



Java Multithreading Interview Questions

Multithreading and Synchronization is considered as the typical chapter in java programming. In game development company, multithreading related interview questions are asked mostly. A list of frequently asked java multithreading interview questions are given below.

1) What is multithreading?

Multithreading is a process of executing multiple threads simultaneously. Its main advantage is:

- Threads share the same address space.
- Thread is lightweight.
- Cost of communication between process is low.

more details...

2) What is thread?

A thread is a lightweight subprocess. It is a separate path of execution. It is called separate path of execution because each thread runs in a separate stack frame.

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3) What is the difference between preemptive scheduling and time slicing?

Under preemptive scheduling, the highest priority task executes until it enters the waiting or dead states or a higher priority task comes into existence. Under time slicing, a task executes for a predefined slice of

time and then reenters the pool of ready tasks. The scheduler then determines which task should execute next, based on priority and other factors.

4) What does join() method?

The join() method waits for a thread to die. In other words, it causes the currently running threads to stop executing until the thread it joins with completes its task.

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

wait()	sleep()
1) The wait() method is defined in Object class.	The sleep() method is defined in Thread class.
2) wait() method releases the lock.	The sleep() method doesn't releases the lock.



6) Is it possible to start a thread twice?

No, there is no possibility to start a thread twice. If we do, it throws an exception.

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

yes, but it will not work as a thread rather it will work as a normal object so there will not be context-switching between the threads.

more details...

8) What about the daemon threads?

The daemon threads are basically the low priority threads that provides the background support to the user threads. It provides services to the user threads.

more details...

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

No, if you do so, it will throw `IllegalThreadStateException`

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10) What is shutdown hook?

The shutdown hook is basically a thread i.e. invoked implicitly before JVM shuts down. So we can use it to perform clean up resource.

more details...

11) When should we interrupt a thread?

We should interrupt a thread if we want to break out the sleep or wait state of a thread.

more details...

12) What is synchronization?

Synchronization is the capability to control the access of multiple threads to any shared resource. It is used:

1. To prevent thread interference.
2. To prevent consistency problem.

more details...

13) What is the purpose of Synchronized block?

- Synchronized block is used to lock an object for any shared resource.
- Scope of synchronized block is smaller than the method.

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

Yes. You can lock an object by putting it in a "synchronized" block. The locked object is inaccessible to any thread other than the one that explicitly claimed it.

15) What is static synchronization?

If you make any static method as synchronized, the lock will be on the class not on object. more details...

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

The notify() is used to unblock one waiting thread whereas notifyAll() method is used to unblock all the threads in waiting state.

17) What is deadlock?

Deadlock is a situation when two threads are waiting on each other to release a resource. Each thread waiting for a resource which is held by the other waiting thread.

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