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Java Interview Questions for Freshers

Topics : Java Interview Questions
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1. Question: What is Java?

Answer: Java is a high-level, object-oriented programming language developed by Sun Microsystems. It is designed to be platform-independent, making it possible to write code that can run on any device that supports Java.

2. Question: Differentiate between JDK, JRE, and JVM.

Answer:

- **JDK (Java Development Kit):** It includes the entire software development kit needed to develop Java applications, including the JRE, an interpreter/loader (Java), a compiler (javac), an archiver (jar), a documentation generator (Javadoc), and other tools needed for Java development.

- **JRE (Java Runtime Environment):** It provides the runtime environment for executing Java applications. It includes the JVM, libraries, and other components needed for running Java applications.

- **JVM (Java Virtual Machine):** It is an abstract machine that provides a runtime environment for executing Java bytecode. It is responsible for translating bytecode into machine-specific code and executing it.

3. Question: Explain the main features of Java.

Answer:

- **Platform Independence:** Java code can run on any device that has the Java Virtual Machine (JVM).
- **Object-Oriented:** Java is designed around the concept of objects and classes.
- **Simple:** Java has a simple syntax that is easy to learn and understand.
- **Secure:** Java implements various security features to protect against viruses and other security threats.
- **Distributed:** Java supports the development of distributed applications with the use of RMI (Remote Method Invocation).
- **Multithreading:** Java supports multithreading, allowing the execution of multiple threads

simultaneously.

4. Question: What is the difference between == and `equals` method in Java?

Answer:

- **==:** It is used for reference comparison. It checks if two references point to the same memory location.

- **`equals()`:** It is a method defined in the `Object` class and can be overridden for object comparison. It checks if the contents of two objects are equal.

5. Question: What is the Java Collections Framework?

Answer: The Java Collections Framework is a set of classes and interfaces in Java for representing and manipulating collections of objects. It provides useful implementations like List, Set, Queue, and Map, along with algorithms for performing operations on these collections.

6. Question: What is the difference between an interface and an abstract class in Java?

Answer:

- **Interface:** All methods in an interface are public and abstract by default. It allows multiple inheritance as a class can implement multiple interfaces.

- **Abstract Class:** An abstract class can have abstract and non-abstract methods. It can have access modifiers for the subs, i.e., public, private, protected.

7. Question: What is the difference between `ArrayList` and `LinkedList` in Java?

Answer:

- **ArrayList:** It uses a dynamic array to store elements and provides fast random access. Insertions and deletions are slower as elements need to be shifted.

- **LinkedList:** It uses a doubly-linked list to store elements and provides fast insertion and deletion operations. Random access is slower as it requires traversal from the head or tail.

8. Question: What is the `static` keyword in Java?

Answer: The `static` keyword in Java is used to create class-level variables and methods. These belong to the class rather than instances of the class. `static` members can be accessed without creating an instance of the class.

9. Question: Explain the `final` keyword in Java.

Answer: The `final` keyword in Java is used to restrict the user. It can be applied to a class, method, or variable.

- If a class is declared as final, it cannot be extended.
- If a method is declared as final, it cannot be overridden by subclasses.
- If a variable is declared as final, its value cannot be changed after initialization.

10. Question: What is the `try-catch` block in Java?

Answer: The `try-catch` block is used for exception handling in Java. The code that might throw an exception is enclosed in the `try` block, and the code to handle the exception is written in the `catch` block.

11. Question: Explain the `public static void main(String[] args)` method in Java.

Answer:

- `public`: Access modifier, indicating that the method is accessible from anywhere.
- `static`: The method belongs to the class and not to instances of the class.
- `void`: The method does not return any value.
- `main`: The name of the method.
- `String[] args`: Command-line arguments passed to the program.

12. Question: What is the purpose of the `this` keyword in Java?

Answer: The `this` keyword is used to refer to the current instance of the class. It is often used to distinguish instance variables from local variables when they have the same name.

```
 class Example { private int x; void setX(int x) { this.x = x; // "this"
refers to the instance variable } }
```

13. Question: What is the difference between `public`, `private`, `protected`, and default access modifiers in Java?

Answer:

- `public`: Accessible from any class.
- `private`: Accessible only within the class.
- `protected`: Accessible within the same package and subclasses.
- Default (no modifier): Accessible within the same package.

14. Question: How do you achieve multiple inheritance in Java?

Answer: Java does not support multiple inheritance through classes (i.e., inheriting from more than one class). However, it supports multiple inheritance through interfaces, as a class can implement multiple interfaces.

15. Question: What is the purpose of the `super` keyword in Java?

Answer: The `super` keyword is used to refer to the immediate parent class object. It is used to call

the parent class methods, access parent class fields, and invoke the parent class constructor.

```
class Parent { void display() { System.out.println("Parent class"); } }
class Child extends Parent { void display() { super.display(); // Calling the
parent class method System.out.println("Child class"); } }
```

16. Question: What is the difference between `StringBuilder` and `StringBuffer` classes?

Answer:

- Both classes are used to manipulate strings.
- `StringBuilder` is not synchronized (not thread-safe), while `StringBuffer` is synchronized (thread-safe).
- In general, use `StringBuilder` when synchronization is not required for better performance.

17. Question: What is the purpose of the `final` keyword in Java?

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- If a method is declared as `final`, it cannot be overridden by subclasses.
- If a variable is declared as `final`, its value cannot be changed after initialization.

18. Question: How do you handle exceptions in Java?

Answer: Exceptions in Java can be handled using the `try`, `catch`, and `finally` blocks. Code that may throw an exception is placed in the `try` block, and if an exception is thrown, it is caught in the `catch` block.

```
try { // Code that may throw an exception } catch (Exception e) { // Handle
the exception } finally { // Code that always runs, regardless of whether an
exception was thrown }
```

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