**CORE JAVA**

**Multithreading and Concurrency**

* Synchronized keyword can be used for instance method, static method, block in those two methods
* Volatile variables are used maintain only in main memory not in CPU cache
* Use of volatile keyword can cause performance issue since direct memory read costlier than CPU cache read
* Volatile will not guarantee atomicity if two thread write on the same variable which is known as **visibility problem,** to avoid it we need to use synchronization key
* ThreadLocal variables will not be shared between threads. It has to be created in Runnable interface
* To Set the default value in thread local, initialValue method has to be overridden
* After a thread notify another thread, the 2nd thread will not leave wait method immediately, unless it acquired lock on the object, this is the reason for notifyAll method not causing any problem
* **Spurious Wakeups**means a thread woke up from sleeping state without receiving any call from other thread, to avoid it, isLocked instance variable checked in while loop before switch the thread to running state
* These thread signaling methods are used for sharing blocks for different thread of same object
* Missing signal issue and handling way. Use an object level Boolean parameter which can check before wait, notify and notifyAll call. This parameter should be **set and off**w.r.t specific method call
* **Reentrance**is concept of thread entering second synchronized block without exiting the first block. This may cause many problem even deadlock

### What is difference between JDK,JRE and JVM?

### How many types of memory areas are allocated by JVM?

### What is JIT compiler?

### What is platform?

### What gives Java its 'write once and run anywhere' nature?

### What is classloader?

### Is Empty .java file name a valid source file name?

### Is delete,next,main,exit or null keyword in java?

### If I don't provide any arguments on the command line, then the String array of Main method will be empty or null?

### What if I write static public void instead of public static void?

### What is the default value of the local variables?

### What is difference between object oriented programming language and object based programming language?

### What will be the initial value of an object reference which is defined as an instance variable?

### What is constructor?

### What is the purpose of default constructor?

### Does constructor return any value?

### Is constructor inherited?

### Can you make a constructor final?

### What is static variable?

### What is static method?

### Why main method is static?

### What is static block?

### Can we execute a program without main() method?

### What if the static modifier is removed from the signature of the main method?

### What is difference between static (class) method and instance method?

### What is this in java?

### What is Inheritance?

### Which class is the superclass for every class.

### Why multiple inheritance is not supported in java?

### What is composition?

### What is difference between aggregation and composition?

### Why Java does not support pointers?

### What is super in java?

### Can you use this() and super() both in a constructor?

### What is object cloning?

### What is method overloading?

### Why method overloading is not possible by changing the return type in java?

### Can we overload main() method?

### What is method overriding:

### Can we override static method?

### Why we cannot override static method?

### Can we override the overloaded method?

### Difference between method Overloading and Overriding.

### Can you have virtual functions in Java?

### What is covariant return type?

### What is final variable?

### What is final method?

### What is final class?

### What is blank final variable?

### Can we intialize blank final variable?

### Can you declare the main method as final?

### What is Runtime Polymorphism?

### Can you achieve Runtime Polymorphism by data members?

### What is the difference between static binding and dynamic binding?

### What is abstraction?

### What is the difference between abstraction and encapsulation?

### What is abstract class?

### Can there be any abstract method without abstract class?

### Can you use abstract and final both with a method?

### Is it possible to instantiate the abstract class?

### What is interface?

### Can you declare an interface method static?

### Can an Interface be final?

### What is marker interface?

### What is difference between abstract class and interface?

### Can we define private and protected modifiers for variables in interfaces?

### When can an object reference be cast to an interface reference?

### What is package?

### Do I need to import java.lang package any time? Why ?

### Can I import same package/class twice? Will the JVM load the package twice at runtime?

### What is static import ?

### What is Exception Handling?

### What is difference between Checked Exception and Unchecked Exception?

### What is the base class for Error and Exception?

### Is it necessary that each try block must be followed by a catch block?

### What is finally block?

### Can finally block be used without catch?

### Is there any case when finally will not be executed?

### What is difference between throw and throws?

### Can an exception be rethrown?

### Can subclass overriding method declare an exception if parent class method doesn't throw an exception ?

### What is exception propagation ?

### What is the meaning of immutable in terms of String?

### Why string objects are immutable in java?

### How many ways we can create the string object?

### Why java uses the concept of string literal?

### How many objects will be created in the following code?

1. String s = **new** String("Welcome");

### What is the basic difference between string and stringbuffer object?

### What is the difference between StringBuffer and StringBuilder ?

### How can we create immutable class in java ?

### What is the purpose of toString() method in java ?

### What is nested class?

### Is there any difference between nested classes and inner classes?

### Can we access the non-final local variable, inside the local inner class?

### What is nested interface ?

### Can a class have an interface?

### Can an Interface have a class?

### What is Garbage Collection?

### What is gc()?

### What is the purpose of finalize() method?

### Can an unrefrenced objects be refrenced again?

### What kind of thread is the Garbage collector thread?

### What is difference between final, finally and finalize?

### What is the purpose of the Runtime class?

### How will you invoke any external process in Java?

### What is serialization?

### What is Deserialization?

### What is transient keyword?

### What is Externalizable?

### What is the difference between Serializalble and Externalizable interface?

### How do I convert a numeric IP address like 192.18.97.39 into a hostname like java.sun.com?

### What is reflection?

### Can you access the private method from outside the class?

### What are wrapper classes?

### What is a native method?

### What is the purpose of the System class?

### What comes to mind when someone mentions a shallow copy in Java?

### What is singleton class?

### What is Locale?

### How will you load a specific locale?

### What is multithreading?

### What is thread?

### What is the difference between preemptive scheduling and time slicing?

### What does join() method?

### What is difference between wait() and sleep() method?

### Is it possible to start a thread twice?

### Can we call the run() method instead of start()?

### What about the daemon threads?

### Can we make the user thread as daemon thread if thread is started?

### What is shutdown hook?

### When should we interrupt a thread?

### What is synchronization?

### What is the purpose of Synchronized block?

### Can Java object be locked down for exclusive use by a given thread?

### What is static synchronization?

### What is the difference between notify() and notifyAll()?

### What is deadlock?

Can a constructor can be overridden

Can a constructor marked as final

Diff bet thread and runnable