maven can build and manage projects written in Java or C#, Ruby, Scala, and other languages using project object model (POM) plugins.

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3.Contineous Integration Tool: **Jenkins**

- Jenkins is an integration DevOps tool.
- For continuous integration (CI), Jenkins stands out as it is designed for both internal and plugin extensions.
- Jenkins is an open-source Java-based automation CI server that is supported by multiple operating systems including Windows, macOS, and other Unix OSs.
- Jenkins can also be deployed on cloud-based platforms

4.Configuration Management Tool: **Chef**

- Configuration management (CM) refers to the maintenance and control of the components of large complex systems in a known, consistent, and determined state throughout the DevOps life cycle.

5. Configuration Management Tool: **Puppet**

- Puppet is also open-source and uses declarative programming for system configuration, deployments, and server management DevOps tools.

6.Configuration Management Tool: **Ansible**

- Ansible is an open-source CM DevOps tool that is also used for deployment, automation, and orchestration.

7. Configuration Management Tool: **Docker**

Follow the question number 6

8.Communication and Collaboration Tool: **Slack**

- One of the most popular communication and collaboration tool.
- Whether teams are looking to improve cross-functional collaboration, respond to incidents faster, or simplify complex processes, Slack provides the platform to support it.

What is JIRA used for?

- Jira Software is part of a family of products designed to help teams of all types manage work.
- Originally, Jira was designed as a bug and issue tracker.
- But today, Jira has evolved into a powerful work management tool for all kinds of use cases, from requirements and test case management to agile software development.

JAVA

Q-13.What is **java? OR characteristics of java**?

- Java is general purpose programming language which is used to developed web app, mobile app, desktop app and gaming app etc.
- It is easy to understand.
- It has to high security.
- Java is platform independent.
- Java has oops concept.
- Java is robust – Strong /durable.

Q-14. Why java is **platform independent**?

- A source code which created by using java. It is not directly converted to an native machine language, instead of it is converted into intermediate machine language known as Byte code.
- We can execute the byte code into any platform which has JDK installed (Java Development Kit).

Q-15.What **robust in java**?

- It is capable to handling run-time error.
- Supports automatic garbage collection and exception handling.
- It has strong memory management system.
- It helps to eliminating error and it checks the code during runtime and compile time.

Q-16.Java is not **fully object oriented**?

- Java is not fully object oriented because it's support primitive datatype and wrapper classes ex: byte , short, int , long etc and which are not objects that's why it is not fully object oriented language.

Q-17.OOPS concepts.

1.Encapsulation

2.Inheritance

3.Polymorphism

4.Abstraction

5.Interface

6.Exceptions

7.Collection Frame work

8.Garbage collection.

Q.17.1 What is **encapsulation**?

- The process of binding the states and behaviours of an Object together is called as encapsulation.
- The process of binding the private variables of a class with the public methods of same class is called as encapsulation.

Ex-

```
    Class A
{
   private int a;

}
    Class  Adriver
{
  psvm(String[ ]args)
{
   A obj=new A( );
   Obj.a=20;
System.out.println(a.a);//direct access
 }
}
```

Q.17.2.What is **Data-hiding**?

- The process of restricting the direct access to the data member of a class from the outside, and having a controlled access to them through the methods of same class is known as data-hiding.
- We can achieve data hiding with the help of private keyword.
- Private is a keyword in java.
- If we prefix member with private keyword we cannot access private member from different class.
- But we can access private member within same class.
- We can read the private member the with help of Getter Method( ).
- We can modify the private member the with help of Setter Method( ).

Q.17.3 What is **Difference between static members and non- static members**.

Static members	Non-static members
1. A member which is prefixed with static modifier is called as static member	1. A member which is not prefixed with static modifier is called as non-static member.

2.The memory for static member is allocated inside class static area.	2.The memory for non- static member is allocated inside the heap area or object.
3.We can access the static member A.Directly and B.With the help of class name as reference.	3.We can access non-static members with help of object reference.
4.The memory for static members is allocated only once.	4.The memory for non-static members allocated each time create a new object.
5.Static var, static method and SIB	5.Ns var, Ns methods and constructor

Q.17.3. What is **constructor**?

- Constructor is special NS member whose name is same as the class name.

We have three types of constructor

A. No argument constructor
   No- argument constructor we cannot able to pass any argument.
B. Parameterised constructor
   Parameterised constructor we can pass an argument inside constructor.
C. Default constructor
   If we are not able to create any constructor then compiler will automatically add one constructor is called as default constructor.

Q.17.4.What is **constructor chaining**?

- Construct calling another constructor is called as constructor chaining.
- We can call one constructor from another constructor with the help of 2 statements.
- A.**this( )** : It is used to call one constructor from another constructor of the same class.
- B.**super( )**: It is used to call one constructor from another constructor of the super class.

Q-18.What is **inheritance**?

- Inheritance is the process acquiring the properties and behaviour of its superclass is call as inheritance
- In java we can achieve inheritance with help of two keywords
- (A).**extends** : It is used to achieve the inheritance between 2 classes or 2 or more interfaces.
- (B).**implements** : It is used to achieve inheritance between class and interface.
- **Superclass** : A class is provides members to another class is called as super class.
- **Sub class** : It can acquire data members from another class is called as sub class.
- With help of super class reference we can only use the members of super class.
- With help of sub class reference we can use the members of super class as well as sub class.

We have five types of inheritance

A. **Single level** – Acquiring the properties and behaviours of its superclass is called as single level inheritance.
B. **Multi-level** – Acquiring the properties and behaviours more the single level is called as multilevel inheritance.
C. **Hierarchical** – A superclass consist of more than one subclass is called as Hierarchical inheritance.
D. **Multiple** – A subclass consist of more than one superclass is called as multiple inheritance.
E. **Hybrid** – It is a combination of hierarchical and multiple inheritance.

Q-19.What is **Polymorphism**?

- The process of object exhibiting more than one form.

We have 2 types of polymorphism

A. **Runtime** – Binding the method call statement and method implementation during runtime.
   Ex- Method Overriding, NPTC

B. **Compile time** - Binding the method call statement and method implementation during runtime.
   Ex- Method overloading, constructor overloading.

Difference between method overloading and method overriding.

Method overloading	Method overriding
1.The class consist of more than one method with same name and different argument is call as method overloading.	1.The process of overriding the method implementation of its superclass is called as method overriding.
2.Compile time binding	2.Runtime binding
3.The argument should be different	3. The Same and difference argument both are accepted.
4.It completely depends on the type of object created, and type of reference variable doesn't matter.	4.It completely depends upon the type of reference variable and type of object doesn't matter.

Q-20.What is **Abstraction**?

- It is the process of hiding the implementation is called as abstraction

  Abstract Method();
- The method which is prefix the abstract keyword and terminated with semicolon and doesn't consisting any implementation.

  Abstract class
- If the class is consist at least one abstract method then it is mandatory to prefix class with abstract keyword.
- We can declare more than one abstract method inside the abstract class.

  Concrete Method( )
- The method which consist of implementation is called as concrete method.

  Concrete class
- A class doesn't prefix with abstract keyword and doesn't have any abstract method either declared or inherited is called as concrete class.

Q-21.What is **interface**?

- Interface is a non- primitive user define data type, which is used to achieve 100% abstraction.
- It is blueprint of class.

  It consist of 3 members

  Abstract ns method
- If we try to declare ns method inside the interface, the compiler will automatically convert into abstract ns method.
- Abstract keyword and public modifier is added by the compiler automatically.

  Static concrete method()
- A static method which consist of implementation ,if we declare static method inside the interface the public modifier added by the compiler automatically.

  Static final variable
- If we declare a static variable inside the interface compiler will automatically convert static variable into static final variable.
- Passing the value is mandatory.
- If we declare ns variable compiler will automatically convert into static final variable.

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Q-22.What is **object**?

- Object is a block of memory that is created in heap area during runtime.
- Every object will have a state and behaviour.
- State is represented with the help of variable and behaviour represented with the help of methods.

Q-23.What is **String immutability**?/ Why **String is immutable** in nature.

- A string object once created cannot be modified. If we try to modify a new object will be created.
- String class is final that's why we cannot able to modify the string object once it is created.

Q-24.What is **exception**?

- Exception is an abnormal situation which occurs during the execution of program due to which the execution of program stop abruptly.

How to handle exception?

- We can able to handle exception with help of exception handling mechanism(ECM).
- ECM is nothing but the try and catch block.

There are two types exception.

Checked exception

- The compiler is aware about the exception is called as checked exception.

Unchecked exception

- The compiler is un-aware about the exception is called as checked exception.

Q-25. Can **constructor return** any value in java?

- No, because constructor implicitly returns the reference ID of an object.

Q-26. Can **constructor overridden** in java?

- No , its not possible constructor is looks like a method but name should be as class name and no return value.

Q-27. Can **constructor inherited** in java?

- No, because only class members can inherited and it is not a member of a class but it is member function.

Q-28.What is **copy constructor**?

- A copy constructor in java is a special type of constructor that is used to create a new object using the existing object of a class that we have created previously.

Q-28.Why **main method is static**?

- Java main( ) is always static, so that compiler can call it without creation of an object or before the creation of an object of the class.
- If the java main ( ) is allowed to non static, then while calling the main ( ) method JVM has to be create an object.

Collection Framework

- It is the set of inbuilt classes which is helps to the programmer to store the group objects.
- The collection framework inbuilt classes present inside the java.util.package;

Wrapper class

- The wrapper class is class whose object wraps or contains primitive data type.
- All the wrapper classes are final in java.
- For all the wrapper classes we can create object with the help of new keyword and assignment operator.

Boxing

- The process of converting PDT to object type is called as boxing.

Unboxing

- The process of converting object type PDT is called as unboxing.

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Difference between JDK, JVM and JRM

JDK (Java Development Kit)

- JDK provides required environment to develop, debug and run java program.
- JDK=JRE + Development Tools

JRE (Java Runtime Environment)

- JRE provides required environment to run the java program on specific machine.
- JRE = JVM + Library Classes

JVM (Java Virtual Machine)

- JVM is crucial component which makes the java platform independent.
- JVM accepts Bytecode (.class) file as input And provides Native Machine Code as output specific to the platform.

Garbage Collection (means unreferenced object)

- The process of reclaiming runtime unused memory automatically.

  Advantages

  1. Makes efficient java memory.
  2. Automatic

  ```
  Ex-  A obj1=new A( );
       obj1=null;
     A obj1=new A( );
       obj1=obj2;
  ```

- Garbage collection in Java is the process by which Java programs perform automatic memory management.
- Java programs compile to bytecode that can be run on a Java Virtual Machine, or JVM for short.
- When Java programs run on the JVM, objects are created on the heap, which is a portion of memory dedicated to the program.
- Eventually, some objects will no longer be needed. The garbage collector finds these unused objects and deletes them to free up memory.

Access modifier/specifier

- The access modifiers set the accessibility to classes

Public – The class can accessible by all the classes.
Private – The code is accessible by within the declared class.
Protected – The code is accessible by in the same packages and sub- classes.
Default- The code is accessible by classes in same packages. It is used when we don't specify modifier.

JAVA Packages

- A package is a group of similar classes, interfaces and sub – packages.

  It is categorized in two form

  1. **In-built package – java,lang,util,net,io,sql etc**
  2. **User defined**

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Class Loader

- It is a part of JRE that dynamically loads java classes into JVM.

There are three type of class loader.

1. BOOTSTRAP CLASSLOADER – It is machine code which kickstart the operation when JVM calls it.
2. EXTENSION CLASSLOADER – It is child of bootstrap class loader and loads extension of core java classes from the respective JDK extension library.
3. APPLICATION/SYSTEM CLASSLOADER – It is a child of extension class loader, which is loads the application type classes found in the environment variable.

OBJECT

- It is a block of memory which is created inside the heap area during runtime.
- Every object has a states and behaviour, states is represented by variables and behaviours is represented by method.

What is feature of java?

1. **Simple**
2. **Object oriented**
3. **Platform independent**
4. **Secure**
5. **Robust**
6. **High performance**
7. **Dynamic**
8. **Multithreaded**
9. **Portable**

Is java dynamic language ?why?

- Yes, because its supports the dynamic loading of classes, it means classes are loaded on demand.
- It supports dynamic compilation and automatic garbage collection.

Why java is multithreaded language?

- We can write a java program that can deal with many task at once by defining multiple threads.

Advantages

1. It doesn't occupy the memory for each task.
2. It share common memory areas
3. It is important for multimedia, web application etc.

Why java is high performance language?

- Because java Bytecode is close to native code.

Why java is distributed language?

1. Because it facilated users to create distributed application.

Why java is portable?

Because we can carry java byte code to any platform.

What is object cloning?

The object cloning is a way to create exact copy of an object.
The clone ( ) method of an object class is used to clone an object.

What is marker or tagged interface?
An interface which has no member is known as a marker or tagged interface.

Ex- 1.Serializable 2.Clonable
It is used to provide some important information to JVM, so it will perform some useful operation.

How many types of memory areas are allocated by JVM?

1.Class method area 2.Heap area 3. Stack area 4.Program Counter registers area. 5.Native method area.

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Some most imp question.

1. Diff between final, finally and finalize( )
2. Diff between catch and finally.
3. Diff between super and supper( ).
4. Diff between this and this( ).
5. Diff between throw and throws.
6. Diff between Array and collection
7. Diff between Constructor and method.
8. Diff between Static block and non static block
9. Diff between class, abstraction and interface.
10. Diff between while loop, do while and for loop.
11. Diff between for loop and advance/each for loop
12. Diff between constructor overloading and constructor chaining
13. Real time examples of oops pillars
14. String Constant pool
15. Diff between arraylist, hashset , tree set.
16. Diff between static variable and ns variable
17. Diff between static method and ns method.